



Transcript of “The Man Who Would Stop Time with Bill Andrews”

Bulletproof Radio podcast #10



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Dave: Today's cool fact of the day is that collagen isn't just for skin and hair. It's the matrix for your bones and it forms a part of your body's electrical system that conducts current apart from your nerves. You're listening to episode 10 of Upgraded Self radio. Today we have interview with anti-aging expert Bill Andrews who's an expert on telomerase, part of your cells that get shorter every time they divide. Bill believes after a lifetime of research that by fixing the problem with telomerase we can extend human lifespan very substantially. It's a fascinating interview and I had a great time speaking with Bill.

We're on with Bill Andrews. Bill is a CEO of Sierra Sciences a premier anti-aging research company conducting research into telomeres. Bills' company has screened more than quarter million compounds for telomerase activity in order to discover 858 telomerase inducers from 38 different drug families. He was recently in Popular Science as the man who would stop time in Newsweek and Discover Magazine and he's about to go any day now onto the today show where you'll be able to hear even more about his new discoveries.

We've invited Bill to the show today because the stuff he's doing is important to you if you care about being better at what you do. Staying young means you can be a better entrepreneur or a better parent or a lifelong student or a better artist. Living longer can let you gain the benefit of wisdom you gain over time without the slowing down that can happen as you age and if Bill's right you can have a lot more years too. Bill welcome to the show.

Bill: Thank you very much.

Dave: Tell us how you got into the field of aging and why you have such a focused effort on pursuing it?

Bill: I got into the field because of my personal interest in curing my own aging. Ever since I was a little kid when my father first came up to me and said he didn't understand why nobody's cured aging yet. That was like 50 years ago and he says, "Bill since you're so interested in science when you grow up you should become a doctor and find a cure for aging." and here I am. I've been obsessed with it ever since then.

Dave: I'd like to thank your father for putting you in that direction. It's been a lifelong interest for me as well and I really admire the work you've done. This is 1 of the reasons that [inaudible 00:02:28] anti-aging group that I run that we had you and a couple years ago to talk about this. I really impressed with your work.

Bill: Thank you.

Co-host: Bill, how do you define aging from a biological point of view so we can understand what we're trying to slow down here.

Bill: That's a really good question because how do you separate just health related issues from aging related issues. I think if its aging related it has something to do with some type of clock. I believe there's a clock that must be ticking inside of us. If it's not related to some clock and it's something that varies from person to person I don't really consider it aging. I consider it just a health related issue. It gets you more complicated because aging actually affects a lot of non aging health related issues. I think there's a theoretical maximum lifespan on humans 125 years.

Anything that it causes to exceed that limit of 125 years I would just by definition in hindsight call that related to aging. It's really still a tough question how to separate the 2 health related stuff versus aging related stuff. I can tell you when somebody runs 107 in a mile and 130 years old, how would you know that that person is taking something that's cured their aging.

Dave: I love that goal. That's the type of visionary thinking that a lot of our listeners are into it. Certainly I think that's possible and I think it'll happen sometime. That said, there are a bunch of older theories of aging. I've talked to with Aubrey de Grey lots of times who has 5 different theories and his SENS theories. How do all these other things not just Aubrey's but all the other theories of aging compare to the 1 you're focusing on?

Bill: First let me say I'm a very big fan of Aubrey de Grey. I think he's really passionate about trying to find a cure for his own aging and everybody

else's aging. He and I work together, we collaborate together even though we're on different missions. I think that aging is multifaceted. I think of each thing that causes aging or maybe even health related issues as I was discussing before I think each of them has a stick of dynamite that's burning inside of ourselves. Really what's the issue is what's the stick of dynamite with the shortest fuse and that's 1 that we have to solve. I believe there's a lot of theories on why we age.

Usually when I give a presentation I show at least 15 of them. I think the main ones are oxidative stress theory of aging and mitochondria dysfunction theory of aging. It's also known that gene expression changes with aging so there's a lot of people work on the approach can we reverse this gene expression changes and would that reverse aging or slow aging down. I believe all those things need to be worked on. I personally believe but I can't 100% prove it. I personally believe that telomere shortening which is I think is the number 1 cause of aging in humans is the stick of dynamite with the shortest fuse. Really the only true clock that exist in human cells and explain aging and explain 125 year theoretical maximum.

I'm focusing my attention on that but I sure hope that everybody else especially Aubrey de Grey and others working on the mitochondria dysfunction and oxidative stress. I hope they're getting well funded too so that they can get their stuff on because once I put out this view that I think is the shortest there's still other fuses burning. I'm hoping those other fuses are long enough that once we put up the telomere fuse I will have at least another 30, 50 years to work on putting the other fuses out.

Dave: I love the way you described it. The shortest fuse first. I describe my approach to all these as being a biohacker because my background is in computer infrastructure, designing, cloud computing things for the past 15 or 20 years and it's [inaudible 00:06:58].

Bill: I love it.

Dave: It's the same approach. It's the idea that says you find the first bottleneck. The thing that's going to break first and you fix that and then

you find the next 1 and what you're doing is you're saying I think that telomeres are the more important, the shortest fuse, the first thing that's going to break so let's fix that and others can work on the next thing that might break. That's so smart.

Bill: Biohacker I love the term.

Dave: Excellent. One other question that goes along with that is that you've been doing this for 11 years just with Sierra and obviously involved with anti-aging for longer. The first phase of your testing was all about DNA recombinant approach and now you're pursuing some other paths here. How far audience understand the path that you progressed as you work on tackling this shortest stick of dynamite that we're looking at?

Bill: I've had 1 main mission in life ever since I first learned that telomeres shorten and could be the cause of aging and that is trying to figure out a way to prevent that shortening of telomeres and actually relengthen telomeres. Even though I've been doing different things they've all been directed towards that 1 mission. That mission has been going on since I think 1993 when I first learned that telomeres could play a role in aging. Sierra Science has been around for more than 11 years. It's actually I think approaching 13 years now. We've been 100% focused on that but there's different ways of approaching that issue.

Any gene in the body is turned on and off like a light switch and that light switch is typically found right adjacent to the gene and the chromosome. The question is, what is that switch? Where is that switch? What turns it on? What turns it off? Our first approach was try to identify what it is and then we think we did a pretty good job with doing that. Once we have defined what it is, then we try to find what the proteins are or any molecules or whatever that are involved in turning that off and on.

After 7 years of working on trying to do that we could not figure that out and nobody in the world has either even there are a lot of research labs working on that. We made a decision 1 day I think in probably 2006 maybe 2005 to put that approach on hold and go to plan B. Plan B was to just say let's not try to find out what the protein is that turns the

telomere gene off and on. Let's just screen for synthetic chemicals, drugs per se that when we add it to the cells turn it off and on. Then we find that drug that turns it off and on, what the drug would presumably bind to that protein that we want to identify.

We can use that drug as a bait on a fishing line/hook to pull up the protein that is actually binding. At the same time the drug even without us finding out what that protein is that drug becomes a potential therapeutic for turning telomeres onto lengthen telomeres. That's been approach so far and we've been very successful with that approach. For years even when I was first starting in Sierra Sciences other scientist big name scientist all over the world were telling me that that's impossible. There's no way you're ever going to find a small molecule chemical that's going to turn on the telomerase gene. Theoretically they said if there was such a possibility of doing that we would have already found telomerase turned on in nature.

Dave: What you've done is you've absolutely used the hacker approach to solving the problem. Saying you can't be done, you find another way and you keep looking at the problem differently and the fact that you found 858 inducers when it's allegedly impossible its just a beautiful thing from a technology perspective. I love that you've done that.

Bill: That's why I just love the biohacker term. When we found our very first chemical hit, we did send it to 5 different labs from scientist that had said that it was impossible. They all tested it and said, "Hey eureka it works." That was a really big day for us. We do now have close to 900 different chemicals that turn on the telomerase gene.

Dave: You've mentioned genetics here and I have a book, Wiley is publishing my book early next year probably. My book is about what to do when you're pregnant, to use epigenetics to have a healthier actually more intelligent and hopefully longer lived child. I look a lot at the exposome, the set of environmental triggers that you're exposed to and the regulatory protein shield and look at turning into practical advice for people. How much of the telomere lengthening or shortening process do you think is genetically determined by the environment versus predetermined genetic switches?

Bill: I'll say that there's a lot of things that affect telomere length. A lot of people are born with very short telomeres and that usually due to something in the parents. There's things called diseases of anticipation where for instance maybe a great, great grandparent had a mutation that resulted in telomerase not working very well and therefore during in the germline cells of that great, great grandparent the telomeres actually got a little shorter. Then the next generation so in the great grandparents the telomeres got even shorter. The grandparents they got shorter. Parents they got shorter and then you they got so short that it caused you to now suffer from a premature aging disease.

That's like progeria, dyskeratosis congenita, idiopathic pulmonary fibrosis, all those things have come under that kind of heading. What causes sometimes is purely genetics, it causes the telomerase activity to be decreased. It can also be epigenetic and sometimes doesn't have to be involved telomerase. For instance, anything that accelerates telomere shortening could be a problem. Telomerase can lengthen telomeres or at least maintain their length but if you're doing something to your body that can actually cause accelerated telomere shortening the telomerase just might not be able to keep up and keep them long enough.

Examples of epigenetic things especially in pregnant women that can in fact ... I don't know why we just limit it to pregnant women. It can also be women and men before the pregnancy. The germline cells could get [distorted 00:14:12]. Smoking is a big problem. Smoking is well known to cause accelerated telomere shortening. Obesity is another 1. Lack of exercise, depression, it's on and on. Right now, so many publications from people finding different things that accelerate telomere shortening that it's becoming pretty scary. It's like you almost have a perfect life to prevent accelerated telomere shortening at all.

I think some of the more interesting ones that have been published lately is simply household income. It turns out people with higher household income have longer telomeres and people with lower household income. I'll assume it has something to do with depression. Also pessimism is an interesting 1. Pessimism has recently been shown to affect telomere length. It turns out if somebody goes up to somebody out and says you think you live to be 100 and that person says no.

There's a good chance that person is going to just because their telomeres are shorter.

One other very interesting sideline to that is that a study was done showing that caregivers of Alzheimer's patients actually have shorter telomeres. Whether or not these later ones depression, care giving, pessimism, financial income whether or not those affect the telomere length and the germline is unknown. In fact they definitely affect telomere length in the immune system. Definitely smoking and obesity and lack of exercise will affect telomere length and the germline. Be healthy and be happy I think that's the best way to make certain that you don't cause any problems to your unborn child.

- Dave: That is really, really impressive because if I heard you right you're saying that what's happening in your mind, your outlook on life affects how quickly you age.
- Bill: Anything that causes stress or inflammation and personality traits can definitely cause stress or vice versa. Definitely you want to do reduce oxidative stress and the stress that your boss gives you that causes all kinds of inflammatory and oxidative stress problem.
- Dave: It's really, really impressive to hear that from someone who's done as much research as you have. The bulletproof program that I've been ... I've built for myself and my family really but that I've been sharing online involves reducing stress, reducing inflammation and even specific techniques derived from more quantitative analysis of bio like heart rate stuff. Anything that lowers stress at least lowers unhealthy stress, anything that lowers oxidative stress nutritionally or in your environment seems like it a good idea and it increases performance as well as now you're sharing with us makes you age less quickly. I've seen other data points like that so thank you for that.
- Co-host: Assuming we could activate this telomerase enzyme to extend telomere length, what is the maximum you believe is possible for someone to live?

- Bill:** I have no idea. That said, I wouldn't be surprised if someone lived to be 500 years old but I'm not going to say they're going to live to be 500 years old. We have no idea. All I know is that we can make human cells in a Petri dish immortal by all definition can be possible right now. When we turn on the telomerase gene and human cells grow in a Petri dish, there's never any signs of aging whatsoever. The cells actually get younger which is actually really good indication that they'll go on and on and on for long, long time. The highest that I will say is that I think if we can stop telomere shortening and actually make telomeres longer, we can probably live to be 130, 150 years old which as I said before would give me a lot of extra years to work on trying to find out what the other causes of aging are.
- Dave:** It sounds like if we succeed in your mission and then some of the other anti-aging things happening we might not need to follow the [inaudible 00:18:55] upload ourselves to the internet singularity model. You're not a singularity guy.
- Bill:** Oh yes I am. When I speak at conferences especially investor conferences where there's investors in the audience, I always pitch not just for my own company but for all the other companies. I focus on the things I mentioned before oxidative stress, mitochondria dysfunction, Aubrey de Grey's SENS program, the gene expression reversal programs but in addition to that I'm all for brain uploading. I think that's science fiction yes but I'm pretty impressed with some of the people working on it. I think that they're going to to make some progress if they have the appropriate funding.
- I'm also into nanotechnology that can help us. Maybe we can figure out a small little molecular robot that can get inside ourselves and turn on telomerase or even rebuild our telomeres. Then 1 other thing is I'm very, very interested in cryogenics. All these things, if everything that I'm doing right now fails to get done in time I'm going to be the first person wanting to freeze my body so that somebody else can take the lead after I'm gone and bring me back after the telomere shortening and other aging problems are solved.

Dave: You're definitely then full fledge biohacker and you've got a backup plan already in place.

Bill: Yes. I like to cover every base.

Dave: Let's cover some of the specific things that have come up. Some of your most promising substances are actually Chinese herbs that are already is medicinally and I've obviously there's questions about [risperidone 00:20:54]. For those of our listeners like me who might be ahead of the curve and willing to try some things and see what works, what are the most promising things that you can talk about?

Bill: Right now there's only 2. Every time something is published or comes on the market that suggest it turns on the telomerase gene, we test it. We just want to know for our sake but the only thing that actually do turn on the telomerase gene so far are TA-65 from T.A. Sciences and product B from Isagenix. Both of those are natural product supplements. On the scale of what we want to actually accomplish with our synthetic chemicals, they're relatively weak. I'll tell you anything is better than nothing. I believe that both those products can extend our lifespan a little.

Both surprisingly we've done a clinical study on TA-65 already in conjunction with several other labs we did the study and including Geron Corporation who discovered TA-65. We also have a clinical study underway with product B right now with Isagenix and Dream Master Corporation so that was under way. The first 1 did give some indications of possible age reversal. Even though it's relatively weak, we were able to show that the absolute shortest telomeres got longer. It's well published that short telomeres are preferentially elongated over longer telomeres. If you have a cell that has a mixture of short telomeres and long telomeres and you turn on the telomerase gene in those cells, the shorter telomeres actually get elongated preferentially.

Since these 2 products are relatively weak, we're looking at the shortest telomeres because that's the place where we can get our strongest signal and with TA-65 see that the shortest telomeres got longer. That's interesting because we don't really know why telomeres have anything

to do with aging that's a big mystery on itself. I'll be the first 1 to admit that. We just know that it's correlated and when we lengthen them, we can reverse aging [inaudible 00:23:22] human cells.

It might be the abundance of short telomeres which would correlate with average telomere length or it might be the average telomere length. If this is the abundance of short telomeres, then TA-65 and also product B can actually show some age reversal as demonstrated by telomeres. [Inaudible 00:23:45] from a lot of testimonials there's a lot of people saying that they are seeing age reversal stuff. I get emails and calls all the time from people who are taking TA-65 and product B saying that they're seeing miraculous changes in themselves. As a scientist I try to steer away from testimonials and annotative data. I'm hoping going to have the real scientific data pretty soon.

Dave: What are you looking at spending? I know that you don't work for either of the companies but I'm guessing you probably have an approximate. How much would it cost per month to experiment on yourself with some of this stuff?

Bill: TA-65 I think is about \$250 a month something like that. Product B right now is about \$70 a month. Really the only 2 things to really experiment if somebody wants to try taking a "telomerase inducer" those are really the only 2 choices right now.

Dave: That's sounds pretty reasonable. Someone who wants to get a few extra years and is willing to take a risk that it might work, \$70 a month is ... You don't have to be a millionaire to do this. You can probably at least somewhat extend your life or maybe improve the quality of your life and thus your performance for a couple of hundred bucks a month using the research you're pursuing.

Bill: I'm doing it. I've got everybody in my family, all my friends doing it. I strongly recommend it. The companies can't say this because of restrictions on what you can claim in the stuff but I strongly believe that keeping your telomeres longer or decreasing the rate of shortening will have an impact not just aging but every single disease you can ever imagine has anything to do with health and especially that involves cell

division. Those include cancer, heart disease, Alzheimer's, osteoporosis, on and on and on muscular dystrophy, immune disorders.

Even people that have AIDS will probably benefit from taking something that can extend their telomeres because of the fact that number 1 cause of all the ailments from AIDS is the accelerated telomere shortening in immune cells that's why T cells disappear in people infected with the AIDS virus. Just keeping the immune system intact there can help them but it can help everybody.

Dave: I read a lot about intelligence and performance enhancements, ways you can actually safely maybe sleep a little bit less to get more time to do what you want to do without necessarily shortening your telomeres or harming your health in other way. It sounds to me like having impact on all chronic diseases that tax your performance physically and mentally for \$70 to \$200 a month is a pretty good bet.

Bill: Yes I agree.

Dave: I'm with you there. I've been looking back and forth at using both of those substances for a while but I think you just pushed me over the edge where I might have to start experimenting on myself with those in addition to all the other quarter million dollars I spend on myself over the last 15 years.

Bill: Going back to the [inaudible 00:27:10] just for a second. Terry Grossman 1 time stated, live long enough to live forever and that's really important. Even though TA-65 and product B are relatively weak and things like vitamin D and omega 3 only decrease the rate of shortening don't lengthen shortening, those things do give you a better chance of living long enough to live forever. The idea is live long enough so that you're around when somebody comes up with a cure and then live even longer when somebody comes out with even a better cure.

Dave: That's very much the [inaudible 00:27:52] approach. I think it makes great sense. There's no doubt that the longer you live, the longer you're going to live. Everyday you're here something new could come out that can change everything. Here's the opposite of this though. You talked

about oxidative stress. You talked about all these other things that affect telomere length but you're an ultra runner. Don't you do long distance running? Oxidative damaging all that things. Isn't that counterproductive?

Bill: I try to run 1500 mile races once a month. I'm really into the spectacular type of runs like running across Death Valley in the middle of summer at 130 degrees or running through the Himalayas at 18,000 feet nonstop for 138 miles.

Dave: Did you do that in the Himalayas?

Bill: I tried that last year. My girlfriend and I are both ultra marathon runners. Her name is Molly Sheridan. We both did it last year. I ended up having a gallbladder attack at 50 miles and had to withdraw from race to be shipped back to the United States to have my gallbladder removed. When she heard that I was in the hospital, she dropped out of the race at 100 miles. This year she went back and did it and completed it. She just became the first American woman ever to complete that race. It's considered the longest, toughest and highest ultra marathon in the world at 138 miles 18,000 feet elevation. That was an incredible feat but I've tried it and I'm going to go do it next year and actually finish it next year

Dave: Bill, how old are you if you don't mind me asking?

Bill: I'm 59 and 90%, I turn 60 in about a month and a half.

Dave: I have to say that accomplishment is impressive. I've spent time in the Himalayas. I tried sprinting up a hill at 19,000 feet and I laid on my back seeing stars for about 20 minutes afterwards. [Greta 00:29:49] and I hadn't been for a marathon before that but that is ...

Bill: Be careful, that's dangerous.

Dave: I figured it out afterwards. I think I came close to the death that I meant to, to be honest.

- Bill: You got to be really, really acclimated and there's some good way to get acclimated to the altitude nowadays.
- Dave: Are you damaging your health when you do this long distance running?
- Bill: I'm always testing my health. I get blood work every 6 months. My health is just spectacular. I think that long distance running has a lot to do with it. A lot of people would argue that long distance running is a good way to accelerate your aging.
- Dave: I would.
- Bill: That's because of a lot of mouse studies. Humans are not mice. Mice suffer tremendously from oxidative stress. They don't have telomere shortening by the way. They don't age by telomere shortening. They age by oxidative stress and humans have 10 times the resistance to oxidative stress that mice do. That is our superoxide dismutase enzyme which is a natural defense against free radicals. It's 10 times the level of that in mouse.
- [Inaudible 00:31:00] Studies lately have 2, 1 from Germany 1 from Colorado the last year I think it has been has recently shown that the more intense human endurance is, the longer your telomeres the longer you live. They also were able to show that the more intense your endurance, the higher levels of superoxide dismutase and other natural defenses against oxidative stress become. Human [inaudible 00:31:27] but mice don't.
- Dave: What you're doing is you're training your SOD enzymes. Here's a question you may have no comment because you just might not have tried it but I use ozone therapy to train my SOD defense. I challenge myself regularly with ozone which has a bunch of other health actually miraculous effects. Have you seen anything about ozone therapy and telomere length?
- Bill: Not about telomere length but I've seen a lot about ozone therapy. I would say I'm probably not in a position yet to really say 1 way or another about it but I have to say that there's logic to it.

- Dave: Let's move more into the "selfish motivation." Tell us how much money do you need to fully fund your research and this is groundbreaking stuff. I work with venture capitalist all the time. There's plenty of investment money out there. Is it coming your way? What do you need?
- Bill: It goes on phases. We spend about \$33 million to get where we are right now and that's only since Sierra Sciences got started. Even on Geron Corporation we spent a lot of money there too. Right now to take us into the next step, to take some of this hits that we have to make them even more potent and less toxic too, some of them are toxic we need to do a medicinal chemistry and mechanism of action studies. We've put a plan together. That's going to take about another \$40 million. That's going to cover our research for the next ... Up until where we enter into preclinical and clinical studies. We think that's going to take 1 to 3 years after we get the funding to be able to enter preclinical and clinical studies.
- Dave: Have you considered doing this completely outside the US to avoid all the clinical study, regulatory stuff just doing it in India where there's a billion people or in China where probably do this in half the time?
- Bill: We've considered it but we're not there yet. We're not at a point where we need to start doing clinical studies. I think we're going to wait and see how the FDA responds to our request to do clinical studies. They've been pretty negative in the past stating that aging is not a disease and that science should be focused on adding life to years not years to life. We're finding out that extending telomere does both. Hopefully by the time we actually have something to take into clinical trials, the FDA will be more enthusiastic about the thing and maybe help us accelerate just through the FDA process.
- Dave: I love the way you put that in. Undoubtedly in my mind the thing that add life to your years are also the things that add years to your life and try to only do 1 of the 2 doesn't seem to work very well.
- Bill: Who wants to live a long time if you're not living? [inaudible 00:34:39]

- Dave: Bill, thank you so much for your time today. Can you tell our listeners where they can learn more about what you're doing especially if they're listeners who have millions of dollars they want to invest?
- Bill: We have 2 websites. Actually 2 websites that are actually are the same website. One is www.sierrasci.com that's S-I-E-R-R-A-S-C-I.com. The same website can be gotten to using an easier to remember website name and that's www.cureagingordietrying.com.
- Dave: I love it.
- Bill: Have the dashes in there or not have the dashes in there. Because of our funding limitations right now we don't keep the website updated 100% but still people can get contact information there. I also have an email address that I've created some months ago. When I give presentations or radio interviews and stuff, people have questions. They can write to me specifically to ask me the questions and in the website the email address is appropriately questionsforbill@yahoo.com. Anybody who's got questions or advice or even wants to invest or know of a potential investor go ahead and email me at questionsforbill that's Q-U-E—S-T-I-O-N-S-F-O-R-B-I-L-L at yahoo.com.
- Dave: Bill, we will puts links to your address and to your website in our show notes and we'll have a full transcript of this typed within the next couple of weeks that we'll also post on the site so people can find it and people can read it if they don't want to listen. We'll make sure that people can get in touch with you for that and if people have questions about general life extending or performance enhancing stuff, we also answer some of those things on our site but we're assuming for experts in telomeres like you which is why we had you on the show. Thanks again for sharing your knowledge and thanks for your passion and for the work you've done for many years to promote general wellness in people everywhere.
- Bill: Thank you very much and I hope everybody is prepared. The planet is going to undergo a very big change very soon.
- Dave: Thank you Bill.



Bill: If you enjoy this and you found it valuable, I really appreciate it if you could help us by leaving a positive ranking on iTunes so other people can find the show. We're always so thankful when people leave comments on the blog. We answer the comments and they become part of the knowledge for everyone who's interested in just improving their performance and feeling better and not pretending like they're in a famine in order to stay thin or to stay healthy. You can feel like you're in a world of abundance which makes you stay strong and high performance and that's what we're all about.

What We Cover

1. How Bill got into the field of aging and the unique story behind his obsession.
2. An overview of the other top theories on aging.
3. Why the activation telomerase is key to slowing down the aging process.
4. The new process Bill is using to find ways of activating telomerase.
5. The importance of telomerase repressors.
6. Bill's personal anti-aging plan.
7. The maximum length Bill believes its possible for humans to live.
8. The possible negative outcomes of his research.
9. Which substances have actual data proving they delay aging.
10. The kind of lifestyle you need to live in order to delay aging.
11. The role of exercise in aging.
12. Why you should help fund Bill's research!

Links From The Show

CureAgingOrDieTrying.com
Questionsforbill@yahoo.com
[Sierra Sciences](#)
[Molly Sheridan \(Bill's Girlfriend\)](#)

Supplements & Food

[Isagenix Product B](#)
[TA-65](#)
[Bulletproof® Upgraded™ Coffee Beans](#)
[Kerrygold Grass-Fed Butter](#)
[Grass-fed New Zealand Anchor Butter](#)
[Lactase](#)
[Medium Chain Triglyceride \(MCT\) Oil](#)
[Grass-Fed Meat](#)
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Listener Q & A

1. Should you use a paper filter to remove toxins from coffee?
2. What is adrafinil and will it boost your mental power?
3. What is it like to use Hormone Replacement Therapy?
4. It is possible to get rid of lactose intolerance?
5. How do you combine endurance sports and intermittent fasting?
6. Is canned salmon bad for you?
7. Is it possible to trigger body growth in a grown man?
8. How do you hack your vision?
9. Does Wild Harvest Organic Butter cause heart problems?

Biohacker Report

(A review of the latest studies and research.)

[“When Our Neurons Remain Silent So That Our Performances May Improve”](#)

[“Exposure to Mobile Phones Before and After Birth Linked to Kids’ Behavioral Problems”](#)

[“Omega-3 Fatty Acids Shown to Prevent or Slow Progression of Osteoarthritis”](#)



Updates

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Listener Questions

Tim Murphy

Dave, I am a coffee snob and only like to drink black coffee. But I finally tried BP coffee and I can’t believe it but I am hooked. I heard in one of the Podcasts you said to use a paper filter to filter out the oils in the coffee. I don’t remember why though. Many coffee snobs like myself use a French Press to make coffee which leaves the oils intact. Is there anything harmful in the oils?

John

Intrigued by your modafinil post, too bad insurance won’t cover it and too expensive to purchase out of pocket.

Do you have any personal experiences with adrafinil, the analogue to modafinil?

Also, do you have any personal experiences with male HRT/TRT hormone therapies?

Your site is boss kicka\$\$, keep it up!

John.

Robert

Hi, I was wondering if there has been any research done in to using epigenetics or some other form of biohacking to to get rid of lactose intolerance? I would really love to be able to eat ice-cream again.

Chuck

Hey guys! Awesome podcasts so far- they are really good stuff. I have 2 questions although they are totally unrelated. First, we talk a lot about intermittent fasting and incorporating exercise with it or not. But what is a minimal fast period? I usually see at least 12 hours, but sometimes I'll have breakfast at say 9am, then not eat until 7 or so at night- is this at all effective or is it pointless since the time span isn't long enough? My second question is about Omega-3 fats, especially in those in foods like salmon. As we know, salmon is full of healthy omega-3s, but what about the difference between wild and farmed salmon? I know wild has more, but is farmed "bad for us" or just not as good? Same for beef; if one couldn't get grass-fed, is grain fed bad for us, or are there still some redeeming qualities? I'm more interested in the salmon though. Thanks guys!

Bill

Hi, Dave. I'm wondering if you have any insights into how an adult such as myself (35) could do some biohacking to trigger body growth. I'm 5'4" and am fascinated by biohacking in general. Been eating Brazil nuts and taking D3 to boost Testosterone. I haven't done blood tests, but anecdotal results seem to indicate that I'm making progress. Anyway, if I could trigger body growth, I just think that would be pretty kickass. Thanks in advance for anything you're got.

Chris Bennett

Hi Dave, I really enjoyed your QA talk. You had mentioned biohacking to improve your vision from (I believe) 20/50 to 20/20? I have recently (at the tender age of 43) gotten my first pair of reading glasses. And has a very heavy reader, I find these just not acceptable to wear everyday. They cause me blurry vision and headaches and nausea. I would rather put the time and effort into biohacking to correct my vision. But I couldn't find anything on your site about hacking vision. Can you help?



Ron

Hey David, I've been eating almost a stick of Wild Harvest Organic Butter for the past few days and sometimes I feel little discomfort in my chest/heart. I would appreciate any thoughts/comments you can provide about this. Thanks.

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