

Brett Kinsler, DC, interviews Professor Edzard Ernst, MD, PhD.

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KINSLER Hello and welcome to *On The Other Hand* podcast where we attempt to separate the crap from the credible, the good from the garbage, the well-doers from the wack-a-doodles in chiropractic, alternative medicine, and healthcare. I'm your host, Dr Brett Kinsler.

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KINSLER Professor Edzard Ernst has been seen as a major public opponent of chiropractic and alternative medicine worldwide. He has devoted much of his career to publishing articles that are critical of complementary and alternative medicine. An unbelievably large number of papers - hundred and hundreds and hundreds of papers - and he's been especially critical of chiropractic. I've been recording interviews with people who are prominent in chiropractic and alternative medicine now for several months, and since I have a genuine interest in what these doctors are doing, and how they think, I've no shortage of curiosity in coming up with questions. I tend to select my guests for the podcasts based on what they're doing, or what I perceive them to be doing. Dreaming up areas in which I want more depth or information about them isn't difficult at all. What I found in preparing for this interview with Edzard Ernst is this feeling that every time I uncovered a new article, or every time I'd read a new piece, or speak with a former colleague or co-author of his, I felt that I was falling further and further down this rabbit hole. There were incontinences and contradictions that just kept piling up and I wasn't sure how to deal with them. I had to maintain this fine balance in speaking with Professor Ernst. On one hand I had a lot of questions to ask him, and I was pretty sure he wasn't going to like them, but on the other hand if he hung up on me during our talk, there wouldn't be any podcast to play for you. I had to find this balance and I hope that I found it. I hope I struck this balance between inquiry and interrogation. I tried to be respectful, but I didn't want to let him off the hook.

ERNST My name is Edzard Ernst and I was born 63 years ago in Germany where I grew up and studied medicine and then moved about a bit within Europe, had a job in London, England where I conducted some basic research, then I went back to Germany and did, in addition to my MD degree, a PhD in that research area and I was appointed Professor of Physical Medicine in Hanover, Germany, later Chair of Physical Medicine and Rehabilitation in Vienna, and finally, 18 years ago, I was appointed to become Professor of Complementary Medicine at Exeter where my job is to apply science to all types of alternative therapies, and that obviously includes chiropractic.

KINSLER That chair position in the Department of Complementary Medicine that was set up by Sir Maurice Laing, who was a builder - whose wife, I believe, was helped by alternative medicine during a serious illness - and he wanted to set up this university chair to promote scientific investigation of alternative medicine. He was probably looking for positive proof, I would think, in alternative medicine.

ERNST No, he wasn't that stupid. He actually was very clever, and he always told me that whatever this field needs, it needs critical assessment. And even

though we were all hoping for lots of positive results, he thought, and I agree, that the most important thing about doing science is to do it well. And an uncritical scientist is a contradiction in terms and he understood that very well and he never once sort of argued with me over not producing enough positive results.

KINSLER Do you still have hopes of discovering the positive results within CAM?

ERNST I have discovered lots of positive results. I've, amongst other things, we've published a book called the *Desktop Guide to Complementary and Alternative Medicine*, and because I hear the criticism quite often that we only publish negative results, I have actually done a percentage term, and I've also published that in a separate paper, and the percentage term of positive results, if I remember correctly, is 7% - which is disappointingly low for some people, but I wouldn't have expected it to be any higher than that because we're dealing with a lot of rather strange treatments which are, in some cases, not biologically plausible, and when you're faced with that array of a very mixed bunch of treatments I don't think you can hope higher, and I think that people who produce higher percentages are the ones who should be suspect rather than the ones who produce realistic type of percentages in terms of positive versus negative.

KINSLER How do you think your outlook at changed about complementary medicine over the years?

ERNST It hasn't. I have always, as I said, I have done a PhD, so during that time I had to learn what rigorous science means and had to learn the techniques of rigorous science and it was always clear to me that what the field needs is rigorous science and so when I started 17 years ago that was what I was going to do and that is what I have done in the last 17 years. So the outlook hasn't changed, the evidence has changed in certain areas, most dramatically, I think in homeopathy, and I forgot to mention that I worked as a homeopath for a few months in my previous life as a clinician and therefore I was, if anything, positively inclined towards that particular area, but the evidence in the last 17 years changed pretty dramatically and as a scientist all you can do is observe that, and it's not my results, it's the results worldwide. We do a lot of systematic reviews, far more than clinical trials these days, and when you do that you don't look at your own results, but you look at the entirety, the totality of the data, and if you look at the totality of the data and you do that as a scientist all you can do is state it. You could sort of prettify the data, but that's not very scientific.

KINSLER How do you select the topics for review and for research? Is it just you selecting it, or is it a team?

ERNST We have a team of between 15 and 20 people and we have regular staff meetings. Actually I've just come out of our weekly staff meeting, and that's what we discuss at staff meetings. So it comes up through that mechanism or it comes up through some international collaboration, somebody saying "would that be an interesting topic?" and "should we do that together?", and so various mechanisms. And much of it is also dictated by what is topical in a European context, or particularly in a British context. So lots of different mechanisms are operative in pinpointing the subjects, but clearly there are some subjects which are more important than others and the importance of the subject in my area I would always measure on the prevalence of use. In other words, if a particular treatment is used a lot we need to know whether this method is effective, and for what conditions it is effective, and whether it is safe, and what the risks might be.

KINSLER One of the criticisms that I hear about you is that you tend to select topics that have remote possibilities. They might be within treatments that have a large prevalence of use, but the piece that you choose to study is fairly remote instead of focusing on sort of a larger more important issue. Do you think you select things in order to... that might be surrounded in controversy? Are you a pop star?

ERNST No, not at all. In fact, I do remember when we were still recruiting and what one of my first co-workers, who I recruited - was somebody with expertise in acupuncture, a medical doctor in acupuncture - and I said now, you with your expertise in acupuncture, you tell me for which, according to your clinical experience, acupuncture works best. And he gave it some consideration, and he decided it that it worked best for smoking cessation - and that's what we did - and it became a series of publications which now is a Cochrane Review for acupuncture for smoking cessation. And that...actually I'm not any longer a co-author of that, but I'm the original author of that Cochrane Review. For chiropractic obviously it would be chiropractic for back pain, and neck pain, and other musculoskeletal problems, and that's precisely what we've tackled first. Once you've done that you go to the more exotic things like chiropractic for otitis media, asthma, or colic.

KINSLER But it seems like in chiropractic you focus a lot on adverse events which seem to be pretty mild if they're prevalent, and pretty rare if they're serious, but it seems like you've written a lot on.

ERNST Yes, you're quite right. And I do still believe, and I've said this from the word go when I started 17 years ago, that probably even more important than the question 'does it work?', is the question 'is it safe?', because people in large populations use these treatments and as researchers, or responsible decision makers, we do have a duty to define the safety of these treatments. Now When I started 17 years ago there was as good as no systematic research in this area at all and I saw this as my foremost duty to research the safety of alternative treatments, and of course, chiropractic is one of the more common ones, so we've done a lot on the safety of chiropractic, you're quite right, and I think we would continue to do more if there are unanswered questions, and there are always unanswered questions. I think it's probably the most important subject in clinical research.

KINSLER But do you think you're taking mild adverse events and sounding alarm bells over you know things like mild, temporary soreness, and saying of there's a 50% adverse event there? People seem to think that your reporting on adverse events is exaggerated. Yes, it's important to look at it. You don't think you're sounding alarm bells over something that's very rare?

ERNST Well, 50% of patients experience adverse events after seeing a chiropractor. That's not my data, that's data from about 12 or so prospective trials, with several thousand patients in total, and these studies have been conducted by chiropractors and what I've done, amongst other things, is to combine these studies and come up with that overall percentage figure. Imagine any sort of painkiller for mild neck pain, or headache, or back pain, that had an adverse effect rate of 50%. You wouldn't call this extremely rare, would you?

KINSLER Well...but I would imagine a 100% of people who get an injection for something have some mild, temporary pain at the site of the injection, but I don't necessarily think it's worth sounding alarm bells over.

ERNST Well, first of all.. I wasn't talking about injections, I was talking about pills. Secondly, the risk of injections are minutely recorded and are not just pain at injection - there can be infection, there can be all sorts of other things that can happen, even an air embolus can kill you. A simple intravenous injection - that needs to be documented and verified, and I wouldn't call anybody alarmist who does that in minute detail. The more minute the better.

KINSLER Let's talk about the relationship between cervical manipulative therapy and vertebral artery dissection. It seems like the understanding of this has evolved considerably over the last several years. We used to look at this as a simple cause and effect relationship where manipulation to the neck was seen to cause vertebral artery dissection and now the research seems to point to the fact that it's an extremely rare event, and that there's no definitive correlation between the two. Tell me about the work by J David Cassidy, and your take on that.

ERNST Well, the Cassidy study, which is obviously a favourite with chiropractors, is one of about a dozen similar sort of epidemiological approaches to create a similar sort of... as in all these studies, a similar epidemiological criticised approach. It is hard to pinpoint a cause effect relationship, and you're right, the Cassidy study speaks against a causal relationship, but the rest of the dozen or so studies do point in the opposite direction. So, as I said I'm a believer in looking at the totality of the evidence rather than cherry picking the sort of results that I might like, or somebody else might like, you know, and looking at the totality of the evidence I think that the evidence is still strongly pointing in the direction that there might be a casual link. I'm not saying that there is definitely a causal link, but there is certainly a question to answer.

KINSLER You said Cassidy's study was criticised, or it can be criticised, and I know that you had written an opinion piece on that, and I think there was one in *Spine*. I don't think there really has been a lot of criticism of it, but I was curious, I think it's traditional to criticise clinical research in the journal where it's published and you chose to write [sic] an opinion piece in your own journal, as opposed to writing it in *Spine*, and I'm curious as to why you chose that method.

ERNST I think probably - I don't recall how it happened - probably I didn't see it early enough when it was published in *Spine*. As I said, I'm looking into all sorts of alternative treatments. Chiropractic is one of dozens that we do research on. So I might have missed it when it was published, and it's customary that journalists publish correspondence to a particular piece when it's published, but not half a year later. So I become aware of the discussion. And you're quite wrong about the fact that there's not published criticism about it and... if you go on the internet you find a lot more than what you've just cited, and once I become aware of the criticism I thought it would be interesting to publish it in a journal, and as it was just an opinion piece and wasn't going to be Nobel Prize stuff, I put it into my own journal which is about cardiovascular disease - and we're talking about cardiovascular problems here, so I don't see anything wrong with that.

KINSLER When you're saying there's a lot of criticism on the internet, you mean published in journals, or just on chat groups and peoples' blogs?

ERNST The internet is not journals, the internet is the internet. I mean the internet.

KINSLER You on your blog, you wrote a piece on mistletoe and in there you talked about a type of bias that you termed the "they would say that, wouldn't

they?" bias. You were talking about not necessarily trusting research about a pharmaceutical product that came from a big pharmaceutical company if people were kind of publishing exactly what you would expect to publish.

ERNST Yes, yes. The subject is conflicts of interest, isn't it?

KINSLER Essentially yeah, but I think there's bias in there as well.

ERNST A conflict of interest leads to bias, that's been shown very often. In terms of the pharmaceutical industry, that is extremely well documented and I suspect that is what you refer to and that's what I might have meant on the blog that you refer to. Manufacturers of mistletoe favour results that favour the effectiveness of mistletoe, whereas if independent researchers look at it in a bit more critical way, they do not produce that overall conclusion that mistletoe cures cancer.

KINSLER So how does someone who's known for poking holes in alternative medicine avoid the appearance of that type of bias?

ERNST My whole research is avoiding bias. I would say that the conflict of interest lies, when we're talking about mistletoe, with the mistletoe producers. When we're talking about chiropractic, it probably lies with the chiropractors. I'm an independent academic and I do not have a conflict of bias. I'm not paid by some sort of anti-chiropractic lobby, or by the pharmaceutical industry. I have my academic salary and therefore I do not have a conflict of interest, and I apply research methodology the best I can which in layman's terms means that bias is being minimised.

KINSLER What about the sale of books?

ERNST The what?

KINSLER The sale of books.

ERNST I don't...do you have an English expression for that?

KINSLER I'm wondering if besides your academic salary...I mean, you also have an interest in the sale of books that are critical of alternative medicine.

ERNST No, I don't.

KINSLER Oh, you don't?

ERNST No.

KINSLER OK. I was thinking of the book that you co-authored with Simon Singh, *Trick or Treatment*, you don't have an interest in that?

ERNST You're implying that this contributes to my salary?

KINSLER Well, yeah.

ERNST No, it doesn't, no, it doesn't. I tell you something. If I had wanted to get some money out of writing books I would certainly have had to write a book which is pro, much more pro, alternative medicine, chiropractic, homeopathy, etc., etc., than the book we wrote, because if you go on to, for instance, Amazon and you see what - in the category of alternative medicine - the bestsellers are,

it's certainly not the books that are critical about it. So that argument is simply laughable.

KINSLER Let's talk somewhat about spinal manipulation. Do you think that there are positive aspects of spinal manipulation? Do you think there are circumstances where manipulation could be beneficial and actually less risky than creating an opiate addiction or side effects from NSAIDs?

ERNST What I think is quite immaterial, but what the evidence shows is that for back problems spinal manipulation is probably as good or as bad as any other treatment that we have. For neck pain, the evidence is a bit more complicated, and the Cochrane Review states that there is no good evidence that for neck pain spinal manipulation on its own is effective.

KINSLER So I thought that Cochrane had said that it wasn't superior to other treatments but that there still was effectiveness to it?

ERNST That's what I said. It's as good or as bad as any other treatment we have.

KINSLER So if there's fewer side effects to it, and you know it improves patients' quality of life, then there certainly can be a benefit to it.

ERNST There could be a benefit to it. But you're right you need.... if you have a bunch of treatments that are similarly effective, then you need to compare other variables, or put other variables into that equation, and these other variables are cost foremost, and safety. And we've talked about safety, and I'm not convinced about the safety, not nearly as convinced as you seem to be about the safety of spinal manipulation, and the cost also needs to be accounted for and I don't know of any convincing data to show that chiropractic would come out tops in such a more complex comparison, but I might be wrong. I haven't looked at cost comparisons for one or two years.

KINSLER Can you comment about the recent developments in chiropractic including increases in continuing education requirements and improvements in the number of chiropractors that are utilising a more evidence based practice versus just the vitalistic, historical routes of the profession. Do you think there's a shift, a noticeable shift in chiropractic?

ERNST I haven't a clue about that. I'm a researcher. As I pointed out, my research questions are mainly whether a treatment works, for what condition, and what side effects there might be. So that type of question, particularly as applied to the United States, I haven't got a clue. I don't know. Quite frankly it's not in my remit to address it.

KINSLER One of the other criticisms that seems to pop up in your research involving chiropractors and spinal manipulation is an over-reporting of deaths associated with chiropractic care. It seems that in several instances there were situations where you attributed a death to spinal manipulation to a chiropractor when it wasn't necessarily clear that that was a chiropractor performing the procedure. One case, I think there was an adverse event related to a heilprakter, a health practitioner in Germany. I'm not sure if I pronounced that right. In another case, they didn't know if somebody was a duly licensed chiropractor - maybe a briefly trained chiropractitioner. Can you comment on that?

ERNST Yes, the article that you refer to was published a few months ago, and is called 'Death After Chiropractic Treatment', or something like that, and it

reported a couple of dozen - I think – deaths, documented deaths, after chiropractic treatment, documented in the medical literature, if anything, and in some cases the nature of the therapist may have been unclear. It wasn't the aim of that particular publication to define whether it was two dozen deaths or three dozen deaths after chiropractic. It was to alert people that deaths do occur, continue to occur, and that for all we know they are highly under-reported in the medical literature, and that, I think, is pretty undisputed. So whether it is one more or less - tragic as all these occurrences are - it's only distracting from the main message of that particular article.

KINSLER When we're talking about such a small number of incidents, then wouldn't one or two make a huge difference?

ERNST No, the important thing about the article is that deaths do occur and that there's reason to believe that they're hugely under reported in the medical literature. So if it's hugely under-reported the fact that deaths do occur is important, wouldn't you say?

KINSLER I think that's important. I think it's worth looking at, but I think the over-reporting, or the over-attribution towards chiropractic as opposed to other practitioners, might be...

ERNST I'm trying to tell you that it's not over-attribution, it's under-attribution. In that particular article the message of the article was that under-reporting is huge, and I also cited quite a number of fatalities that were actually known to the lay press, but aren't showing up in the medical literature.

KINSLER I think you and I would both agree that there is a shortage of chiropractic research. Do you think that there's an increase of chiropractors that are getting involved in producing higher quality research?

ERNST We have, some time ago, looked at what happened to UK chiropractic since it was regulated by statute. As you probably know since 1993 chiropractors in the UK are regulated by statute, and we have looked at the academic output - in other words, published research papers by UK chiropractors before and since that time point, and what we've shown in that particular analysis that, if anything, regulation in the UK of chiropractic led to a decrease of research which led us to believe that the assumption that proper regulation leads to proper research, that assumption isn't true, at least for UK chiropractic. As for US situations, I haven't got a clue, I have to admit.

KINSLER I can tell you that in the US and in Canada, and in countries like Denmark, there's definitely a cultivation of DC PhDs. There's a lot more chiropractors involved in full-time, active research than historically there ever have been.

ERNST That would be nice to document in terms of output of research, which we've done for the UK. I think what is important is not the numbers of chiropractors being educated to PhD level, but the numbers of good research projects that have been published, and even though I've just said I haven't got a clue what the American situation looks like, I do not have the impression that chiropractic research is sort of booming in terms of numbers or quality.

KINSLER What about multi-disciplinary research? I mean you've...a lot of the papers that you've produced have either been on your own or not on multi-disciplinary teams, and it would seem that if you were to involve more

chiropractors, or DC PhDs, in your research, it would probably decrease some of the accusation of bias. What's your opinion on that?

ERNST We have collaborations with, I'm guessing five dozen, international units. So, to say that most of my papers are single author papers is just simply not true. When we tackle a new research project I do look a round, and I do recruit co-authors where I can, and sometimes I can't, and sometimes it's also not opportune for this or that reason. And some of my chiropractic papers have been single author papers, but I wouldn't say most of them have been, and I would say most of them have been multi-disciplinary.

KINSLER Do you have a mistrust for chiropractors in research?

ERNST No, no. No, I don't have a mistrust. We are an entirely mixed team here. We have doctors, pharmacists, I think we've had chiropractors previously. I certainly remember interviewing chiropractors in the last round of interviews. We always employ the candidate with the best credentials in research, with the best history of publishing papers, etc, etc. So I don't have a distrust of chiropractors, or any other profession.

KINSLER In your Critical Evaluation of Chiropractic, you criticised chiropractors for a lack of involvement in public health measures, and in participation of research as a means of improving future health care. You're aware of the American Public Health Association Chiropractic Healthcare section?

ERNST No, I'm also not aware that I criticised chiropractors for not getting involved in public health research. Where have I done that?

KINSLER That was in your Critical Evaluation of Chiropractic paper.

ERNST Yes, that was quite some time ago, and I don't know it by heart. A lot of it was looking at the history of chiropractic, and I don't know where that particular statement comes from - whether that is the current chiropractic or the chiropractic history, or whatever. But what is clear to me as well, in some areas chiropractic seems to be quite obstructive to public health measures, and that includes the difficult subject of vaccination – immunisation - where there is plenty of data to show that chiropractic professionals do take a stance which is not, in my view, conducive to increasing vaccination rates.

KINSLER ...and I agree with you. I think that there's certainly some inappropriate views proposed by chiropractors, but there's also a lot of chiropractors that are getting involved in promoting public health measures, including vaccination, and including informing patients what to look for with vertebral artery dissection and stroke warning signs and that type of thing, and I was just wondering if you thought that this was changing, then, since you wrote that paper.

ERNST Well, in any detail I have only looked into the vaccination issue and I do not see that this has changed dramatically. That's the only aspect of public health that I've looked into in relation to chiropractic, and also I have to stress again you are constantly referring to the US situation which is quite a few thousand miles away from me.

KINSLER ...Although I think we have the most amount of chiropractors in the globe, so, you know, it's hard not to refer to US when we're being critical of chiropractic. Can we talk a little bit about your chair position and... I've seen in the press in the UK that there's the possibility of you losing that position, or of

that department not getting refunded. Has that come to pass, or were you able to find funding to continue it?

ERNST Yes, the situation is as you mentioned earlier - that the chair was funded by sir Maurice Laing with an endowment, a generous endowment, and that supported us for the last 17-and-a-half years. This endowment is running out and there's a very real possibility we will close the unit. So you're quite right. It might very well be that in a year's time this unit doesn't exist any more.

KINSLER Then what? What do you think will be next for you?

ERNST Retirement. I'm 63 years old which seems to be a jolly good time to retire.

KINSLER All done, you could stop doing what you're doing and hang out in the cottage by the ocean or something.

ERNST Well you know, retirement means different things to different people. I will still be active, but retirement from an academic post...if you have worked 30 years of academia you've probably had as much academia as any human being can... you know what I mean.

KINSLER I do. We've focused predominantly on chiropractic in this talk. I do hope you'd consider speaking with me again another time on perhaps a different topic, or maybe you'd allow me to bring on a researcher that we could have a discussion between the two of you that I might be able to moderate?

ERNST Sure. Sure. Any time.

KINSLER Excellent. Well, Dr Edzard Ernst, it's very interesting speaking with you, and I appreciate you spending the time talking to me.

ERNST My pleasure.

KINSLER POSTSCRIPT: One thing I think is really dangerous is when somebody doesn't think that they have a bias. They don't think they have an agenda, especially when that person is in a position of great influence and they feel that they are completely objective. That worries me. In the medical literature, to be critical doesn't mean to criticise in a negative manner. It means to deliver a balanced analysis of an issue's strengths and weaknesses. It's been said that anyone can shoot the barn first and draw a circle around the hole later on. Is Ernst doing this? Is he deciding on the results he wants first, and cherry-picking the data to demonstrate it afterwards? A lot of people think so. You know Machiavelli might agree that a research conclusion justifies the means of fabricated or inflated data, but I'm not so sure science is cool with that.