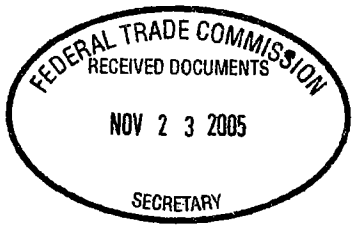
UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES
WASHINGTON, D.C.



In the Matter of

BASIC RESEARCH, LLC
A.G. WATERHOUSE, LLC
KLEIN-BECKER USA, LLC
NUTRASPORT, LLC
SOVAGE DERMALOGIC LABORATORIES, LLC
BAN LLC d/b/a BASIC RESEARCH LLC
OLD BASIC RESEARCH, LLC
BASIC RESEARCH, A.G. WATERHOUSE,
KLEIN-BECKER USA, NUTRA SPORT, and
SOVAGE DERMALOGIC LABORATORIES
DENNIS GAY
DANIEL B. MOWREY d/b/a AMERICAN
PHYTOTHERAPY RESEARCH
LABORATORY, and
MITCHELL K. FRIEDLANDER,
Respondents.

PUBLIC

Docket No. 9318

RESPONDENTS' MOTION TO EXCLUDE COMPLAINT COUNSEL WITNESS HEYMSFIELD OR, IN THE ALTERNATIVE, TO LIMIT HIS TESTIMONY[1]

All Respondents, by counsel and pursuant to Rule 3.22, hereby move the Presiding Officer to exclude complaint counsel witness Steven B. Heymsfield, M.D., based on his failure to satisfy the requirements of FTC Rule 3.31, Federal Rule of Evidence 702, and the Daubert standard, Daubert v. Merrell Dow Pharmaceuticals, Inc.,

[1] This Motion is being filed in conformity with the Second Revised Scheduling Order issued on August 4, 2005, as modified by the November 21, 2005, extension, requiring that objections to witness lists be filed on November 23, 2005.

[2] In their Final List of Proposed Witnesses, Complaint Counsel state that Dr. Heymsfield shall testify "about obesity and the scientific evidence regarding weight loss or fat loss claims made with respect to Leptoprin, Anorex, or PediaLean, the scientific bases for his conclusions, and any related topics." Id. at 9. This motion to exclude is submitted as Respondents' objection to that identification in accordance with the Second Revised Scheduling Order. In addition to the reasons stated herein, Respondents further object to Dr. Heymsfield's identification to the extent that his testimony goes beyond that of his expert report and rebuttal report.

113 S.Ct. 2786 (1993).[2] The facts reveal that Dr. Heymsfield lacks scientific knowledge in specific and critical areas that he would need to possess to deliver an evaluation of the scientific literature upon which he attempts to opine. Further, he impermissibly bases his opinions on subjective belief and unsupported speculation. Moreover, he is currently employed by Merck to develop weight loss products, an inherent conflict of interest that taints his testimony against Respondent companies which have sold and currently sell products that are leading weight loss products. In the absence of scientific knowledge in the specific and critical areas, Dr. Heymsfield's opinions are devoid of empirical grounds, and are heavily tainted by his bias, which renders them unreliable. If his testimony is not deemed inadmissible under Fed. R. Evid. 702 and the standard in Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S.Ct. 2786 (1993) (which rules FTC regards as persuasive, see In re Herbert R. Gibson, Jr., 1978 FTC LEXIS 375, at *2, n.1 (May 3, 1978)(attached as Exhibit E), the legitimacy of the Commission's positions will lack the requisite level of reliability. Respondents request a Daubert hearing on this motion.

I. THE FACTS

A. Background

FTC filed this action against Respondents to allege that the advertisements attached to the Complaint as exhibits A-L for the products Leptoprin, Anorex, Cutting Gel, Tummy Flattening Gel, Dermalin-AG, and PediaLean were – in the view of commission staff – unfair or deceptive acts or practices, and the making of false advertisements, in or affecting commerce in violation of Sections 5(a) and 12 of the Federal Trade Commission Act (FTCA). Leptoprin and Anorex were a combination of

ephedrine, caffeine, and aspirin sold in a pill form to facilitate general weight loss for persons considered overweight. Id. Cutting Gel, Tummy Flattening Gel, and Dermalin APg were topical gels containing aminophylline sold to facilitate weight loss in targeted areas where the product was applied. Id. Pedialean was a fiber-containing product sold in a pill form to facilitate general weight loss in overweight children. Id.

B. Testimony of Steven B. Heymsfield

At his deposition, Dr. Heymsfield admitted he is not a statistician. Exhibit A at 227. [Q: "And what are those other ways of managing the potential bias?" A: "There are a number of ways. One is called analysis of variance. I am not a statistician, so I can't tell you."] He admitted he is not an expert in statistical analysis. Exhibit B at 462. [Q: "How about, are you an expert in the statistical analysis of clinical trials?" A: "No. That doesn't mean I don't know something about it, but I'm just distinguishing between myself and what I consider a person who is an expert."] He admitted he is not a biostatistician. Id. at 462. [A: "No. I mean, there are people who are biostatisticians, and I'm not one of them, so I consider them experts."] Dr. Heymsfield testified that a power calculation was necessary before beginning a weight loss study to determine sample size, the number of subjects needed. Exhibit C at 537. [A: "So before you begin the study you do what's called a power calculation and you make a hypothesis about the amount of weight loss you expect over a certain period of time, and then you then determine what's called the sample size, the number of subjects you need."] He testified he is not an expert in conducting power studies and determining the number of study participants needed. Exhibit C at 537, 538. [Q: "All right. Now, do you profess expertise in doing power studies and determining how many patients you need based on the goal?" A: "That is the

job of a statistician, to do the power calculation. I mean – well, I wouldn't do it. I'll go there. Sometimes statistician – non-statisticians can do power calculations." Q: "You are not one of them?" A: "I'm not one of those people who would do that, no."] [Q: "The short answer to my question is you don't claim a particular expertise in doing power calculations?" A: "No. I only claim an expertise to know that I wouldn't do a study without a power calculation."] He testified that performing a power calculation is the job of a statistician. Id. at 537. [A: "That is the job of a statistician to do the power calculation."] He testified that to determine whether a power calculation was made correctly he would have to consult to a statistician or a biostatistician to obtain an analysis of it. Id. at 538-539. [Q: "All right, correct. So if you wanted to know if there was a proper power calculation in a particular study you would go to a biostatistician and have them make that analysis for you?" A: "I would – let's see. I think you are asking me something a little different." [...] Q: "I'm trying to finish in this area. I take it that if you were looking at a particular study and you wanted to know if they did a correct power calculation, as you referred to it, you would go to a statistician or a biostatistician and have them analyze it to see if it was correct?" A: "Yes, because in properly designed trials the report will give you the power and the hypothesis in the trial design. [...]." He testified that he did not request any biostatistician look at the Daly study to determine if it had a proper power calculation. Id. at 540-541. [Q: "I appreciate that but you, from your experience as you've told us, you've been candid with us that even if the paper doesn't have a power calculation reported that's something you can access by calling the author or the publication to find out what it was, fair?" [Objection excerpted]. A: "You could if you wanted, yes, that's not impossible." Q: "Right. If you are interested enough to see if

they had a proper power calculation that's something you could do?" A: "You could do that." Q: "And my question to you is, do you know if you did that with regard to the Daly study?" [Objection excerpted.] "A: "I know that I didn't do it, yes."] He testified that he did not recall a power calculation published in the Daly study. Id. at 540. [A: "Well, if I recall correctly, and I don't have the Daly paper in front of me, there was no power calculation in the Daly study."] Concerning the studies he reviewed in this case, Dr. Heymsfield testified that he did not contact the authors to obtain any detail with regard to the power calculation. Id. at 551. [Q: "Fair enough. With regard to any of those studies, did you contact the authors and gain any detail with regard to the power calculation?" [Objection excerpted.] A: "No. No, I didn't contact the authors."]

Dr. Heymsfield admitted his knowledge and area of expertise does not concern the positioning of products in the marketplace. Exhibit A at 26. [Q: "But you are involved in positioning products." A: "Well, it's not my job. I'm involved in product development and research."] He admitted he is not an expert on advertising. Id. at 166. [Q: "Let me ask the question this way, Dr. Heymsfield. In preparing your expert opinion in this case, did you review the ads that are being challenged by the Federal Trade Commission and make your own determination as to what those ads mean? A: "I am not an expert on advertising, and I don't think that I've used those ads in any way in arriving at any opinion I have."] He admitted he is not an expert on "meaning" (concerning the challenged ads). Id. at 167. [Q: "[...] And if the ads have a different meaning than the meaning which is alleged in the complaint, would that affect the opinions that you've rendered in this case? [Objection excerpted.] A: "I am not an expert on meaning, and it's not my – I think it's an interesting question, but it's not something that I could profess,

say, a level of expertise where I could answer you."] He admitted he is not a marketing expert. Id. [Q: "I take it it would be fair to say you're not a marketing expert." A: "That's fair to say."] Dr. Heymsfield testified that as an author he is not responsible "necessarily for reading [an article] entirely." Id. at 643. [A: "You said "entirety" this time, but you didn't say "entirety" last time and so "entirety" is very specific. So it's possible, yes, that an article was written with my name on it, that I didn't read entirely because I'm fairly focused and I would have contributed and read the sections that were assigned to me."]

His admissions alone, should disqualify him as a matter of common sense, irrespective of Daubert standards. Even so, Dr. Heymsfield could not identify experts in the field of dietary supplements and weight loss. Exhibit C at 653-4. [Q: "Now, can you name for me specifically those individuals you consider expert in the study of weight loss and dietary supplements?" [Objections excerpted.] A: "What I would do for that is there's an office at the NIH that deals with dietary supplements and that office, and I', not sure the exact name of it, but that office funds grants in the area, peer review grants, in nthe area of dietary supplements, and you can go on the NIH website. [...] You could go there and that would be a good place to start."] Dr. Heymsfield stated he never has "privilege to the raw data" concerning any of the papers he reviews. Exhibit B at 419-420. [Q: Would you actually review the data to see whether the conclusion that was drawn is correct?" [Objection excerpted.] A: "I am never privileged to the raw data, is that what you are referring to, in any paper that I review."] He stated he cannot think of any situation where he would serve as a reviewer and actually check the raw data that went into the study. Exhibit B at 420. [Q: "When you review a paper you never check – is it your testimony or maybe I don't understand, is it your testimony that you never check the

raw data to substantiate a conclusion or a statement made in any paper that you review?" [Objection excerpted.] A: "I can't think of any situation where I would serve as a reviewer in which I would actually check the raw data that went into the results or the conclusion of this study, that would be very extraordinary."] Dr. Heymsfield testified he had not researched the published literature to determine if there were written criticisms of the studies that he cited in his expert report. Exhibit C at 551-552. [Q: "Are you aware of any written criticism of the studies that you cite by name in your expert report, other than your expert report?" [Objection excerpted.] A: "Well, "written" you mean published written?" Q: "No. I use the term "written" advisedly, whether published or not." [Objection excerpted.] A: "I have not specifically reviewed the literature, if that's the right word to answer that question, no. I haven't done that, so I don't know the answer to it."] He admitted he had not previously written a criticism of the studies he cited and criticized in his expert report. Exhibit C at 552-553. [Q: "All right. So the answer is this is the only time that you've written a criticism of these reports that as you sit here you know of, fair?" A: "Well, it's the only time I've published or published – that is – we consider this a written criticism of these studies. Yes, that's the only time I'm aware of it, but then, again, I haven't really tried to answer that question."] Dr. Heymsfield testified that he did not distinguish between a drug and a dietary supplement in his analysis for this case. Id. at 546. [Q: "[...] did you look at the standard for "competent and reliable" as any different than if you were looking at a drug, for example?" [Objection excerpted.] A: "I didn't distinguish between a drug and a dietary supplement. I only answered the questions that were asked to me by the Federal Trade Commission about the efficacy as we discussed it before. And whether or not something's a drug or

dietary supplement really wasn't the nature of the question, and how things are regulated and so on."

Dr. Heymsfield admitted he did not read the Allison study that was sent to him. Exhibit A at 154. [In reference to a study conducted by Dr. Allison, titled: "A Randomized Double Line Placebo Controlled Clinical Trial of a Product Containing Ephedrine, Caffeine and Other Ingredients From Herbal Sources for Treatment of Overweight and Obesity in the Absence of Lifestyle Treatment." Q: "Have you previously read this study?" A: "No, I haven't. I just told you he sent it to me, but I wouldn't normally read it."] Dr. Heymsfield admitted he did not call anyone to obtain more information on the published Colker abstract. Id. at 56. [Q: "Again, now I am talking specifically about the abstract of the ECA study." A: "That's Colker; isn't that right? Is the first author on that one? I'm not sure. But no, I don't believe I called anybody on that paper. If I did, I can't recall."] He admitted he did not talk to anyone about the material or evidence used in the Livieri study (for cross-verification purposes). Id. at 57-58. [Q: "Have you spoken to Dr. Livieri concerning that study?" A: "No." Q: "Have you spoken with any of the other investigators who are involved in that study?" A: "No. They're in Italy, of course."] He admitted he does not know whether the RAND studies contained salicin (as opposed to aspirin). Id. at 119. [Q: "But the RAND Report involved an analysis of studies that involved salicin, correct?" [Objection excerpted.] A: "I don't know. I don't know the answer to that. And I also – yeah, I will leave it at that."] He claimed he has not been asked to review the biology of willow bark or salicin ("the questions you're asking me are really outside the frame of what I was asked specifically to comment on"). Id. at 138. [A: "[...] The second thing is that in terms of

willow bark and salicin and the issue of aspirin, the review that I've done has focused on a product that contains aspirin. Aspirin. The chemical, the drug aspirin. And I have not reviewed, I have not been asked specifically to review the biology of willow bark or salicin. And so the questions you're asking me are really outside the frame of what I was asked specifically to comment on."] He admitted he has a "very limited understanding" of the biology of willow bark ("outside the area of [his] expertise"). Exhibit A at 144-45. [Q: "And that was the testimony you offered during the Cytodyne litigation, correct?" A: "That was my understanding of it, but you should know that a world authority pharmacologist testified at that trial specifically on the metabolism of willow bark and I was not asked to be an expert on that question. And I have already told you my limited understanding or at least knowledge of the biology of that dietary supplement, willow bark. It's really outside the area of my expertise."] He admitted he does not know what the RAND Report relied on in its conclusions because he was not there (does not know what discussions or analysis took place). Exhibit B at 381. [Q: "And as you sit here, you can't tell me what they use – what they base their conclusions on? [Objection excerpted.] A: "I can tell you their conclusions, but I can't tell you how they, you know, I know what the raw material is and I know what the conclusions are, but I can't tell you everything they base their conclusions on. I wasn't there. So, you know, I can't, you know, agree with the way you've asked me and say yes or whatever."] Although he was a reviewer of the RAND Report, he admits he did not review any individual case report files or articles (despite the fact that they were available to him). Id. at 418. [Q: "And do you make those comments without reviewing any of the underlying substantiation?" [Objection excerpted.] A: "I, of course, could review any of the articles they cited because they give

the reference, if I wanted, but I don't review any of the individual case report files or anything like that, no. I wasn't asked to do that."] He stated the Boozer study on the Metabolife product, on which he is a co-author, is a competent study done with acceptable scientific criteria. Exhibit A at 169-170. He stated he is not an author or reviewer of the second Boozer study (that he was merely acknowledged in it) on another ephedra product. Id. at 169. [Q: "What about the other study that you were – of an ephedra product that you were involved with with Dr. Boozer? Was that also a competent scientific study?" [Objection excerpted.] A: "Keep in mind that I am not an author on that paper. I was acknowledged on that paper. I am not an author and I didn't review that paper for publication."] He stated he did not agree with the conclusions of that paper. Id. at 171. [Q: "Do you consider that second study to be a reliable study? (in reference to the second study with Dr. Boozer on an ephedra based product). [Objections excerpted.] A: "I can only tell you that I had misgivings about the content of that paper, and that's why I am not an author on that paper. Because I didn't agree with the conclusions of the paper."] He stated he disagreed scientifically about the risks of ephedra, with Dr. Boozer, creating tremendous stress between the two of them and that was a reason he did not appear as an author. Id. at 174-5. [Q: "What were your other rationales for not waiting to be an author on that study?" "[...] One is, the biggest one is that Dr. Boozer and I disagreed scientifically about the risks of ephedra and that's on the public record, but it emerged during this conduct of that trial and her statements in that paper disagree sharply with my own opinion about ephedra. So I could no longer be – in terms of my own ethics I couldn't be an investigator with her."] He also stated he received personal threats on him and his family leading him to be anxious about his

continued relationship with that company. Id. at 175. [A: "Second, it occurred at a time of tremendous stress between Dr. Boozer and I and there were being personal threats made on me and my family by Metabolife that led me to be very anxious about my continued relationship with Dr. Boozer and that company."] He stated there was a mix-up between placebo tablets and the active agents that some professionals including himself judged invalidated the paper and objected to its publication. Id. at 177. [Q: "Can you explain to me what the other reasons were for you not wanting to be an author on that study?" A: "[...] You probably know that there was a mixup between the placebo tablets and the active agents, that Dr. Boozer inadvertently gave subjects placebo, which had an active ingredient in it. And there was a very strong effort to retract that paper from the scientific literature by a number of people." He stated, however, Dr. Boozer defended herself very vigorously. Id. at 178. [A: "On the other hand, Dr. Boozer defended herself very vigorously. So, you know, there's yes and no. So I am not going to weigh in on where I think that would go. I can only tell you that those opinions have been rendered by Dr. – not opinions, but those assertions have been rendered by Dr. Boozer and her detractors."] He stated he was the director of the weight control unit on the Boozer study, where all of the patients were evaluated, but he did not actually evaluate any of them himself. Id. at 175-176. [Q: "When you say you oversaw the clinical part of the study, what do you mean?" A: "I am the director of the weight control unit, or I was, and the patients were evaluated at the weight control unit." Q: "Did you have any direct involvement in their evaluation?" A: "Do you mean did I actually do the physical examinations?" Q: "Correct." A: "No."] He admitted he does not know whether the GAO Report was partially based on adverse event report documentation; claims that that

is "going beyond the context of [his] expertise." Exhibit B at 401. [Q: "Did the GAO, General Accounting Office, also base their opinions in part on adverse event reports?" [Objection excerpted.] A: "You know, now it's going beyond the context of my expertise. I don't really know what the general accounting office does or – but as I said, there's a vast body of published literature on this."] Dr. Heymsfield admitted he is not an expert on the metabolism of the dietary supplement at issue in the Cytodyne case. Exhibit A at 147. [A: "[...] Number two, I was not asked specifically to comment on that in this trial and that I'm not an expert on the metabolism of this particular dietary supplement nor was I asked in this particular case to judge the metabolism of salicin in the human body."] He admitted he does not know whether the weight loss compound being studied in the Daly study was available for OTC use. Id. at 283-284. [Q: "So would it be fair to say that as you sit here today you don't know whether in fact it was an over-the-coutner preparation that was available at the time of that study?" A: "I told you everything I know." Q: "So the answer to my question is no, you don't know?" [Objections excerpted.] A: "No, I don't specifically know that because I know that that combination was not used as a prescription agent in the United States. It may have been used outside the United States." Q: "But you don't know that, do you?" A: "No."

Dr. Heymsfield stated he was not able to define "overweight" because it has no "scientific definition." Id. at 349-350. [A: "'Overweight' has a specific meaning to me as a quantitative meaning. It means a body mass index over 25 and less than 30, but significantly overweight, you know, has non, you know, specific scientific definition. I can tell you as a layman what I would infer, it means very heavy." Q: "'Very heavy' meaning how much?" A: "Well, see, I can't put an answer to that because, you know, as

a scientist I have to answer that and there's not an amount that that 'significantly overweight' defines."] He stated there is no quantitative definition of the term "significantly overweight," so he cannot answer any questions pertaining to that term. Id. at 360. [Q: "How may pounds overweight would somebody have to be for them to be significantly overweight?" A: "I told you there' not an quantitative definition of the term 'significantly overweight,' so I can't answer that."] He admitted the word "substantial" is not a scientific quantitative term. Id. at 365. [A: "I told you that or I may have told you that 'substantial' is not a scientific quantitative term. It confers to a layman or scientific large amount, that's what that would imply. You would have to be a little more specific."]

Dr. Heymsfield testified that he worked for the pharmaceutical company Merck. Exhibit C at 589. [Q: "I appreciate that, I appreciate that. When you – I understand you work for Merck; is that correct?" A: "Yes."] Dr. Heymsfield testified that in his employment for Merck it would be within the scope of his job to design a pill or medicine that would help consumers lose weight irrespective of changes in diet and exercise. Id. at 591. [Q: "Let me ask you this. In your development or attempted development of a pharmaceutical that would assist in the weight loss area, I take it it's your conception that potentially you and your colleagues could design a pill or medicine that someone would take, that would help them lose weight irrespective of changes in diet and exercise, fair?" A: "That's what I do, yes."] He testified that was not an expert on the commercial side of weight control and had no idea "who is competing with who." Id. at 590. [A: "I – I'm not an expert on sort of the commercial side of weight control, so I have no idea who is competing with who. That's something maybe marketing would

be, you know, weight into. But I don't think about things like that."] He could not answer if a weight loss drug he developed for Merck would be competing with dietary supplement products for weight loss. Id. at 590-591. [Q: "Okay. But you've been so active in reviewing dietary supplements in the weight loss area you would – you would be able to reason, I take it, that if Merck came out with a drug that helps you lose weight that it would participate in a similar market to diet supplements, fair?" [Objection excerpted.] A: "I – you know, as a lay person, it's possible, but I can't tell you anything beyond what I just said."] He further testified that he would testify as an expert for the FTC "for free if that was the request." Exhibit A at 61. [Q: "Did the Federal Trade Commission suggest that rate to you or did you suggest that rate to the Federal Trade Commission?" A: "I didn't suggest any rates to the Federal Trade Commission. I would do it for free if that was the request."] He stated that he has a commitment to public service and considers this a public service. Id. [Q: "Why is that?" A: "Why would I do it for free? Because I have a commitment to public service and I do quite a bit of it, and this is a public service."]

Dr. Heymsfield testified that he did not read all of the scientific substantiation offered by Respondents to support their advertising for Pedialean. Exhibit B at 468-469. [Q: "The paper was provided to you as part of the substantiation for the PediaLean product, wasn't it?" [...] "And you didn't review that in connection, that paper by Walsh, in connection with this case?" [Objection excerpted.] A: "Walsh was not reviewed by me in my expert report. [...] I've looked at this paper, but I have not reviewed it in detail for this case." He testified that he was not an expert on the placebo effect. Exhibit C at 497. [Q: "[...] So what I would like you do to if you could, you are talking to a lay person

now, so explain to me when you say 'placebo effect' what you as a scientist are talking about?" A: "Well, I'm not an expert on the placebo effect, so I can't describe to you the nuances of it."] Dr. Heymsfield could not identify any study that has shown that there is a placebo effect for weight control generally and to the three agents at issue. Exhibit C at 492-495 [Q: "Do you know of any study that is shown that in weight control studies there's a placebo effect?" A: "I would have to go back to the literature to find that out..." Q: "Can you point to any research...that support the fact that there is a placebo effect when using any of the agents in question in these proceedings?" A: "Not specifically for these three agents because to answer – answer that is difficult for the reasons I mentioned before. It's not something a scientist would spend their time attempting to answer a question of that nature."] He could not identify a text or authoritative body to find a scientific definition of competent and reliable scientific evidence as he used it in his report. Exhibit C at 526. [A: "I – I – I have an understanding of what 'competent and reliable scientific evidence' is and that's evidenced by my report because what I've done in my report is I've reviewed the papers that I found relevant to the agents here under study. And I found serious weaknesses in those papers that led me to conclude that the evidence, based on those papers, did not provide competent and reliable scientific evidence that supports the claims for these products." Q: "And my question to you is, is there some learned text or some authoritative body of literature that I could go to to determine or to find out a scientific definition of competent and reliable scientific evidence as you are using it in your report?" A: "No, I've just defined it for you in the context of my report."] Dr. Heymsfield stated that he has treated his expert report as a confidential document so he has not shared it with anyone. Id. at 651. [Q: "And in the

course of preparing your expert report in this case, did you submit it to anyone else for peer review or for assessment, as to whether or not the judgments you rendered there are agreeable to other experts in the field?" [Objection excerpted.] A: "Well, I treated this as a confidential document, so I've not shared this with anybody."

C. Report of Steven B. Heymsfield

In his report Dr. Heymsfield acknowledged that as of the date he wrote that report, the month following he would become Executive Director, Clinical Sciences, Merck & Co. Exhibit D at 3. He did not define competent and reliable evidence in his report yet stated that he was charged with determining whether the claims identified in the Complaint for Leptoprin, Anorex, and PediaLean met that standard. Id. at 8; see also Exhibit C at 530.

He cited no authority for the proposition that "the accepted standard now [for establishing safety and effectiveness of various diets] is the randomized double-blind trial in which nether the investigator nor the patient is aware of the treatment and the treatment is selected randomly." Exhibit D at 14. He cites no authority for the proposition that "a very well developed consensus exists on how to analyze randomized clinical trials" including by example "if subjects drop out from the study there are standard procedures on how to manage their results rather than simply drop them from the analysis." Id.

Dr. Heymsfield cites no authority for the proposition that "the amount and chemical makeup of the agents used in [in the Daly study] are therefore known precisely, unlike dietary supplements in which the amounts and chemical components can vary from those stated on the label." Id. at 15-16. He cites no authority for the proposition

that the number of subjects in the Daly study "was far too low in order to derive any meaningful inferences on safety and efficacy." Id. at 17. He cites no authority for the proposition that "perhaps over 100 subjects...would be a reasonable study sample." Id. He cites no authority for the proposition that not considering dropouts in study analysis "is an unacceptable approach as presented in the paper." Id. He states without citation to authority that "randomized controlled trials for weight loss are now usually analyzed by what is referred to as the 'intention to treat' method to avoid 'bias' in the study results." Id. He cites no authority for the proposition that the Daly study cannot be used to establish efficacy beyond the time period of the study portion using randomized methodology. Id.

He cites no authority for the proposition that a study that is not blinded is not acceptable for supporting a drug or herbal product's efficacy. Id. He cites no authority for the proposition that "the failure to consider dropouts is a serious flaw in the analytical approach of this study." Id. He cites no authority for the proposition that "bias in the results can emerge when dropouts are not considered and there are standard accepted procedures for managing data from subjects who fail to complete the full protocol." Id. Finally, he cites no authority for the proposition that in the Vido et al study the authors "fail to appropriately control results for between-group baseline differences in sex and percentage overweight." Id. at 25.

D. Heymsfield Self-Admittedly Is Not Schooled In Statistics

Stephen C. Alder, Professor of Statistics at the University of Utah, finds incompetent a central aspect of Dr. Heymsfield's statistical critique in his attached statement (a copy of Dr. Alder's statement is attached hereto as Exhibit F). Dr. Alder

finds that Dr. Heymsfield's general criticisms as to number of study subjects tested (a power calculation) is flawed because the number of subjects required for safety and efficacy data depends on a variety of factors, including inherent variability. See Exhibit F. Those factors vary from study to study. Moreover, Dr. Alder finds that the number of participants estimated by a power calculation is not actually necessary if the study itself shows statistically significant results. Id. at 4. Dr. Alder further notes that if a study has a large inherent variability, then a larger sample size is required to identify whether the effects are a result of the factor measured or a result of mere chance or an individual's characteristics. Id. at 3. However, if the inherent variability is low, then a smaller number of participants is required to determine statistical significance. Id.

A power calculation is merely an educated guess conducted prior to a study that is useful in assisting the researcher in deciding how many participants to include. Id. at 4. It is an estimate or prediction about what the results of the study will be before it is performed and is irrelevant in analyzing the results of a statistically significant study. Id. at 4. Finally, Dr. Alder finds that Dr. Heymsfield's claim that a sample size is too low when a significant finding is achieved to be flawed, counter to the entire foundation of statistical inference and sample size on the lack of a published power calculation for the studies examined to be misleading.

D. Dr. Heymsfield's Opinion Lacks A Foundation In Analysis Generally Accepted In The Scientific Community

Arne Astrup, M.D., Ph.D., considered one of the leading scientists in the study of ephedrine alkaloids, ephedrine alkaloids plus caffeine, and ephedrine alkaloids, caffeine, and aspirin in combination, concludes that the body of research on ephedrine clearly demonstrates that ephedrine promotes weight loss in persons who are overweight, and

that such weight loss occurs even in the absence of diet and exercise. Exhibit G at 5. According to Dr. Astrup, research on ephedrine further demonstrates that ephedrine's ability to promote weight loss is enhanced when ephedrine is taken in combination with caffeine, and also when taken in combination with caffeine and aspirin. Id.

Dr. Astrup concluded that Leptoprin, when ingested by persons who are significantly overweight (i.e., persons with a BMI of at least 27), will cause a mean weight loss of approximately 11-13 lbs. over a six-month period even without diet and exercise. Id. at 3. Futhermore, Dr. Astrup (contrary to the testimony of Dr. Heymsfield, Exhibit D at 4), finds no set protocol or specific requirements established by the NIH or the FDA as to the methodology which must be used when conducting a weight loss study, or a study of a non-prescription compound to be used for weight loss. Id. at 2. Moreover, he states that neither the NIH nor the FDA mandate that weight loss studies, or all studies of dietary supplements used for weight loss, be double blind, placebo controlled studies. Id.

Also contrary to Dr. Heymfield's assertion Dr. Astrup finds no scientific study which establishes the proposition that there is a placebo effect in weight loss studies. Id. at 3. Dr. Astrup opines that there is no scientifically demonstrated, clinically relevant placebo effect when it comes to weight loss and that a placebo pill which contains purely inactive ingredients will not cause a person to lose weight. Id.

Contrary to Dr. Heymsfield, Dr. Astrup states there is nothing *per se* improper with not using diet and exercise in a weight control study, and the lack of using diet and exercise in a study does not automatically invalidate the study. Id. Indeed, there can be

very valid reasons for not using diet and exercise in a study such as where the purpose is to determine weight loss in the absence of diet and exercise. Id. at 4.

Furthermore, Dr. Astrup (contrary to Dr. Heymsfield) understands co-authors to be responsible for the entire paper, requiring the co-author to read the entire paper and the underlying data before allowing identification as co-author. Id. at 6.

Finally, contrary to Dr. Heymfield's use of the phrase "competent and reliable scientific evidence" in his report, Dr. Astrup states that "competent and reliable scientific evidence" (as defined by the FTC) is not a standard recognized in the scientific community for evaluating clinical studies. Id. at 7.

II. THE LAW

Under FTC Rule 3.31, Federal Rule of Evidence 702, and the Daubert standard, witnesses must be competent to testify as experts. Competence is measured by education, training, and experience in the subject addressed and by the acceptance and reliability of the methodology used for assessment. Under that criteria, Dr. Heymsfield lacks requisite expertise to testify on (1) the statistical significance and comparative weight of any study he has evaluated and (2) the generally accepted scientific view of the credibility and reliability of any study he has evaluated. Federal Rule of Evidence 702 states:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if:
>
> (1) the testimony is based upon sufficient facts or data,

(2) the testimony is the product of reliable principles and methods, and

(3) the witness has applied the principles and methods reliably to the facts of the case.

While the Federal Rules of Evidence are not strictly controlling in FTC courts, they are used as a point of reference in determining evidentiary issues. See, In re Herbert R. Gibson, Jr., 1978 FTC LEXIS 375, at *2, n.1 (Exhibit E)(Federal Rules of Evidence are "persuasive authority" in FTC adjudicative hearings). The party proffering the testimony has the burden of establishing the admissibility of expert testimony and the qualifications of the expert witness by a "preponderance of proof." Meister v. Medical Engineering Corp., 267 F.3d 1123, (D.C.Cir. 2001)(citing Daubert, 509 U.S. at 592 n.10(citing Bourjaily v. U.S., 483 U.S. 171, 175-176 (1987)).

The application of Rule 702 is qualified by the Daubert standard. Under Daubert, two questions must be addressed before proffered expert testimony can be accepted by the trier of fact: (1) whether the expert's testimony is based on 'scientific knowledge,' and (2) whether the testimony 'will assist the trier of fact to understand or determine a fact in issue." 509 U.S. at 592. "'Scientific' implies a grounding in the methods and procedures of science" and "'knowledge' connotes more than subjective belief or unsupported speculation." Id. at 590.

The question before the trial court is whether "this particular expert [has] sufficient specialized knowledge to assist the [trier of fact] 'in deciding the particular issues in the case.'" Kumho Tire Company, Ltd. v. Carmichael, 526 U.S. 137, 156 (1999) (citing 4 J. McLaughlin, Weinstien's Federal Evidence p702.05[1], p. 702-33 (2d ed. 1998)(citations omitted)). "[N]othing in either Daubert or the Federal Rules of

Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert." Id. at 157 (citing Joiner, 522 U.S. at 146). "A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." Joinder, 522 U.S. at 146 (citations omitted). Where there is no indication in the record that other experts in the industry use the methodology of the proffering expert and no articles or papers validate that approach, then exclusion of the expert's testimony is appropriate. Id.

Scientific Knowledge. The first prong requires that the Court focus on "principles and methodology, not on the conclusions that they generate," Daubert at 595, "and thus demands a grounding in the methods and procedures of science, rather than subjective belief or unsupported speculation." Id. at 590; see also Meister v. Medical Engineering Corp., 267 F.3d 1123, 1126 (D.C.Cir. 2001) citing Ambrosini v. Labarraque, 101 F.3d 129, 133 (D.C.Cir. 1996). "In order to qualify as 'scientific knowledge,' an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation – i.e., 'good grounds,' based on what is known." Daubert, 509 U.S. at 590. Under Daubert, courts must still regulate the subjects and theories of expert testimony, and "the word 'knowledge' connotes more than subjective belief or unsupported speculation." Ambrosini, 101 F.3d at 134 citing Joy v. Bell Helicopter Textron, Inc., 999 F.2d 549, 569-570 (D.C.Cir. 1993)(citations omitted).

Four factors are considered in evaluating scientific validity: (1) whether the theory or technique can be and has been tested; (2) whether the theory or technique has been subjected to peer-review and publication; (3) the method's known or potential rate

of error; and (4) whether the theory or technique finds general acceptance in the relevant scientific community. Id. at 593-94; see also Ambrosini, 101 F.3d at 134.

Expert testimony that rests solely on 'subjective belief or unsupported speculation' is not reliable. Daubert, 509 U.S. at 590. The court's inquiry must "focus on the principles and methodology [used] rather than on the conclusions they generate." 509 U.S. at 595. "A court may refuse to admit expert testimony if it concludes that 'there is simply too great an analytical gap between the data and the opinion proffered." Groobert v. President and Directors of Georgetown College, 219 F.Supp. 2d 1 (D.D.C. 2002) citing General Electric v. Joiner, 522 U.S. 136, 146 (1997).

Aiding the trier of fact. The second prong of Daubert primarily concerns relevance. Id. at 591. The court must determine whether the proffered expert testimony is "sufficiently tied to the facts of the case that it will aid the [trier of fact] in resolving a factual dispute." Id.(citation omitted). This factor is also described as "fit," meaning whether the testimony fits the factual dispute. "'Fit' is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes." Ambrosini, 101 F.3d at 134 citing Daubert, at 591.

Conflict of Interest. The testimony of a witness that has a conflict of interest, resulting in a bias or prejudice, is not reliable. "Although not directly covered by a specific rule of evidence, a witness may be impeached by showing that he or she is biased, has an interest in the outcome of the litigation, is prejudiced in some relevant way, or has a motive to testify in a particular way." Behler v. Hanlon, 199 F.R.D. 553, 556 (D.Md. 2001)(citing United States v. Abel, 469 U.S. 45-49-52 (1984)(permitting bias impeachment despite no rule of evidence specifically allowing it); Still v. Kmart Corp.,

865 F.2d 255 (4th Cir. 1988)(unpublished opinion)(allowing extrinsic evidence of bias to impeach a witness that denied existence of facts showing bias during examination); (citations omitted)). Recognized relationships that permit a finding of bias or prejudice include a business relationship and payment by a party such as that made to an expert witness. Behler, 199 F.R.D. at 557 (citing I Michael Graham, Handbook of Federal Evidence at § 607.7 (4th. Ed. 1996)).

In determining whether to disqualify an expert based on a prior relationship with a party, courts will consider the competing policy objectives inherent in disqualifying experts. Cordy v. The Sherwin-Williams Co., 156 F.R.D. 575 (D.N.J. 1994)(citing English Feedlot Inc., Norden Laboratories, Inc., 833 F.Supp. 1498, 1502 (D.Col. 1993), Paul v. Rawlings Sporting Goods Co., 123 F.R.D. 271, 281-282 (S.D. Ohio 1988)). The interest in the expert to pursue a trade is balanced against any prejudice that might occur if an expert is not disqualified.

Access to confidential information and an objectively reasonable confidential relationship are two factors that weigh in favor of disqualification of an expert in furtherance of public policy. Procter & Gamble Co. v. Haugen, 184 F.R.D. 410 (D.D.Ut. 1999)(citing Koch Refining Co. v. Jennifer L. Boudreaux M/V, 85 F.3d 1178, 1181 (5th Cir. 1996)). While typically that analysis is applied in a situation where an expert has a prior relationship with an opposing party, those factors are equally applicable here in Dr. Heymsfield's access to Respondents' confidential information and his relationship with a direct competitor of corporate Respondents.

Credibility. "The importance of credibility of a witness to the trial of cases cannot be overstated and this is especially true with respect to expert witnesses. The rules of

evidence provide frequent reminders of the importance of credibility issues in trials." Behler v. Hanlon, 199 F.R.D. 553, 556 (D.Md. 2001). Fed. R. Evid. 608 permits two types of impeachment. Rule 608(b) permits impeachment of any witness by inquiry into prior bad acts that are probative of truthfulness, that do not result in a criminal conviction. Id. at 559. "If the witness admits during examination the prior bad act, the impeachment is accomplished." Id.

III. ANALYSIS

Dr. Heymsfield's admitted lack of expertise in areas in which he opines, failure to follow accepted protocols and methodology for his analysis, and failure to cite to recognized authorities does not meet the standards in Fed.R.Evid. 702 and Daubert. Comprending the statistical significance of a study and understanding power calculations are indispensable to any evaluation of scientific literature, yet Dr. Heymsfield admits he has no expertise in this area and his testimony reveals an utter lack of comprehension of basic principles of statistics. He therefore cannot testify as an expert as to the import and significance of any study. He admits to having no particular expertise in clinical evaluation of the substances here in issue and, according to the leading authority on ephedrine, caffeine, and aspirin, Dr. Arne Astrup, the methodology he uses in his analysis is not generally accepted in the scientific community. Moreover, Dr. Heymsfield is biased by a conflict of interest, employment by Merck, a competitor with corporate Respondents' Products, for whom he is charged with developing pharmaceutical drugs for weight loss. Moreover, his failure to reveal his co-authorship in studies found to be fraudlent undermines his credibility and impeaches his capacity as a witness.[3]

[3] Full arguments on this issue have been separately briefed in : (1) Respondents' Motion to Exclude a Witness And For Sanctions Or, In the Alternative, For Sanctions And For Leave To Reopen Discovery For

Dr. Heymsfield's Testimony On "Power Calculations" and Significance of Studies Lacks an Expert Foundation and Conflicts With Basic Principles of Statistics

Dr. Heymsfield's testimony must be excluded because it fails the Daubert test both as to fitness and as to scientific knowledge. Dr. Heymsfield does not cite any authorities for many of the propositions that form his opinion. By his own admission, Dr. Heymsfield is not a statistician and can only understand statistics if apprised by statisticians, yet he consulted none in preparing his report. See Exhibit C at 540. Each scientific study depends upon statistical significance of results to permit predictability in like circumstances. If a scientist is ignorant of statistics, he or she cannot evaluate studies to determine the materiality of them in support of any scientific proposition. See Statement of Stephen C. Alder, Ph.D. at 1. Dr. Heymsfield's confessed ignorance of statistics, see Exhibit A at 227; Exhibit B at 462, combined with the assessment of his statements on sample size and "power calculation" by a qualified statistician Stephen C. Alder, Ph.D., reveal Dr. Heymsfield to lack training, education and experience sufficient to evaluate competently and reliably the studies underlying his report. Accordingly, he fails the competency test of FTC Rule 3.31, Federal Rule of Evidence 702, and Daubert. His testimony should be excluded in its entirety. He offers testimony on methods of analysis and procedures for evaluating studies that are contrary to statistical norms. His conclusions are speculative and unsubstantiated. They are not expert. They are not

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a Limited Purpose; (2) Respondents Daniel B. Mowrey's and Dennis Gay's Joinder in Respondents' Motion to Exclude a Witness and for Sanctions, and Correction of Complaint Counsel's False Statements; and (3) Respondents' Emergency Motion to Strike Dr. Robert Eckel And Dr. Steven Heymsfield as Petitioner's Expert Witnesses And For Sanctions And Other Relief – Expedited Briefing And Decision Requested, predicated on wrongful withholding of information ordered produced by his Honor's August 11, 2004 Scheduling Order, and predicated on testimonial lack of candor. Those arguments are incorporated here by reference.

competent. They are not reliable. Cf. Statement of Stephen C. Alder, Ph.D. with Exhibit B at 462.

Dr. Heymsfield offers testimony in his expert report and at his deposition on the importance of the placebo effect, criticizing and discounting certain substantiation at issue because of lack of placebo controls yet admits that he is not an expert in placebo effect. Exhibit C at 486-522. Moreover, he could not identify any study that shows that there is a placebo effect in weight control studies generally or in administration of the agents at issue. Id. at 492-495. Dr. Astrup, one of the leading experts in the field of weight loss in connection with ephedrine, finds the method used by Heymsfield not generally accepted in the scientific community. Exhibit G at 3. Thus, Dr. Heymsfield's conclusion that a placebo controlled trial is necessary for a valid weight control study is purely speculative. Moreover, lacking general acceptance, his method is incompetent, and neither credible nor reliable.

Dr. Heymsfield offers testimony on purported standards of clinical trial design necessary for publication, criticizing the substantiation at issue because it does not meet that purported authority. He also admits that he did not distinguish between drug testing and dietary supplement testing. Exhibit C at 546. Dr. Heymsfield states that there are standard protocols for testing weight loss with dietary supplements. Id. at 559. Yet he has cited to none. An expert on the substances here at issue, Dr. Astrup finds no standard protocols for testing weight loss with dietary supplements. Exhibit G at 2.

Dr. Heysmfield admits that he did not follow his own usual protocol of contacting authors of studies when he has a question regarding their published articles, particularly where he is friends with one or more author. Exhibit C at 544. Dr. Heymsfield admits

that he did not examine the scientific literature to determine if other parties had criticized the studies offered as substantiation that he is criticizing. Id. at 551. He also admits that he did not read all of the studies provided to him as substantiation. Id. at 551-552. Moreover, he admits that many of the studies that he criticized are cited frequently as authority in this field. Id. at 553. Those statements reveal that Dr. Heymsfield's analysis of the existing science is incomplete, uninformed, and contrary to frequently cited authorities.

Finally, Dr. Heymsfield admits that he applied a legal standard (competent and reliable evidence) to reach his conclusions in his report. He admits that he cannot define that term at the center of his determination. Id. at 526. He admits that he cannot define terms like "significantly overweight" or "substantial." Exhibit B at 349-350. Thus, Dr. Heymsfield's report by his own admissions is incompetent.

In conclusion, Dr. Heymsfield's report fails under FTC Rule 3.31, Federal Rule of Evidence 702, and Daubert's factors. He faults studies for statistical inadequacies but admits no expertise in statistics and his assessment is incompetent in light of basic statistical norms (see Statement of Stephen C. Alder at1, 4-5). His methodology and procedure for arriving at his opinion are contrary to the published literature and practice of experts in the field. He admits that he is not expert in areas upon which he opines. His testimony shows that he is missing analytical steps and applying terms that he does not understand and cannot define. Thus, Dr. Heymsfield should be excluded because he lacks requisite expertise. His testimony lacks expert qualification and is incompetent opinion evidence that is wholly speculative. His proffered testimony lacks fitness. It is

not sufficiently tied to the facts of the case such that it will aid the trier of fact in resolving the issue of whether the advertisements at issue are substantiated.

Dr. Heymsfield Is Biased By His Conflict of Interest With His Employer, Merck, A Competitor With Corporate Respondents' Products

Dr. Heymsfield admits that he is employed by Merck, one of the largest drug companies in the United States. He admits that his job there is to develop drugs for weight loss that would be used in the absence of any diet and exercise. He states, contrary to his purported expertise and experience in the weight loss industry, that he does not know if Merck's products would compete with a dietary supplement product for weight loss. He admits that through this litigation he has had access to confidential information concerning Respondents, including his expert report on Respondents' products.

Those admissions show that Dr. Heymsfield's employment is irreconcilable with his position in this case.[4] The trust necessary for this trier of fact to rely on his opinion as unbiased and free from prejudice is lacking. Dr. Heymsfield is proffering testimony on the inappropriateness of a dietary supplement to promote weight loss in the absence of diet and exercise: when the goal of his job at Merck is to develop a drug product that achieves weight loss without diet and exercise.[5] He has been placed in a position of trust

[4] His admissions concerning the Boozer study also reveal his bias against ephedra generally. Exhibit A at 169-178. He admits that he was threatened because of his co-authorship on the Boozer and Metabolife study. Id. He admits that while he criticized that study, and withdrew his co-authorship prior to publication, that the lead scientist defended herself vigorously against those criticisms such that the study was published in a peer-reviewed journal even in the face of criticism from Dr. Heymsfield and others that considered it invalidated. Id. Those admissions show that Dr. Heymsfield has a general bias against ephedra-containing products and that his opinions are not reflective, or a consensus, of the scientific community in this field.

[5] Dr. Heymsfield's statements that he would provide expert services to FTC for free and considers them a public service are undermined when examined in the context of his employment with Merck. His

concerning his role in this case, accessing and analyzing confidential documents including his report, yet is now working for a direct competitor. Public policy demands that an expert in a case not, during the course of the case, work for a competitor with the job of developing competing products.

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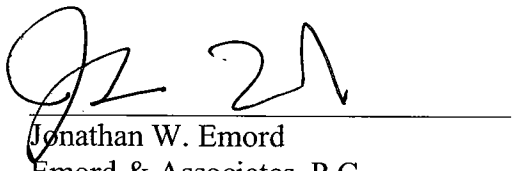
employment creates an inherent bias against all those companies he would testify against that are in competition with his employer.

IV. CONCLUSION

For the foregoing reasons, Respondents respectfully request that the Presiding Officer exclude Dr. Heymsfield from testifying.

Respectfully submitted,



Jonathan W. Emord
Emord & Associates, P.C.
1800 Alexander Bell Drive
Suite 200
Reston, VA 20191
Tel. (202) 466-6937
Fax (202) 466-6938

Counsel for Basic Research, LLC
A.G. Waterhouse, LLC
Klein-Becker USA, LLC
Nutrasport, LLC
Sovage Dermatologic
Laboratories, LLC, BAN, LLC

Stephen E. Nagin
Nagin, Gallop & Figueredo, P.A.
18001 Old Cutler Road
Miami, Florida 33157
Tel. (305) 854-5353
Fax (305) 854-5351

Counsel for Basic Research, LLC

Richard Burbidge, Esq.
Burbidge & Mitchell
215 South State Street
Suite 920
Salt Lake City, Utah 84111

Counsel for Dennis Gay

Ronald F. Price
PETERS SCOFIELD PRICE
A PROFESSIONAL CORPORATION
340 Broadway Centre
111 East Broadway
Salt Lake City, Utah 84111
Telephone: (801) 322-2002
Facsimile: (801) 322-2003

Counsel for Respondent Daniel B. Mowrey

Mitchell K. Friedlander
5742 West Harold Gatty Drive
Salt Lake City, Utah 84111,

Pro se.

Dated: November 23, 2005

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES
WASHINGTON, D.C.

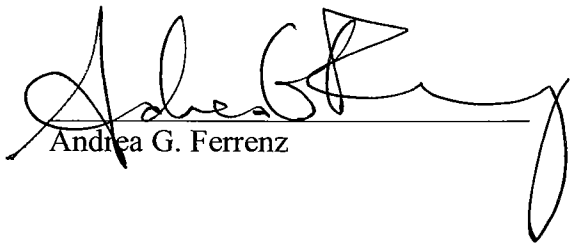
In the Matter of

BASIC RESEARCH, LLC **A.G. WATERHOUSE, LLC** **KLEIN-BECKER USA, LLC** **NUTRASPORT, LLC** **SOVAGE DERMALOGIC LABORATORIES, LLC** **BAN LLC d/b/a BASIC RESEARCH LLC** **OLD BASIC RESEARCH, LLC** **BASIC RESEARCH, A.G. WATERHOUSE,** **KLEIN-BECKER USA, NUTRA SPORT, and** **SOVAGE DERMALOGIC LABORATORIES** **DENNIS GAY** **DANIEL B. MOWREY d/b/a AMERICAN** **PHYTOTHERAPY RESEARCH** **LABORATORY, and** **MITCHELL K. FRIEDLANDER,** **Respondents.**	**PUBLIC** **Docket No. 9318**

CERTIFICATION

I, Andrea G. Ferrenz, hereby certify that the electronic copy of the document accompanying this certification is a true and correct copy of the paper original and that a paper copy with an original signature is being filed with the Secretary of the Commission on November 23, 2005 by other means.

Respectfully submitted,



Andrea G. Ferrenz

Dated: November 23, 2005

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES
WASHINGTON, D.C.

In the Matter of

BASIC RESEARCH, LLC **A.G. WATERHOUSE, LLC** **KLEIN-BECKER USA, LLC** **NUTRASPORT, LLC** **SOVAGE DERMALOGIC LABORATORIES, LLC** **BAN LLC d/b/a BASIC RESEARCH LLC** **OLD BASIC RESEARCH, LLC** **BASIC RESEARCH, A.G. WATERHOUSE,** **KLEIN-BECKER USA, NUTRA SPORT, and** **SOVAGE DERMALOGIC LABORATORIES** **DENNIS GAY** **DANIEL B. MOWREY d/b/a AMERICAN** **PHYTOTHERAPY RESEARCH** **LABORATORY, and** **MITCHELL K. FRIEDLANDER,** **Respondents**	**Docket No. 9318**

CERTIFICATE OF SERVICE

I hereby certify that on this 23rd day of November, 2005, I caused Respondents' Motion To Exclude Complaint Counsel Witness Heymsfield Or, In The Alternative, To Limit His Testimony to be filed and served as follows:

1) an original and one paper copy filed by hand delivery and one electronic copy in PDF format filed by electronic mail to

Donald S. Clark
Secretary
U.S. Federal Trade Commission
600 Pennsylvania Avenue, N.W.
Room H-159
Washington, D.C. 20580
Email: secretary@ftc.gov

2) two paper copies delivered by hand delivery to:

The Hon. Stephen J. McGuire
Chief Administrative Law Judge
U.S. Federal Trade Commission
600 Pennsylvania Avenue, N.W.
Room H-112
Washington, D.C. 20580

3) one paper copy by first class U.S. Mail to:

James Kohm
Associate Director, Enforcement
U.S. Federal Trade Commission
601 New Jersey Avenue, N.W.
Washington, D.C. 20001

4) one paper copy by first class U.S. mail and one electronic copy in PDF format by electronic mail to:

Laureen Kapin
Joshua S. Millard
Laura Schneider
Walter C. Gross III
Lemuel W.Dowdy
Edwin Rodriguez
U.S. Federal Trade Commission
600 Pennsylvania Avenue, N.W.
Suite NJ-2122
Washington, D.C. 20580
Email: lkapin@ftc.gov
jmillard@ftc.gov
lschneider@ftc.gov
wgross@ftc.gov
ldowdy@ftc.gov
erodriguez@ftc.gov

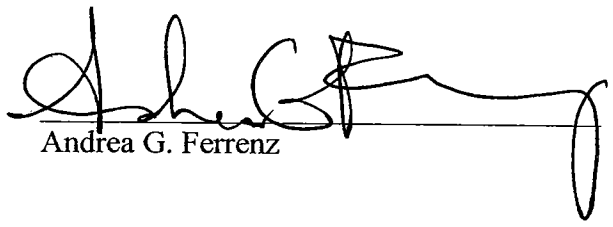
Stephen E. Nagin
Nagin, Gallop & Figueredo, P.A.
3225 Aviation Avenue
Third Floor
Miami, FL 33133-4741
Email: snagin@ngf-law.com

Richard D. Burbidge
Burbidge & Mitchell

215 South State Street
Suite 920
Salt Lake City, UT 84111
Email: rburbidge@burbidgeandmitchell.com

Ronald F. Price
Peters Scofield Price
340 Broadway Center
111 East Broadway
Salt Lake City UT 84111
Email: rfp@psplawyers.com

Mitchell K. Friedlander
c/o Compliance Department
5742 West Harold Gatty Drive
Salt Lake City, UT 84116
Email: mkf555@msn.com



Andrea G. Ferrenz

EXHIBIT A

products right now that are commercially available, nor will they for a number of years.

Q. Would it be fair to say that the products that you're researching with Merck, assuming they ever make it to the market, that those products would compete with weight loss products marketed and sold by dietary supplement companies?

MS. RICHARDSON: Objection, form, foundation.

A. No, I'm just in science. I don't do the business end. So it's not in my domain to tell you whether or not they would compete.

I don't think people at Merck see them in the same light as perhaps you might be inferring. I mean, I think Merck's a professional pharmaceutical company. It's not

a dietary supplement company.

To the extent those products would compete with each other is a business question that I'm not really qualified to answer.

Q. But you are involved in positioning products.

A. Well, it's not my job. I'm involved in product development and research.

MS. RICHARDSON: Objection, form,

foundation, calls for speculation.

MR. FELDMAN: Robin, you've got to stop. I'm objecting on behalf of the Corporate Respondents. When the witness is answering you can't talk.

MS. RICHARDSON: I need to have a space of time to answer. But if Mr. Price asks questions immediately when he is done, I need to have a moment to interject. I hear what you're saying.

MR. FELDMAN: Don't do it when the witness is answering a question, please. OK? Please don't do that. Please don't interrupt the witness.

MS. RICHARDSON: Mr. Price, do you

have a question for this witness? If you don't have a question for this witness we are going to take a break.

Do you have a question for this witness?

MR. FELDMAN: The witness is in the middle of answering a question and you cut him off.

MS. RICHARDSON: Do you have a question for this witness?

MR. FELDMAN: Stop, Robin. Stop.

MS. RICHARDSON: Do you have a

that study to ask them questions concerning that study?

MS. RICHARDSON: Objection as to form.

A. Not that I can recall.

Q. And you're familiar with an abstract of a study performed by Dr. Carlon Colker and Douglas Kalman on ephedra, caffeine and aspirin?

A. Yes.

Q. Have you called either Dr. Colker or spoken with Dr. Colker or Mr. Kalman concerning their study to ask them questions about the study?

MS. RICHARDSON: Objection to form.

A. I don't believe I did, but it's possible I have spoken to one of them. I believe that one of them might have been at these congressional hearings, and I think I might have had a brief interaction with them.

And it's possible that I did call at some point some people related to that work to

ask them some technical questions, but I don't specifically remember it. But it's likely that I did because I was very interested in learning more about -- not in this case, but in other cases about that work.

Q. Do you recall when those conversations would have occurred?

A. Well, I would say certainly in the last two or three years, because most of this has transpired in the last two or three years, but I do think I had some very significant interest in Dr. Kalman's paper, or not Dr. Kalman, Mr. Kalman's paper, in Current Therapeutics, one of the papers that I reviewed here, and I might have tried finding out more information on those studies.

Q. Again, now I am talking specifically about the abstract of the ECA study.

A. That's Colker; isn't that right? is the first author on that one? I'm not sure. But no, I don't believe I called anybody on that paper. If I did, I can't recall.

Q. You're familiar with a study of Glucomannan by a Dr. Livieri that's at issue

in this case?

A. Yes, I am.

Q. Have you spoken to Dr. Livieri concerning that study?

A. No.

Q. Have you spoken with any of the other investigators who are involved in that study?

A. No. They're in Italy, of course.
Q. But the fact that they are located in Italy wouldn't preclude you from contacting them, would it?
A. It certainly makes it more difficult. Kalman is from New York originally. He's in Florida. And Colker is in Greenwich, Connecticut, and he evidently has an appointment at the same hospital I work at. So the distances and ease of communication are a little different.
Q. The logistics are certainly more difficult with being in Italy.
A. Yes.
Q. Now, when you have testified as an expert in other cases or before the Senate,

would it be fair to say that the opinions you gave in those instances were based on competent reliable scientific evidence?
MS. RICHARDSON: Objection, form, foundation.
A. I think you would have to give me an example. But I would certainly do the best of my ability to be honest. But beyond that, you would have to ask me a specific question.
Q. Well, you wouldn't provide an expert opinion that you felt was based on evidence

Q. Are you aware that the Federal Trade Commission is compensating Dr. Eckel at the rate of $500 an hour?

A. I'm not aware of anything relating to Dr. Eckel's compensation.

Q. Is there any specific reason why you're charging the Federal Trade Commission a

hundred dollars an hour?

A. Not specifically, no.

Q. Who set the rate of a hundred dollars an hour?

A. That was just the rate that was on my contract and that's the one I agreed to.

Q. Did the Federal Trade Commission suggest that rate to you or did you suggest that rate to the Federal Trade Commission?

A. I didn't suggest any rates to the Federal Trade Commission. I would do it for free if that was the request.

Q. Why is that?

A. Why would I do it for free? Because I have a commitment to public service and I do quite a bit of it, and this is public service.

Q. Why do you consider this to be public service?

A. Because I believe that the Federal Trade Commission is very important regulating

Dr. Heymsfield. With respect to your testimony, the testimony -- strike that. Let me ask it this way.

You previously testified I believe that the opinion you provide in your written testimony to Congress that the collective study strongly supported the premise that ephedrine, particularly in combination with caffeine and also aspirin, promotes significant short-term, three to six months, weight loss when ingested as part of an intervention program, including dietary and lifestyle management, remains your opinion today; is that correct?

A. That's correct.

Q. And as of today what studies on ephedrine, caffeine and aspirin do you rely on for that opinion?

MS. RICHARDSON: Objection, asked and answered. Objection, form, compound, ambiguous.

Q. You can answer the question.

A. The Rand Report is the single most comprehensive review of the literature, and I rely on the opinion of the Rand Report, which is basically where I extracted that sentence from.

Q. But the Rand Report involved an analysis of studies that involved salicin, correct?

MS. RICHARDSON: Objection. Assumes facts not in evidence.

A. I don't know. I don't know the answer to that. And I also -- yeah, I will leave it at that.

Q. Now, Dr. Heymsfield, you were involved in a study on an ephedra product marketed by Metabolife; is that correct?

A. Yes.

MR. PRICE: Mark this as Exhibit 3.

(Heymsfield Exhibit 3, copy of study on Metabolife product, marked for identification, this date.)

Q. Dr. Heymsfield, let me have you look at what has been marked as Exhibit 3 to your deposition.

Do you recognize that as a copy of the study that you were involved with on the Metabolife product?

A. It was a Metabolife. Let's see. I think that we'd better see exactly what the product is. Yes, this particular study was Metabolife 356.

Q. And this was a study -- that product

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equivalent and I have told you everything I know about it.

Q. Dr. Heymsfield, when you used the term "significant," what did you mean?

MS. RICHARDSON: Objection, form, foundation. Also I would like the record to reflect that we have just very quietly asked Mr. Price if he would finish his line of questioning so we can take a break. We have been going for an extended period of time.

Q. When I was referring to the testimony you just gave when you talked about significant weight loss, what did you --

MS. RICHARDSON: Mr. Price, are you done with your question? If you could have the court reporter read that question back, I would like to pose an objection.

MR. PRICE: What I would like to do is go back to his prior testimony where he used that term.

(A portion of the record was read.)

BY MR. PRICE:

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Q. When you used the term "significant weight," "promotes significant weight loss," what did you mean by significant weight loss?

A. Well, first I think that sentence is a good, a launching point for answering that question and one more related to it. One is -- significant only means one thing to a scientist, statistically significant. OK?

Statistically significant, that means what we would call P value less than .05 statistically. As opposed to clinically significant or significant in any other way, that's exactly what it means.

The second thing is that in terms of willobark and salicin and the issue of aspirin, the review that I've done has focused on a product that contains aspirin. Aspirin. The chemical, the drug aspirin. And I have not reviewed, I have not been asked specifically to review the biology of willobark or salicin.

And so the questions you're asking me are really outside the frame of what I was asked specifically to comment on.

Q. Dr. Heymsfield, you've testified previously about testifying as an expert

Q. And let me read that. The question was: Now Xenadrine RFA-1 if we're to believe what's on the label says that it has salicin, correct?

And your answer was?

A. That's correct.

Q. Question: And that's a -- is that an herb?

What was your answer?

A. Well, it's I believe there's -- I

believe there's an herbal source that's called white willobark and it's salicin. That's right.

Q. Question: Is that an active ingredient?

And what was your answer?

A. Not by itself. It's transformed in the body to acetylsalicylic acid, which is aspirin.

Q. And that was the testimony you offered during the Cytodyne litigation, correct?

A. That was my understanding of it, but you should know that a world authority pharmacologist testified at that trial specifically on the metabolism of willobark and I was not asked to be an expert on that

question.

And I have already told you my limited understanding or at least knowledge of the biology of that dietary supplement, willobark. It's really outside the area of my expertise.

Q. And despite the fact that it was outside your area of expertise,

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notwithstanding that fact, it's true, isn't it, that you testified that in the Cytodyne litigation that salicin was transformed to acetylsalicylic acid in the human body?

MS. RICHARDSON: Objection, form, ambiguous. Assumes facts not in evidence. You're looking at page 1590 of what appears to be at least a five-volume deposition transcript.

Q. You can answer the question.

A. I would have said the same thing I'm saying to you or certainly that this was not a specific issue in that case, and it also was not something I was asked to testify on. So I have given my limited understanding there and I'm giving it to you again now.

Q. The understanding you had as of July 12 or as of March 12, 2003, was that salicin transformed in the body to acetylsalicylic acid.

He has already stated to you that he told

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you what he told you in the context of this proceeding which is very different from the context of the Cytodyne proceeding.

I would also like to renew my request for a break, counsel. We have been going some time. It's after 12:30.

MR. PRICE: If I can get an answer to my question we can take a break.

A. I already told you several times the context in which I answered that. Number one, it was an expert pharmacologist who was really trained in the metabolism of aspirin to answer that question.

Number two, I was not asked specifically to comment on that in this trial and that I'm not an expert on the metabolism of this particular dietary supplement nor was I asked in this particular case to judge the metabolism of salicin in the human body.

So, you know, any comment I would give on this, including in this particular trial, the Cytodyne trial, would have been as a nonexpert.

Controlled Clinical Trial," etc., marked for identification, this date.)

Q. Let me have you look at what has been marked as Exhibit 5 to your deposition.

A. Yes.

Q. Is that the study that you just indicated that you thought perhaps Dr. Allison had sent to you?

A. He sends me all of his publications, so I think at some point I recall seeing this, yes.

Q. And this is a study that's titled "a

Randomized Double Line Placebo Controlled Clinical Trial of a Product Containing Ephedrine, Caffeine and Other Ingredients From Herbal Sources For Treatment of Overweight and Obesity in the Absence of Lifestyle Treatment," correct?

A. Yes.

Q. Have you previously read this study?

A. No, I haven't. I just told you he sent it to me, but I wouldn't normally read it.

Q. Let me represent to you that this study involved the question of efficacy of a product in weight loss without diet and exercise management.

And what I would like to do is, and if you have any questions about that, let me know and feel free to read the study to make sure I'm accurately characterizing that.

But I would like to direct your attention to page 1417 of that study, which I think is the third page from the end of the exhibit.

In the second column, the first full

paragraph starting with the language "moreover," do you see that language?

A. Yes.

Q. Let me read that language, Dr. Heymsfield. It says: Moreover, this study demonstrates that the studied product was effective in a group of subjects who were not encouraged to make lifestyle modifications other than taking the studied product as directed. These results suggest that subjects do not have to be jointly involved in a structured program to modify lifestyle in order to achieve the weight loss benefits of the studied product.

Then it's this next sentence I want to ask you a question about. The study then states: Of course, combining the studied product with a healthy diet and exercise

meaning?

MS. RICHARDSON: Objection, form. Calls for a legal conclusion. It's vague, ambiguous. It doesn't state the nature of those interpretations. It assumes facts not in evidence, foundation, and it's also beyond the

scope of his expert report. His report speaks for itself.

If you would like, why don't you give him a copy of the expert report that you intend to admit into the deposition so he can look at it.

MR. FELDMAN: I would ask you to follow your own rules and make short form objections.

BY MR. PRICE:

Q. Let me ask the question this way, Dr. Heymsfield.

In preparing your expert opinion in this case did you review the ads that are being challenged by the Federal Trade Commission and make your own determination as to what those ads mean?

A. I am not an expert on advertising, and I don't think that I've used those ads in any way in arriving at any opinion I have.

It's beyond the scope of my expertise.

Q. That's all I wanted to make sure that I understood in terms of the scope of what you've been asked to do.

And if the ads have a different meaning than the meaning which is alleged in the complaint, would that affect the opinions that you've rendered in this case?

MS. RICHARDSON: Objection, vague, foundation, assumes facts not in evidence.

A. I am not an expert on meaning, and it's not my -- I think it's an interesting question, but it's not something that I could profess, say, a level of expertise where I could answer you.

Q. I take it it would be fair to say you're not a marketing expert.

A. That's fair to say.

Q. I need to go back to something I meant to cover earlier. The study that you were involved with on the Metabolife product, my understanding is that one of the investigators in that study was Dr. Carol Boozer?

A. Yes.

Q. Have you been involved in other

studies with Dr. Boozer?

A. None that were published. Well, let me answer that more specifically. You said involved. Yes, I was involved in other studies with her, but I was not an author of the papers with her.

Q. How many other studies were you involved with Dr. Boozer?

A. Several. If you look at my citations you will see that there are three or four papers I've published with her.

Q. Did any of those other studies involve ephedra-based products?

A. Yes.

Q. How many?

A. One, at least one.

Q. I think you testified earlier, and you tell me if I'm incorrect, but I think you testified earlier that the study that you and Dr. Boozer and others performed on Metabolife product is a study that you would consider to be a competent scientific study.

MS. RICHARDSON: Objection, mischaracterizes the witness's testimony.

A. The paper -- well, let's be

specific. The paper that you've provided me here, I think whichever one this is, this might be number 3, to my way of thinking this is a competent paper. Reliable, I'm not sure that's a reasonable judgment, but, I mean, I'll just say that this study was done with acceptable scientific criteria.

Q. What about the other study that you were -- of an ephedra product that you were involved with with Dr. Boozer? Was that also a competent scientific study?

MS. RICHARDSON: Objection, vague, goes to foundation.

A. Keep in mind that I am not an author on that paper. I was acknowledged on that paper. I am not an author and I didn't review that paper for publication. So it's a little outside the scope of my testimony today whether or not that's a competent reliable study and a paper.

Q. With respect to the published study on the Metabolife product why is it -- or let me ask it this way. You indicated you don't know that it's necessarily a reliable study.

What do you mean by that?

A. Well, I guess maybe under reliable I am referring to a more general idea of reproducibility and when you do a study and then somebody else comes along and does it, it's possible you can get different results.

So judging reliability might be something more in the framework of a number of studies and to the extent it's reliable can only be judged later, at least as I'm using the term right now, can be judged later when you have the collective literature in front of you.

Q. Have you read the second study that you were involved with with Dr. Boozer on ephedra-based product?

A. Yes.

Q. In your opinion was that study a properly designed study?

MS. RICHARDSON: Objection, form. Foundation.

Do you have a copy of the study, Mr. Price, that you can show to Dr. Heymsfield?

MR. PRICE: I don't.

A. To my knowledge, the design of that study was done appropriately. And given that

I don't have it in front of me to really rereview, I am not aware of any serious design flaw in that study.

Q. Do you consider that second study to be a reliable study?

MS. RICHARDSON: Objection. Form. Foundation. Asked and answered.

MS. KAPIN: I'm sorry, Ron, which study are we talking about now?

MR. PRICE: The second study with Dr. Boozer on the ephedra-based product.

MS. KAPIN: Thank you.

A. I can only tell you that I had misgivings about the content of that paper, and that's why I am not an author on that paper. Because I didn't agree with the conclusions of the paper.

Q. So does that mean that you don't consider it to be a reliable study?

A. I am reserving judgment about reliability because I am not sure what the

context of your question is. I think you're asking it -- I am telling you in a scientific manner why -- my opinion about that paper and why I'm not an author on it, but reliability, I have already answered to you my general idea of what reliability is.

and the coaching that's taking place.

I don't have a copy of the study. It's not been produced by Dr. Heymsfield. It's an unpublished study. He's testified he had other reasons for not being an author and I want to know what those other rationales are.

MS. RICHARDSON: He's already answered --

MR. PRICE: He doesn't have to have the study to answer the question.

MR. FELDMAN: Again, on behalf of the corporate respondents, again, I want to once again object to Complaint Counsel's behavior throughout the

deposition. From the beginning of this deposition she has refused to make short form objections despite repeated warning. I am going to again ask you to please stop.

MS. RICHARDSON: Counsel, please, Mr. Price, do you have a question for this witness?

MR. PRICE: The question is pending.

BY MR. PRICE:

Q. What were your other rationales for not wanting to be an author on that study?

A. Well, first, I want to make a correction that it was a published paper. It's not an unpublished paper. And, you know, there are a number of reasons.

One is, the biggest one is Dr. Boozer and I disagreed scientifically about the risks of ephedra and that's on the public record, but it emerged during this conduct of that trial and her statements in that paper disagree sharply with my own opinion about ephedra. So I could no longer be -- in terms of my own ethics I couldn't be

an investigator with her.

Second, it occurred at a time of tremendous stress between Dr. Boozer and I and there were being personal threats made on me and my family by Metabolife that led me to be very anxious about my continued relationship with Dr. Boozer and that company.

Q. Would you describe for me the involvement that you had with that study?

A. I was a co-investigator at the outset of the study.

Q. Describe for me precisely what you did to the best of your recollection as a co-investigator at the outside of that study.

A. I helped in the design of the study.

And I also did the medical evaluations. I oversaw the clinical part of that study.

Q. When you say you oversaw the clinical part of the study, what do you mean?

A. I am the director of the weight control unit, or I was, and the patients were evaluated at the weight control unit.

Q. Did you have any direct involvement in their evaluation?

A. Do you mean did I actually do the physical examinations?

Q. Correct?

A. No.

Q. Aside from what you've already testified to as to rationale as to why you didn't want to be an author on that study, are there any other rationales as to why you didn't want to be an author on that study?

A. I mean, I think if this is something you want to pursue this, there is a fair amount of documentation surrounding my reasoning for being off of that study, you know, it's something that if the hospital and Dr. Boozer is willing, you're perfectly welcome to review. But there are a large number of reasons. I told you the really big ones. And that is, I thought the study was

extraordinarily unethical in terms of the comments, the conclusions arrived at in the study.

Q. I understand the primary reasons, but what I would like to do is get an understanding as to the other reasons.

Can you explain to me what the other reasons were for you not wanting to be an author on that study?

A. I think you have, you know, you have to get much more specific with me because the study itself was the subject of great controversy and discussion both internally at St. Luke's and Columbia University and at the FDA, and also in terms of the publication. You probably know that there was mixup between the placebo tablets and the active agents, that Dr. Boozer inadvertently gave subjects placebo, which had active ingredient in it. And there was a very strong effort to retract that paper from the scientific literature by a number of people.

Q. So given what you've testified to about that study, does that mean that it's not a competent and reliable study?

A. I don't think I am in a position to judge the competency and reliability based on

what I've just told you because of the placebo active ingredients mixup.

To the extent that say a jury would

decide that, a jury being peer reviewers, there was a judgment passed by a number of professionals that that paper was invalid because of this mixup.

On the other hand, Dr. Boozer defended herself very vigorously. So, you know, there's yes and no. So I am not going to weigh in on where I think that would go. I can only tell you that those opinions have been rendered by Dr. -- not opinions, but those assertions have been rendered by Dr. Boozer and her detractors.

Q. Now, we looked earlier today at some testimony you gave in the Parks versus Cytodyne case.

A. Yes.

Q. Do you recall being asked in the Parks versus Cytodyne case whether you believed that both of the studies that you were involved with with Dr. Boozer involving ephedra products were reliable?

A. I would have to see that question and my answer to it. Because then I could tell you what I said.

standard now is intent to treat analysis, when did intent to treat analysis become the accepted standard?

A. I can't tell you that date for sure. I have published papers in 1997, 1998, where it was -- I recall -- those are my first papers with randomized trials. Those are intent to treat analysis.

So it certainly was in 1997. Whether or not it goes back to 1980, I can't tell you, but it's always been assumed that you do everything you can to reduce the bias in the analysis.

Q. I am still a little foggy I guess is the way to describe it on this concept of intent to treat analysis.

When used in the context of an efficacy trial -- well, let me ask. Is it used outside the context of efficacy trials?

MS. RICHARDSON: Objection.

A. I honestly don't know because that is outside my own expertise, but I know that any time you want to know if some active intervention works, there's a standard that has been set for the field I work in, which is randomized double blind placebo control trial

and the standard, although not universally accepted by everyone, the standard now is to do an intent to treat analysis. And if you don't do that, then you should have some other way of managing the potential bias in the analysis.

Q. And what are those other ways of managing the potential bias?

A. There are a number of ways. One is called analysis of variance. I am not a statistician, so I can't tell you. But you

probably could pick up Dr. Allison's paper and get a very good idea of how he handled bias. He's very good at it. He usually uses several different ways. Intent to treat would be the standard, but he probably used analysis of variance as it's called or multiple regression to control for baseline differences between subjects. There are a number of other ways of doing it. I am not a statistician, but I am familiar with the general principles.

Q. Aside from analysis of variance and the mutual multiple regression analysis, are there other types of methods that you're aware of that can be used instead of intent to treat analysis?

MS. RICHARDSON: Objection.

on it and I said that it's an, you know, she sites here over-the-counter use of that combination, those three components, and if it

in fact is an over-the-counter preparation then there will be literature on it. We could easily find it.

Q. So would it be fair to say that as you sit here today you don't know whether in fact it was an over-the-counter preparation that was available at the time of that study?

A. I told you everything I know.

Q. So the answer to my question is no, you don't know?

MS. RICHARDSON: Objection, you're answering your own questions.

MR. PRICE: Let's go back to the prior question.

(A portion of the record was read.)

A. I've told you that, um, I've read to you what Dr. Daly said. It's very specific. The combination of ephedrine methyl xanthenes and aspirin often in over-the-counter preparations has been used.

Q. And I understand Dr. Daly said that in her study. What I want to know is do you know whether ephedra, caffeine and aspirin was available in an over-the-counter product at

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the time of the Daly study.

A. No, I don't specifically know that because I know that that combination was not used as a prescription agent in the United States. It may have been used outside the United States.

Q. But you don't know that, do you?

A. No.

Q. Let me direct your attention to page 13 of your supplemental report, Dr. Heymsfield, last sentence of paragraph E on page 13.

A. Yes.

Q. In paragraph E you're talking about the issue of blinding in the Livieri study. And the last sentence you make a statement, quotes -- I'm sorry, you make a statement, quotes, this is because normal children have very frequent gastrointestinal effects when they are taking placebo tablets, close quotes.

Do you see that statement?

A. Yes.

MS. RICHARDSON: Objection, mischaracterizes.

MR. PRICE: Did I misread it?

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EXHIBIT B

HEYMSFIELD

Q. But I just want to make sure if there's anything that I'm saying that you don't understand, please stop me.

A. Okay.

Q. Go to page 8 of the report. In paragraph 28B.

A. Yes.

Q. What does "significantly overweight" mean to you?

A. Well, "significantly" in Science, scientists only use the word "significant" to infer statistical significance now. So that's a general. General rule is in the scientific world the word "significance" is only used with reference to statistical tests.

"Overweight" has specific meaning to me as a quantitative meaning. It means a body mass index over 25 and less than 30, but significantly overweight, you know, has no, you know, specific scientific definition. I can tell you as a layman what I would infer, it means very heavy.

Q. "Very heavy" meaning how much?

A. Well, see, I can't put an answer to

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that because, you know, as a scientist I have to answer that and there's not an amount that that "significantly overweight" defines.

MR. FRIEDLANDER: You write worse than I do. Can you print that out.

Q. Do you think your definition of "significantly overweight" would be the same as Mr. Feldman's?

MS. RICHARDSON: Objection, assumes facts not in evidence, vague, ambiguous.

A. I don't remember what Mr. Feldman's -- I'm sorry, did I miss something?

Q. I'm just asking you a question whether or not you think your definition of "significantly overweight" would be the same as Mr. Feldman's?

MS. RICHARDSON: Objection, foundation, vague, ambiguous, argumentative.

A. I don't know.

MS. RICHARDSON: Let me finish my objection. I'm sorry, Mr. Friedlander, but I need to make an objection, okay.

HEYMSFIELD

Q. Can you answer that question?

A. Can I answer?

MS. RICHARDSON: Objection, foundation, vague, ambiguous.

A. I have -- really I have no idea what you are referring to. But, you know, I've already explained to you what I think of this statement.

Q. I know you told me what you thought it was, and I'm just asking you whether or not you think your definition would be the same as Mr. Feldman's, if you know? If you can't answer that's fine.

MS. RICHARDSON: Objection, argumentative as to the last portion. As to the first portion, foundation, ambiguous, assumes facts not in evidence.

A. I told you what overweight is, body mass index more than 25 and less than 30, that's what -- that's what that would confer to me.

Q. Is that how you used body mass index of 25 and less than 30 to form your opinions in this report?

HEYMSFIELD

MS. RICHARDSON: Objection, compound, form, vague.

A. No.

Q. So you used a different definition when you formed your opinions in the report as it relates to the term "significantly overweight"?

MS. RICHARDSON: Wait. Objection. I get a chance to do this.

MR. BURBIDGE: Nobody is stopping you counsel.

MS. RICHARDSON: Objection, mischaracterizes, assumes facts not in evidence, vague.

MR. FRIEDLANDER: All right. Okay, excuse me for being my naive, is there a way to shorten that, make a list and then --

MS. RICHARDSON: These are short-form objections. I'm trying to be unobtrusive as possible, Mr. Friedlander.

MR. FRIEDLANDER: I'm just asking whether or not you can make a list of it and say I object and we can do all of

HEYMSFIELD

(Record read.)

MS. RICHARDSON: Do you want to go off the record for one minute?

MR. FRIEDLANDER: No.

Q. How many pounds overweight would somebody have to be for them to be significantly overweight?

A. I told you there's not a quantitative definition of the term "significantly overweight," so I can't answer that.

Q. In paragraph 28B, -- by the way, before I go there, would the answer to all these questions about significantly overweight, as we've been discussing in 28B and 28B, be the same for paragraph 31A, 31B, 33A, 33B on that same page?

MS. RICHARDSON: Objection, compound, form, ambiguous, vague, foundation.

Q. Every time you use "significantly overweight" on page 8, would the answer be the same?

MS. RICHARDSON: Objection,

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question.

MS. KAPIN: Fine. I was trying to help you out there.

MS. RICHARDSON: I thought you wanted him to answer that. I thought that's what you wanted, Mr. Burbidge.

Q. In 28B, the term "substantial," how much fat loss are you referring to in paragraph 28B that would cause it to be -- well, let me.

In paragraph 28B you use the term "substantial."

A. Yes.

Q. In the context of that paragraph, how many pounds of fat loss would that be?

MS. RICHARDSON: Objection, foundation, vague.

A. I told you that or I may have told that you "substantial" is not a scientific quantitative term. It confers to a layman or scientific large amount, that's what that would imply. You would have to be a little more specific.

There would be a little bit of a

HEYMSFIELD

A. The raw material -- I can't tell what you they based their conclusions on, but I can tell you that "Only studies of weight loss that were controlled trials of human subjects, with treatment of at least eight weeks duration, were accepted to assess efficacy."

Q. And as you sit here you can't tell me what they use -- what they base their conclusions on?

MS. RICHARDSON: Objection, argumentative, foundation, vague, overbroad.

A. I can tell you their conclusions, but I can't tell you how they, you know, I know what the raw material is and I know what the conclusions are, but I can't tell you everything they base their conclusions on. I wasn't there. So, you know, I can't, you know, agree with the way you've asked me and say yes or whatever.

It's, you know, I told you that they use controlled trials as the raw material for their report and I know what the conclusions

HEYMSFIELD

A. Similar.

Q. And the Cochrane Clinical Trials Register?

A. Yes.

MS. RICHARDSON: Let me pose my objections. Objection, foundation, vague.

Q. What is a Cochrane Clinical Trials Register?

MS. RICHARDSON: Objection, foundation.

A. It's -- I don't work in that area, and I don't usually use it, but it's a registry of clinical trials.

Q. They do reviews, as well? Well, to your knowledge did they do review -- published review type papers?

MS. RICHARDSON: Objection, foundation. He already testified it's not his area.

A. I believe they do, but I have not used any, personally used any of their reports.

Q. But MEDLINE is an authoritative

HEYMSFIELD

would refer you on to the congressional hearings that took place after the Rand report was written, and similar reviews were conducted. There's a vast body of literature in which these things were reviewed, rereviewed and reanalyzed again. You can judge for yourself.

Those congressional hearings are posted on the internet, you are welcome to look at them, review them and see the opinions. The general accounting office had an extensive review of this entire area.

Q. Did the GAO, General Accounting Office, also base their opinions in part on adverse event reports?

MS. RICHARDSON: Objection, foundation, overbroad, ambiguous.

A. You know, now it's going beyond the context of my expertise. I don't really know what the general accounting office does or -- but as I said, there's a vast body of published literature on this. That you can find on the internet, on the Energy and Commence Committee website, Billy Tauzin was

HEYMSFIELD

reviewer of the Rand report?

A. Yes.

Q. Do you just get a draft of the report, is that all?

A. I get a draft of the report and then I comment on it.

Q. And do you make those comments without reviewing any of the underlying substantiation?

MS. RICHARDSON: Objection, mischaracterizes, foundation.

A. I, of course, could review any of the articles they cited because they give the reference, if I wanted, but I don't review any of the individual case report files or anything like that, no. I wasn't asked to do that.

Q. You were asked to review the paper?

MS. RICHARDSON: Objection, mischaracterizes.

Q. Correct?

A. I was asked to review the initial draft of the Rand Report.

Q. Were you asked to review it to

HEYMSFIELD

correct grammar or spelling?

MS. RICHARDSON: Are you done with your question?

MR. FRIEDLANDER: Let me withdraw that.

Q. What exactly were you asked to do as a reviewer of the Rand Report?

A. I was asked to give my opinion about the way they approached it, the conclusions they arrived at, as I am for all papers I review.

Q. So if there's a statement, and I'm just using as a hypothetical, in the Rand Report that says the adverse event reports show that 30 percent of the people who took Ephedra died --

A. Yes.

Q. -- how would you know whether or not that statement was true or false as a reviewer?

A. I couldn't know any more accurately than any paper I review whether or not the data is honest.

Q. Would you actually review the data

HEYMSFIELD

to see whether the conclusion that was drawn is correct?

MS. RICHARDSON: Objection, foundation, speculation, ambiguous, overbroad, assumes facts not in evidence.

A. I never am privileged to the raw data, is what you are referring to, in any paper that I review.

Q. When you review a paper you never check -- is it your testimony or maybe I don't understand, is it your testimony that you never check the raw data to substantiate a conclusion or a statement made in any paper that you review?

MS. RICHARDSON: Objection, foundation, assumes facts not in evidence, argumentative, vague, overbroad.

A. I can't think of any situation where I would serve as a reviewer in which I would actually check the raw data that went into the results or the conclusion of this study, that would be very extraordinary. Maybe there's been one time in my life, but I can't think of

HEYMSFIELD

analysis?

MS. RICHARDSON: Objection, compound. Let me state my objection.

A. No. I mean, there are people who are biostatisticians, and I'm not one of them, so I consider them experts.

Q. How about, are you on expert in the statistical analysis of clinical trials?

A. No. That doesn't mean I don't know something about it, but I'm just distinguishing between myself and what I consider a person who is an expert.

Q. If Dr. Mowrey would say that a study to be successful must be designed based on the number of animals or humans needed to satisfy statistical significance, and that would be the criteria, would he be correct?

MS. RICHARDSON: Objection, foundation, incomplete hypothetical.

A. I'm going to listen very carefully. Can you read that sentence again.

(Record read.)

A. See, it doesn't make any sense, that sentence, to someone like me. It might to

EXHIBIT C

HEYMSFIELD

Q. Do you remember this study, doctor?

A. I do. I remember this paper, yes. It's not one of the papers I reviewed in this case specifically in my report, but it is -- I do remember the paper.

Q. The paper was provided to you as part of the substantiation for the PediaLean product, wasn't it?

A. It was provided with many other sets of material, yes.

Q. And you didn't review that in connection, that paper by Walsh, in connection with this case?

MS. KAPIN: Objection, mischaracterizing.

A. Walsh was not reviewed by me in my expert report.

Q. Was it reviewed by you at all in connection with this case?

A. I've looked at this paper, but I have not reviewed it in detail for this case.

Q. When was the last time you reviewed the paper?

A. I read this paper probably a year

ago quickly and decided that this was not related to PediaLean because it's not pediatrics.

Q. It was the same type of Glucomannan that was used in the PediaLean product; isn't that correct?

A. I would have to reread this to establish that.

Q. But you just -- you don't know that for a fact now as we sit here, whether or not it has any relation to the PediaLean product?

MS. KAPIN: Objection argumentative.

Q. Or do you?

A. I don't know that it has any relation other than it's Glucomannan.

Q. The paper was published in the International Journal of Obesity, correct?

A. Yes.

Q. Is that a respectable journal?

A. Yes.

Q. And it's peer reviewed; isn't that correct?

A. Most of the articles in it are peer

HEYMSFIELD

eleven minutes after ten and we are off the record.

(Recess taken.)

MS. VIDEOGRAPHER: The time is now 10:25 and we are back on the record.

EXAMINATION BY

MR. BURBIDGE:

Q. Back on the record, Dr. Heymsfield. Richard Burbidge. I represent Dennis Gay. I have a few questions for you in this proceeding. What I'd like to do, if I can, is make sure we're on the same sheet of music with regard to placebo effect.

So what I would like you to do if you could, you are talking to a lay person now, so explain to me when you say "placebo effect" what you as a scientist are talking about?

A. Well, I'm not an expert on the placebo effect, so I can't describe to you the nuances of it. But the placebo effect is the phenomenon where when you administer some type of treatment you elicit a response in the patient that can be due just to the act

scientific evidence" standard, fair?

A. I understand that.

Q. All right. Is that the sense that you are using this term in your report or do you have another meaning to it?

A. I -- I -- I have an understanding of what "competent and reliable scientific evidence" is and that's evidenced by my report because what I've done in my report is I've reviewed the papers that I found relevant to the agents here under study. And I found serious weaknesses in those papers that led me to conclude that the evidence, based on those papers, did not provide competent and reliable scientific evidence that supports the claims for these products.

Q. And my question to you is, is there some learned text or some authoritative body of literature that I could go to to determine or to find out a scientific definition of competent and reliable scientific evidence as you are using it in your report?

A. No, I've just defined it for you in the context of my report.

statistically significant if I get a weight loss of five pounds in one month. So then you go back and say how many subjects will I need to test that hypothesis, and that's called powering a study.

So before you begin the study you do what's called a power calculation and you make a hypothesis about the amount of weight loss you expect over a certain period of time, and then you then determine what's called the sample size, the number of subjects you need?

Q. All right. Now, do you profess expertise in doing the power studies and determining how many patients you need based on the goal?

A. That is the job of a statistician, to do the power calculation. I mean -- well, I wouldn't do it. I'll go there. Sometimes statistician -- non-statisticians can do power calculations.

Q. You are not one of them?

A. I'm not one of those people who would do that, no.

Q. The short answer to my question is you don't claim a particular expertise in doing power calculations?

A. No. I only claim an expertise to know that I wouldn't do a study without a power calculation.

Q. All right, correct. So if you wanted to know if there was a proper power calculation in a particular study you would go to a biostatistician and have them make that analysis for you?

A. I would -- let's see. I think you are asking me something a little different.

Q. Let me be clear, let me restate it.

A. Yes, okay.

Q. I'm trying to finish in this area. I take it that if you were looking at a particular study and you wanted to know if they did a correct power calculation, as you referred to it, you would go to a statistician or a biostatistician and have them analyze it to see if it was correct?

A. Yes, because in properly designed trials the report will give you the power and

the hypothesis in the trial design. Not all weight control studies have reported the power.

Q. When you come on a study that you are interested in in your area, is it unusual for you to call the author and ask questions about it or ask somebody that co-authored it?

MS. KAPIN: Objection, asked and answered.

A. It's not usual for me to call an author of the study and ask them details about the study.

Q. And in the weight loss area, have you had success in having them be forthright and outgoing with regard to details that you are asking?

A. Yes.

MS. KAPIN: Objection, relevance. Just give me a pause and then I won't interrupt you.

Q. Okay, that's helpful for me. One of the studies that you looked at in connection with these particular products was the Daly study. Do you remember that?

Do you remember the Daly study?

A. Yes, I do.

Q. You had some criticisms over that regarding the power calculation. Did you have a biostatistician look at that for you to determine if the Daly study had a proper power calculation?

A. Well, if I recall correctly, and I don't have the Daly Paper in front of me, there was no power calculation in the Daly study.

Q. That is there was none reported?

A. I don't recall. Again, my memory isn't perfect on this. I haven't read the details of that paper, but I don't recall a power calculation in that study. It's possible there was one, but I would have to see the original paper.

Q. I appreciate that but you, from your experience as you've told us, you've been candid with us that even if the paper doesn't have a power calculation reported that's something you can access by calling the author or the publication to find out

what it was, fair?

MS. KAPIN: Objection, relevance, calls for speculation.

A. You could if you wanted, yes, that's not impossible.

Q. Right. If you are interested enough to see if they had a proper power calculation that's something you could do?

A. You could do that.

Q. And my question to you is, do you know if you did that with regard to the Daly study?

A. I --

MS. KAPIN: Objection, relevance. Go ahead.

A. I know that I didn't do it, yes.

Q. Okay. All right. Was there a particular reason that you didn't do it?

MS. KAPIN: Objection, relevance.

A. No, I don't -- I don't know Dr. Daly personally. To my best of recollection I haven't met her, nor did I feel a need to call her and ask her if she did a power calculation in that study but,

dietary supplements are regulated under DSHEA, whereas drugs are regulated through the Food and Cosmetic Act, you know, whatever. Again, you are getting to the edges of my knowledge, but they are regulated different.

Q. Let's get back to where you are really comfortable. In terms of your looking at the particular products that were the subject of your report --

A. Yes.

Q. -- did you look at the standard for "competent and reliable" as any different than if you were looking at a drug, for example?

MS. KAPIN: Objection, ambiguous.

A. I didn't distinguish between a drug and a dietary supplement. I only answered the questions that were asked to me by the Federal Trade Commission about efficacy as we discussed it before. And whether or not something's a drug or dietary supplement really wasn't the nature of the question, and how things are regulated and so on. I only

critical off. It's fair to say that uniformly you took the position that the studies had too small a population, fair?

MS. KAPIN: Objection, overbroad.

A. One of the criticisms I had of the studies that I reviewed, one of several was that the numbers of subjects were quite small.

Q. Fair enough. With regard to any of those studies, did you contact the authors and gain any detail with regard to the power calculation?

MS. KAPIN: Objection, relevance, overbroad, compound.

A. No.

MS. KAPIN: Sorry.

A. No, I didn't contact the authors.

Q. Are you aware of any written criticism of the studies that you cite by name in your expert report, other than your expert report?

MS. KAPIN: Objection, overbroad.

A. Well, "written" you mean published written?

HEYMSFIELD

Q. No. I use the term "written" advisedly, whether published or not.

MS. KAPIN: Same objection.

A. I have not specifically reviewed the literature, if that's the right word to answer that question, no. I haven't gone that, so I don't know the answer to it.

Q. Fair enough. But in any case with regard to you personally, this report, Exhibit 7 in this case, is the only written criticism that you know of of the studies that are the subject of your report; is that fair?

MS. KAPIN: Objection, overbroad, lack of foundation, speculation.

A. I have not specifically answered that question. In other words, if I went to the literature I could answer it and be more specific. I'm not aware of it, but nor have I really checked carefully.

Q. All right. So the answer is this is the only time that you've written a criticism of these reports that as you sit here you know of, fair?

A. Well, it's the only time I've published or published -- this is -- we consider this a written criticism of these studies. Yes, that's the only time I'm aware of it but then, again, I haven't really tried to answer that question.

Q. All right. Have you made any survey to determine whether other studies by other scientists have cited these studies to support their particular propositions in any regard?

A. These studies are often cited by other investigators and they are often cited in the context of being early work or published literature on these topics. But beyond that I can't answer it but, yes, they are cited in other studies. Of course they are because there are very few studies like these, and so people know of these two or three studies that are out there that I've cited here also.

Q. I appreciate that. So but as we sit here today, do you know of anyone that's written anything critical of the studies that

HEYMSFIELD

circumstance specific.

Q. Which is to say in some instances evidence that is not double-blind placebo-controlled clinical study might rise to the level of "competent and reliable scientific evidence"?

MS. KAPIN: Objection, overbroad, compound.

A. Generally speaking it's possible. Again, circumstance.

Q. I appreciate that, I appreciate that. When you -- I understand you work for Merck; is that correct?

A. Yes.

Q. Big drug pharmaceutical company?

A. I do.

Q. And they are in a lot of areas of medicine, and I take it they are even in diet supplements or in that area?

A. Not that I'm -- not diet supplements, no.

Q. What are you doing for them, just in general? How would you summarize it to somebody over the fence in your backyard?

HEYMSFIELD

MS. KAPIN: Objection. Let me make my objection. Objection, asked and answered. Go ahead.

A. I work on pharmacologic development, drug development for weight control and diabetes.

Q. So I take it that to the extent you are trying, with your colleagues, to develop a product, a drug that would assist someone in weight control, that that drug if you ever -- if you are successful would then compete with other weight loss products such as herbal supplements, fair?

MS. KAPIN: Objection, ambiguous, mischaracterizing.

A. I -- I'm not an expert on sort of the commercial side of weight control, so I have no idea who is competing with who. That's something maybe marketing would be, you know, weigh into. But I don't think about things like that.

Q. Okay. But you've been so active in reviewing dietary supplements in the weight loss area you would -- you would be able to

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reason, I take it, that if Merck came out with a drug that helps you lose weight that it would participate in a similar market to diet supplements, fair?

MS. KAPIN: Objection, lack of personal knowledge, ambiguous, argumentative.

A. I -- you know, as a lay person it's possible, but I can't tell you anything beyond what I just said.

Q. Let me ask you this. In your development or attempted development of a pharmaceutical that would assist in the weight loss area, I take it it's your conception that potentially you and your colleagues could design a pill or medicine that someone would take, that would help them lose weight irrespective of changes in diet and exercise, fair?

A. That's what I do, yes. I don't know if that's the question.

Q. Well, it is.

A. Yeah, that's what I'm working on.

Q. Should be, yes.

HEYMSFIELD

name on it, that you didn't read in its entirety?

MS. KAPIN: Objection, overbroad.

Q. If that's possible?

A. You said "entirety" this time, but you didn't say "entirety" last time and so "entirety" is very specific. So it's possible, yes, that an article was written with my name on it, that I didn't read entirely because I'm fairly focused and I would have contributed and read the sections that were assigned to me.

Q. Now, is a co-author responsible for the entire article in your judgment?

MS. KAPIN: Objection, relevance, overbroad.

A. Well, when you put your name on as an author you are generally responsible for the content of the article.

Q. Right.

A. But not for necessarily reading it entirely.

Q. Now, before an article is published in a peer reviewed journal, you must actually

HEYMSFIELD

MS. KAPIN: Objection, vague and overbroad.

A. Well, it just depends. Again, you know, now we'd have to take a specific circumstance. There are publications that are not peer reviewed, that are outstanding publications. It's very common.

Q. Let's take, for example, in the evaluation of original research. Do you consider in the evaluation of original research peer review to be an important aspect?

A. Yes, it's important.

Q. And in the course of preparing your expert report in this case, did you submit it to anyone else for peer review or for assessment, as to whether or not the judgements you rendered there are agreeable to other experts in the field?

MS. KAPIN: Objection, relevance, vague.

A. Well, I treated this as a confidential document, so I've not shared this with anybody.

HEYMSFIELD

Q. Sure. In the case of determining whether tests, analysis, research let's say on weight loss is generally accepted in the scientific community, to yield accurate and reliable results, what would you do?

What would you do to determine that?

MS. KAPIN: Objection, vague, overbroad and ambiguous.

A. Well, to begin with, I'm considered an expert in the field so that commutes a certain amount of experience and interaction with other experts in the field. So the judgment then is a matter of my integration of what other people like myself believe. And then, of course, there's a whole set of other much more objective types of criteria, but here you'd have to be specific for me to answer that.

Q. Now, can you name for me specifically those individuals you consider expert in the study of weight loss and dietary supplements?

MS. KAPIN: Objection, relevance,

vague.

Q. Other than yourself?

MS. KAPIN: Vague and overbroad. Sorry to interrupt.

A. Dietary supplements?

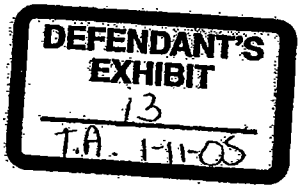
Q. In the case of dietary supplements and weight loss.

A. What I would do for that is there's an office at the NIH that deals with dietary supplements and that office, and I'm not sure the exact name of it, but that office funds grants in the area, peer review grants, in the area of dietary supplements, and you can go on the NIH website. It's called the "Crisp Website" and type in the term "dietary supplement" and you will get all the investigator's who have been cleared by the NIH as experts.

You could go there and that would be a good place to start. But, of course, I have colleagues who I work with, who I consider experts in general in weight control treatments. And dietary supplements are just one little piece of knowing about how to

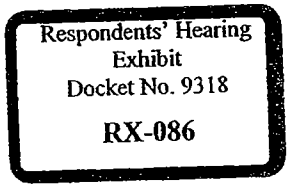
EXHIBIT D

UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION
OFFICE OF ADMINISTRATIVE LAW JUDGES



In the Matter of BASIC RESEARCH, L.L.C., A.G. WATERHOUSE, L.L.C., KLEIN-BECKER USA, L.L.C., NUTRASPORT, L.L.C., SOVAGE DERMALOGIC LABORATORIES, L.L.C., BAN, L.L.C., DENNIS GAY, DANIEL B. MOWREY, and MITCHELL K. FRIEDLANDER, Respondents.	Docket No. 9318

EXPERT REPORT OF STEVEN B. HEYMSFIELD, M.D.



October 17, 2004

Steven B. Heymsfield, M.D.
Professor of Medicine
New York Obesity Research Center
St. Luke's-Roosevelt Hospital
Columbia University College of Physicians and Surgeons
New York

Outline

My name is Steven B. Heymsfield. I am a United States Citizen over the age of 18. I reside in Mount Kisco, New York. I have personal knowledge of the matters contained in this my EXPERT REPORT, and I make this affidavit of matters of personal knowledge as to which I could competently testify if called as a witness.

1. CREDENTIALS

Training and Current Positions

I am a Doctor of Medicine employed by St. Luke's-Roosevelt Hospital and Columbia University College of Physicians in New York City, New York, and a graduate of Mount Sinai School of Medicine in New York City. I am a member of the Department of Medicine at St. Luke's-Roosevelt Hospital and Columbia University.

I am Deputy Director of the New York Obesity Research Center (NYORC) and I also hold the following Hospital and University positions: Professor of Medicine at Columbia University College of Physicians and Surgeons; Director of the Human Body Composition Laboratory of the NYORC; Attending Physician at St. Luke's-Roosevelt Hospital; Visiting Scientist, Brookhaven National Laboratory; and Research Scientist, Rockefeller University.

The NYORC is one of the premier centers, supported mainly by the National Institutes of Health, to study the problem of human obesity. Over 20 major scientists work at the center and they supervise many younger investigators and students at all levels. The NYORC has core laboratories, and I direct two of these, the Human Body Composition Core and the Outpatient Treatment Core. The Outpatient Treatment Core provides a setting in which to carry out studies of new obesity treatments, including diets,

dietary supplements, and drugs.

In the next month I will assume the position of Executive Director, Clinical Sciences, Merck & Co. in Rahway, New Jersey.

Academic Activities

As a Professor of Medicine at Columbia University, I supervise and teach students at the undergraduate and graduate levels. I am also an attending physician on the medical service and I supervise medical interns and residents. I lecture frequently in my academic position on nutrition related topics. I have considerable practical experience in the management of obese patients and medical patients in general. The Professor title is the top academic title offered by the University.

I am also a Visiting Scientist at Rockefeller University in New York City and a Research Scientist at Brookhaven National Laboratory in Upton, New York. My research focus is in the area of clinical nutrition with an emphasis on obesity management and evaluation. My curriculum vitae provided as **Attachment I.**

As Deputy Director of the NYORC, I am responsible for the administration and conduct of research studies carried out at this federally funded laboratory. I supervise all experimental studies in the Human Body Composition Laboratory that serves scientists in the New York Metropolitan area. In this capacity I work closely with over 20 scientists from the New York metropolitan area including those at Rockefeller, Columbia, and Cornell Universities. I critique and supervise their research at the NYORC and I collaborate in preparing grants and scientific papers.

I also supervise over ten other physicians and scientists and I lecture frequently to medical and graduate students. I serve on the Board of Directors, North American

Association for the Study of Obesity, the Executive Committee of the American Society of Clinical Nutrition (ASCN), and on the Advisory Board to the International Association for the Study of Obesity. I am the past president of the ASCN and the American Society for Parenteral and Enteral Nutrition, two of the nations most important academic nutrition societies.

Prior to my current position, I spent 15 years on the faculty at Emory University Medical School in Atlanta, Georgia. While in this position I carried out many federally funded studies in the area of clinical nutrition and I supervised students at all levels of education.

My current research centers on pharmacologic treatment of obesity and development/ evaluation of new body composition and metabolism measurement methods.

Obesity Research

Approximately 90% of my work is spent on full-time research concerning the study of clinical nutrition and obesity. I have now been teaching in the field of clinical nutrition and obesity as well as general medicine, at Emory and Columbia, for a total of approximately 30 years. I have published more than 300 research articles, chapters and books. I have reviewed hundreds of research papers submitted to journals on which I serve as an editorial board member. At present, I serve as a reviewer for the American Journal of Clinical Nutrition, Journal of Parenteral and Enteral Nutrition, Journal of the American Medical Association, New England Journal of Medicine, Obesity Research, International Journal of Obesity, and Nutrition. This review function of research papers and grants along with my own writings keeps me fully informed and up to date on the

recent medical literature.

I have appeared as a public commentator on nutrition many times and I have appeared on radio and television in the capacity. I have testified before congressional committees twice during recent dietary product investigations.

I have conducted numerous weight loss studies over the past 20 years in connection with my duties as a clinical scientist. These studies included an examination of food and drug effects on weight loss. My colleagues and I were the first to develop now widely used advanced methods for measuring body fat and muscle. I was the lead author on the first peer-reviewed studies of the newly discovered fat hormone leptin, and the widely used weight loss dietary supplement, Garcinia Cambogia. I participated in studies of the new weight loss drugs Axokine, Xenical, and Meridia. The reports of my colleagues and I on these weight loss agents and other aspects of human obesity have been published in top medical journals, including the Journal of the American Medical Association (JAMA) and the New England Journal of Medicine.

One of my recent research areas is the study of obesity in children. I have several pediatric grants funded by the NIH and the National Dairy Council. I have written a number of papers that appear in peer-review journals on weight-related topics in children.

My familiarity with obesity management led me to recognize the risks of the dietary supplement ephedra at a time when few warnings were present in the general public. My research and advocacy helped to protect consumers with improved warning labels and ultimately removal of the dietary supplements with ephedra from sale in the US by the FDA. I worked closely with other scientists at major universities on ephedra topics and my consultations with elected officials and FDA officers were pivotal in the

evaluation of dietary supplements. As mentioned below, the mayor of New York awarded me the Science and Technology medal for my public service efforts on behalf of obese consumers.

I have a number of patents based on my scientific observations and several more are in review.

Awards

I am the recipient of major professional awards and honors, including the Mosby Award in Clinical Medicine at Mount Sinai School of Medicine, First Place Award and Crutcher Award at the Annual Emory University Housestaff Research Day, Clinical and Research Scholar Award of the American College of Physicians, Honorary Member, Latin American & Argentine Medical Associations, Horowitz Alumni Award, Mount Sinai School of Medicine, Burroughs-Wellcome Scholar in Basic Science, Honorary Member of the American Dietetic Association and Chilean Clinical Nutrition Association. The highest award from the American Society of Parenteral and Enteral Nutrition, the Rhoads Award recognized my work in clinical nutrition. I also deliver honorary lectures on a regular basis and last year I was awarded the highest US prize in obesity research, the TOPS Award. This past week I was awarded New York City's highest scientific award, the Mayor's Award for Science Technology for my efforts to ban the dangerous dietary supplement, ephedra.

Previous Testimonies

I have been accepted to testify as an expert in matters concerning diet products and nutrition in several state and federal courts. I am compensated for my current Federal

Trade Commission activities, including evaluating research papers and related claims, and preparing reports. I am paid a fee of $100 per hour.

II. SCOPE OF THE REPORT

I have been asked to evaluate if competent and reliable scientific evidence supports assertions that (abstracted from Basic Research, LLC, et al., Docket #9318; Complaint):

28A. Leptoprin causes weight loss of more than 20 pounds, including as much as 50, 60, or 147 pounds, in significantly overweight users; and

28B. Leptoprin causes loss of substantial, excess fat in significantly overweight users.

31A. Clinical testing proves that Leptoprin causes weight loss of more than 20 pounds, including as much as 50, 60, or 147 pounds, in significantly overweight users; and

31B. Clinical testing proves that Leptoprin causes loss of substantial, excess fat in significantly overweight users.

33A. Anorex causes weight loss of more than 20 pounds in significantly overweight users; and

33B. Anorex causes loss of substantial, excess fat in significantly overweight users.

37. PediaLean causes substantial weight loss in overweight or obese children.

40. Clinical testing proves that PediaLean causes substantial weight loss in overweight or obese children.

My report is based on material provided to me by the Federal Trade Commission (FTC) and on my own extensive files and literature search. In general, I reviewed the FTC complaint, advertisements, product ingredient information (e.g., see **Appendix II**), the claim substantiation submitted by the respondents, including published research papers in support of the claim substantiation (e.g., for example, papers in **Appendix III**), a grant proposal, and other related documents. The Federal Trade Commission provided the material attached in **Appendix II** and **Appendix III** and the additional material can be found in my files.

Specifically, I used the following references for Anorex and Leptoprin:

A. Daly et al., International Journal of Obesity S73, 1993.

B. Kalman et al., Current Therapeutic Research 61, 2000.

C. Colker et al. Journal of the American College of Nutrition, abstr. 116, 1997

D. Shekelle, et al., the Rand Report on Ephedra, JAMA 2003;289:1537-45.

I used the following references for PediaLean review:

E. Livieri et al., Ped Med Chir, 1992.

F. Vido et al., Paediatrica-Paedologica, 1991.

As noted above, I also used many other documents provided to me by the FTC in addition to the specific ones listed here and provided in **Appendix III**. These studies noted in A-F were most pertinent to my evaluation and other materials were less pertinent to the question of whether competent and reliable evidence supports the alleged representations. Some of the papers reviewed in A-F are randomized double-blind trials

that are considered the reference method for testing product efficacy. The non-reviewed materials included papers and other documents did report the results of randomized experimental studies.

As I continue to receive information on this case I reserve the right to re-state my views in light of new evidence. I have reviewed a number of related reports in the past several weeks appearing in peer-review journals although these studies do not add to those or change the conclusions of those listed in A to F.

III. CONCLUSIONS

Competent and reliable evidence does not support the representations in the complaint.

Anorex and Leptoprin include as the main active ingredients ephedra, caffeine, and aspirin, the so-called ECA stack. When taken in combination, depending on dose, the stack presents a synergistic group of stimulant components that mainly suppress appetite and increase energy expenditure. The stack has actions on the sympathetic nervous system and the FDA has now banned the ephedra component because of potentially lethal or disabling heart rhythm disturbances and strokes. Ephedra alkaloids from dietary supplements or the related drug ephedrine produce modest (~2 pounds/month) weight loss above that of a placebo tablet.

PediaLean's active ingredient is a micronized fiber concentrate derived from a plant (tuber) called P. rivieri. This tuber has been used as a food source and a method was recently developed for micro-processing the plant into a high-molecular-weight

powder. Once ingested, the fiber swells as it adsorbs water and this bulking property may have effects on hunger, satiety, and body weight.

Based on over thirty years of experience in the areas of human obesity, weight control, metabolism and body composition, I conclude the following:

The available scientific literature does not support the claims above (28, 31, 33) for the products Anorex and Leptoprin. Specifically,

- The reviewed papers did not specifically study the proprietary dietary supplements Anorex and Leptoprin; rather, they evaluated products with similar purified drugs or chemicals in combinations different from those of the ECA stack. One study was a synthetic review of the available literature and did not specifically examine the ECA stack.
- The experimental studies included small numbers of subjects treated for short time periods; studies were uniformly flawed in their management and interpretation of study results.
- Even with these serious limitations, the ECA stack as reported in these experimental studies had minimal overall effects on body weight and body fat; large amounts of weight loss (≥20 pounds) and substantial loss of excess body fat were not observed in the study groups treated with variable proportions of ECA stack components. These studies reported very small weight loss effects of the agents under study, nothing like those noted in the above complaints.
- The body fat claims cannot be supported based on this literature as the measurement methods and study designs are inadequate to draw firm

conclusions on the magnitude of product fat-effects. Again, even if we accept these very limited studies, the magnitude of fat mass changes and the excess fat mass lost was small and not substantial as noted in the complaints.

The available scientific literature does not support the claims above (37, 40) for the product PediaLean.

- The Livieri paper did not specifically evaluate the product component of PediaLean (i.e., DICOMAN 5; micronized fiber concentrate derived from P. rivieri, a plant), but rather studied related ingredients.
- The two reviewed studies failed to provide weight data and presented results as "excess weight", making interpretation of product weight loss effects impossible.
- Serious design and analysis flaws are present in both studies (i.e., the first was not a randomized double blind study and the second was not properly analyzed), thus negating the possibility of inferring test product efficacy. No efficacy inferences can be drawn from the first study because it was not double blind and the second study, even though statistically flawed, failed to show weight loss efficacy of the test product.
- These two studies support the view that children participating in weight control studies may show beneficial effects for some measures, but neither one supports the claims as stated in paragraphs 37 and 40 of the Commission's complaint.

IV. ANALYSIS and BASIS for CONCLUSIONS

Background

Overweight and obesity are a consequence of modernization with ample food supplies and a lowered need for work-related physical activities. A subject's adult weight is a product of the environmental influences and their underlying genetic makeup. About two thirds of Americans are now considered to be at unhealthy weights considered either overweight or obese.

A similar epidemic of obesity is appearing in children and the consequences are evident to the medical community with soaring rates of type II diabetes mellitus, and condition directly related to excess adiposity that is usually observed in adults. Many consider obesity a disease and not merely a cosmetic inconvenience.

Both the National Institutes of Health and the World Health Organization define excess weight according to body mass index (BMI), which is weight in kg divided by height in meters squared. This adjustment compensates weight for individual difference in height. In adults, a BMI of $\geq$25 kg/m^2 is defined as overweight and $\geq$30 kg/m^2 as obese. The risk of many diseases is increased in overweight and obese individuals. Overweight and obesity are defined using one of several published percentile distributions in children up to the age of 18 years.

Weight maintenance is recommended if adult BMI is <25 kg/m^2 and weight loss if BMI is >25 kg/m^2. The cornerstone of weight loss treatment is behavior modification, including a reduction in calorie intake and an increase in physical activity. The 2005 Dietary Guidelines reported last week by the National Academy of Sciences summarizes current thinking on the optimum diet and physical activity approach:

- Consume a variety of foods within and among the basic food groups while staying within energy needs.
- Control calorie intake to manage body weight.
- Be physically active every day.
- Increase daily intake of fruits and vegetables, whole grains, and nonfat or low-fat milk and milk products.
- Choose fats wisely for good health.
- Choose carbohydrates wisely for good health.
- Choose and prepare foods with little salt.
- If you drink alcoholic beverages, do so in moderation.
- Keep food safe to eat.

Prescription drugs and surgery are also options if behavioral measures are unsuccessful in producing clinically meaningful weight loss.

With conventional weight loss treatment subjects are guided to lose 1-2 pounds per week. A rough estimate is that a deficit of 500 kcal per day will lead to a deficit of 3500 kcal/week that translates to a one-pound/ week weight loss. A weight loss of 5-10% is considered clinically significant. Not all weight loss is fat and muscle and other lean tissues account for about ¼ of weight lost on a conventional treatment program. Subjects are also guided to increase their level of physical activity.

Americans eat too little fiber and many health benefits have been ascribed to various dietary fibers. However, no specific fiber-based product has been shown to significantly increase long-term weight loss.

One hundred years ago the safety and effectiveness (efficacy) of various diets was established by anecdotes and testimonials. Over the past several decades scientists have increasingly defined the quality of studies needed to establish a treatment's safety and efficacy. The accepted standard now is the randomized double blind trial in which neither the investigator nor the patient is aware of the treatment (i.e., active agent or placebo/dummy pill) and the treatment is selected randomly (e.g., a coin toss). In addition to this basic clinical trial structure, a very well developed consensus exists on how to analyze randomized trials. For example, if subjects drop out from the study there are standard procedures on how to manage their results rather than simply drop them from the analysis. These are critical issues and scientists have a high standard for conducting weight loss trials. The scientific community will not acknowledge a product's safety and efficacy based on a poor quality study.

Specific Product Review

I now review the primary evidence in support of the above claims. Anorex and Leptoprin have the same ingredients and I review them together.

Anorex and Leptoprin:

PA Daly et al., International Journal of Obesity S73, 1993.

Daly and colleagues investigated the safety and efficacy of a mixture of ephedrine (75-150 mg), caffeine (150 mg), and aspirin (330 mg)(the total dose of ephedrine was increased from 75 mg to 150 mg after the first month). These are pharmaceutical grade ingredients and are not considered dietary supplements that are usually derived from plant sources. The amount and chemical makeup of the agents used in this study are therefore known precisely, unlike dietary supplements in which the amounts and

chemical components can vary from those stated on the label. The combined ingredients are referred to as the ECA stack or simply the stack.

Leptoprin and Anorex have variable recommended dosages but the maximum suggested is ephedra alkaloids 60 mg, caffeine 600 mg, and acetylsalicylic acid 972 mg (20/200/324 mg/serving @ 3 servings/day). Daly's ephedrine dose was larger (75 mg), and ephedra is the most potent of the three stack components with respect to weight loss. Leptoprin and Anorex might therefore have an even smaller effect on body weight than that reported by Daly et al. Ephedrine is a powerful stimulant that suppresses appetite and has other physiological effects that can lead to adverse effects; the Food and Drug Administration has now banned ephedra alkaloids, the term referred to for this class of dietary supplements that also include the drug ephedrine. Caffeine and aspirin amplify the actions of ephedra alkaloids on body tissues; caffeine and aspirin alone have little or no effect on body weight. The two products also include other active ingredients, including calcium and green tea extract. Neither of these components produces clinically significant weight loss of the magnitude stated in the above claims and they will not be reviewed further here.

There were 24 obese subjects and they were randomized in Daly's study to either active drug or placebo. There was no diet treatment and study duration was 8 weeks. Weight loss was 2.2 kg (4.8 pounds or 0.6 pounds/week) in the active treatment group and 0.7 kg (1.5 pounds or 0.2 pounds/week). Thus, the ECA stack led to a weight loss of less than 0.5-pounds/ week (i.e., active agent 0.6 pounds/wk – placebo 0.2 pounds/week = 0.4 pounds/week). The rate of weight loss appeared to increase when the ephedra dose was increased after four weeks of treatment. The rate of weight loss overall was

statistically greater on the stack compared to placebo, although neither group experienced large amounts of or rapid weight loss. In fact, the rate of weight loss in both the active treatment and placebo groups was about ½ pound or less per week.

There are other parts to this study, but this first phase is the main randomized portion and the one that can be appropriately interpreted in the current context.

There are some important limitations to this study. First, the number of subjects in the study was far too low in order to derive any meaningful inferences on safety and efficacy. We must consider the sample a "pilot" in our overall analysis of the stack. Far more, perhaps over 100 subjects, would be a reasonable study sample.

Second, 29 subjects actually enrolled in the study but 5 dropped because of poor compliance. These subjects were not included in the statistical analysis and the results reflect "completers" (i.e., only those subjects completing the study). This is an unacceptable approach as presented in the paper. Randomized controlled trials for weight loss are now usually analyzed by what is referred to as the "intention to treat" method to avoid "bias" in the study results. The five dropouts should have been included in the analysis. No fat measurements were made in the study. Third, the study was short term, only 8 weeks for the randomized portion. We cannot therefore establish efficacy from this study beyond that time.

The most we can conclude from this flawed "pilot" study is that the stack, taken in the aforementioned dosages, can produce ~0.5 pound/week weight loss. Thus we cannot reasonably accept the statements challenged in the Complaint (above).

Leptoprin causes weight loss of more than 20 pounds, including as much as 50, 60, or 147 pounds, in significantly overweight users; and Leptoprin causes loss of substantial, excess fat in significantly overweight users.

Clinical testing proves that Leptoprin causes weight loss of more than 20 pounds, including as much as 50, 60, or 147 pounds, in significantly overweight users; and clinical testing proves that Leptoprin causes loss of substantial, excess fat in significantly overweight users.

Anorex causes weight loss of more than 20 pounds in significantly overweight users; and Anorex causes loss of substantial, excess fat in significantly overweight users.

Kalman et al., Current Therapeutic Research 61, 2000.

Kalman and colleagues published their results of a double blind, placebo controlled clinical trial examining the effects of an ephedra-containing weight loss aid. The active treatment included ephedrine (40 mg), synephrine (10 mg)(a related drug), caffeine (400 mg), and salicin (30 mg)(an aspirin-like agent). A low calorie diet was also recommended. This study and associated findings were included in the Rand Report (see page 22 below). The ingredients are all drugs and not dietary supplements.

There are three serious concerns that arise when critically reviewing this paper: discrepancies between the published paper and a related abstract; questions about study entry criteria; and statistical treatment of the data.

Kalman and colleagues summarized their findings in two tables (Appendix III, Bates #ZX001111, ZX001112). Thirty subjects were reportedly randomized in the double blind trial, 23 men and 7 women, to either active dietary supplement (Xenadrine, Cytodyne Technologies, Lakewood, NJ) or placebo for eight weeks. The baseline characteristics of these subjects, 16 in the active group and 14 in the placebo group, are summarized in Table I of the paper. The findings of the 12 and 13 subjects completing the study in active and placebo groups, respectively, are summarized in Table II.

I was able to compare the published report to another related published study abstract (NAASO Hot Topic; Appendix III). The abstract reported 15 subjects randomized to each group, not 16 and 14 in the active and placebo groups, respectively, as stated in the published paper. The paper states that subjects were assigned to groups who a had body mass index of > 27 kg/m^2, even though the mean and standard deviation of the pooled group was reported in the abstract as 28 ± 2.46 kg/m^2. The reported BMI suggests the data were either highly skewed or that subjects with BMI ≤ 27 kg/m^2 were entered into the protocol. Thus, the abstract and paper differ in the number of evaluated subjects. Also, the data suggest that either the authors included subjects with a BMI of <27 kg/m^2 or they failed to use appropriate statistical methods in reporting "skewed" data (e.g., report group BMI mode in addition to BMI mean and standard deviation, etc.)

Another concern with respect to statistical treatment of data is treatment of the weight loss results. In their paper the investigators report a 9% and 3.8% weight loss in the active and placebo groups, respectively. These percentages were calculated from the mean group initial and final body weights reported in Table II. However, the authors have inappropriately used the baseline weights for all enrolled subjects (experimental, n=16,

82.07 kg; placebo, n=14, 78.13 kg) in Table II even though the respective 8-week follow-up weights (74.74 kg and 75.21 kg) in the table are for the remaining subjects (n=12 and n=14) at 8 weeks after exclusion of dropouts. The percentage weight change reported in the paper thus represents the relative loss of weight between starters (n=16/14) and finishers (n=12/14), a meaningless comparison.

In other words, the authors calculated the weight change for each group by subtracting the final group weight from the initial group weight. However, some subjects dropped from the study and their weights are therefore not included in the follow up average weight. If the subjects who dropped from the study were heavier than average, for example, this would lead to a lower average follow-up weight irrespective of weight loss. The result of this calculation error would be to falsely increase the apparent amount of weight loss. This is one of several classical calculation errors in this paper and one that undercuts the credibility of reported weight loss effects of the product under study.

To determine the actual weight change in the finishers, I estimated the starting weights of the finishing groups by subtracting the mean weight loss from the mean finishing weights (77.88 kg and 77.26 kg) and then re-calculated the percentage weight loss for finishers only (-4.03% and -2.65%) as implied in Table II. The between-group percentage weight loss difference was now markedly diminished, from 9% vs. 3.8% or a Δ of 5.2% in the original paper to 4.03% vs. 2.65% or a Δ of 1.38% in my estimated re-calculation. The only weight loss data presented in the abstract was the percentage change (-9% and -3.8%). Only the 30 starting subjects are mentioned in the abstract and there is no mention of dropouts. The management of dropouts is a major part of product

evaluation and failure to appropriately consider them can lead to biased or inaccurate study results and conclusions.

Body fat was measured with a skinfold caliper, and this method is not sufficiently accurate or precise to accurately measure the small changes in adiposity observed in this study. This may explain why I was unable to match the changes in fat and fat-free mass with the changes in body weight. According to the authors, the change in %fat was significantly larger in the active treatment group than in the placebo group.

The serious flaws in this study...questions about sample size and dropouts, data treatment, and fat measurement methods make interpretation of weight and fat loss results difficult. In the context of these interpretation issues, the authors report that the product produces very modest weight loss (~1 kg or 2.2 pounds above placebo) over the 8-weeks or much less than one-pound per week. Even when the flawed analysis is used to calculate the rate of weight loss, the range is still less than 1-2 pounds/week.

There are serious questions about the quality of the body composition data; the authors claim the product produced a small increment in the %fat change with active treatment.

Thus we cannot reasonably accept the statements challenged in the Complaint.

Colker et al. Journal of the American College of Nutrition, abstr. 116, 1997

This brief abstract relates to the efficacy of the stack (ephedrine, 60 mg; caffeine, 600 mg; aspirin, 975 mg) in overweight subjects. There were 20 males, 10 in active and 10 in placebo groups, treated for 6 weeks; there was no diet intervention. No information is presented on dropouts or the method of statistical analysis. Mean values are presented for key variables and there are no standard deviations that would allow us to critically

examine the range of tested data. Body fat was measured by bioimpedance analysis, a limited method when applied in the setting of the current study. The actively treated subjects lost 9.2 pounds compared to the 1.5 pounds in controls. Assuming these are valid data, the "active" stack components produced less than one-pound per week of weight loss. Between-group comparisons in fat loss are not provided.

This abstract thus does not provide sufficient data to critically evaluate the study design, methods, and results. The abstract was also not included in the comprehensive Rand Report described below (page 22) as the abstract was not technically rigorous enough to be included in the Rand meta-analysis.

Thus we cannot reasonably accept the statements challenged in the Complaint.

Shekelle, et al., the Rand Report on Ephedra, JAMA. 2003;289:1537-45.

Although ephedra and ephedrine sometimes are used for weight loss, the efficacy and safety of these compounds are uncertain. This study carried out by the Rand Corporation and published in the Journal of the Medical Association was designed to assess the efficacy and safety of ephedra and ephedrine used for weight loss. The authors searched 9 databases using the terms ephedra, ephedrine, adverse effect, side effect, efficacy, effective, and toxic. They included unpublished trials and non-English-language documents. Eligible studies for weight loss were human studies with at least 8 weeks of follow-up. Of the 530 articles screened, 52 controlled trials and 65 case reports were included in the adverse events analysis. Two reviewers independently identified trials of efficacy and safety of ephedra and ephedrine on weight loss or athletic performance; disagreements were resolved by consensus.

There are no long term randomized controlled trials of ephedra exceeding six months. Pooled results for trials comparing placebo with ephedrine alone, ephedrine and caffeine, ephedrafrom herbal sources, and ephedra and herbs containing caffeine yielded estimates of weight loss (more than placebo) of 0.6 (95% confidence interval, 0.2-1.0), 1.0 (0.7-1.3), 0.8 (0.4-1.2), and 1.0 (0.6-1.3) kg/mo, respectively. These confidence intervals are very important as they provide us with a measure of the extremes of weight loss produced by ephedrine and ephedra. Even at the extreme, weight loss produced by ephedrine and ephedra amounts to only a few pounds per month.

The authors conclude that ephedrine and ephedra promote modest short-term weight loss (approximately 0.9 kg/mo [~2 pounds] more than placebo) in clinical trials. There are no data regarding long-term weight loss or fat mass changes with active treatments.

Thus we cannot reasonably accept the statements challenged in the Complaint.

Based on 30 years of experience in the area of human obesity and metabolism, combined with a review of the scientific literature including materials submitted by the respondents, there is no competent and reliable evidence to support these claims.

PediaLean:

I will now review the primary evidence for the PediaLean claims.

Livieri C, et al., Ped Med Chir, 1992.

Livieri et al. evaluated the effectiveness of a highly purified extract of Proteinophallus Rivieri fibers in overweight children (12 boys and 11 girls, ages 5.2-15.8 years). Subjects were treated with Pediatropin (2-3 g/day, depending on age) for 4

years). Subjects were treated with Pediatropin (2-3 g/day, depending on age) for 4 months. A separate control group was also followed including 30 children age 5-18 years. The failure to randomize subjects to active treatment or placebo is a serious flaw in the design of this study. The study was also not "blinded" so the potential for experimental bias is substantial. A study with this is not acceptable for supporting a drug or herbal product's efficacy.

The study agent was highly purified concentrated P. rivieri of high molecular weight and low viscosity. Two capsules twice a day (2 g) were prescribed to patients < age 10 and 3 capsules twice a day (3 g) were prescribed to older subjects. The pills were ingested before meals with water. A balanced diet was provided to both groups.

Of 37 subjects enrolled in the study, 14 failed to complete the project leaving 23 for analysis. The data presentation is therefore based only on completers and those children dropping out with side effects are not considered in the results. Similarly, 39 subjects were selected as controls and 30 completed the study. The failure to consider dropouts is a serious flaw in the analytical approach of this study. Bias in the results can emerge when dropouts are not considered and there are standard accepted procedures for managing data from subjects who fail to complete the full protocol. We cannot therefore reasonably accept the validity of the results as reported by the authors.

Remarkably for a weight control study, the authors fail to present weight data. We cannot therefore infer the magnitude of weight change observed in the study. Rather, the authors chose to present their data as "excess weight", an intangible measure of adiposity. The study was said to be 4 months, but the authors use terms such as "4-6 months" in describing final outcome measures. Also, it is unclear is the loss in "excess weight"

study was not designed properly to test product efficacy and the statistical methods are inappropriate for making between-group comparisons.

The study thus suffers from flaws that render it unreliable: lack or randomization; failure to appropriately manage data from subjects who failed to complete the study; and lack of reported weight data.

The authors present other results, such as biochemical measures. The study did not include a measure of body fat.

Thus we cannot reasonably accept the statements challenged in the Complaint: PediaLean causes substantial weight loss in overweight or obese children; and that clinical testing proves that PediaLean causes substantial weight loss in overweight or obese children.

Vido L et al., Paediatrica-Paedologica, 1991.

Vido et al. carried out a double blind study of 60 children under the age of 15 years using a glucomannan product at a dose of 2 g/day. There was a "normocaloric" diet and the study duration was two months.

We are not provided weights in this study and, again, only %overweight is reported. All subjects appeared to complete the study and no dropouts are reported.

The authors fail to appropriately control results for between-group baseline differences in sex and percentage overweight. Even though both groups appeared to have a statistically significant lowering of percentage overweight, the between-group differences were not significant.

Thus, even with the aforementioned serious limitations, this study provides no support for the product efficacy claims other than children who enroll in a weight control study lose a "statistically significant" amount of their excess weight.

Based on 30 years of experience in the area of human obesity and metabolism, combined with a review of the scientific literature including materials submitted by the respondents, there is no competent and reliable evidence to support these claims.

EXHIBIT E

*1978 FTC LEXIS 375, **

In the Matter of HERBERT R. GIBSON, SR., et al.

DOCKET No. 9016

Federal Trade Commission

1978 FTC LEXIS 375

ORDER TAKING OFFICIAL NOTICE OF CERTAIN TELEPHONE DIRECTORY LISTINGS

May 3, 1978

ALJ: [*1]

Theodor P. von Brand, Administrative Law Judge

ORDER:
Complaint counsel move pursuant to Rule 3.43(d) of the Rules of Practice that official notice be taken of certain listings in the Dallas, Texas telephone directories in the period 1969-77. Respondents have filed an answer in opposition.

At the outset it may be noted the authenticity of the directories is not in dispute. Nor can there be any question that the listings which complaint counsel request be noticed in fact appeared in the directories in question.

Respondents urge that the Commission's Rules of Practice do not provide for the taking of official notice of adjudicative facts. The short answer is that 3.43(d) of the Commission's Rules does provide that initial or Commission decisions may rest upon facts officially noticed provided there is opportunity to disprove the noticed facts. Respondents further argue that official notice should not be taken because they would be deprived of cross-examination of the telephone company employees preparing the directories, and further that this procedure would unfairly shift the burden of proof. In addition, they urge that the motion should be denied because if such official notice **[*2]** were granted their defense would require time consuming discovery leading to delay.

Rule 803 of the Federal Rules of Evidence entitled "Hearsay Exceptions; Availability of Declarant Immaterial" n1/ provides that certain materials are not excluded by the hearsay rule even though the declarant is available as a witness. Among the exceptions are:

n1/ The Federal Rules of Evidence while not controlling in FTC proceedings frequently provide a useful guide to the resolution of evidentiary problems.
"(17) Market reports, commercial publications. Market quotations, tabulations, lists, directories, or other published compilations, generally used and relied upon by the public or by persons in particular occupations."

The basis of trustworthiness underlying the rule is general reliance by the public or by a particular segment of it on such publications and the motivation of the compiler to foster reliance by being accurate. Weinstein's Evidence 803-49. The public generally uses and relies upon such directories in making use of the telephone. n2/ The material is accordingly within the exception of Rule 803(17) and the taking of official notice of such facts does not **[*3]** deprive respondents of their right to cross-examine.

n2/ Courts admitting such evidence have noted that "Telephone directories... are semipublic documents" and that such directories are constantly consulted [with] "Reliance... generally placed thereon" State v.

McInerney, 182 P.2d 28, 34 (Wyo. 1947); see also In re Gilbert's Estate, 15 A.2d 111, 115 (N.J. 1940); Peoples Nat. Bank v. Manos Brothers, 84 S.E.2d 857 (S.C. 1954); Williams v. Campbell Soup Co., 80 F. Supp. 865, 868 (W.D. Mo. 1948); Harris v. Beech Aircraft Corporation, 248 F. Supp. 599, 601 (E.D. Tenn. 1965).

Nor does this procedure unfairly shift the burden of proof. Respondents are in the best position to rebut the facts noticed or the inferences which may be drawn therefrom. If, in fact, some of the listings were in error, respondents should be able to demonstrate that fact. Moreover, respondents, not telephone company officials, have command of the facts which may be introduced to rebut the inferences to be drawn from such listings. Finally, if, in fact, the listings in question did contain errors then respondents should be able to document their efforts to obtain corrections **[*4]** if such efforts were made. Under the circumstances, there is no need for time consuming discovery from telephone company officials or employees as respondents contend. Accordingly.

IT IS ORDERED that complaint counsel's motion to take official notice filed April 17, 1978, be, and it hereby is, granted.

EXHIBIT F

November 22, 2005

STATEMENT OF STEPHEN C. ALDER, PH.D.

Sample Size

From Expert Report of Steven B. Heymsfield, M.D.:

Page 17: "*First, the number of subjects in the study was far too low in order to derive any meaningful inferences on safety and efficacy. We must consider the sample a "pilot" in our overall analysis of the stack. Far more, perhaps over 100 subjects, would be a reasonable study sample.*"

If a scientist does not understand statistics, he or she cannot adequately evaluate research studies to determine the extent to which they support any scientific proposition.

Determining the appropriate sample size for a study is based on factors affecting the likelihood that a minimally meaningful effect will be detected if it present[1,2]. Known as statistical power, sample size calculations are often used prior to a study to estimate how many subjects are needed for this likelihood to be at least 80%[1,2,3]. However, once a significant finding is observed, the issue of statistical power and of needed sample size is no longer relevant. To state that a sample size is too low when a significant finding is achieved is a flawed claim which runs counter to the entire foundation of statistical inference and sample size calculation. Rather, Hulley *et al.* state that; "A factor large enough to produce statistically significant differences in a small sample is more worthy of attention than a factor which produces small differences that can be shown to be statistically significant with a very large sample" (page 171)[2].

Methods for identifying the number of study subjects needed to make meaningful inferences in a clinical trial are well established[1,2,3]. Arbitrarily identifying a study as having a sample that is "far too low" or claiming the need for a certain number of subjects, such as "perhaps over 100," is invalid without consideration of the several factors that are used to derive appropriate sample sizes[4,5,6].

One way to consider the process of determining an appropriate sample size is to compare the results of a clinical trial to a radio transmission. The observed overall effect in a clinical trial (such as the mean weight loss in a group) is like a radio signal. The measure of the differences in individual effects (such as each individual's weight loss) is known as inherent variability and is like static noise in a radio transmission. A radio signal can be heard depending on its strength relative to the amount of noise in the transmission. A strong signal can be discerned even if there is a high level of noise in the transmission. A weak signal can be heard only if the noise level is low.

In clinical trials, the observed effect is compared to the inherent variability using biostatistics[1,2]. Through this comparison, a test statistic is calculated that then generates a *p*-value[3]. A *p*-value is the probability that an effect as large as that observed will occur by random chance. If the inherent variability is high, then random chance may drive relatively large observed differences. It through the use of biostatistical methods that the observed differences are evaluated as to the extent to which they are due to chance or a meaningful effect[3].

Inherent variability differs from study to study[1,2]. For illustration of this point, consider two samples of 10 subjects each that result in the same group mean weight loss of 5 pounds per study subject. In study one, if all subjects lose exactly 5 pounds, then there is no inherent variability – or no difference in individual weight loss amongst study subjects. In study two, if each subject's change in weight is different – with some losing as much as 25 pounds and others gaining as much as 5 pounds – then the inherent variability is considered high relative to study one. So, while the overall effect of a mean weight loss of 5 pounds per group is observed, it is entirely possible that study one will generate a statistically significant result (determining that the result of a 5 pound weight loss is not a chance finding due to inherent variability) while study two may not achieve statistical significance (the average of a 5 pound weight loss for the group may simply be a chance finding due to the high degree of inherent variability).

The level of inherent variability within a sample is the principal factor used to determine the number of subjects needed to draw appropriate conclusions about a given effect[1,2,3]. If the inherent variability is high relative to the study effect (the level of noise is high relative to the radio signal) then a large sample will be needed. However, if the inherent variability is low compared to the study effect, then a small sample is sufficient. Sample size is used to stabilize the inherent variability in a study[4,5]. That is, inherent variability has less of an impact on the biostatistical analyses of a clinical trial as the sample size increases.

Because of the link between inherent variability – which is different from study to study – and sample size needed for stabilization of the inherent variability, it is inappropriate to identify some arbitrary number of subjects as being necessary for a given study[1,2]. Rather, methods for either estimating the sample needed prior to conducting a study or the appropriateness of the sample once a study is completed are well established[3,4,5]. Understanding and applying those sample size calculation methods is necessary to address issues of sample size appropriateness in a clinical trial. However, it is vital to understand that determining if meaningful inferences can be derived from a study depends on whether or not the results are significant and not the results of the sample size calculation.

Sample size calculations are used to ensure that the *likelihood* of detecting an effect is appropriately high, but they are irrelevant if the actual results of the study are statistically significant[3]. Sample size calculations are a tool to help the researcher make an educated guess about how many subjects are needed to achieve a statistically significant finding with a set probability (usually 80%) based on a minimally meaningful effect to be detected[1,2]. This is only an estimate because the researcher cannot know the exact inherent variability or the observed effect until the research results are obtained. However, once a significant finding is observed, the issue of statistical power and of needed sample size is no longer relevant. If a significant finding is observed, then the results confirm that an appropriate number of subjects was used in the study[3]. To state that a sample size is too low when a significant finding is achieved is a flawed claim

which runs counter to the entire foundation of statistical inference and sample size calculation.

In summary, detecting a meaningful effect in a clinical trial in the context of inherent variability of that effect is like trying to hear a radio signal in the context of noise. A large effect can be discerned even when the inherent variability is high, while detecting a small effect requires that the impact of the inherent variability be small. Sample size is used to stabilize the inherent variability to improve the 'signal to noise' ratio in a statistical analysis. If a significant result is obtained, issues of sample size and statistical power are no longer relevant. To make claims about the inadequacy of a sample size without consideration of the factors that are used to calculate the estimated sample size needed or when a significant finding is obtained is biostatistically inappropriate. Further, to arbitrarily project the number of subjects needed for a study to provide meaningful inferences without any consideration of the observed effect to inherent variability is likewise flawed.

References

1. Hulley SB, Cummings SR, Browner WS, Grady D, Hearst N, Newman TB. (2001). Designing Clinical Research. Lippincott Williams & Wilkins: New York.

2. Bowling A. (2002). Research methods in health. New York: McGraw-Hill.

3. Pagano M, Gauvreau K. (2000). Principles of biostatistics. Pacific Grove, CA: Duxbury.

4. Toutenburg H. (2002). Statistical analysis of designed experiments. New York: Springer.

5. Rosner B. (1995). Fundamentals of biostatistics. Belmont: Wadsworth.

6. Meinert CL. (1986). Clinical trials: design, conduct, and analysis. New York: Oxford.

Stephen C. Alder, Ph.D.

11/22/05
Date

Last Updated: 11/22/2005

Curriculum Vitae

I. PERSONAL DATA

Name: Stephen C. Alder

Birth Place: Salt Lake City, UT

Citizenship: United States

II. EDUCATION

A. Baccalaureate Degree

1988 - 1992 B.S., University of Utah, Salt Lake City, UT, Environment and Behavior

B. Advanced Degree

1996 - 2001 Ph.D., University of Utah, Salt Lake City, UT, Health Promotion and Education, Community Health Emphasis

1992 - 1996 M.S., University of Utah, Salt Lake City, UT, Family Ecology

III. ACADEMIC HISTORY

Family and Preventive Medicine (Public Health)

Hire, Research Associate Track, Research Associate, 01/15/1990

Hire, Tenure Track-Scientist Scholar, Assistant Professor, 02/01/2002

Internal Medicine (Clinical Epidemiology)

Hire, Adjunct Track, Adjunct Assistant Professor, 03/01/2003

IV. PROFESSIONAL EXPERIENCE

A. Full Time Positions

2003 - Present	Biostatistics Faculty, University of Utah, Department of Family and Preventive Medicine, Master of Statistics, Salt Lake City, UT
2002 - Present	Assistant Professor of Family and Preventive Medicine, University of Utah, Salt Lake City, UT
2002 - Present	Adjunct Assistant Professor of Internal Medicine, University of Utah, Salt Lake City, UT
2002 - Present	Adjunct Assistant Professor of Health Promotion and Education, University of Utah, Salt Lake City, UT
2002 - Present	Director of Graduate Studies, University of Utah, Department of Family and Preventive Medicine, Public Health Program, Salt Lake

	City, UT
2002 - Present	Associate Director of Administration, University of Utah, Department of Family and Preventive Medicine, Public Health Program, Salt Lake City, UT
2002 - Present	Co-director, University of Utah, Department of Internal Medicine, Master of Clinical Epidemiology Program, Salt Lake City, UT
1998 -2001	Research Associate Instructor, University of Utah, Department of Family and Preventive Medicine, Salt Lake City, UT
1996 -1998	Research Analyst, The Church of Jesus Christ of Latter-day Saints, Correlation Department, Research Information Division, Salt Lake City, UT
1995 -1996	Research Analyst, University of Utah, Department of Family and Preventive Medicine, Health Research Center, Salt Lake City, UT

B. Part Time Positions

1993 -2001	Part-time Instructor, University of Utah, Department of Family and Consumer Studies, Salt Lake City, UT

C. Editorial Experience

2003 -2005	Feature Editor: Research Tips for Perspective on Physician Assistant Education

D. Research Awards

Grants

Survey of United States Medical School Departments of Preventive Medicine 07/15/2005 - 01/31/2006. Assoc Teachers Preven Med, Direct Costs: $64,500. Total costs: $64,500. Principal Investigator.

Department Initiative Funding for Service Learning. 07/01/2005 - 07/01/2006. Bennion Center, Direct Costs: $1,500. Total costs: $1,500. Principal Investigator.

Establishment of International Curriculum: International Public Health Field Research. 07/01/2005 - 07/01/2006. International Center, Principal Investigator.

HIV/AIDS and Religious Organizations. 02/01/2005 - 02/01/2006. Health Studies Program, Univ. of Utah, Direct Costs: $5,000. Total costs: $5,000. Principal Investigator.

Epidemiology of Artemisinin Resistance in Papua New Guinea.

07/15/2004 - 07/15/2005. Health Studies Program, Univ. of Utah, Direct Costs: $3,972. Total costs: $3,972. Principal Investigator.

Physician Learning Methods for Bioterrorism Preparedness and Response. 01/06/2003 - 06/30/2003. Dept Of Health, Direct Costs: $15,000. Total costs: $15,000. Principal Investigator.

Surveillance Methods for Monitoring of Infectious Disease Epidemics. 07/01/2002 - 06/30/2003. Dept Of Health, Direct Costs: $10,600. Total costs: $10,600. Principal Investigator.

Impact of an Antimicrobial use Intervention on Carriage of Resistant Phneumococci in Children Living in Rural Communities. 03/01/2002 - 02/28/2005. Thrasher Research Fund, Direct Costs: $300,000. Total costs: $321,000. Co-Principal Investigator.

Real-time Disease Surveillance to Detect Outbreaks of Public Health Concern, including Bioterrorist Events. 01/01/2002 - 03/31/2002. Thrasher Research Fund, Direct Costs: $35,000. Total costs: $35,000. Joint-Principal Investigator.

Applied Research on Antimicrobial Resistance. 09/30/2001 - 09/29/2004. Centers for Disease Control, Direct Costs: $5,848,026. Total costs: $6,608,931. Co-Principal Investigator.

Emergency Depart Syndromic Surveillance. 06/01/2001 - 08/30/2003. Dept Of Health, Direct Costs: $10,600. Total costs: $10,600. Principal Investigator.

Subawards

University of Utah Physician Assessment. 12/16/2002 - 08/30/2003. St Of Ut/Dept Of Health, Direct Costs: $15,000. Total costs: $15,000. Principal Investigator.

V. SCHOLASTIC HONORS

Outstanding Alumnus Award, Department of Health Promotion and Education, University of Utah, Salt Lake City, Utah. 2004

Delta Omega Honor Society, Faculty Inductee, American Public Health Association. 2002

Outstanding Graduate Student, Department of Health Promotion and Education, University

of Utah, Salt Lake City, Utah. 2001

Outstanding Instructor, Academic Outreach and Continuing Education, University of Utah, Salt Lake City, Utah. 1999

VI. ADMINISTRATIVE EXPERIENCE

A. Administrative Duties

2005 -2006	Master of Statistics: Biostatistics, Track Representative to the Statistics Committee, University of Utah, Salt Lake City, Utah.
2004 - Present	Director of Graduate Studies, Public Health Program, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002 - Present	Associate Director, Public Health Programs, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002 - Present	Co-director, Clinical Epidemiology Education Program, Internal Medicine, Family and Preventive Medicine, Pediatrics, University of Utah, Salt Lake City, Utah.
1998 -2004	Project Director, Antibiotic Resistant Bacteria Surveillance Study, Family and Preventive Medicine / Internal Medicine, University of Utah, Salt Lake City, Utah.

VII. PROFESSIONAL COMMUNITY ACTIVITIES

2004 - Present	Member, Ouelessebougou - Utah Alliance, Health Committee, Salt Lake City, Utah and Ouelessebougou, Mali
2002 - Present	Executive Committee, Thrasher Research Fund, Salt Lake City, Utah
2002	Faculty, International Forum on Antibiotic Resistance, 2002 Colloquium, San Diego, California
2000 -2002	Co-Chair, Thrasher Research Fund, Advisory Committee, Salt Lake City, Utah
1999 -2000	Member, Thrasher Research Fund, Advisory Committee, Salt Lake City, Utah

VIII. UNIVERSITY COMMUNITY ACTIVITIES

A. Department Committees

2005 -	Member, Family and Preventive Medicine, Health Studies Program

Present	Advisory Committee
1999 -2001	Faculty Advisor, Family and Preventive Medicine, Student Advisory Committee (SAC), Graduate Programs in Public Health

B. Health Sciences Center Committees

2002 - Present	Member, Epidemiology Assessment Committee

C. University Committees

2005 -2008	Committee Member, Faculty Committee on Community and Governmental Relations
2004 - Present	Member, Academic Senate

D. University Hospital Committees

2001 - Present	Member, Community Physician Group, Research Committee

IX. CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Public Health Association
American Statistical Association
Infectious Diseases Society of America
Society for Epidemiologic Research
Utah Public Health Association

X. TEACHING RESPONSIBILITIES/ASSIGNMENTS

A. Courses Taught

2005	FP MD 6100(3): Biostatistics I; 59 student(s)
2005	FP MD 6950(1-3): Readings Public Health; 2 student(s)
2005	FP MD 7310(3); Advanced Research Design; 14 student(s)
2005	FP MD 6954(5): Independent Study(1) ; 1 student(s)
2005	FP MD 6970(2): Statistical Investigatn(6) ; 1 student(s)

2005 FP MD 6975(6): Project Res-MSPH(3) ; 1 student(s)
2005 FP MD 6985(6): Faculty Consultation(3) ; 1 student(s)
2005 FP MD 6340(1): ID Epidemiology(3) ; 15 student(s)
2005 FP MD 6954(6): Independent Study(1) ; 1 student(s)
2005 FP MD 6958(2): Special Topics in PH(3) ; 4 student(s)
2005 FP MD 6970(2): Statistical Investigatn(1) ; 1 student(s)
2005 FP MD 6975(6): Project Res-MSPH(6.50) ; 2 student(s)
2005 FP MD 7100(1): Bio II(3) ; 14 student(s)
2004 FP MD 6100(5): Intro Biostatistics(0) ; 4 student(s)
2004 FP MD 6970(2): Statistical Investigatn(2) ; 2 student(s)
2004 FP MD 6975(3): Project Res-MSPH(3) ; 2 student(s)
2004 FP MD 6975(6): Project Res-MSPH(5) ; 2 student(s)
2004 FP MD 6311(1): Research Design(2) ; 23 student(s)
2004 FP MD 6950(4): Readings Public Health(3) ; 1 student(s)
2004 FP MD 6954(6): Independent Study(3) ; 1 student(s)
2004 FP MD 6958(1): Special Topics in PH(2) ; 12 student(s)
2004 FP MD 6975(6): Project Res-MSPH(3.70) ; 4 student(s)
2003 FP MD 6100(1): Intro Biostatistics(3) ; 57 student(s)
2003 FP MD 6100(2): Intro Biostatistics(0) ; 11 student(s)
2003 FP MD 6100(3): Intro Biostatistics(0) ; 9 student(s)
2003 FP MD 6100(4): Intro Biostatistics(0) ; 11 student(s)
2003 FP MD 6100(5): Intro Biostatistics(0) ; 7 student(s)
2003 FP MD 6100(6): Intro Biostatistics(0) ; 12 student(s)
2003 FP MD 6100(7): Intro Biostatistics(0) ; 7 student(s)
2003 FP MD 6950(3): Readings Public Health(1) ; 3 student(s)
2003 FP MD 6975(6): Project Res-MSPH(5.40) ; 7 student(s)
2003 FP MD 6975(6): Project Res-MSPH(3.60) ; 3 student(s)
2003 FP MD 6954(6): Independent Study(3) ; 2 student(s)
2003 FP MD 6958(1): Special Topics in PH(2) ; 22 student(s)
2003 FP MD 6958(2): Special Topics in PH(3) ; 1 student(s)
2003 FP MD 6975(6): Project Res-MSPH(5) ; 3 student(s)
2002 FP MD 6100(1): Intro Biostatistics(3) ; 34 student(s)
2002 FP MD 6100(3): Intro Biostatistics(0) ; 11 student(s)
2002 FP MD 6100(4): Intro Biostatistics(0) ; 4 student(s)
2002 FP MD 6100(6): Intro Biostatistics(0) ; 11 student(s)

2002	FP MD 6100(7): Intro Biostatistics(0) ; 8 student(s)
2002	FP MD 6975(6): Project Res-MSPH(6) ; 1 student(s)
2002	FP MD 6985(5): Faculty Consultation(3) ; 1 student(s)
2002	FP MD 6954(5): Independent Study(1) ; 1 student(s)
2002	FP MD 6954: Independent Study(2) ; 1 student(s)
2002	FP MD 6958: Special Topics in PH(2) ; 5 student(s)
2002	FP MD 6975: Project Res-MSPH(5.50) ; 2 student(s)
2001	Environment and Behavior (FCS 3620), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Fall Semester (52 students).
2001	FP MD 6100: Intro Biostatistics(1.50) ; 98 student(s)
2001	FP MD 6975: Project Res-MSPH(4.30) ; 3 student(s)
2001	FP MD 6977: Thesis Research-MSPH(5) ; 1 student(s)
2001	FP MD 6985: Faculty Consultation(3) ; 1 student(s)
2001	MDINF 6100: Intro Biostatistics(1.50) ; 20 student(s)
2001	FP MD 6958: Special Topics in PH(2) ; 7 student(s)
2001	FP MD 6975: Project Res-MSPH(3) ; 1 student(s)
2001	FP MD 6100: Intro Biostatistics(1.50) ; 34 student(s)
2001	FP MD 6954: Independent Study(3) ; 1 student(s)
2001	FP MD 6975: Project Res-MSPH(4.60) ; 3 student(s)
2000	FP MD 6100: Intro Biostatistics(1.50) ; 74 student(s)
2000	FP MD 6975: Project Res-MSPH(4.50) ; 4 student(s)
1999	Fundamentals of Biostatistics (FPMD 6000), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah, Summer Semester (15 students).
1998 -2001	Statistics (FCS 3210), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Summer Semester 2001, Spring Semester 2001, Fall Semester 2000, Summer Semester 2000, Spring Semester 2000, Fall Semester 1999, Summer Semester 1999, Spring Semester 1999, Fall Semester 1998 (60 students / semester - 540 students total).
1998	Introduction to Statistics (FCS 121), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Summer Quarter 1998, Spring Quarter 1998, 50 students / quarter (100 students total).
1997	Research Methods II - Graduate Statistics (FCS 612), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Winter Quarter, (8 students).

1996 Research Methods (FCS 120), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Spring Quarter (45 students).

B. Students Supervised

2005 Name/Student Level: Jones, Spencer S. (MStat). Paper/Thesis Title: *Model Selection and Validation for Biomedical Research Based on Information Criteria and Cumulative Sums of Maringale Residuals.* Current Employment: Student - Ph.D. program, Medical Informatics, University of Utah.

2004 Name/Student Level: Hobson-Rohrer, Winifred (MSPH). Paper/Thesis Title: *Caring for the Underserved-Using Parent and Physician Focus Groups as a Needs Assessment for Curriculum Development.* Current Employment: Assistant Professor, Department of Pediatrics, University of Utah School of Medicine.

2004 Name/Student Level: Clark, Jamie (MSPH, HSA). Paper/Thesis Title: *Tabletop Exercises with Local Utah Health Departments to Assess Bioterrorism Preparedness.* Current Employment: Regional Epidemiologist, Utah Department of Health.

2004 Name/Student Level: Gledhill, Nikki (MSPH, HSA). Paper/Thesis Title: *An Evaluation of the Effectiveness of a Bioterrorism Tabletop Exercise.* Current Employment: Radiology Technologist, Salt Lake Regional Medical Center.

2004 Name/Student Level: Henderson, Carolyn (MSPH). Paper/Thesis Title: *Efficacy of the Ketogenic diet as a treatment option for refractory epilepsy: A meta-analysis.* Current Employment: Project Coordinator, Department of Pediatrics at the University of Utah School of Medicine.

2004 Name/Student Level: Sebastian, Katherine (MSPH). Paper/Thesis Title: *The effect of printed material on patient knowledge and expectations concerning antibiotics: lessons learned in a clinic based pilot study.* Current Employment: IMPART, University of Utah School of Medicine.

2003 Name/Student Level: Christopherson, Susan (MSPH). Paper/Thesis Title: *Family Religiosity, Personal Religiosity, and Illicit Substance Use among Youth.*

2003 Name/Student Level: Hunt, Scott (MSPH). Paper/Thesis Title: *An Evaluation of the Effectiveness of Using Emergency Department Daily Patient Visits to Identify Influenza Outbreaks in Utah.* Current Employment: Clinical Manager, Stansbury Health Center, University of Utah Hospitals and Clinics.

2003 Name/Student Level: Tucker, Julie (MSPH). Paper/Thesis Title: *Cardiovascular Health Risks within the 18-4 year-old age group using BRFSS Data 1996, 1998 & 2000.* Current Employment: Laboratory

	Technician, ARUP.
2002	Name/Student Level: Hohmann, Sheri (MSPH). Paper/Thesis Title: *Patterns of Influenza Onset in the State of Utah*. Current Employment: Laboratory Technician, ARUP.

C. Course and Curriculum Development

2005 - Present	FPMD 7100: Biostatistics II (advanced biostatistics course)
2004	Development of public health doctoral curriculum
2003	Biostatistics (FPMD 6100). Adapted semester-length course from quarter-length course for the Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2003	Fundamentals of Biostatistics (FPMD 6000). Developed for the Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002	Evidence-Based Medicine (FPMD 6051, 6052, 6053), Research Methods, Study Design, Biostatistics and Epidemiology section for newly approved Master of Physician Assistant Studies Degree offered by the Physician Assistant Program, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002	Research Design (FPMD 6958), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2001	Global Health (FPMD 6958), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2001	Infectious Disease Epidemiology (FPMD 6340), Public Health Program, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.

Bibliography

I. ORIGINAL PUBLICATIONS

1. Christensen RD, **Alder SC**, Richards SC, Horn JT, Lambert DK, Baer VL. (in press 2006). A Pilot Trial Testing the Feasibility of Administering D-Penicillamine to Extremely Low Birth Weight Neonates. *Journal of Perinatology*
2. Montgomery D, Plate C, **Alder SC**, Jones M, Jones J, Christensen RD. (in press 2006). Testing for Fetal Exposure to Illicit Drugs Using Umbilical Cord Tissue vs. Meconium. *Journal of Perinatology*

3. Samore MH, Bateman K, **Alder SC**, Hannah E, Donnelly S, Stoddard GJ, Haddadin B, Rubin MA, Williamson J, Stults B, Rupper R, Stevenson K. (November 9, 2005). Clinical Decision Support and Appropriateness of Antimicrobial Prescribing: A Randomized Trial. *JAMA: The Journal of the American Medical Association*, 294(18), 2305-2314.
4. Ellis Simonsen SM, Lyon JL, **Alder SC**, Varner MW. (September 2005). Effect of Grand Multiparity on Intrapartum and Newborn Complications in Young Women. *Obstetrics & Gynecology*, 106(3), 454-460.
5. Samore MH, Lipsitch M, **Alder SC**, Haddadin B, Stoddard G, Williamson J, Sebastian K, Carroll K, Ergonul O, Carmeli Y, Sande MA. (2005). Mechanisms by Which Antibiotics Promote Dissemination of Resistant Pneumococci in Human Populations. *American Journal of Epidemiology*
6. **Alder SC**, Trunnell EP, White GL, Lyon JL, Reading JP, Samore M, Magill MK. (May/June 2005). Reducing Parental Demand for Antibiotics by Promoting Communication Skills. *American Journal of Health Education*, 36(3), 132-139.
7. Vellinga M, **Alder SC**, Baksh L, Kim H. (Spring 2005). Breastfeeding and education level of the mother. *Utah's Health: An Annual Review*, 10, 66-72.
8. Rubin MA, Bateman K, **Alder S**, Donnelly S, Stoddard GJ, Samore MH. (2005). A Multifaceted Intervention to Improve Antimicrobial Prescribing for Upper Respiratory Tract Infections in a Small Rural Community. *Clinical Infectious Diseases*, 40, 546-53.
9. Tuohig K, Stephenson DJ, Lillquist DR, Bird J, **Alder S**, Babitz M. (2005). Environmental health and service learning. *Academic Exchange Quarterly*, 9, 1.
10. Samore MH, Lipsitch M, **Alder SC**, Haddadin B, Stoddard G, Williamson J, Sabastian K, Ergonul O, Carmeli Y, Sande MA, Carroll KC. (in press 2005). Oral Penicillins and Cephalosporins Promote Dissemination of Resistant Organisms in Human Populations by Different Mechanisms. *American Journal of Epidemiology*
11. Murphy-Hoefer R, **Alder SC**, Higbee C. (December 2004). Perceptions about cigarette smoking and risks among college students. *Nicotine & Tobacco Research*, Volume 6(Supplement 3), S371-S374.
12. Disario JA, Freeman ML, Bjorkman DJ, Macmathuna P, Petersen BT, Jaffe PE, Morales TG, Hixson LJ, Sherman S, Lehman GA, Jamal MM, Al-Kawas FH, Khandelwal M, Moore JP, Derfus GA, Jamidar PA, Ramirez FC, Ryan ME, Woods KL, Carr-Locke DL, **Alder SC**. (2004). Endoscopic balloon dilation compared with sphincterotomy for extraction of bile duct stones. *Gastroenterology*, 127(5), 1291-9.
13. **Alder SC**, Clark JD, White GL Jr, Talboys S, Mottice S. (2004). Physician preparedness for bioterrorism recognition and response: a Utah-based needs assessment. *Disaster Manag Response*, 2(3), 69-74.
14. Wendelboe AM, Hegmann KT, Gren LH, **Alder SC**, White GL Jr, Lyon JL. (2004). Associations between body-mass index and surgery for rotator cuff tendinitis. *J Bone Joint Surg Am*, 86-A(4), 743-7.

15. Finch RG, Metlay JP, Davey PG, Baker LJ, **Alder SC**, Blondel-Hill E, Cook P, Goossens H, Samore M, Schaart E, Turnidge J. (2004). Educational interventions to improve antibiotic use in the community: report from the International Forum on Antibiotic Resistance (IFAR) colloquium. *The Lancet Infectious Diseases*, 4, 44-53.
16. Lyon JL, Lillquist DR, **Alder SC**, Stephenson D, Bloswick DS. (2003). An analysis of VDT monitor placement and daily hours of use for female bifocal users. *Work*, 20(1), 77-80.
17. Warner JE, Bernstein PS, Yemelyanov A, **Alder SC**, Farnsworth ST, Digre KB. (2002). Vitamin A in the cerebrospinal fluid of patients with and without idiopathic intracranial hypertension. *Ann Neurol*, 52(5), 647-50.
18. DiSario JA, Pedersen PJ, Bichis-Canoutas C, **Alder SC**, Fang JC. (2002). Incision of recurrent distal esophageal (Schatzki) ring after dilation. *Gastrointest Endosc*, 56(2), 244-8.
19. Nelson TD, Zabriskie NA, Brodstein DE, Baker MR, **Alder SC**, Richards BW. (2002). Significant postoperative refractive errors in vivo with the Mentor Memorylens intraocular lens. *J Cataract Refract Surg*, 28(4), 656-61.
20. Ahmed II, Zabriskie NA, Crandall AS, Burns TA, **Alder SC**, Patel BC. (2002). Topical versus retrobulbar anesthesia for combined phacotrabeculectomy: prospective randomized study. *J Cataract Refract Surg*, 28(4), 631-8.
21. Marshall, BC, Henshaw C, Evans DA, Bleyl K, **Alder S**, Liou TG. (2002). Influenza vaccination coverage level at a cystic fibrosis center. *Pediatrics*, 109(5), e80-0.
22. Samore MH, Magill MK, **Alder SC**, Severina E, Morrison-De Boer L, Lyon JL, Carroll K, Leary J, Stone MB, Bradford D, Reading J, Tomasz A, Sande MA. (2001). High rates of multiple antibiotic resistance in Streptococcus pneumoniae from healthy children living in isolated rural communities: association with cephalosporin use and intrafamilial transmission. *Pediatrics*, 108(4), 856-65.
23. Doucette RC, Sharp HT, **Alder SC**. (2001). Challenging generally accepted contraindications to vaginal hysterectomy. *Am J Obstet Gynecol*, 184(7), 1386-9; discussion 1390-1.
24. Mosmen K, Goupil M, **Alder S**, White G. (2001). Mandibular Overdentures: Are two implants enough? - Part 2 - The Results. *Implant News & Views*, 3, 5, 1, 9-10.
25. Mortensen LA, Chan GM, **Alder SC**, Marshall BC. (2000). Bone mineral status in prepubertal children with cystic fibrosis. *J Pediatr*, 136(5), 648-52.

II. REVIEW ARTICLES

1. Hobson WL, Avant-Mier R, Cochella S, Van Hala S, Stanford J, **Alder SC**, Croskell SE. (2005). Caring for the underserved: using patient and physician focus groups to inform curriculum development. *Ambul Pediatr*, 5(2), 90-5.
2. **Alder SC**. (2005). Monitoring the health of populations: statistical principles & methods for

public health surveillance. *Am J Epidemiol*, 161, 205.

III. BOOK CHAPTERS

1. Kumpfer K, **Alder S.** (2003). Dissemination of Research-based Family Strengthening Interventions for the Prevention of Substance Abuse. In Handbook for Drug Abuse Prevention, Theory, Science, and Practice (Sloboda Z, Bukoski W, Trotter R). New York, Kluwer/Plenum.
2. **Alder SC.** (1996). The experience of home: Gender differences in affect, control and attachment. In Public and Private Places (Nasar JL, Brown BB). , EDRA, 27, 72-77.

IV. CONFERENCE PROCEEDINGS

1. Hegmann KT, Garg A, **Alder S**, Thiese MS, Wendelboe A, Thompson C. (2004). Back, Neck and Shoulder Pain in Home Health Care Workers. Proceedings of the XVth Triennial Congress of the International Ergonomics Association and the 7th Joint Conference of Ergonomics society of Korea/Japan Ergonomics Society, 1-4.
2. Wood EM, Hegmann K, Garg A, **Alder S**, Thiese MS, Thompson C. (2003). Back, neck, shoulder pain in home health care workers. 1st Annual Regional National Occupational Research Agenda (NORA), 24.
3. Sholar CR, DeRosso FD, Lillquist DR, **Alder SC.** (2003). Retention and recovery determinations for the mycotoxin, ochratoxin A, using various filter media. 1st Annual Regional National Occupational Research Agenda (NORA) Conference, 21.
4. **Alder SC**, Samore M, Lyon JL, Morrison LD, Leary J, Carroll K, Stone MB, Bradford D, Reading J, Sande M, Magill M. (1999). A community-based study on the prevalence of and risk factors for pediatric antibiotic resistant S. pneumoniae, Phase II. 127th American Public Health Association Conference Proceedings, 233.
5. Orme HT, **Alder SC**, Lyon JL. (1999). Early-alert system for the identification of viral epidemics. 127th American Public Health Association Conference Proceedings, 166.

V. ABSTRACTS

1. Vlach SA, Petajan J, Balbierz JM, **Alder SC.** (2004). Difference in Pain Perception in Women Using Concentric & Monopolar Needles. *Nerve & Muscle: American Academy of Emergency Medicine News & Comment*, 541.
2. Thiese MS, Hegmann KT, Garg A, Kapellusch J, **Alder SC**, Wendelboe AM. (2003). A Cross-sectional Analysis of Musculoskeletal Disorders in Home Healthcare Workers. Presented at the 36th Annual Meeting of the Society for Epidemiologic Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 290-S.

3. Wendelboe AM, Hegmann KT, Gren LH, **Alder SC**, White GL, Lyon JL. (2003). Associations between Body Mass Indices and Surgeries for Rotator Cuff Tendinitis. Presented at the 36th Annual Meeting of the Society for Epidemiologic Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 331-S.
4. Hegmann KT, Hegmann KB, Wendelboe AM, **Alder SC**, Lyon JL, White GL, Magill M. (2003). Detection of an Influenza Epidemic Using an Electronic Medical Record-based Bioterrorism Surveillance System during the 2002 Winter Olympics. Presented at the 36th Annual Meeting of the Society for Epidemiology Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 199-S.
5. Haws A, Hegmann KT, Hegmann KB, **Alder SC**, Lyon JL, Wendelboe AM. (2003). Influenza Surveillance using an Electronic Medical Record and Variations in Symptoms over Three Influenza Seasons. Presented at the 36th Annual Meeting of the Society for Epidemiological Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 186-S.
6. Teteja AK, Gelman SS, Talley NJ, **Alder SC**, Hale DC. (2003). Development of functional diarrhea, constipation and irritable bowel syndrome during and after traveling outside the USA. *Gastroenterology*, 124, Suppl 1(4), A391.
7. **Alder S**, Samore M, Lyon J, Morrison LD, Leary J, Carroll K, Stone MB, Bradford D, Reading J, Sande, M, Magill M. (1999). A community-based study on the prevalence of and risk factors for pediatric antibiotic-resistant Streptococcus pneumoniae. SER Abstracts. *Am J Epidemiol*, 149(11), S55.

VI. POSTER PRESENTATIONS

1. Stone MB, Lyon JL, **Alder SC**, White GL Jr. (June 2005). Selecting Study Populations Using Internet Databases as an Alternative to Random Digit Dialing.

VII. OTHER (Commentary/Letters/Editorials/Case Reports/Video/Film)

Other:

1. Hegmann KT, Hegmann KB, Wendleboe AM, **Alder SC**, Haws AR, White GL. (2004). Detection of an influenza epidemic using an electronic medical record-based bioterrorism surveillance system during the 2002 winter Olympics. Utah's Health.
2. Lillquist DR, Sholar CR, DeRosso FD, **Alder SC**. (2004). Side by side comparison of two sample media for mycotoxins. American Journal of Occupational and Environmental Health.
3. Thompson CJ, **Alder SC**. (2003). Research: Why, What, and Worth. Perspective on physician assistant education.
4. **Alder SC**, Mottice S. (2001). Influenza Surveillance: Linking Public Health and Clinical Medicine. Utah's Health: Annual Review.

VIII. ORAL PRESENTATIONS

Keynote/Plenary Lectures

National

2004 Alder SC. Keynote Address: Public Health Training - The Frontier of Interventions. Papua New Guinea Association of Public Health 2004 Scientific Meeting, Port Moresby, Papua New Guinea.

Meeting Presentations

National

2005 Alder SC, Simonsen SE, DeWitt MJ, Rigdon M, Shavers JR, White GW. "HIV/AIDS attitudes and beliefs among clergy serving Utah minority populations and their assessment of the role of their religious organization in HIV/AIDS prevention efforts." 133rd Annual Meeting of the HIV/AIDS in Philadelphi, PA..

2005 Thompson C., Alder S.C., Brown J., Johnson L. "Using and teaching Stata in a semester-length introduction to biostatistics course." 4th North American Stat Users Group Meeting in Boston, MA..

2004 Ho MJ, Joish VN, Stockdale WA, Oderda GM, Alder SC, White GL. Does ADA Recommended Self-Monitoring Blood Glucose Impact Overall Healthcare Resource Costs? Presented at American Society of Health System Pharmacists Midyear Clinical Meeting, Orlando, FL.

2004 Wuthrich-Reggio A, Samore M, Alder S, Haddadin B, Engelstad S, Sebastian K, Maxwell A, Morales W, Despain B. Educating rural communities in Utah and Idaho: Results of an antibiotic resistance campaign. The 132nd Annual Meeting of APHA.

2004 Garber K, Lee D, Elskamp C, Lillquist D, White GL, Alder SC. On-site Real-Time Air Sampling Method Validation of a Long-Term Detector Tube For Methylene Chloride Personal Exposures, 2nd Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium.

2003 Hayes JK, Hansen RS, Stephenson RA, O'Rear JH, Myron GP, Aubin WJ, Leseberg GA, Prescott MH, Alder SC, Jensen RS. Technical and dosimetric evaluation of CT-based temporary HDR interstitial brachytherapy of the prostate

gland. 24th American Brachytherapy Society Meeting.

2003 Samore MH, Alder SC, Stevenson K, Donnelly S, Hannah L, Rubin M, Stults B, Haddadin B, Sebastian K, Rose T, Gibson K, Barbera J, Rischer J, Johnson L, Bateman K. Preliminary results of a rural community randomized trial of patient education alone versus a combined patient and physician intervention to reduce inappropriate prescribing of antimicrobials. 2003 Annual Conference on Antibiotic Resistance, Bethesda, MD.

2002 Alder SC, Chen C, Samore M. Antibiotics: Patient attitudes, knowledge, and behaviors. Infectious Disease Society of America.

2002 Alder SC, Haddadin B, Johnson L, Sebastian K, Sanderson M, Donnelly S, Hannah L, Sands A, Despain B, Samore MH. Attitudes and perceptions on antibiotic usage and interventions. IDSA Conference, Chicago, IL.

2001 Hill M, Johnson L, Alder S. Influenza surveillance using statistical process control. American Public Health Association Conference, Atlanta, Georgia.

2001 Ergonul MO, Alder S, Turlak A, Carroll K, Johnson L, Morrison-De Boer L, Magill M, & Samore MH. Longitudinal study of pneumococcal resistance in rural populations: molecular epidemiologic and serologic analysis of trends. 41st Interscience Conference on Antimicrobial Agents & Chemotherapy, Chicago, Illinois.

2001 Ergonul MO, Alder SC, Turlak A, Carroll K, Johnson L, Morrison-De Boer L, Magill M, Samore M. Longitudinal study of pneumococcal resistance in rural populations: Molecular epidemiologic and serologic analysis of trends. 41st Interscience Conference on Antimicrobial Agents & Chemotherapy.

2001 Samore M, Alder S, Ergonul O, Turlak A, Carroll K, Johnson L, Magill M, Sande M. Oral Cephalosporin use drive drives carriage of resistant pneumococci in families and individual children. Infectious Disease Society of America.

1999 Alder S, Samore M, Lyon J, Morrison L, Leary J, Carroll K, Stone M, Bradford D, Reading J, Sande, M, Magill M. A community-based study on the prevalence of and risk factors for pediatric antibiotic-resistant Streptococcus pneumoniae. Society for Epidemiologic Research Conference, Baltimore, MD.

1999 Alder SC, Samore M, Lyon JL, Morrison LD, Leary J, Caroll K, Stone MB, Bradford D, Reading J, Sande M, Magill M. A community-based study on the prevalence of and risk factors for pediatric antibiotic resistant S. pneumoniae, phase II. 127th American Public Health Conference, Chicago, IL.

1996 Alder SC. The experience of home: Gender differences in affect, control and attachment. EDRA 27/ 1996, Salt Lake City, Utah.

Local

2005 Alder SC, Simonsen SE, DeWitt J, Shavers J, Johnson L, Kimball S, Rigdon M. HIV & AIDS in Utah: Attitudes Among Clergy. Public Health Conference, Park City, Utah.

2005 Simonsen SE, Alder SC, Varner M, Lyon J. The Effect of Grand Multiparity and Maternal Age on Intrapartum and Neonatal Complications. Public Health Conference, Park City, Utah.

2005 Alder SC. Developing Public Health in Mali: A Global Health Dual Success. Global Health Forum, Salt Lake City, Utah.

2004 Alder SC, Vellinga M. Preparing Physicians for Recognizing and Responding to Bioterrorism: A Needs-based Approach. 2004 Utah Bioterrorism Conference, Park City, Utah.

2004 Feldcamp M, Alder SC. 25th Annual David W. Smith Workshop on Malformations and Morphogenesis. Snowbird, Utah.

2003 Alder SC, Clark J. Community-based infectious diseases. Utah Society of Radiologic Technologists. Park City, Utah.

2001 Alder S & Johnson L. Medical office-based parent-focused intervention to reduce over-prescribing antibiotics to children. Utah Public Health Association Conference, Park City, Utah.

2001 Hill M, Johnson L, Alder S. Influenza surveillance using statistical process control. Utah Public Health Association Conference.

National

2005 Teaching Biostatistics in the Evidence-based Medicine Curriculum for Physician Assistants: SUNY Stony Brook.

2004 Research Methods for International Health for Columbia University's School of Social Work.

Last Updated:

Curriculum Vitae

I. PERSONAL DATA

Name: Stephen C. Alder
Birth Place: Salt Lake City, UT
Citizenship: United States

II. EDUCATION

A. Baccalaureate Degree

1988 - 1992 B.S., University of Utah, Salt Lake City, UT, Environment and Behavior

B. Advanced Degree

1996 - 2001 Ph.D., University of Utah, Salt Lake City, UT, Health Promotion and Education, Community Health Emphasis

1992 - 1996 M.S., University of Utah, Salt Lake City, UT, Family Ecology

C. Resident/Fellowship Training

D. Postdoctoral Fellowship

E. Other Training

III. BOARD CERTIFICATIONS

IV. CURRENT LICENSES/CERTIFICATIONS

V. ACADEMIC HISTORY

Family and Preventive Medicine (Public Health)
New Hire, Assistant Professor, 02/01/2002

Internal Medicine (Clinical Epidemiology)
New Hire, Adjunct Assistant Professor, 03/01/2003

VI. PROFESSIONAL EXPERIENCE

A. Full Time Positions

2003 - Present	Biostatistics Faculty, University of Utah, Department of Family and Preventive Medicine, Master of Statistics, Salt Lake City, UT

2002 - Present	Assistant Professor of Family and Preventive Medicine, University of Utah, Salt Lake City, UT
2002 - Present	Adjunct Assistant Professor of Internal Medicine, University of Utah, Salt Lake City, UT
2002 - Present	Adjunct Assistant Professor of Health Promotion and Education, University of Utah, Salt Lake City, UT
2002 - Present	Director of Graduate Studies, University of Utah, Department of Family and Preventive Medicine, Public Health Program, Salt Lake City, UT
2002 - Present	Associate Director of Administration, University of Utah, Department of Family and Preventive Medicine, Public Health Program, Salt Lake City, UT
2002 - Present	Co-director, University of Utah, Department of Internal Medicine, Master of Clinical Epidemiology Program, Salt Lake City, UT
1998 -2001	Research Associate Instructor, University of Utah, Department of Family and Preventive Medicine, Salt Lake City, UT
1996 -1998	Research Analyst, The Church of Jesus Christ of Latter-day Saints, Correlation Department, Research Information Division, Salt Lake City, UT
1995 -1996	Research Analyst, University of Utah, Department of Family and Preventive Medicine, Health Research Center, Salt Lake City, UT

B. Part Time Positions

1993 -2001	Part-time Instructor, University of Utah, Department of Family and Consumer Studies, Salt Lake City, UT

C. Editorial Experience

2003 -2005	Feature Editor: Research Tips for Perspective on Physician Assistant Education

Reviewer Experience

D. Research Awards

Grants

Department Initiative Funding for Service Learning. 07/01/2005 - 07/01/2006. Bennion Center, Direct Costs: $1,500. Total costs: $1,500. Principal Investigator.

Establishment of International Curriculum: International Public Health Field Research. 07/01/2005 - 07/01/2006. International Center, Principal Investigator.

HIV/AIDS and Religious Organizations. 02/01/2005 - 02/01/2006. Health Studies Program, Univ. of Utah, Direct Costs: $5,000. Total costs: $5,000. Principal Investigator.

Epidemiology of Artemisinin Resistance in Papua New Guinea. 07/15/2004 - 07/15/2005. Health Studies Program, Univ. of Utah, Direct Costs: $3,972. Total costs: $3,972. Principal Investigator.

Physician Learning Methods for Bioterrorism Preparedness and Response. 01/06/2003 - 06/30/2003. Dept Of Health, Direct Costs: $15,000. Total costs: $15,000. Principal Investigator.

Surveillance Methods for Monitoring of Infectious Disease Epidemics. 07/01/2002 - 06/30/2003. Dept Of Health, Direct Costs: $10,600. Total costs: $10,600. Principal Investigator.

Impact of an Antimicrobial use Intervention on Carriage of Resistant Phneumococci in Children Living in Rural Communities. 03/01/2002 - 02/28/2005. Thrasher Research Fund, Direct Costs: S300,000. Total costs: $321,000. Co-Principal Investigator.

Real-time Disease Surveillance to Detect Outbreaks of Public Health Concern, including Bioterrorist Events. 01/01/2002 - 03/31/2002. Thrasher Research Fund, Direct Costs: S35,000. Total costs: $35,000. Joint-Principal Investigator.

Applied Research on Antimicrobial Resistance. 09/30/2001 - 09/29/2004. Centers for Disease Control, Direct Costs: $5,848,026. Total costs: $6,608,931. Co-Principal Investigator.

Emergency Depart Syndromic Surveillance. 06/01/2001 - 08/30/2003. Dept Of Health, Direct Costs: $10,600. Total costs: $10,600. Principal Investigator.

Subawards

University of Utah Physician Assessment. 12/16/2002 - 08/30/2003. St Of Ut/Dept Of Health, Direct Costs: $15,000. Total costs: $15,000. Principal Investigator.

VII. SCHOLASTIC HONORS

Outstanding Alumnus Award, Department of Health Promotion and Education, University of Utah, Salt Lake City, Utah. 2004

Delta Omega Honor Society, Faculty Inductee, American Public Health Association. 2002

Outstanding Graduate Student, Department of Health Promotion and Education, University of Utah, Salt Lake City, Utah. 2001

Outstanding Instructor, Academic Outreach and Continuing Education, University of Utah, Salt Lake City, Utah. 1999

VIII. ADMINISTRATIVE EXPERIENCE

A. Administrative Duties

2005 -2006	Master of Statistics: Biostatistics, Track Representative to the Statistics Committee, University of Utah, Salt Lake City, Utah.
2004 - Present	Director of Graduate Studies, Public Health Program, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002 - Present	Associate Director, Public Health Programs, Department of Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002 - Present	Co-director, Clinical Epidemiology Education Program, Internal Medicine, Family and Preventive Medicine, Pediatrics, University of Utah, Salt Lake City, Utah.
1998 -2004	Project Director, Antibiotic Resistant Bacteria Surveillance Study, Family and Preventive Medicine / Internal Medicine, University of Utah, Salt Lake City, Utah.

B. Professional & Scientific Committees

IX. PROFESSIONAL COMMUNITY ACTIVITIES

2004 - Present	Member, Ouelessebougou - Utah Alliance, Health Committee, Salt Lake City, Utah and Ouelessebougou, Mali
2002 - Present	Executive Committee, Thrasher Research Fund, Salt Lake City, Utah
2002	Faculty, International Forum on Antibiotic Resistance, 2002 Colloquium, San Diego, California
2000 -2002	Co-Chair, Thrasher Research Fund, Advisory Committee, Salt Lake City, Utah
1999 -2000	Member, Thrasher Research Fund, Advisory Committee, Salt Lake City, Utah

X. UNIVERSITY COMMUNITY ACTIVITIES

A. Department Committees

2005 - Present	Member, Family and Preventive Medicine, Health Studies Program Advisory Committee
1999 -2001	Faculty Advisor, Family and Preventive Medicine, Student Advisory Committee (SAC), Graduate Programs in Public Health

B. Health Sciences Center Committees

2002 - Present	Member, Epidemiology Assessment Committee

C. University Committees

2005 -2008	Committee Member, Faculty Committee on Community and Governmental Relations
2004 - Present	Member, Academic Senate

D. University Hospital Committees

2001 - Present Member, Community Physician Group, Research Committee

E. Graduate Student Committees

F. Interest Groups

G. University Community

XI. CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Public Health Association
American Statistical Association
Infectious Diseases Society of America
Society for Epidemiologic Research
Utah Public Health Association

XII. TEACHING RESPONSIBILITIES/ASSIGNMENTS

A. Courses Taught

2005	FP MD 6100(3): Biostatistics I; 59 student(s)
2005	FP MD 6950(1-3): Readings Public Health; 2 student(s)
2005	FP MD 7310(3); Advanced Research Design; 14 student(s)
2005	FP MD 6954(5): Independent Study(1) ; 1 student(s)
2005	FP MD 6970(2): Statistical Investigatn(6) ; 1 student(s)
2005	FP MD 6975(6): Project Res-MSPH(3) ; 1 student(s)
2005	FP MD 6985(6): Faculty Consultation(3) ; 1 student(s)
2005	FP MD 6340(1): ID Epidemiology(3) ; 15 student(s)
2005	FP MD 6954(6): Independent Study(1) ; 1 student(s)
2005	FP MD 6958(2): Special Topics in PH(3) ; 4 student(s)
2005	FP MD 6970(2): Statistical Investigatn(1) ; 1 student(s)
2005	FP MD 6975(6): Project Res-MSPH(6.50) ; 2 student(s)
2005	FP MD 7100(1): Bio II(3) ; 14 student(s)
2004	FP MD 6100(5): Intro Biostatistics(0) ; 4 student(s)
2004	FP MD 6970(2): Statistical Investigatn(2) ; 2 student(s)
2004	FP MD 6975(3): Project Res-MSPH(3) ; 2 student(s)
2004	FP MD 6975(6): Project Res-MSPH(5) ; 2 student(s)
2004	FP MD 6311(1): Research Design(2) ; 23 student(s)
2004	FP MD 6950(4): Readings Public Health(3) ; 1 student(s)
2004	FP MD 6954(6): Independent Study(3) ; 1 student(s)
2004	FP MD 6958(1): Special Topics in PH(2) ; 12 student(s)
2004	FP MD 6975(6): Project Res-MSPH(3.70) ; 4 student(s)
2003	FP MD 6100(1): Intro Biostatistics(3) ; 57 student(s)
2003	FP MD 6100(2): Intro Biostatistics(0) ; 11 student(s)

2003	FP MD 6100(3): Intro Biostatistics(0) ; 9 student(s)
2003	FP MD 6100(4): Intro Biostatistics(0) ; 11 student(s)
2003	FP MD 6100(5): Intro Biostatistics(0) ; 7 student(s)
2003	FP MD 6100(6): Intro Biostatistics(0) ; 12 student(s)
2003	FP MD 6100(7): Intro Biostatistics(0) ; 7 student(s)
2003	FP MD 6950(3): Readings Public Health(1) ; 3 student(s)
2003	FP MD 6975(6): Project Res-MSPH(5.40) ; 7 student(s)
2003	FP MD 6975(6): Project Res-MSPH(3.60) ; 3 student(s)
2003	FP MD 6954(6): Independent Study(3) ; 2 student(s)
2003	FP MD 6958(1): Special Topics in PH(2) ; 22 student(s)
2003	FP MD 6958(2): Special Topics in PH(3) ; 1 student(s)
2003	FP MD 6975(6): Project Res-MSPH(5) ; 3 student(s)
2002	FP MD 6100(1): Intro Biostatistics(3) ; 34 student(s)
2002	FP MD 6100(3): Intro Biostatistics(0) ; 11 student(s)
2002	FP MD 6100(4): Intro Biostatistics(0) ; 4 student(s)
2002	FP MD 6100(6): Intro Biostatistics(0) ; 11 student(s)
2002	FP MD 6100(7): Intro Biostatistics(0) ; 8 student(s)
2002	FP MD 6975(6): Project Res-MSPH(6) ; 1 student(s)
2002	FP MD 6985(5): Faculty Consultation(3) ; 1 student(s)
2002	FP MD 6954(5): Independent Study(1) ; 1 student(s)
2002	FP MD 6954: Independent Study(2) ; 1 student(s)
2002	FP MD 6958: Special Topics in PH(2) ; 5 student(s)
2002	FP MD 6975: Project Res-MSPH(5.50) ; 2 student(s)
2001	Environment and Behavior (FCS 3620), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Fall Semester (52 students).
2001	FP MD 6100: Intro Biostatistics(1.50) ; 98 student(s)
2001	FP MD 6975: Project Res-MSPH(4.30) ; 3 student(s)
2001	FP MD 6977: Thesis Research-MSPH(5) ; 1 student(s)
2001	FP MD 6985: Faculty Consultation(3) ; 1 student(s)
2001	MDINF 6100: Intro Biostatistics(1.50) ; 20 student(s)
2001	FP MD 6958: Special Topics in PH(2) ; 7 student(s)
2001	FP MD 6975: Project Res-MSPH(3) ; 1 student(s)
2001	FP MD 6100: Intro Biostatistics(1.50) ; 34 student(s)
2001	FP MD 6954: Independent Study(3) ; 1 student(s)
2001	FP MD 6975: Project Res-MSPH(4.60) ; 3 student(s)
2000	FP MD 6100: Intro Biostatistics(1.50) ; 74 student(s)
2000	FP MD 6975: Project Res-MSPH(4.50) ; 4 student(s)
1999	Fundamentals of Biostatistics (FPMD 6000), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah, Summer Semester (15 students).

1998 -2001	Statistics (FCS 3210), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Summer Semester 2001, Spring Semester 2001, Fall Semester 2000, Summer Semester 2000, Spring Semester 2000, Fall Semester 1999, Summer Semester 1999, Spring Semester 1999, Fall Semester 1998 (60 students / semester - 540 students total).
1998	Introduction to Statistics (FCS 121), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Summer Quarter 1998, Spring Quarter 1998, 50 students / quarter (100 students total).
1997	Research Methods II - Graduate Statistics (FCS 612), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Winter Quarter, (8 students).
1996	Research Methods (FCS 120), Family and Consumer Studies, University of Utah, Salt Lake City, Utah, Spring Quarter (45 students).

B. Students Supervised

2005	Name/Student Level: Jones, Spencer S. (MStat). Paper/Thesis Title: *Model Selection and Validation for Biomedical Research Based on Information Criteria and Cumulative Sums of Maringale Residuals.* Current Employment: Student - Ph.D. program, Medical Informatics, University of Utah.
2004	Name/Student Level: Hobson-Rohrer, Winifred (MSPH). Paper/Thesis Title: *Caring for the Underserved-Using Parent and Physician Focus Groups as a Needs Assessment for Curriculum Development.* Current Employment: Assistant Professor, Department of Pediatrics, University of Utah School of Medicine.
2004	Name/Student Level: Clark, Jamie (MSPH, HSA). Paper/Thesis Title: *Tabletop Exercises with Local Utah Health Departments to Assess Bioterrorism Preparedness.* Current Employment: Regional Epidemiologist, Utah Department of Health.
2004	Name/Student Level: Gledhill, Nikki (MSPH, HSA). Paper/Thesis Title: *An Evaluation of the Effectiveness of a Bioterrorism Tabletop Exercise.* Current Employment: Radiology Technologist, Salt Lake Regional Medical Center.
2004	Name/Student Level: Henderson, Carolyn (MSPH). Paper/Thesis Title: *Efficacy of the Ketogenic diet as a treatment option for refractory epilepsy: A meta-analysis.* Current Employment: Project Coordinator, Department of Pediatrics at the University of Utah School of Medicine.
2004	Name/Student Level: Sebastian, Katherine (MSPH). Paper/Thesis Title: *The effect of printed material on patient knowledge and expectations concerning antibiotics: lessons learned in a clinic based pilot study.* Current Employment: IMPART, University of Utah School of Medicine.
2003	Name/Student Level: Christopherson, Susan (MSPH). Paper/Thesis Title: *Family Religiosity, Personal Religiosity, and Illicit Substance Use among Youth.*
2003	Name/Student Level: Hunt, Scott (MSPH). Paper/Thesis Title: *An Evaluation of the Effectiveness of Using Emergency Department Daily Patient Visits to Identify Influenza Outbreaks in Utah.* Current Employment: Clinical Manager, Stansbury Health Center, University of Utah Hospitals and Clinics.
2003	Name/Student Level: Tucker, Julie (MSPH). Paper/Thesis Title: *Cardiovascular Health Risks within the 18-4 year-old age group using BRFSS Data 1996, 1998 & 2000.* Current Employment: Laboratory Technician, ARUP.

2002	Name/Student Level: Hohmann, Sheri (MSPH). Paper/Thesis Title: *Patterns of Influenza Onset in the State of Utah.* Current Employment: Laboratory Technician, ARUP.

C. Course and Curriculum Development

2004	Development of public health doctoral curriculum
2003	Biostatistics (FPMD 6100). Adapted semester-length course from *quarter*-length course for the Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2003	Fundamentals of Biostatistics (FPMD 6000). Developed for the Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002	Evidence-Based Medicine (FPMD 6051, 6052, 6053), Research Methods, Study Design, Biostatistics and Epidemiology section for newly approved Master of Physician Assistant Studies Degree offered by the Physician Assistant Program, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2002	Research Design (FPMD 6958), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2001	Global Health (FPMD 6958), Graduate Programs in Public Health, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.
2001	Infectious Disease Epidemiology (FPMD 6340), Public Health Program, Family and Preventive Medicine, University of Utah, Salt Lake City, Utah.

D. Educational Lectures

E. CME Courses Taught

Bibliography

I. ORIGINAL PUBLICATIONS

1. Montgomery D, Plate C, **Alder SC**, Jones M, Jones J, Christensen RD. (in press 2006). Testing for Fetal Exposure to Illicit Drugs Using Umbilical Cord Tissue vs. Meconium. *Journal of Perinatology*
2. Ellis Simonsen SM, Lyon JL, **Alder SC**, Varner MW. (September 2005). Effect of Grand Multiparity on Intrapartum and Newborn Complications in Young Women. *Obstetrics & Gynecology*, 106(3), 454-460.
3. **Alder SC**, Trunnell EP, White GL, Lyon JL, Reading JP, Samore M, Magill MK. (May/June 2005). Reducing Parental Demand for Antibiotics by Promoting Communication Skills. *American Journal of Health Education*, 36(3), 132-139.
4. Vellinga M, **Alder SC**, Baksh L, Kim H. (Spring 2005). Breastfeeding and education level of the mother. *Utah's Health: An Annual Review*, 10, 66-72.
5. Rubin MA, Bateman K, **Alder S**, Donnelly S, Stoddard GJ, Samore MH. (2005). A Multifaceted Intervention to Improve Antimicrobial Prescribing for Upper Respiratory Tract Infections in a Small Rural Community. *Clinical Infectious Diseases*, 40, 546-53.

6. Tuohig K, Stephenson DJ, Lillquist DR, Bird J, **Alder S**, Babitz M. (2005). Environmental health and service learning. *Academic Exchange Quarterly*, 9, 1.
7. Samore MH, Lipsitch M, **Alder SC**, Haddadin B, Stoddard G, Williamson J, Sabastian K, Ergonul O, Carmeli Y, Sande MA, Carroll KC. (in press 2005). Oral Penicillins and Cephalosporins Promote Dissemination of Resistant Organisms in Human Populations by Different Mechanisms. *American Journal of Epidemiology*
8. Murphy-Hoefer R, **Alder SC**, Higbee C. (December 2004). Perceptions about cigarette smoking and risks among college students. *Nicotine & Tobacco Research*, Volume 6(Supplement 3), S371-S374.
9. Disario JA, Freeman ML, Bjorkman DJ, Macmathuna P, Petersen BT, Jaffe PE, Morales TG, Hixson LJ, Sherman S, Lehman GA, Jamal MM, Al-Kawas FH, Khandelwal M, Moore JP, Derfus GA, Jamidar PA, Ramirez FC, Ryan ME, Woods KL, Carr-Locke DL, **Alder SC**. (2004). Endoscopic balloon dilation compared with sphincterotomy for extraction of bile duct stones. *Gastroenterology*, 127(5), 1291-9.
10. **Alder SC**, Clark JD, White GL Jr, Talboys S, Mottice S. (2004). Physician preparedness for bioterrorism recognition and response: a Utah-based needs assessment. *Disaster Manag Response*, 2(3), 69-74.
11. Wendelboe AM, Hegmann KT, Gren LH, **Alder SC**, White GL Jr, Lyon JL. (2004). Associations between body-mass index and surgery for rotator cuff tendinitis. *J Bone Joint Surg Am*, 86-A(4), 743-7.
12. Finch RG, Metlay JP, Davey PG, Baker LJ, **Alder SC**, Blondel-Hill E, Cook P, Goossens H, Samore M, Schaart E, Turnidge J. (2004). Educational interventions to improve antibiotic use in the community: report from the International Forum on Antibiotic Resistance (IFAR) colloquium. *The Lancet Infectious Diseases*, 4, 44-53.
13. Lyon JL, Lillquist DR, **Alder SC**, Stephenson D, Bloswick DS. (2003). An analysis of VDT monitor placement and daily hours of use for female bifocal users. *Work*, 20(1), 77-80.
14. Warner JE, Bernstein PS, Yemelyanov A, **Alder SC**, Farnsworth ST, Digre KB. (2002). Vitamin A in the cerebrospinal fluid of patients with and without idiopathic intracranial hypertension. *Ann Neurol*, 52(5), 647-50.
15. DiSario JA, Pedersen PJ, Bichis-Canoutas C, **Alder SC**, Fang JC. (2002). Incision of recurrent distal esophageal (Schatzki) ring after dilation. *Gastrointest Endosc*, 56(2), 244-8.
16. Nelson TD, Zabriskie NA, Brodstein DE, Baker MR, **Alder SC**, Richards BW. (2002). Significant postoperative refractive errors in vivo with the Mentor Memorylens intraocular lens. *J Cataract Refract Surg*, 28(4), 656-61.
17. Ahmed II, Zabriskie NA, Crandall AS, Burns TA, **Alder SC**, Patel BC. (2002). Topical versus retrobulbar anesthesia for combined phacotrabeculectomy: prospective randomized study. *J Cataract Refract Surg*, 28(4), 631-8.
18. Marshall, BC, Henshaw C, Evans DA, Bleyl K, **Alder S**, Liou TG. (2002). Influenza vaccination coverage level at a cystic fibrosis center. *Pediatrics*, 109(5), e80-0.
19. Samore MH, Magill MK, **Alder SC**, Severina E, Morrison-De Boer L, Lyon JL, Carroll K, Leary J, Stone MB, Bradford D, Reading J, Tomasz A, Sande MA. (2001). High rates of multiple antibiotic resistance in Streptococcus pneumoniae from healthy children living in isolated rural communities: association with cephalosporin use and intrafamilial transmission. *Pediatrics*, 108(4), 856-65.
20. Doucette RC, Sharp HT, **Alder SC**. (2001). Challenging generally accepted contraindications to vaginal hysterectomy. *Am J Obstet Gynecol*, 184(7), 1386-9; discussion 1390-1.
21. Mosmen K, Goupil M, **Alder S**, White G. (2001). Mandibular Overdentures: Are two implants enough? - Part 2 - The Results. *Implant News & Views*, 3, 5, 1, 9-10.

22. Mortensen LA, Chan GM, Alder SC, Marshall BC. (2000). Bone mineral status in prepubertal children with cystic fibrosis. *J Pediatr*, 136(5), 648-52.

II. REVIEW ARTICLES

1. Alder SC. (In Press 2004). Monitoring the health of populations: statistical principles & methods for public health surveillance. *Am J Epidemiol*
2. Hobson WL, Avant-Mier R, Cochella S, Van Hala S, Stanford J, Alder SC, Croskell SE. (2005). Caring for the underserved: using patient and physician focus groups to inform curriculum development. *Ambul Pediatr*, 5(2), 90-5.

III. BOOKS

IV. BOOK CHAPTERS

1. Kumpfer K, Alder S. (2003). Dissemination of Research-based Family Strengthening Interventions for the Prevention of Substance Abuse. In Handbook for Drug Abuse Prevention, Theory, Science, and Practice (Sloboda Z, Bukoski W, Trotter R). New York, Kluwer/Plenum.
2. Alder SC. (1996). The experience of home: Gender differences in affect, control and attachment. In Public and Private Places (Nasar JL, Brown BB). , EDRA, 27, 72-77.

V. CONFERENCE PROCEEDINGS

1. Hegmann KT, Garg A, Alder S, Thiese MS, Wendelboe A, Thompson C. (2004). Back, Neck and Shoulder Pain in Home Health Care Workers. Proceedings of the XVth Triennial Congress of the International Ergonomics Association and the 7th Joint Conference of Ergonomics society of Korea/Japan Ergonomics Society, 1-4.
2. Wood EM, Hegmann K, Garg A, Alder S, Thiese MS, Thompson C. (2003). Back, neck, shoulder pain in home health care workers. 1st Annual Regional National Occupational Research Agenda (NORA), 24.
3. Sholar CR, DeRosso FD, Lillquist DR, Alder SC. (2003). Retention and recovery determinations for the mycotoxin, ochratoxin A, using various filter media. 1st Annual Regional National Occupational Research Agenda (NORA) Conference, 21.
4. Alder SC, Samore M, Lyon JL, Morrison LD, Leary J, Carroll K, Stone MB, Bradford D, Reading J, Sande M, Magill M. (1999). A community-based study on the prevalence of and risk factors for pediatric antibiotic resistant S. pneumoniae, Phase II. 127th American Public Health Association Conference Proceedings, 233.
5. Orme HT, Alder SC, Lyon JL. (1999). Early-alert system for the identification of viral epidemics. 127th American Public Health Association Conference Proceedings, 166.

VI. ABSTRACTS

1. Vlach SA, Petajan J, Balbierz JM, Alder SC. (2004). Difference in Pain Perception in Women Using Concentric & Monopolar Needles. *Nerve & Muscle: American Academy of Emergency Medicine News & Comment*, 541.
2. Thiese MS, Hegmann KT, Garg A, Kapellusch J, Alder SC, Wendelboe AM. (2003). A Cross-sectional Analysis of Musculoskeletal Disorders in Home Healthcare Workers. Presented at the 36th Annual Meeting of the Society for Epidemiologic Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 290-S.
3. Wendelboe AM, Hegmann KT, Gren LH, Alder SC, White GL, Lyon JL. (2003). Associations between Body Mass Indices and Surgeries for Rotator Cuff Tendinitis. Presented at the 36th Annual Meeting of the Society for Epidemiologic Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 331-S.
4. Hegmann KT, Hegmann KB, Wendelboe AM, Alder SC, Lyon JL, White GL, Magill M. (2003). Detection of an Influenza Epidemic Using an Electronic Medical Record-based Bioterrorism Surveillance System during the 2002 Winter Olympics. Presented at the 36th Annual Meeting of the Society for Epidemiology Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 199-S.
5. Haws A, Hegmann KT, Hegmann KB, Alder SC, Lyon JL, Wendelboe AM. (2003). Influenza Surveillance using an Electronic Medical Record and Variations in Symptoms over Three Influenza Seasons. Presented at the 36th Annual Meeting of the Society for Epidemiological Research, Atlanta, GA. *Am J Epidemiol*, 157(11), 186-S.
6. Teteja AK, Gelman SS, Talley NJ, Alder SC, Hale DC. (2003). Development of functional diarrhea, constipation and irritable bowel syndrome during and after traveling outside the USA. *Gastroenterology*, 124, Suppl 1(4), A391.
7. Alder S, Samore M, Lyon J, Morrison LD, Leary J, Carroll K, Stone MB, Bradford D, Reading J, Sande, M, Magill M. (1999). A community-based study on the prevalence of and risk factors for pediatric antibiotic-resistant Streptococcus pneumoniae. SER Abstracts. *Am J Epidemiol*, 149(11), S55.

VII. POSTER PRESENTATIONS

1. Stone MB, Lyon JL, Alder SC, White GL Jr. (June 2005). Selecting Study Populations Using Internet Databases as an Alternative to Random Digit Dialing.

VIII. OTHER (Commentary/Letters/Editorials/Case Reports/Video/Film)

Other:

1. Hegmann KT, Hegmann KB, Wendleboe AM, Alder SC, Haws AR, White GL. (2004). Detection of an influenza epidemic using an electronic medical record-based bioterrorism surveillance system during the 2002 winter Olympics. Utah's Health.
2. Lillquist DR, Sholar CR, DeRosso FD, Alder SC. (2004). Side by side comparison of two sample media for mycotoxins. American Journal of Occupational and Environmental Health.
3. Thompson CJ, Alder SC. (2003). Research: Why, What, and Worth. Perspective on physician assistant education.
4. Alder SC, Mottice S. (2001). Influenza Surveillance: Linking Public Health and Clinical Medicine. Utah's Health: Annual Review.

VII. ORAL PRESENTATIONS

Keynote/Plenary Lectures

National

2004	Alder SC. Keynote Address: Public Health Training - The Frontier of Interventions. Papua New Guinea Association of Public Health 2004 Scientific Meeting, Port Moresby, Papua New Guinea.

Meeting Presentations

National

2005	Alder SC, Simonsen SE, DeWitt MJ, Rigdon M, Shavers JR, White GW. "HIV/AIDS attitudes and beliefs among clergy serving Utah minority populations and their assessment of the role of their religious organization in HIV/AIDS prevention efforts." 133rd Annual Meeting of the HIV/AIDS in New Orleans, LA.
2005	Thompson C., Alder S.C., Brown J., Johnson L. "Using and teaching Stata in a semester-length introduction to biostatistics course." 4th North American Stat Users Group Meeting in Boston, MA..
2005	Guest Lecture, "Teaching Biostatistics to Graduate Physician Assistants" at Stoney Brook University's School of Health Technology and Management.
2004	Ho MJ, Joish VN, Stockdale WA, Oderda GM, Alder SC, White GL. Does ADA Recommended Self-Monitoring Blood Glucose Impact Overall Healthcare Resource Costs? Presented at American Society of Health System Pharmacists Midyear Clinical Meeting, Orlando, FL.
2004	Guest Lecture, Research Methods for International Health for Columbia University's School of Social Work.
2004	Wuthrich-Reggio A, Samore M, Alder S, Haddadin B, Engelstad S, Sebastian K, Maxwell A, Morales W, Despain B. Educating rural communities in Utah and Idaho: Results of an antibiotic resistance campaign. The 132nd Annual Meeting of APHA.
2004	Garber K, Lee D, Elskamp C, Lillquist D, White GL, Alder SC. On-site Real-Time Air Sampling Method Validation of a Long-Term Detector Tube For Methylene Chloride Personal Exposures, 2nd Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium.
2003	Hayes JK, Hansen RS, Stephenson RA, O'Rear JH, Myron GP, Aubin WJ, Leseberg GA, Prescott MH, Alder SC, Jensen RS. Technical and dosimetric evaluation of CT-based temporary HDR interstitial brachytherapy of the prostate gland. 24th American Brachytherapy Society Meeting.
2003	Samore MH, Alder SC, Stevenson K, Donnelly S, Hannah L, Rubin M, Stults B, Haddadin B, Sebastian K, Rose T, Gibson K, Barbera J, Rischer J, Johnson L, Bateman K. Preliminary results of a rural community randomized trial of patient education alone versus a combined patient and physician intervention to reduce inappropriate prescribing of antimicrobials. 2003 Annual Conference on Antibiotic Resistance, Bethesda, MD.

2002 Alder SC, Chen C, Samore M. Antibiotics: Patient attitudes, knowledge, and behaviors. Infectious Disease Society of America.

2002 Alder SC, Haddadin B, Johnson L, Sebastian K, Sanderson M, Donnelly S, Hannah L, Sands A, Despain B, Samore MH. Attitudes and perceptions on antibiotic usage and interventions. IDSA Conference, Chicago, IL.

2001 Hill M, Johnson L, Alder S. Influenza surveillance using statistical process control. American Public Health Association Conference, Atlanta, Georgia.

2001 Ergonul MO, Alder S, Turlak A, Carroll K, Johnson L, Morrison-De Boer L, Magill M, & Samore MH. Longitudinal study of pneumococcal resistance in rural populations: molecular epidemiologic and serologic analysis of trends. 41st Interscience Conference on Antimicrobial Agents & Chemotherapy, Chicago, Illinois.

2001 Ergonul MO, Alder SC, Turlak A, Carroll K, Johnson L, Morrison-De Boer L, Magill M, Samore M. Longitudinal study of pneumococcal resistance in rural populations: Molecular epidemiologic and serologic analysis of trends. 41st Interscience Conference on Antimicrobial Agents & Chemotherapy.

2001 Samore M, Alder S, Ergonul O, Turlak A, Carroll K, Johnson L, Magill M, Sande M. Oral Cephalosporin use drive drives carriage of resistant pneumococci in families and individual children. Infectious Disease Society of America.

1999 Alder S, Samore M, Lyon J, Morrison L, Leary J, Carroll K, Stone M, Bradford D, Reading J, Sande, M, Magill M. A community-based study on the prevalence of and risk factors for pediatric antibiotic-resistant Streptococcus pneumoniae. Society for Epidemiologic Research Conference, Baltimore, MD.

1999 Alder SC, Samore M, Lyon JL, Morrison LD, Leary J, Caroll K, Stone MB, Bradford D, Reading J, Sande M, Magill M. A community-based study on the prevalence of and risk factors for pediatric antibiotic resistant S. pneumoniae, phase II. 127th American Public Health Conference, Chicago, IL.

1996 Alder SC. The experience of home: Gender differences in affect, control and attachment. EDRA 27/ 1996, Salt Lake City, Utah.

Local

2005 Alder SC, Simonsen SE, DeWitt J, Shavers J, Johnson L, Kimball S, Rigdon M. HIV & AIDS in Utah: Attitudes Among Clergy. Public Health Conference, Park City, Utah.

2005 Simonsen SE, Alder SC, Varner M, Lyon J. The Effect of Grand Multiparity and Maternal Age on Intrapartum and Neonatal Complications. Public Health Conference, Park City, Utah.

2005 Alder SC. Developing Public Health in Mali: A Global Health Dual Success. Global Health Forum, Salt Lake City, Utah.

2004 Alder SC, Vellinga M. Preparing Physicians for Recognizing and Responding to Bioterrorism: A Needs-based Approach. 2004 Utah Bioterrorism Conference, Park City, Utah.

2004 Fieldcamp M, Alder SC. 25th Annual David W. Smith Workshop on Malformations and Morphogenesis. Snowbird, Utah.

2003 Alder SC, Clark J. Community-based infectious diseases. Utah Society of Radiologic Technologists. Park City, Utah.

2001 Alder S & Johnson L. Medical office-based parent-focused intervention to reduce over-prescribing antibiotics to children. Utah Public Health Association Conference, Park City, Utah.

2001 Hill M, Johnson L, Alder S. Influenza surveillance using statistical process control. Utah Public Health Association Conference.

Grand Rounds Presentations

Industrial Presentations

Outreach Presentations

VIII. OTHER SCHOLARLY ACTIVITY

EXHIBIT G

DECLARATION OF ARNE VERNON ASTRUP, M.D., Ph.D.

1. My name is Arne Vernon Astrup. I have personal knowledge of the matters I discuss in this Declaration.

2. I graduated as a Doctor of Medicine (M.D.) from the University of Copenhagen in Copenhagen, Denmark (1981) and I subsequently earned a degree as a Doctor of Medical Science (Dr. Med. Sci./Ph.D.) awarded from the University of Copenhagen (1986).

3. I currently am the Director of and a professor at the Department of Human Nutrition, Centre for Advanced Food Studies, at the Royal Veterinary & Agricultural University, in Copenhagen, and have been since 1990.

X. President of the Danish State Nutrition Council 1998-2003

4. I am President-Elect of The International Association for the Study of Obesity ("IASO").

5. I have served as: (a) a Member of the Danish National Council for Public Health, Ministry of Health (2001-2004), (b) a Member of the Food Politics Forum, The Ministry of Food, Agriculture and Fishery (2001-2003), (c) Chair of the National Committee for Nutrition Research under the Danish Royal Society of Science and Letters (1992-1998), and (d) a Member of the Scientific Committee on Nutrition, International Life Science Institute, Brussels, Belgium (1992-2002).

6. I currently serve as Editor-in-Chief for *Obesity Reviews of the IASO*, Blackwell Scientific Publications, United Kingdom, and have held that position since 1999. I am a Member of the Editorial Boards of *The International Journal of Obesity*, *The Scandinavian Journal of Nutrition*, and *The Journal of the Danish Medical Association*. I also have served as a Review Editor of *The European Journal of Clinical Nutrition* (1996-2000), as well as a Reviewer for

numerous scientific journals, including the following: (a) *Science*, (b) *Journal of American Medical Association*, (c) *New England Journal of Medicine*, and (d) *The Lancet*. I have authored, sometimes with others, over 460 published research studies; currently am working on approximately 40 manuscripts; and have authored or co-authored over 430 popular articles in various non-peer reviewed publications.

7. My qualifications as an expert in the area of nutrition, obesity, energy metabolism, and clinical pharmacology are more particularly set forth in the Curriculum Vitae attached to this Declaration, as **Exhibit 1**, which I incorporate by this reference.

8. Having published hundreds of peer-reviewed papers and studies that have been submitted to the United States Food and Drug Administration ("FDA"), I am aware that there is no set protocol or specific requirements established by the NIH or the FDA with respect to any specific methodology that must be used when conducting a weight loss study of a non-prescription compound, or a study of a dietary supplement to be used for weight loss. Thus, for example, neither the NIH nor the FDA mandate that weight loss studies, or all studies of dietary supplements used for weight loss, be double blind, placebo controlled. Although double blind, placebo controlled studies certainly are preferred in many instances, if there is no ancillary treatment given, such as diet and exercise, and only a few control visits, the results from such trials would be indicative of efficacy without the use of a placebo group.

9. Similarly, if the substance being studied produces obvious side-effects such as gas, bloating, or loose stools, it can be appropriate not to double blind the study, or not to use a placebo, because the obvious side-effects can negate the benefits of using a placebo or a double blind protocol.

10. Further, I am not aware of any scientific study that establishes the proposition that there is a placebo effect in weight loss studies. While there certainly could be a placebo effect that might contribute to a person feeling better or to feeling less pain, I am unaware of any published scientific study that establishes that a placebo will cause a person to decrease caloric intake or burn more calories. Weight gain or loss can be shown by an objective measurement. Weight loss occurs when a person burns more calories than he or she consumes. Consequently no scientifically demonstrated, clinically relevant placebo effect exists in connection with weight loss. A placebo pill that contains purely inactive ingredients will not cause a person to lose weight without diet and exercise.

11. I am aware that, in various weight loss studies that have involved a placebo, one or more persons in the placebo group apparently lost weight. However, those studies do not demonstrate that a placebo effect, or that the placebo, caused any of the weight loss. Rather, the reported weight loss for some persons in the placebo group may have been due to other factors such as a loss of water, a voluntary change in the individual's eating or exercise practices, or other causation completely unrelated to the placebo. I am unaware of even a single scientific study that establishes that weight loss reported for persons in the placebo group was due to a placebo effect. This is supported by a study published in the New England Journal of Medicine by the Nordic Cochrane Center, a highly respected international center for systematic analysis. They showed that for obesity trials there is no placebo effect on weight loss. N. Engl. J. Med. 2001; 344: 1594-602.

12. I am aware that there are a number of weight loss studies that do not involve diet and exercise. There is nothing per se improper about not using diet and exercise in a weight control study, and the lack of using diet and exercise in a study does not automatically invalidate

the study. Indeed, there can be very valid reasons for not using diet and exercise in a study. For example, it is perfectly acceptable for a study of a dietary supplement used for weight loss not to involve diet and exercise, where the purpose of the study is to determine whether the substance being tested causes weight loss without diet and exercise.

13. During my career I have conducted extensive research on ephedrine, and in particular on ephedrine's ability to promote weight loss. As a result of my research, I have become familiar with, and have made significant contributions to, the vast body of research involving the use of ephedrine to promote weight loss. For example, I have written 17 peer-reviewed, scientific publications in international journals on ephedrine, or ephedrine in combination with caffeine. These studies are included on the list of publications attached to my *Curriculum Vitae.*

For example, and by way of illustration, in a study including 180 obese patients it was found that 20 mg or ephedrine and 200 mg of caffeine taken three times a day was superior to placebo, caffeine, or ephedrine in producing a dietary induced weight loss for 24 weeks. After 24 weeks the placebo group had lost 13.2 kg (29 lbs), and patients who were given the combination of ephedrine and caffeine improved the results by 3.4 kg (7.6 lbs) to a total weight loss of 16.6 kg (36.9 lbs). Notably, tachyphylaxis (*e.g.*, desentization of receptors) developed to the cardiovascular effects, but not to the weight-loss-producing effects of the compound. A minor influence on blood pressure and heart rate could be detected when the compound was introduced to the patients, and the effect on blood pressure were gone after 12 weeks, where the reductions in blood pressures were similar to those of the placebo group. Only a minor effect on heart rate persisted. [Astrup A, Breum L, Toubro S, Hein P, Quaade F. "The effect and safety of an ephedrine/caffeine compound compared to ephedrine, caffeine and placebo in obese subjects

on an energy restricted diet. A double blind trial." *International Journal of Obesity* 1992;16:269-277; and also see "Ephedrine and weight loss," Letter to the Editor, *Int. J. Obesity* 1992;16:715.]

14. The body of published research on ephedrine clearly demonstrates that ephedrine promotes weight loss in persons who are overweight, and that such weight loss occurs even in the absence of diet and exercise. The body of research on ephedrine further demonstrates that ephedrine's ability to promote weight loss is enhanced when ephedrine is taken in combination with caffeine, and also when taken in combination with caffeine and aspirin.

15. I have reviewed the ingredients listed on the Leptoprin label, which indicates that the product contained a combination of ephedra, caffeine, and aspirin. Daily use of Leptoprin, as directed on the label, would have provided a ratio of 60 mg of ephedrine alkaloids, 600 mg of caffeine, and 972 mg of aspirin.

16. Based on my familiarity with the body of scientific research on ephedrine, including research involving the combination of ephedrine and caffeine, and the combination of ephedrine, caffeine and aspirin, and including my own extensive research in this area, it is my expert opinion that Leptopin, when ingested by persons who are significantly overweight (*i.e.*, persons with a BMI of at least 27), will cause a mean weight loss of approximately 11-13 pounds over a six-month period. Leptoprin would cause this amount of weight loss without diet and exercise. If the consumer were to add diet and exercise to their weight loss program (in addition to ingesting Leptoprin), the weight loss should be considerably greater. Based upon my familiarity with the scientific research on ephedrine, including my own research involving ephedrine, it is my expert opinion that Leptoprin, when used in conjunction with a program of diet and exercise, would cause a significantly overweight person to lose 20-30 lbs of weight over a six-month period.

17. The body of scientific research involving the efficacy of ephedrine in causing weight loss, including the scientific research involving the combinations of ephedrine and caffeine, and ephedrine, caffeine and aspirin, supports the proposition, and establishes, that the combination of ephedrine, caffeine and aspirin in Leptoprin would cause a significantly overweight person to lose 5 to 6 kilos, which is equivalent to 11-13 pounds over a six-month period, without diet and exercise, and would contribute to considerably greater weight loss when used in conjunction with diet and exercise.

18. I am familiar with the Rand meta-analysis of some of the scientific research involving ephedrine (the "Rand Report"), and am aware of the conclusions of the Rand Report concerning the efficacy of ephedrine in promoting weight loss. I believe that the Rand Report underestimates the degree of weight loss produced by ephedrine and caffeine for the reasons set forth in my review dated August 8, 2002, which is attached as **Exhibit 2** to this Declaration.

19. The overall body of scientific research, including my own extensive research, on the efficacy of ephedrine in causing weight loss demonstrates that ephedrine causes considerably greater weight loss than the conclusion reached in the Rand Report.

20. As indicated in my attached Curriculum Vitae, I have been the lead author or co-author on more than 300 peer-reviewed, published studies, and more than 500 other publications such as textbook chapters, scientific abstracts, reviews, and letters. As a co-author of a scientific study, I would never allow my name to be put on a study unless I first read the entire study and reviewed the underlying data to ensure that the study is accurate and the methodology is not flawed. Thus, I would never engage in a practice known as "gift authorship," naming someone who was not actually involved in a study as a co-author, for reasons such as bestow an honor on that person, or to use that person's name to add credibility to the study. Further, as I co-author, I

never simply would read only the section or sections of a paper that were assigned to me, because I do not believe it is appropriate simply to rely on the trust and integrity of the other scientists involved in a study. Rather, a co-author ultimately is responsible for the entire paper. Therefore, it is critical that I read the entire paper and the underlying data before allowing my name to be listed as a co-author. This behavior is required to comply with the policy of all major scientific journals.

I declare under penalty of perjury that, to the best of my information, knowledge and belief, the facts stated in my declaration are truthful and correct.

Executed in Copenhagen, Denmark, on Wednesday, November 23, 2005.

Arne Vernon Astrup, M.D., Ph.D.

Curriculum Vitae Condensata

Name	:	Arne Astrup
Date & place of birth	:	1st August 1955, Frederiksberg, Denmark
Citizenship	:	Danish
Address, professional	:	Department of Human Nutrition, Centre for Advanced Food Studies (LMC), The Royal Veterinary & Agricultural University (KVL), Rolighedsvej 30, DK-1958 Frederiksberg C, Denmark. Telephone: +45 3528 2476 Fax: +45 3528 2483 e-mail: ast@kvl.dk
Homepage	:	www.ihe.kvl.dk (under AStaff@)
Address, private	:	Fabritius Alle 4, DK-2930 Klampenborg, Denmark. Telephone: +45 3964 0022
Homepage	:	www.arne-v-astrup.dk

Education

University of Copenhagen, Denmark	1981	Graduate in Medicine (M.D.)
University of Copenhagen, Denmark	1983-85	Research Scholarship
University of Copenhagen, Denmark	1986	Doctor of Medical Science (Dr.Med.Sci./Ph.D.)
University of California, San Fransisco. USA	1980	Research Scholarship

Research and/or professional experience

Resident at departments of internal medicine (endocrinology, cardiology) Glostrup Hospital	1982-1983
Resident at departments of internal medicine (endocrinology, cardiology) Hvidovre Hospital	1985-1988
Senior Registrar, Department of Internal Medicine, Herlev Hospital & Gentofte Hospital	1988-1989
Associate Professor, Research Department of Human Nutrition, KVL	1988-1990
Professor, Director, Department of Human Nutrition, LMC, KVL	1990-
Chairman, The Danish Nutrition Council (Independent - 1997, State 1997-)	1992-2003
Professor of Nutrition, Faculty of Health Sciences, University of Copenhagen	1998-2003
Consultant on Nutrition Information for The National Board of Health, Denmark	2000-2004
Consultant, Division of Clinical Nutrition, Hvidovre Hospital, University of Copenhagen	2000-

Research activities: Major research areas are physiology and pathophysiology of energy and substrate metabolism with special emphasis on the etiology and treatment of obesity.

Honorary appointments, national and international affiliations: Member of The Danish National Council for Public Health, Ministry of Health, 2001-4. Member of the Food Politics Forum, The Ministry of Food, Agriculture and Fishery, 2001-3. Chairman of the National Committee for Nutrition Research under The Danish Royal Society of Science and Letters, 1992-98. Member of the Nordic Nutrition Forum (The Nordic Medical Advisory Group) and Council of the WHO International Obesity Task Force. President-Elect of The International Association for the Study of Obesity (IASO). Member of the Scientific Committee on Nutrition, International Life Science Institute, Bruxelles, 1998-2002. Editor-in-Chief, Obesity Reviews, (IASO) Blackwell Scientific Publications, UK, 1999-. Review Editor of The European Journal of Clinical Nutrition 1996-2000. Member of editorial board of The International Journal of Obesity, The Scandinavian Journal of Nutrition, and The Journal of the Danish Medical Association. Reviewer in 2003-4 for Science, JAMA, N. Engl. J. Med., The Lancet, BMJ, and J. Clin. Invest. Member of organising committees of both Danish, European and International scientific meetings and congresses. Chairman of the Scientific Committee of The 6th European Congress on Obesity 1995 and member of the Scientific Committee of The 7th European Congress on Obesity 1996.

Awards: Servier's Award for Outstanding Obesity Research, 1990. Danish Society for Internal Medicine Annual Award, 2nd prize, 1991. Aarhus Oil Foundation Prize for Lipid research, 1994. The International Association for The Study of Obesity's André Mayer Award, 1994. Mölnlycke Quality of Life Award, 1995. Knight of the Order of Dannebrog, 1999. Danone Chair Award, Honorary Professor, Antwerp University, 2002.

Scientific publications: Over 300 original papers, and 500 other publications such as textbook chapters, scientific abstracts, reviews and letters. Three recent international publications:

1) Sloth B, Krog-Mikkelsen I, Flint A, Tetens I, Björck I, Vinoy S, Elmståhl H, Astrup A, Lang V, Raben A. No difference in body weight decrease between a low-glycemic-index diet and a high-glycemic-index diet but reduced LDL-cholesterol after 10 wk ad libitum intake low-glycemic-index diet. Am J Clin Nutr 2004;80:337-47

2) Harder H, Nielsen L, Thi DTT, Astrup A. The effect of liraglutide, a long-acting Glucagon-like peptide 1 derivative, on glycemic control, body composition, and 24-h energy expenditure in patients with type 2 diabetes. Diabetes Care 2004;27:1915-21

3) Astrup A, Larsen TM, Harper A. Atkins and other low carbohydrate diets: hoax or an effective tool for weight loss. The Lancet. 2004;364:897-9

1. Astrup A, Bülow J, Madsen J. Skin temperature and subcutaneous adipose blood flow in man. Scand J Clin Lab Invest 1980;40:135-138.

2. Astrup A, Bülow J, Christensen NJ, Madsen J. Ephedrine induced thermogenesis in man: no role for interscapular brown adipose tissue. Clin Sci 1984;64:179-186.

3. Astrup A, Bülow J, Madsen J. Interscapular brown adipose tissue blood flow in the rat. Determination with 133-Xenon clearance compared to the microsphere method. Pflügers Arch 1984;401:414-417.

4. Astrup A, Andersen T. Termogenese og adipositas: Patogenetiske og terapeutiske overvejelser. (Review) Ugeskr. Læger 1984;146:303-307.

5. Warberg J, Bie P, Astrup A, Secher NH, Jensen KS. Endocrine responses to nonhypotensive gravitational stress: vasopressin and aldosteron. Life Sci Res Spase 1984;212:191-192.

6. Astrup A, Bülow J, Madsen J, Christensen NJ. Contribution of brown adipose tissue and skeletal muscle to thermogenesis induced by ephedrine in man. Am J. Physiol 1985;248:E507-515.

7. Astrup A, Bülow J, Christensen NJ. The effect of nonesterified long-chain fatty acids on blood flow and thermogenesis in brown adipose tissue in the young dog. Acta Physiol Scand 1985;124:81-85.

8. Astrup A, Lundsgaard C, Madsen J, Christensen NJ. Enhanced thermogenic responsiveness during chronic ephedrine treatment in man. Am J Clin Nutr 1985;42:83-94.

9. Jelnes R, Astrup A. Determination of the tissue-to-blood partition coefficient for 131-iodo-1ntipyrin in human subcutaneous adipose tissue. Scand J Clin Lab Invest 1985;45:521-524.

10. Jelnes R, Astrup A, Bülow J. The double isotope technique for in vivo determination of the tissue-to-blood partition coefficient for Xenon in human subcutaneous adipose tissue - an evaluation. Scand J Clin Lab Invest 1985;45:565-568.

11. Bülow J. Madsen J, Astrup A, Christensen NJ. Vasoconstrictor effect of high FFA/albumin ratios in adipose tissue in vivo. Acta Physiol Scand 1985;125:662-667.

12. Astrup A, Bülow J, Christensen NJ, Madsen J, Quaade F. Facultative thermogenesis induced by carbohydrate: a skeletal muscle component mediated by epinephrine. Am J Physiol 1986;250;E226-E229.

13. Astrup A, Madsen J, Holst JJ, Christensen NJ. The effect of chronic ephedrine treatment on substrate utilization, sympathoadrenal activity and energy expenditure during glucose-induced thermogenesis in man. Metabolism 1986;35:260-265.

14. Astrup A, Skafte-Holm P, Bülow J, Sillesen H, Quaade F. "Slankepillen" Minuscal stimulerede ikke energiomsætningen. Ugeskr Læger 1986;148:1139-1141.

15. Astrup A, Christensen NJ, Bülow J, Quaade F. Facultative carbohydrate-induced thermogenesis and its deficiency in human obesity. In: Adrenergic physiology and pathophysiology. Eds. Christensen, N.J., Henriksen, O. & Lassen, N.A. Munksgaard, Copenhagen pp. 326-339, 1986.

16. Iversen BF, Astrup A. Forøget alkoholelimination ved kronisk alkoholisme. Ugeskr Læger 1986;148:14122-1413.

17. Astrup A. Thermogenesis in human brown adipose tissue and skeletal muscle induced by sympathomimetic stimulation. Disputats. (Review) Acta Endocrinol Scand 1986;112(suppl.278):1-32.

18. Andersen T, Backer OG, Astrup A, Quaade F. Gastroplasty preceded by very-low-calorie diet. A preliminary report. Clin Nutr 1986;suppl.5:83-86.

19. Jensen KS, Secher NH, Rørsgaard S, Warberg J, Astrup A, Christensen NS, Giese J, Schwartz TW, Bie P. Kredsløbsregulation ved hypovolæmisk chock. Ugeskr. Læger 1986;148:2383-2387.

20. Bie P, Secher NH, Astrup A, Warberg J. Cardiovascular and endocrine responses to head-up tilt and vasopressin infusion in man. Am J Physiol 1986;251:R735-R741.

21. Astrup A. Nye indikationer for behandling af overvægt baseret på dens topografi. Ugeskr Læger 1986;148:2774-2775.

22. Jensen KS, Secher NH, Astrup A, Christensen NJ, Giese J, Schwartz TW, Warberg J, Bie P. Hypotension induced by passive head-up tilt: endocrine and circulatory mechanisms. Am J Physiol 1986;251:R742-R748.

23. Andersen T, Astrup A, Quaade F. Ekstreme lavkaloriediæter i behandling af adipositas. Nordisk Med 2986;12:348-349.

24. Astrup A, Andersen T. Nedsat energiomsætning og fakultativ termogenese patogenetisk ved visse typer adipositas. Nordisk Med 1986;12:335-336.

25. Astrup A, Andersen T, Henriksen O, Christensen NJ, Bülow J, Madsen J, Quaade F. Impaired glucose-induced thermogenesis in skeletal muscle in obesity. The role of the sympathoadrenal system. Int J Obesity 1987;11:51-66.

26. Bülow J, Jelnes R, Astrup A, Madsen J, Vilman P. Tissue/blood partition coefficients for Xenon in various adipose tissue depots in man. Scand J Clin Lab Invest 1986;47:1-3.

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Kopi

Comments re. Evidence report/technology assessment of 7/9/2002, Ephedra: Clinical efficacy and side-effects

General conclusion

The report draws conclusions about efficacy and safety that are not sufficiently supported by the data. As I have pointed out below the efficacy of ephedrine/caffeine is underestimated due to the incorrect method of analysis. In addition, in my view a number of shortcomings in the safety assessment tend to exaggerate the adverse events.

Overall evaluation

My overall conclusion is that in several aspects the report needs some important revision. The numbering of the references is very different in the text and in the reference list. This is very confusing for the reader and has made the evaluation and review of the report very difficult. It also means that some errors and shortcomings may have been overlooked. This includes the identification of studies, selection of studies for efficacy and safety. The data handling is also inadequate in some aspects. Consequently the report's overall conclusions are not supported in the current version and I believe that the revision suggested below will produce a substantially changed conclusion.

Study identification

The literature search seems to be appropriate, with the relevant publications being identified. The study selection for efficacy analysis seems justified, whereas the selection of studies for safety is not appropriate. This reviewer finds it justified including only the controlled trials with a placebo arm for efficacy analysis. But for safety evaluation it is obvious that all trials should be included. The safety information collected during a clinical trial has much better value and validity than the cases received through the FDA. I suggest therefore that the analysis of safety in terms of adverse effect dropouts and side effects should be re-examined with inclusion of all the available trials.

Data synthesis

The analysis of the weight loss achieved by ephedrine versus placebo, and ephedrine plus caffeine versus placebo etc., is very problematic because one has assumed that the weight loss curve is linear. This is certainly not the case for trials of 8 weeks to 6 months. The weight loss rate is high initially and subsequently lowers, so that the weight loss from months 3 to 6 is typically very small. It is therefore invalid to simply calculate the mean rate of weight loss as pounds weight loss per month when trials of very different duration are included. Those who are familiar with placebo controlled weight loss and weight maintenance trials know that most of the difference between the active and the placebo arms is achieved during the first 3 to 4 months, and that the difference is subsequently maintained even up to 2 years. The way the data are handled in this report has therefore produced projections that severely underestimate the real efficacy of ephedrine and ephedrine plus caffeine. This has been carried over into the conclusions, where it is stated that ephedrine/caffeine is not as effective as other anti-obesity medications currently on the market. This must refer to Orlistat (the pancreatic lipase inhibitor from Roche) and Sibutramine (the centrally acting compound from Abbott). If one looks at the long-term of Orlistat ones sees that the mean weight loss difference between Orlistat and placebo after 6 months to 2 years are of the order of between 2 - 5 kg in all the large trials. Ephedrine plus caffeine produces at least an equivalent effect. For example: If the weight loss on an active compound after 3 months is 10 pounds more than on placebo, and this result is maintained also after 6.months, it is clear that rate of weight loss would be calculated as 10

pounds divided by 3 (= 3.33) if the trial is stopped at 3 months. Whereas the result from a 6 month trial would give 10 pounds divided by 6 months (= 1.67), which is exactly half of the weight loss. This issue should be addressed and the efficacy section should be revised accordingly. The way the panel has calculated the weight loss rate actually assumes that the weight loss rate is linear and that it continues at the same rate with prolonged use. Obviously, this is not the case.

I note that Astrup et al. International Journal of Obesity 1992;16:269-77, listed in the bibliography (accepted articles) as number 1, is not included in the analysis! The Danish double publication of this is the Quaade et al., listed as number 48 in the same bibliography. It is hard to see why the panel quotes the Quaade et al. publication in Danish, which is a condensed version of the Astrup et al. paper, which I assume must be the paper the panel had taken the study information from in English.

The panel has used pounds in the analysis of weight loss, but it would be more appropriate to use weight loss in percent of initial body weight, because the weight loss in pounds is not independent of initial body weight. This may introduce a bias if the initial body weight and body mass index in the 2 arms were not comparable.

Safety assessment
As mentioned above, the panel should also include the non-placebo controlled and non-randomized trials in the safety assessment. The information obtained from such trials is superior to that from case reports.

Page 58, 4th section: Here it is stated that patients taking pharmaceuticals outside of clinical trials may have a greater risk of certain adverse events than patients selected to participate in clinical trials. I strongly disagree. In all the clinical trials we have conducted, which have been conducted in Denmark, it is quite normal that the patients are referred by general practitioners or hospital departments because they have a high degree of overweight (are typically obese, with a body mass index of 29-40) and suffer from complications to the obese state. This may not necessarily be ischemic heart disease, heart failure or type 2 diabetes, because these subjects will typically be excluded, but patients with pre-diabetes, dyspnoea, osteoarthrosis in knee or hip, etc. In addition one of the large trials was conducted on hypertensive obese patients (Ingerslev et al.). In contrast, individuals in the community taking preparations containing ephedrine will typically be less overweight and be generally healthier. They will be less likely to experience serious adverse events than subjects in clinical trials. I think the conclusion reached by the panel should therefore be reversed.

The Danish Experience
It is quite natural that the panel has received the list of case reports from FDA's office of nutritional products, labelling and dietary supplements. However, why did the panel not ask the Danish FDA for their full report of collected adverse events during the 12 years from 1990 to 2002 where an ephedrine/caffeine prescription compound has been on the market in Denmark? This is a substantial body of experience that could give more valid conclusions than those received the American FDA alone.
During the last 8 years, the defined day doses have ranged between 3.6 and 4.6 per 1,000 inhabitant/day in Denmark. It also means that the Danish Drug Administration has, in its surveillance program, obtained anecdotal data regarding reported side effects from General Practitioners and other Doctors in Denmark. The post market surveillance program is very

effective in Denmark and there are 134 reports of side effects, but they are all very mild side effects and all the well-known side effects we know from the pharmacological action of ephedrine/caffeine. They include tremor, insomnia, palpitations; side effects we actually know are transient from the clinical trials. There have been no serious adverse effects from the use of ephedrine/caffeine even though Denmark has had a substantial amount of sales and ten years experience.

Specific cases

Page 60, Deaths, Probably Causal: A 21 year old male collapsed...: This patient had been taking hydroxycut, which I assume is hydroxy citrate. Hydroxy citrate is probably quite toxic, though it has not been systematically assessed in clinical trials. Biochemically it may be assumed to have a substantial liver toxic effect. I think it is therefore very difficult to attribute the case to ephedrine.

Page 62: I think that there are too many examples of patients with many other risk factors, such as those included under the "probably causal" myocardial infarctions, e.g. a 54 year old male, who has smoked for 30 years and been an alcoholic. Another example is the "Stroke. Probably Causal": "She was a long-time intravenous drug abuser and alcohol abuser. She also smoked cigarettes for 10 years." She tested positive for benzodiazapines and phenylpropanolamine, whereas there was no positive test for ephedrine. I strongly disagree with the conclusion that this case can be classified as probably causal with respect to ephedra use. It is more likely, with the given history and the positive test of the patient, that the stroke was caused by other vaso-active drugs taken by the patient.

These weaknesses apply to several of the other stroke cases, and I think this is particularly interesting in light of the meta-analysis of adverse events reported from control trials (Table 17, page 80) where it is found that there is no statistically significant increased risk of hypertension. This also quite clear from the control study by Ingerslev et al. on hypertensive patients treated with ephedrine/caffeine. One should therefore be cautious about drawing conclusions on the causality with respect to stroke.

Conclusions. Chapter 5, page 111

Weight loss

In the first bullet it is stated that compounds produce weight loss over relatively short periods of time (no more than a few months). This is misleading as there are trials for a duration of 6 months. The same applies for the 3rd bullet where the expression "short-term weight loss" is used. Bullet 6 is outrageous. Here it is concluded that ephedrine and ephedrine plus caffeine produce a weight loss somewhat less than the effect reported for FDA approved pharmaceuticals for weight loss. The panel have used phentermine as an example and state that the effect is "reported at about 20 pounds of weight loss at 6 months". This is certainly not the weight loss produced by phentermine above placebo, but the weight loss produced by phentermine from baseline including a diet. For comparison one can take the Astrup et al. study from 1992 where the weight loss in the ephedrine plus caffeine arm was about 16 kg. But of course, the weight loss in the placebo arm must be subtracted, giving an additional weight loss produced by the compound of 3.6 kg.

Adverse consequences

Again, this reviewer suggests that the open trials should also be included. In the first bullet it is stated that it is not possible to separate out how caffeine contributes to the side-effects. This

is actually possible. In the Astrup et al. in International Journal of Obesity in 1992 there was a separate caffeine arm in the 6 months trial. Side-effects are shown in one of the tables in this paper, and here it is clear which side-effects can be attributed to caffeine.

Frederiksberg, 8th August 2002

Arne Astrup, M.D., Ph.D.
Professor, Director
The Research Department of Human Nutrition
The Royal Veterinary and Agricultural University
Rolighedsvej 30
DK-1958 Frederiksberg C
Denmark

Dr. Astrup

NON-CONFLICT OF INTEREST STATEMENT

Please give your name and signature and any comments necessary and return with the review in the provided FedEx package. Thank you.

Indicate here whether you have any conflicts of interest regarding the review of the Evidence Report.

I, _____, certify that I have no affiliations with or involvement in any organization or entity with a direct financial interest in the subject matter of the Evidence Report (e.g. employment, consultancies, stock ownership, honoraria, expert testimony).

Signed,

_____

I, Arne Astrup, would like to declare my conflict of interest here. See my comments below:

I am an ad hoc consultant for several pharmaceutical companies such as Abbott, Johnson & Johnson, Roche, Merck, and Novo Nordisk, and dietary supplement companies such as Metabolife Int. Inc., and I sit on advisory boards for some of these companies as well as for several food companies. I have no personal interest in any compounds containing ephedrine combined with caffeine. I hold no stocks, shares or other ownership in companies producing or selling these compounds. I have previously given testimonial and expert reviews on the efficacy and safety of ephedrine/caffeine on a few occassions and have received an honorarium for the time used.

Signed,

Frederiksberg, Denmark
8th August, 2002