
Adonis Lifestyle
POD
CAST

Reading Research

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From The Desk of **Brad Howard**

Dear Friend,

Welcome to the Adonis Lifestyle Podcast!

Inside this transcript, you'll find a lot of actionable information that you'll be able to put to use **TODAY** to help develop your body for maximum visual impact. With that said, here are a few things to remember as you're reading through this document.

1. Our trainings and opinions are based solely on the end goal of creating a body based on proportions and social influence. Just as baseball players, powerlifters, and MMA fighters train for a specific purpose, the techniques, tactics, and strategies we talk about revolve around "looks based" training and not "performance based" training. (although your average performance across most all regimes will, in fact, increase as a whole with our advice)

2. "Health" based training takes a backseat as the recommendations we give create bodies that fall within all of the generally accepted "parameters" for good health (blood pressure, heart health, etc) by default. And, although we do talk about health and aging from time to time, realize that "health" comes with the package, without having to **FOCUS** on it.

3. Our opinions are strictly our own and sometimes are about as un-PC as you can get, but we'll never hide from the truth or try to sugar coat reality. Our job is to help you get in the exact shape you want, with all the BS aside. So, if you think we're a little harsh sometimes… just know we've got your best interest at heart.

So, with all of that said, dive in and enjoy. If you'd like more information on our workout systems, just click this link. We guarantee you'll save a bunch of time and energy in the process.

Your friend,

John Barban: Welcome to the Adonis Lifestyle podcast. I'm John Barban and with me is Bryan Chung, and today we're going to cover, the quality of research papers or research studies and how they're built and how they're designed and what determines whether or not a study is actually of high quality or not. So there is a lot more that goes into a paper than just the peer review process like we talked about a couple of weeks ago and then just getting published in a journal. Again, the comparison we made a couple of weeks ago is the difference between peer reviewed research versus a book that you would buy in the bookstore that's not held to any academic standard at all. So with peer review, there is one more step of things being reviewed by experts on whether or not it's got credibility with fact-checking and that kind of stuff like this stuff is even valid or coherent with the body of research versus a book that there's none of that happens. Just books in the bookstores where nobody checks to validate if any of the facts are correct. But just because something goes through peer review doesn't mean that everything that's peer reviewed is right on point and is of equal quality. So Bryan, let's just jump in there, and like what comments can you make on a kind of a basic level of the difference in study quality, let's say?

Bryan Chung: Yes, so I think the first thing that you have to realize when you're reading an academic paper is that the quality of the paper or the quality of the journal and the quality of the peer review process is only as good as the weakest peer reviewer, so it's like the weakest link in a chain kind of thing. And so, on some of the journals which are sometimes less clinically focused, they're more basic science-related so journals like the ACSM Journal, which is the Medicine & Science in Sport & Exercise is generally more of a physiology type of journal. The Journal of Applied Physiology is definitely are more applied type journal, and so they don't always have, let's say, statisticians or methodologists. And so their papers aren't necessarily being reviewed on that level whereas other journals like the big named journals like The New England

Journal of Medicine and The Lancet, those go through not only content review but they also go through rigorous status like statistics and usually some sorts of methodological review as well, and they have different standards for publication, so you're going to see just from the journal itself, whether you're getting quality or not.

John Barban: Can you explain what those two levels of review even mean?

Bryan Chung: Yes, so when you're designing a study, I think it's an interesting thing to think about when you look at somebody who has a PhD. So you can get a PhD in a lot of things. I won't say anything, but you can get a PhD in a lot of things. You can get a PhD in English. You can get a PhD in Medical Science. You can get a PhD in Epidemiology. You can get a PhD in Physiology. And a PhD is not a PhD is not a PhD because you need to know a lot about your area to be considered a PhD expert in that area, but ultimately you're going to be drilling down to very specific types of research.

John Barban: And I don't think people understand how specific. Some people can spend twenty years studying just one little group of enzymes.

Bryan Chung: Yes, and you can do your PhD on a single receptor of a single protein or something very, very specific, but around that knowledge comes a wider breadth of knowledge about the field itself. So even though your thesis is only, let's say, you're characterizing like part of a protein which forms part of a receptor, the overall education of a PhD candidate is far more vast than just a little tiny collection of amino acids. So you're learning how to study. You're learning how to think. You're learning how to formulate the questions and most importantly how to answer those questions. The thing

is that when you're looking at human studies, it's a whole level of methodology, and this is sort of my pet peeve when people comment about the studies and methodology. But not really, I don't think it's the right word but it is the "methods". Methodology is the study of methods. That is what I am, a methodologist.

John Barban: Right.

Bryan Chung: So I spent most of my PhD studying methods. I studied in sport medicine because you can't study methods in a vacuum, so I had to learn all those sport medicines. I learned all the overuse injuries and all of that stuff and then on top of that I had to learn how I was going to actually answer questions in human studies about, in my case, tennis elbow. But in learning all of that, I had to learn all about the statistics. I had to learn all about how to design human trials and how to evaluate human trials. And that's a very different education than, say, somebody who goes and does a PhD on running biomechanics for example. So I know the guy that designed shoes for Adidas, and so that's what his PhD is for. His PhD is basically on foot biomechanics and running and that sort of thing, and the way he applies that is into designing shoes.

John Barban: Where as you were looking at how would you go about designing a study to determine whether the shoe is going to work or not.

Bryan Chung: Yeah, exactly.

John Barban: So your expertise is in designing the study itself to get at the result that you are after.

Bryan Chung: Yes.

John Barban: And then he would apply some of the stuff that what your field kind of looks at and be like oh on that, and based on what you do, he could be relatively sure that his study is actually giving him the results his hoping for.

Bryan Chung: Right.

John Barban: Or at least the answer to the question he's trying to ask.

Bryan Chung: Yes. So like out of my PhD, I can't design a shoe.

John Barban: But you can design the study that the guy who just wants to design the shoe will tell him if some things are going to work or not.

Bryan Chung: That's right. Yeah, so there are sort of two different levels of understanding method and understanding statistics. The guy that's designing the shoe doesn't need to know everything there is to know about statistics because the kinds of statistics he's going to use are fairly basic and if there is any more than that he's going to have to find help.

For me, if I want to design a shoe, well, then I've got to go and find somebody who could design a shoe. If I want to answer a question about, "Hey, I wonder if the vibrant five fingers is actually more useful in actually improving foot biomechanics," I know how to design this study but I'm going to have to find somebody who has a PhD in biomechanics to help me set up that measurement area like the force platforms and the little markers and all of that stuff.

John Barban: Yes, and that person would be an expert in all of this; he'll know if a force platform doesn't work for that and it is a different one and…

Bryan Chung: Yes, exactly.

John Barban: How to set your gains and leads and amplitudes and every little detail.

Bryan Chung: That's right. Yes, so when you read a paper that involves humans in the study, you have to think about it on a bunch of different levels. So there's the actual is the theory of the person actually and even remotely close to anything that we understand? Is it based on fact or is this something that's pulled out of the air like pomegranate juice, and then if the theory is kind of sound, then you can drill into the method, how did they study it? And will these methods answer the question that they set out to answer? And surprisingly when you are reading the literature, you become experienced in reading the literature. It doesn't always turn out that way. So they will say they want to answer certain questions, but the study they end up doing didn't actually answer that question. It answers a different question. And that comes with practice and it comes with knowledge and that sort of things. So that's what people like

me spend their time thinking about and reading and doing, and that's what a peer reviewer is supposed to do, but peer reviewers aren't all methodologists.

John Barban: Right.

Bryan Chung: So if you're submitting to the Journal of Applied Physiology, most of their peer reviewers are not going to be methodologists because that's not what they're trained to do, they're trained to be physiologists. So they're going to be reading things like, "Well, does this theory make sense? Does the experiment generally answer the questions to the best of what my ability say it? Does it look like any experiment that I would design? Is that reasonable? And then at the end of the day, are the conclusions supported by the results that were produced in the study, or are they just totally out to left field?"

John Barban: Right, but they may not be capable of recognizing that, "Oh, these are the wrong statistical analysis."

Bryan Chung: That's right

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John Barban: It can't actually tell me that based on the way the data was collected. Like I've worked with people who I've been helping out in a few labs where a couple of people I know have been working on a paper and realized the way they collected the data and the statistical analysis they were trying to use can't interpret the data the way they collected it and so when they recruited help from the stats department, their consultants was like, "No, you can't. The question you're trying to answer is impossible

to answer with the way you collected the data and the statistical analysis you're trying to use."

Bryan Chung: Yes.

John Barban: And he's like, "So what do I have here?" And she was like, "Well, you can answer this other question over here, but not the question you're looking for."

Bryan Chung: Yes.

John Barban: And that just goes to show you how specific it really gets, and at that point he was beat. He was like, "Well, the data was already collected." And she was like, "Well, I mean you can't answer that first question, but you can go and answer this one." And he said, "Well, that's not what I'm after." And she said, "Well, that's all you've got."

Bryan Chung: Yes.

John Barban: And that's a matter of not having the right support to begin with. And I don't know what the word is, but the upsetting thing or the shocking thing is when he went to some of his superiors and advisers and whoever that were kind of coaching him along. And he's like, "These methods are wrong with the stats we're using. The way we collected it, it's not consistent and it's not going to answer this question the way we want." And do you know what they told him, they ware like, "Oh, it's what everyone else

does." He said, "Yes, but I talked to the stats people, they told me it's wrong." And so it can become systemic in certain fields, like the error just persists because like you've said a physiologist will look at other studies and model their new study off of the other studies, and since those were published and that's what the growing body of evidences in their field, they just assume it's correct.

And again, because not everyone has detailed knowledge of methods or stats, they're just assuming the previous ones done in their field were correct. And then someone like this who's a bit more inquisitive and really wants to make sure they do it right and recruits statistical consultants and help to find out that it's been wrong all along. Not only is his study wrong, the entire body of evidence he is working off of has been done wrong.

Bryan Chung: Yes, it's a slowly improving area now, mostly because it's harder to get funding. It used to be easier. I think twenty or thirty years ago, it used to be easier to get funding. Now, the national funding agencies are really starting to look at the studies more closely. Those studies, before you can get a grant are going through more rigorous peer review which is making it harder. And yes, I have had to break news to people before to say, "You spend a year collecting these data." And they come to me and they say, "I have this data set. Can you help me analyze it?" And I look at it and I say, "You are screwed, like I don't know how to tell you." It is horrible news to have to break it to somebody because they spent however much time it's taken to gather that data, and at the end of the day you are like, "You can't answer the question you thought you're going to answer. I wish you had come to me before you had even started because then we could have caught this before you even started your study."

John Barban: Right, and that's why they need to come to see someone like you, like a methodologist at the beginning because you can tell them exactly how to go about collecting the data the correct way and you can already be telling them like how many people it needs to be, the type of statistical analysis that needs to be provided which you need to know all of that to know how you're going to go about collecting the data in the first place.

Bryan Chung: Yes.

John Barban: And if you don't know all of that to begin with, I mean you've got nothing. You're going to get nowhere.

Bryan Chung: Yes. So I think going back to the original topic of what makes a good paper or what makes a good study, I think the main thing from a consumer's point of view, from somebody who's reading an abstract or reading an actual paper if you want to do that, is mostly how to do with the reporting and then less to do with actual design of the study because if a study is well-reported, then you'll be able to figure out what its limitations are and you can actually make some pretty good quantifications of how bad the error of estimating whatever it is they're trying to estimate is. And then that gives you a better idea of whether you can use that information or not. I think the basic problem in a lot of research papers is that there's underreporting, so they're missing large amounts of detail from how they did their study which makes it impossible for you to actually analyze the results are. And even if it's a great design, you still can't tell how good the research is.

John Barban: They leave out huge chunks in the method section, like I'd really like to know how you went about collecting this.

Bryan Chung: Yes, that's right. And I think that's where a lot of papers fall short. And if you're reading it, if anybody is reading my blog, generally that's where the papers fall down. It's been missing a lot of information or it's trying to make trivial results look better than they actually are. Those are the two big themes, I think, that come up in my blog.

John Barban: Right. And then that second point comes down to, at least in my experience from the supplement side of things and functional foods and that's what our lab did when I was doing research, was if private industry shows up and they what to try to get a result that supports the marketing claim behind the product, and no matter how weak from a purely scientific or purely "did that happen or didn't that happen" standpoint, they are just like, "Well, we need something here that we can market." So you kind of do this sort of see what you got and then post hoc, try to tease out something that's useful.

Bryan Chung: Yes.

John Barban: That kind of wasn't the point, but I mean money gets invested. That's kind of the gamble with research. Depending how base level the research is, I mean, you don't know, that's why you do the research. If you knew, you wouldn't be researching. If you knew something it did exactly what you want it to do, well, why are studying it? You already know it.

Bryan Chung: Yes.

John Barban: So to find that out, you also are open to the possibility that it won't because you don't know yet. You're trying to figure stuff out. I mean, obviously, you don't just study. I mean if you're going to even invest in something, you probably have at least some reason why you think it might do something. For instance, in the supplement field, a lot of stuff comes from old school like historic ancient Chinese medicine practices and Ayurveda and all these things that are like two and three thousand years old and they just did it just because, and that's back when like they thought they were releasing evil spirits and all that kind of nonsense, so some of this stuff persists over time like the use of a particular herb for something. And so then it gets funded to see if scientifically like how can that even be doing what it's being claimed to do all these years and then you study it and you are kind of, "Well, it doesn't really do that." Well, then they just start fishing around, what can it do?

Bryan Chung: Yes.

John Barban: We're already selling it. Is there anything? Did you find anything?

Bryan Chung: Yes.

John Barban: And, so, then it becomes like, "Well, this is ridiculous because we didn't design a study to just find anything. We were looking for the one thing, and it didn't do

that, so now what?" And then the money is invested, it's got to produce a claim as kind of like what it turns into. At least, not on all research, but in the supplement industry, that it could happen because a company who invested the money there, they are like, "Well, okay, so then all we really did was fund a study to prove our stuff doesn't work."

Bryan Chung: Yes.

John Barban: So they're kind of hoping for something that's positive. So that does happen for sure.

Bryan Chung: Yes. I cannot comment on how industry and research interact too much because I haven't really been involved on that end as much. Certainly when we do, when I've been involved in research that they have a linkage to industry, we sort of divorced ourselves from that relationship as much as possible, so the information belongs to us and we can publish those results and all of that sort of thing, and whether the company gets a return on their investment into the research or not is secondary because we're at a different institution. I think it's different if you're doing research within a company, then I think it is way harder.

John Barban: Yes, but then there are other stuff too, like when private industry comes to a university or contract a research facility and asks for a study to be done, but then they also want a contract signed ahead of time saying if the results come out not favorable that it won't be published. And then it just gets put away.

Bryan Chung: Yes, the universities aren't doing that anymore. You cannot get that contract anymore because of what happened to Nancy Olivieri.

John Barban: Pardon me. Say that again.

Bryan Chung: Very right. And that's an ethical issue now, but that was brought to light. I don't know if everybody knows the story of Nancy Olivieri (I can't remember what kind of physician she was), but she was at this kid's hospital in Toronto and she was involved in industry-related research and found that the drug that they were studying was not effective, and in fact, I think – I don't remember the whole detail of it -- but possibly even harmful. And so she published her research as an ethically responsible scientist to say this drug is not worth what it's supposed to be worth and possibly even harmful, I believe. And she was taken to court by the company for violating the contract because they said, "Well, if it was a negative study that this shouldn't be published." And so this has caused a huge firestorm at least in the bioethical circles and certainly within research departments across the world. So I know for sure in Canada you definitely cannot sign a contract, like they won't get away with signing a contract like that. You will be dumb to do that now since the precedent has been set.

John Barban: But that's recent?

Bryan Chung: Yes, that was just less than ten years ago for sure. Yes, so you can't do that anymore. It's just not allowed because of things like that being happening.

John Barban: It's a slow process and it's still moving forward.

Bryan Chung: Yes.

John Barban: Yes, it's coming along. I mean, the industry of research, especially in the kind of fields we're talking about, it's not like it is any more noble than any other industry. There are lots of people. There is lots of money involved. There are corruptible people. There are people who are just toeing the line and just kind of going to work. It's not like everybody in a lab is like an Einsteinian-type of scientist who's literally trying to solve the problems of the universe and like not everyone cares as much as you probably hope they would. So I mean, it's just like any other industry, you have your good ones and you have your not so good ones. And just like papers, you have your good papers and your not so good papers.

Bryan Chung: Yes, I mean, to go through the peer review process still is rigorous if you consider most journals have a rejection rate that's higher than fifty percent, then that's sort of if you think of all papers, that's about fifty percent of all the research that's being done never gets published because it's just not good enough.

John Barban: Right. So I don't know what that means, but that means either the journals are doing a good job of being selective for what's good or it just means an entire half of the research that's being done is crappy.

Bryan Chung: I think it's a bit of both.

John Barban: Yes.

Bryan Chung: It's a bit of both, but even then with the different quality journal, then I don't think it's a good indicator of how good the journal is because…

John Barban: It's impact. But again, no one would know that. It would take someone who really knows what they're talking about to get at that.

Bryan Chung: Yes. I don't think impact factor serves anybody well and I think that the people that are in the know don't care what the impact factor is and the people that aren't in the know shouldn't care what the impact factor is because they don't know.

John Barban: Right.

Bryan Chung: Yes. And so if you're relying on impact factor to help you decide whether a study in the journal that you're reading is of any worth, then you're on the wrong side of reading that paper basically.

John Barban: Exactly.

Bryan Chung: And I don't mean that in an insulting kind of way.

John Barban: Oh yeah, I know it all makes sense. That just means you don't know enough about it yet. Well, what I mean, we haven't really answered the first question.

Bryan Chung: No, we haven't.

John Barban: Let's get back to trying to figure it out. I mean personally, you can't even know if studies have any quality outside of your field because you won't be aware enough of the methods and the stats to really, really get it. You won't know if methods are validated or not. You won't know if that's an outdated method or if there's something that's been updated. So it's hard to know outside of your field at all, but even within a given field, how would someone even know if a paper has better quality or not?

Bryan Chung: Reading a paper is a skill. There are whole courses in university that are dedicated to nothing but how to read a paper. So in some ways, asking the question is kind of like saying so how do you know what the answer is to a differential equation in a calculus problem? Like if you know nothing about calculus, how do you know that differential equation is right? And it's like, well, you could take a calculus course and that's how you would figure it out.

John Barban: We'll know, they tell you, if that's the answer, that's the answer.

Bryan Chung: And I think to some extent, when you're reading a paper, it's really hard for a lay person who has no training on how to read a paper to read it with any degree of knowing and that's even with basic undergraduate statistics because a lot of people out there that are in the gyms and are training and have done undergrads in kinesiology

or in exercise science. They did a basic stats course. They know that P-value less than 0.05 is a good thing, but apart from that, that's about where it all stops. And so I think even when you're reading an abstract, it's hard to necessarily pull that stuff out. You need access to the actual paper in the end before you can determine whether the study is good or not. And where people get caught with the whole information overload of is the study good or not is they never actually get past the abstract because that's all that's available on PubMed and everybody can use PubMed now.

John Barban: Right. And one of the things I say is with someone who doesn't know how to access the full paper, automatically excludes him from ever knowing how to read it once they get there.

Bryan Chung: Yes.

John Barban: If you don't already have access to the full paper, like if you're not in an academic lab or if it's not within the scope of the things that you're capable of, then even if I handed you the paper, I know already that you can't read it.

Bryan Chung: Yes.

John Barban: So, I guess the answer is that layperson is kidding themselves if they think if they can just grab a paper and read it.

Bryan Chung: Yes, it's not like reading a magazine article and certainly a person who's reading the paper isn't writing to that level of person.

John Barban: No.

Bryan Chung: They're writing to their peers.

John Barban: They're writing for another researcher who's got those capabilities or clinicians who are going to be using it for practice. Either way, they're writing for people who are capable typically of reading it. So again, to me, if that's you, you already know that's you. And if you're sitting there and going, "Gee, I wonder how that is." Then it already means it's not you.

Bryan Chung: Yes, that's true.

John Barban: Like if you don't have a subscription to these journals and you're not in a lab or you're not anywhere where you have access to these journals, then that means if I handed you one, it's going to mean nothing to you.

Bryan Chung: Yes.

John Barban: And then the other thing is a lot of marketers will talk about these claims but all they've done is grab an abstract and they're just reporting the final concluding line in the abstract, so they're just grabbing it and using it for marketing claims. So I

mean, this even happens in the supplement industry. A lot of supplements gets marketed but people just read the paper with no real qualification to read it and grab out a couple of catchy lines from the discussion and they are like, "Yeah, we are going to market it based on that."

Bryan Chung: Yes.

John Barban: So the difference between what goes on in academic circles and what nugget of truth is actually in a paper and what actionable steps you might use to apply to your workout or to the way you eat, it's a far cry from what you end up hearing in the popular media. It's usually a massive distortion and a complete misinterpretation of what the paper was ever trying to say in the first place.

Bryan Chung: Yes. I think from a layperson's point of view, if you're reading an abstract though, I think one of the things that you might be able to get out of the abstract is looking at the results and trying to decide if the results are meaningful to you or not. And by that, I mean, looking at the actual, if the numbers are there in the abstract, and all you have access to is the abstract, a lot of the times, researchers published and it shows a significant effect of whatever kind, and even though the effect is what we call statistically significant, it's not actually relevant. And I think a really good example of that, and you talked about the Novadex recall a while ago. I think it's really Novadex trial which showed a four-fold increase. And so they did a randomized controlled trial, which is considered the gold standard of evaluating the effectiveness of a treatment or a drug or a supplement.

John Barban: yes.

Bryan Chung: It wasn't a badly written trial. It was pretty good as far as I can tell but they weren't very well recorded, so if we take their trial on face value and say, "Okay, let's pretend the trial was perfect. Their results stated that if you took Novadex, you would get a four-fold increase in free testosterone levels, above baseline, right?

John Barban: Yes.

Bryan Chung: Which seems like a lot and it would certainly prompt one to say, "Well, maybe I should start taking Novadex." And this is even without knowing what's in Novadex, right?

John Barban: Yes.

Bryan Chung: Which we know is not what they said it was.

John Barban: Right.

Bryan Chung: At any rate, the sad part about the whole thing is that even with the four-fold increase in testosterone levels, when you look at the amount of lean body mass that the subjects were gaining, it was a negligible amount of body mass between the two groups. So even though you had a four-fold increase in your testosterone

levels, at the end of the day, by the end of the trial, you weren't really a whole lot bigger than they guy next to you who wasn't taking Novadex.

John Barban: Right.

Bryan Chung: And that was with Novadex having all that other stuff in it.

John Barban: Yes, with like the FDA non-market-approved drugs in it so.

Bryan Chung: Yes. Right, so that's the saddest part of the study is that they did the study, and it wasn't a bad study. They showed a physiological response to the supplement and it still did nothing.

John Barban: Right, because the end-goal, no one cares if their testosterone goes up by itself.

Bryan Chung: Exactly.

John Barban: What they actually want is the resultant muscle.

Bryan Chung: Yes. Nobody cares what are serum testosterone levels are.

John Barban: Yes. You just want to know, did my muscles get bigger or not?

Bryan Chung: Yes. And that's the whole thing. So if you're reading a study and they don't even talk about muscle growth in the study, and you're interested in muscle growth, then forget it. If you're looking at losing fat and you're reading this in abstract and they don't talk about fat loss then don't waste your time.

John Barban: Right, because they might be talking about lipolysis or beta oxidation but…

Bryan Chung: Or protein synthesis or something else.

John Barban: Yes. Yes. And we talked about this. These are surrogate end points. None of these things are actually the thing you want. There are other indicators that someone somewhere is assuming is related to the thing you actually want which is for us, bigger muscles.

Bryan Chung: That's right. So if your study shows that a supplement produces increased protein synthesis, well, great. But does it actually make your muscles bigger, yes or no? That's the question that everybody wants to know. So instead of wasting your time saying, "Well, if I take a pre-workout protein shake, that increases my protein synthesis, or drinking chocolate milk increases protein synthesis." Well, at the end of the day, none of those studies have measured whether they'd actually makes your muscles bigger or not.

John Barban: Well, they know not to measure that because they know it won't work.

Bryan Chung: Exactly.

John Barban: Hey, a lot of these people aren't stupid. They're taking research funding. Some of these people are taking research funding full well knowing that muscle growth can't be shown, but they're like, "Well, I can show you increase in protein synthesis." And then the company marketing the product says, "That's good enough."

Bryan Chung: Yes. Yes. And so it doesn't seem have to do with whether the study is good or not. And I think any lay person who's reading an abstract can tell whether what they're interested in is being measured in the abstract or not. And if it is not being measured, then you can just toss it.

John Barban: Right. Because you don't care about protein synthesis and you don't care about any of these other things. All I want to know, did the muscles get bigger? And if they didn't, you'd be foolish to just assume that one means the other.

Bryan Chung: Yes. Because I hate to have the listeners go away with nothing, because I've just basically told everybody that's listening right now that they can't read a paper.

John Barban: Yes, but that's not a bad thing. And don't kid yourself. A lot of fitness marketers can't do it either.

Bryan Chung: Yes.

John Barban: It's just there are very few people who can do it. Bryan helps us interpret stuff that we don't know what's going on because it's his expertise. He can help us interpret it. But I know what my limitations are. I know I can read a certain type of paper that I was trained to read, but then anything external to that I need a fair bit of support. But I have a lot of different people I can talk to. So I've got biomechanics people. I've got sports injury management people. They're all different people and these are their various areas. So if I can't read it I'm one phone call away from somebody who can. But most people don't have that kind of network.

Bryan Chung: Yes.

John Barban: Most people just can't just call you up.

Bryan Chung: Right.

John Barban: Yes, they can't call any of my other buddies in biomechanics and just say, "Hey, I saw that paper. Tell me." And they will be like, "Oh yeah, we did that in our lab." So I mean if you don't run in those circles, you just won't know.

Bryan Chung: Yes.

John Barban: And the problem is most fitness marketers don't have those connections either. They just don't. They don't know either. It's the same as just reading another magazine or they're just parroting what's in another magazine which again, those aren't peer reviewed and those aren't written or researched by anyone who can do it either.

Bryan Chung: No, so I think the take home message is that if you are going to delve into the scientific literature realm, either as a hobby or because you're curious about the stuff that you're doing, then you shouldn't really be thinking unnecessarily about whether the study's of good quality or not but whether what they're measuring is actually relevant to you.

John Barban: Right.

Bryan Chung: Because if there is a study out there that shows that something actually genuinely increases muscle mass substantially, I guarantee you, everybody will know about it.

John Barban: Yes.

Bryan Chung: And it's not going to be hidden away in some free email secret, like all will know about it. You'll know about it. You probably need a prescription for it. It's not going to be a secret.

John Barban: Right, things that can produce the result that a lot of people really want get out into the public fast. It's kind of like if some drugs or some therapy actually eradicates and cures some kind of debilitating disease, it won't be a secret. The entire world will be exposed to it the day it happens and everyone will have access to it in some way. Because it's in demand and that's the reason you do this stuff, it's to produce things that people want. So, if someone solved the conundrum of fat loss, everyone would know about it. It would be front page news. It would be all over everything.

Bryan Chung: Yes.

John Barban: It's the same with muscle building.

Bryan Chung: And it certainly wouldn't be coming out in a free email.

John Barban: Well, it just wouldn't be a secret. That's too big of a deal.

Bryan Chung: Yes.

John Barban: And too many people want it.

Bryan Chung: They would be everywhere.

John Barban: Right, exactly. And do you know what? I guess, we could wrap it up with that. If you're going to poke around in the literature. Just look for stuff that's measuring exactly what you want and don't at all assume that a surrogate end point or an end point that is not exactly what you're after means something else. And as far as I can tell, almost everyone that is listening here is only going to care about either muscle building or fat loss, so, if a paper isn't measuring those exact items you can't assume that whatever it is measuring relates to those items.

Bryan Chung: Yes.

John Barban: Did we even answer our original question? It's too much, it's too difficult to even try to answer I guess.

Bryan Chung: Well, like I said, for me and my masters, it wasn't even in an undergrad course. It was a half year's worth of doing nothing but reading paper after paper after paper after paper and having to write critiques on every single paper that we were assigned to read.

John Barban: Right.

Bryan Chung: And every paper we were assigned to read had this specific purpose behind it. It wouldn't just be some random paper that they pick out. They picked each paper for a specific reason.

John Barban: Right.

Bryan Chung: And there are things that we want you to get out of this paper.

John Barban: Right.

Bryan Chung: From the methods point of view and then the second term was still a little more of the same.

John Barban: Right.

Bryan Chung: So, it's like eight months of doing nothing but that. So I think it's not to say that the skill can't be developed and there are books out there that if you want to learn how to critically appraise literature, there are books out there that can teach you very well how to do that. There are introductory medical, clinical, statistical books. My favorite one is the Cartoon Guide to Statistics, but it's really a comic book, and it would be my chosen course stats book if I were to teach a course on introductory statistics.

John Barban: Sure.

Bryan Chung: That would be a great start for somebody who just wants to read about that and just sort of educate themselves a little more. And it's a very easy read. So

there are books out there that can teach you how to do it and it comes with practice. The only difficulty in learning how to do it by yourself is that nobody is giving you feedback as to whether you're doing right or wrong.

John Barban: The answer is if this matters to you enough, go back to school. Otherwise, just accept the fact that it's something that you just won't be able to do.

Bryan Chung: Yes. And because it's not practice that makes perfect, it's perfect practice that makes perfect.

John Barban: Right. Practice just makes permanent.

Bryan Chung: That's right.

John Barban: So if you're just practicing the same error constantly, you're just going to get really good at making that error.

Bryan Chung: Yes.

John Barban: All right, so, I think we've got this covered. So, don't post abstracts in the forum. Don't ask me about them because this podcast is the reason why I don't want to see anyone posting and you're not going to get a positive response from me because this is why. This podcast is why. And then again, this is also why when anyone posts anything online, you could essentially ignore it because the source of the

person and whether or not they can read it is really what you should be examining, not the claims in the paper at all.

Bryan Chung: But if it's really interesting, please send me a link.

John Barban: Yes. Yes, send it to Bryan. Oh, yeah, definitely. That's a great point because Bryan does his analysis on his blog. Can you plug your blog right now?

Bryan Chung: Oh yes. So it's evidencebasedfitness.blogspot.com.

John Barban: Yes. You've got to get a straight dot com on that one of these days. And I'll also include the link to Bryan's blog in the blog post notes. I mean, I've put it up before, so I will do it again. All right, man, so thanks. And oh, by the way, Bryan, we're assuming you'll be at on the summit in April. As of right now you're…

Bryan Chung: Right now I can see I have a few things that I need to sort out first.

John Barban: Right, so there's a pretty high probability, right?

Bryan Chung: Yes.

John Barban: Okay, sweet. All right, well, thank buddy. And so for Bryan Chung, I'm John Barban and that's your Adonis Lifestyle podcast.

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