Dr. Jill

Your Functional Medicine Expert®

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#129: Dr. Jill interviews author Steven Kotler on Using Peak Performance & Flow States

Text:

Dr. Jill 0:13

Hey everybody! Welcome to another episode of Dr. Jill Live. I'm here today with a colleague and brilliant best-selling author, Steven Kotler. We're going to talk about his many best-selling books and his latest work, Gnar Country. I'll introduce him formally in just a moment.

Dr. Jill 0:28

If you haven't caught my previous episodes, you can catch them all on YouTube, Stitcher, your iTunes, or anywhere you listen to podcasts. I hope you'll stop by, rate, and review. Today is especially exciting for me because, as I've written my book these last several years, one of my heroes and inspirational authors, [whose work] I've read, is Steven Kotler, and he's here with me today. Let me formally introduce him, and then we'll dive right in.

Dr. Jill 0:52

Steven Kotler is a New York Times best-selling author and award-winning journalist, and the Executive Director of the Flow Research Collective. He's one of the world's leading experts on human performance. Steven is the author of 10 bestsellers, including The Art of Impossible, The Future is Faster Than You Think, Stealing Fire, The Rise of Superman, Bold, and Abundance. His work has been nominated for two Pulitzer Prizes and [has been] translated into over 50 languages. He has appeared in over 100 publications, including The New York Times Magazine, Wired, Atlantic Monthly, the Wall Street Journal, TIME, and the Harvard Business Review. Alongside his wife, author Joy Nicholson, he's also the co-founder of The Buddy Sue Hospice Home for Old Dogs, a canine elder care facility, and Rancho de Chihuahua, a dog rescue and sanctuary. Steven Kotler, thank you so much for your time and for joining me today.

Steven Kotler 1:42

For sure. It's good to be with you.

Dr. Jill 1:44

Thank you. I know you don't know me that well, [but] I know a lot about you. What I'd love to start with is [your] story. It always drives what we do, the curiosity that we bring to life, and the work that we do. You've done a lot of transformational work, not only in my life, framing how flow can help health and aging, and we're going to go into that today, but also how flow states, in general, can really optimize human performance. What I'd love to know, though, is: What's your story? Where did you grow up? How did your childhood, your life, and the things that you saw and did as a younger person frame what you came to be, with passion and purpose, in your life with the flow states? Were there any particular memories or experiences that you had that [made] you realize you were this curious person who had such potential?

Steven Kotler 2:33

I had an amazing mom. I had an amazing mom; it's the place you've got to start [at] because when I was born, my folks didn't have a whole lot of money, and my mom was young; she was [in her] early 20s. I was her first kid, and I don't necessarily know if she knew what she was doing. But she knew books were good, and libraries were good. She used to just go to the library, and we'd pick out a hundred books. She'd read them to me until I figured out how to read, and then I'd read them to her. So, there was just a love of language and learning that sort of went together for me that goes all the way back. Other than that, I was an action sports athlete going all the way back. I was an animal geek going all the way back. Some of the things I'd become in my adult life, I think I started out being in early childhood a little bit.

Dr. Jill 3:39

That's so fascinating because curiosity, as you well know and have written, is one of the foundations of flow. And I would go further to say I think it's a foundation of genius, and you clearly had this curiosity as a young child. But isn't it neat when we have those experiences of our parents actually fostering and encouraging that? Clearly, reading is such a powerful thing. I feel like you have been in my world. I'm an avid reader, probably [reading] 200–300 books a year, and you are one of my favorite authors. And I think that not only have you taken the study of flow to this level, but you have also really made yourself [into] this incredible author and writer. How did the writer part of you get developed? How did that come into place?

Steven Kotler 4:11

The writer part was there. My grandmother, my mom's mom, was a poet, and I used that in the Hallmark greeting cards—that's the word, right? But there were no

barriers to entry; my grandmother was doing it. I was four years old, and I remember being at her table—I still have this somewhere—and I wrote up my first poem. So I started writing really early on. My senior project in high school was a collection of poems, [and] my senior thesis in college as an undergraduate was in poetry. So I'm actually trained as a poet, which is totally bizarre. I only transitioned into fiction when I moved into grad school. And then, I transitioned into journalism when I was trying to figure out how to make a living while I was writing my first novel, basically. So the writing [aspect] has always been with me. It took a lot. It took a while to learn how to do what I can do in poetry, fiction, journalism, and then non-fiction books. I had sort of a backward learning process. I could do amazing things with words long before I understood the rules of grammar, because you don't need grammar if you're a poet—not right away, at least. I got away with it for a while.

Dr. Jill 5:40

I love that. I've never been hugely into poetry. But what I realized recently in writing, working on films, producing, and [other] things is that eloquence is in the length and editing is in the conciseness of words. The brilliance really comes in the editing, and if you can say something brilliant in less words… Poetry is the ultimate example because you [can] say something [and] move someone with very few words. So it doesn't surprise me that your brilliant writing was founded on this idea that the smallness of words can actually be way more powerful if they're the right words, right? So that doesn't surprise me at all.

Steven Kotler 6:18

It's the brevity, for sure. Also, what you get really good at as a poet and you can't learn, I don't think—maybe if you're an actor and you're running lines you start to figure this out, or maybe a songwriter perhaps—[is really understanding that] words change when you put two words next to each other. You start changing one of those words, and you get to watch what happens to meaning, emphasis, rhythm—all those things. None of those are visible. That's all pattern recognition [and] pattern matching; it's unconscious learning. It's really hard to teach; it's like teaching style. I've done it, and you can do it. It's challenging and interesting; there are ways around it, but it's not easy. And the main reason it's not easy is because a lot of the core stuff that you need is nonconscious information acquisition; it's rhythm and beats and things that are really hard to get consciously. You just need laps through it. Poetry definitely gave me those laps.

Dr. Jill 7:21

That makes so much sense.

Steven Kotler 7:23

Let me also say, for the record, that I was a terrible poet. I was a bad poet. I might be able to become a good poet in adulthood, but I don't think I had much command over what I was doing. But I was doing really fancy, sort of dazzling things with language, so I don't think most people understood that I didn't have a clue. I got over, but I don't necessarily know if I was a great poet.

Dr. Jill 7:51

You kind of wowed them. I bet you were pretty good. I wonder; it makes me think: Was that, maybe, your first experience with flow, not really understanding what it was? Or would you say before you even were conscious of—

Steven Kotler 8:03

The first clear memory of flow, I was [in the] eighth grade, I think. I was at the Seven Springs ski area, which is in Pennsylvania, about three hours from my home in Cleveland. The girl I had a crush on, Vicky, was rumored to be on the chairlift, and I decided I was going to show off. I threw my very first backscratcher off a jump. It turns out she wasn't on the chairlift at all. She wasn't even in town; it was just a rumor. But I swear, I heard the rumor and I saw her on the chair; she wasn't actually there. But it did throw me into, probably not my first flow state, but my first deep macro flow state. It was the first time I remember time dilating, slowing down, and getting that freeze-frame effect. So that really stuck with me. [In the] early days, especially for a while, we didn't even have a word called 'flow,' right? It was "quasi-mystical experiences"; nobody really knew what we were looking at.

Steven Kotler 9:12

Csikszentmihalyi coined the term, but synonyms were confusing. Was Maslow's 'peak experience' the same thing as Csikszentmihalyi's 'flow,' the same thing as Phil Jackson's 'in the zone,' the same thing as [inaudible] 'runner high'? We had all these synonyms. Nobody knew what was under the hood, what was really going on, and it was hard to figure out. And then you'd have these experiences, and you'd be like, "I'm one with everything," "I'm having an out-of-body experience," or quasi[-real], really powerful, mystical experiences that we now, 30 years later, understand where they're coming from in the brain and why they're coming. But back when all this was starting, it was just magic—weird magic, right?

Dr. Jill 9:53

Yes, which is so fun because my realm is taking your research and Csikszentmihalyi... I can never say his name; I've said it a million times, and I still can't say it.

Steven Kotler 10:06

Don't feel bad; I learned to say it because I was on NPR in Cleveland, Ohio, and I slaughtered his name. Someone called into the show and said, "Hey, tell the moron [that it's pronounced]: chick-sent-me-high." And I went: "Chick-sent-me-high. Okay, I'm never going to forget it again. Thank you for calling me a moron. I appreciate that." [laughing]

Dr. Jill 10:32

I've been practicing, but still. That's perfect, so from now on—

Steven Kotler 10:38

He didn't even... You know, he asked me to call him Mike the first time I talked to him.

Dr. Jill 10:40

Yes, really, [it's like], "No one could get my name, so... " I've got so many directions I want to go. I want to talk about neurotransmitters because, obviously, medically, those are fascinating to me. But before we do, I wanted to share an observation, and then I wanted to know your take. What I feel like is that all of your ideas [and] all of this flow research can be applied to human health and performance, which is what you've talked about. And we'll talk about your book and your experience with skiing; I can't wait to get there. But before we do, one observation is that I grew up in bioengineering, [which is] very analytical, using the left brain for problem-solving [and] pattern recognition. But in my 20 years as a functional medicine kind of detective, what I've seen is that the power comes from taking that data-driven analytical processing, which is where you start, collecting experience, and now, with this right brain intuition, which is the subconscious processing of that data, I come to solutions much quicker. And now, it's the combination of those. I know I'm saying it the same way you have before. But [do you] any thoughts on even the practice of medicine? I don't know if you realize it, but our training and our medical system are so masculine, analytically driven, and science-based, which is wonderful. But sometimes we're told that that intuitive sense that we have... Knowing where we've seen patterns in this case, and this case, and this case, and

we're like, "I think this is the thing!" that comes from a very intuitive place. Then we prove it with science, so both have power equally. But I see that reflected in your work because I feel like there's this blending of both places where the magic happens: The subconscious, the intuitive, and the science. You need both. Maybe I'm not clear here, but I'd love comments on how that works in the performance of problem-solving.

Steven Kotler 12:27

It's funny. I'm working on a really big paper on the neuroscience, the neurobiology, and the neurodynamics of intuition. Right now I'm working on a book on intuition that's off in the future, which is interesting because I am really cautious with stuff, especially [with] what's said out loud [and] what gets published. Wherever it starts, it may start with intuition—it usually starts with, "I have an experience," and it matches something I've read in a science paper from a weird angle. That's the first thing, and it needs more. I've spent my whole career trying to put flow science on a hard scientific footing and being really, really as rigorous as I possibly could be. A lot of how things come together—the pattern matching and pattern recognition—as you said, that's intuitive.

Steven Kotler 13:37

As you mentioned at the start of the show, my wife and I run a hospice care special needs dog sanctuary, and my new book, Gnar Country, is on peak performance aging. My actual first work on peak performance aging was doing hospice care work with the dogs. My wife is one of the best diagnosticians for canine issues in the world, and I see it. In the beginning, I thought she was just making shit up. She would see patterns that I didn't see; she was referring to things that I literally hadn't even developed the awareness to be able to see. So I was like, "I don't know if my wife is lying to me or making things up." I didn't know what was going on for years until I actually had enough experience that I could see the same thing she was seeing and understand things like that. Especially around animals, which is not to say that doctors, vets, and diagnosticians aren't wrong, but I've learned to really get it. If something's wrong with an animal, I ask Joy; I want her intuitive opinion as much as I'm going to start turning to articles. I'm going to go back to the science.

Steven Kotler 14:56

It's the same thing with language. I see things in language; they're completely invisible to most of the world. The same thing [happens] with flow science; I read flow papers, and I see stuff that most everybody misses. That's expertise, and certainly, it exists in medicine, and it's interesting. Last night I did a podcast with

Scott Barry Kaufman and Jordyn—I'm blanking her last name—[Feingold]. Oh my God, I am terrible—she's the founder of Positive Medicine. But she's a doctor, and we were talking about… She's trying to revolutionize how doctors are trained. That's where the idea of Positive Medicine comes from. She's dealing with all the obvious stuff like burnout, overworking, and the fact that doctors have heart attacks more frequently than everybody else; they're high in suicides, and all that stuff. But it's interesting because I've done a bunch of work with surgeons and doctors. I was talking to her about it last night. None of the medical school training is about flow, and that's what doesn't make sense to me because we know that when norepinephrine and dopamine, which show up in flow, amplify the signal-to-noise ratio in the brain, you see more patterns.

Steven Kotler 16:17

Now, are all those patterns going to be right? No. So diagnostically, in the hands of a young doctor, flow could probably be a disaster. Nobody's really done that work, but once there's actual expertise, they're amping the pattern recognition up. And you know that the dopamine high is something to be suspicious of. It does amplify pattern recognition, but it also makes you feel really good, so you think every pattern is great. It's why flow is known to produce compulsive shopping. Never go shopping in a flow state; you'll buy everything—everything looks good.

Dr. Jill 16:54

Well, flow and mania could be this far apart, right? [showing about a two-inch distance between the thumb and index finger]

Steven Kotler 16:57

Right, really close. Everybody thinks, "Just give me more of these neurochemicals—more norepinephrine, more dopamine." If you turn up the crank on both, you get either mania or schizophrenia, depending on how much you crank it up and what's mixed in there. Like everything, there's a balance that we want to exist in between.

Dr. Jill 17:25

I love that. Even the foundation of what I've been doing is like: How do we take great science and not veer too far from that, but also expand the idea of what is possible in healing, what is possible in peak performance, and what is possible in finding answers to seemingly impossible diagnoses or incurable diseases? So I love that because the truth is we have to found it on good science. And even if we have an intuitive suspicion, like [when] you were sharing with your wife or whatever, we

still go back and check the data. But it's like, "Where did that meld?" because the idea is that even if you're reading a paper and you get an idea of something that no one's written about, you take that idea and go look at the rest of the papers and decide, "Is this worth writing about, pursuing, or researching?" And then, maybe it is, maybe it isn't, but that idea came from that creative—

Steven Kotler 18:09

I always say that the order of the process [is]—and I tell this to all the folks I work with, and it's a rule at my company—"Insight, research, publication," meaning, put it out there in a peer-reviewed way so smart people will bedone your idea, and then, and only then, communication. If you follow that order, I don't think you can get into too much trouble. You'll probably still get stuff wrong, but not as much.

Dr. Jill 18:40

Yes, and in your field and again in medicine, just like the people you're interviewing, that's how we change [things]; we have to bring good research because we can't have just an idea without any backing. So [I] love, love, love that foundation. Briefly, let's talk about neurotransmitters. Dopamine or epinephrine are clearly part of the blend of flow, and there's some more there too. Even [as I was] asking about your childhood—you were probably genetically programmed to seek flow, to be curious—there were things that you were genetically born with. But some of this can be trained and acquired, and you've clearly laid out a map in The Art of Impossible of how to reach flow states even if you're not naturally drawn to that. What portion of this is environmental versus genetics?—you know, the nature-nurture thing, because I see the genetic mutations and I see those people who are high achievers and seeking... For example, for me, I have issues with dopamine breakdown, so I seek motorcycle riding, rock climbing, [and] skiing because I love flow states—so do you. Not everybody I know has that natural, intrinsic genetic piece. How much of that naturally seeking flow is there from genetics, and how much is [from] our environment and [is] trainable?

Steven Kotler 19:53

Let's work backward. First of all, [it's] massively trainable. At the Flow Research Collective, as you know, we have an eight-week training. It's digitally delivered. You go through the Ph.D., psychologist, and neuroscientist as a coach, and it's intense, as you know, and a lot of work. But we see it. We're data geeks, so we measure everything, as you know. On average, we see a 70%–80% boost in flow on the back end. This is incredibly, incredibly trainable.

Dr. Jill 20:15

Then, number one, it's trainable, and number two, you have a program, which we'll link to.

Steven Kotler 20:22

Let's start with the basic idea, first of all, which is that peak performance is nothing more or less than getting our biology to work for us rather than against us. That's all we're doing. I'd love to tell you that our kung fu is the absolute best, and that's why we're seeing a 70%–80% boost in flow. Maybe that's some of it, but a lot of it is our biology. Everybody is hardwired for this; it's a built-in part or portion of being human—everybody can get into flow. Teaching people to take advantage of what's built-in is really the secret there. So [it's] very trainable.

Steven Kotler 20:52

But let's get back to your questions because you asked a bunch of really interesting questions. So one, the trait you're talking about is flow proneness. They've looked at flow proneness from some genetic perspectives. They've looked at it from early childhood experience. They looked at it from [the perspective of] what personality types tend to be—the big five—the most flow-prone and that sort of thing. I am actually a little suspicious of the flow-proneness argument, and here's why: We humans are built on—like all mammals—six foundational primary emotional processes. Jaak Panksepp, a neuroscientist at the University of Washington, did this work in the 90s. He wrote a phenomenal book called Affective Neuroscience—it's sort of the foundation of this thinking. They're really basic, but there's a panic system, there's a fear system, there's a rage system, there's a seeking system—that's the curiosity we've been talking about—and so forth. Each one is tied to different independent brain structures and neural chemicals. There's some overlap, but it's usually independent. Where the levels get set on each of these primary emotional processes is going to determine at least a large portion of which flow triggers you're most susceptible to. So there is a chunk of that is sort of genetic.

Steven Kotler 22:28

Now, early childhood experience is going to impact and change that, and ultimately, you'll have your personality on top of that. None of these things are death sentences. All of these things can be changed. Even personality traits, which we used to believe were written in stone, we now know that you can change all of them. In fact, peak performance aging requires a lot of that—working with openness, experience to experience, conscientiousness, and a couple of [other] personality traits that you absolutely want to cultivate if you want to thrive in the

second half of your life. So some of it is that way. The thing about triggers, and the reason I know it's not a death sentence, is because the triggers that most people are susceptible to tend to change over time. What worked for you in your 20s is going to be a little different in your 30s; it is going to be different in your 40s, 50s, 60s, and so forth. They change as we change. Yes, certain people are more flow prone than others. But I want to point out that I think one of the reasons I'm particularly good at this research is that I'm not particularly flow-prone, and it takes a tremendous amount to get me into flow, which is why I had to get really, really, really good at figuring out how it worked. And I have an incredibly high-flow lifestyle; I get into flow all the time, but it was learned.

Dr. Jill 23:55

Oh, see, that's fascinating and very hopeful for anyone listening who's like, "I don't know if I've ever experienced it"—surely you have. But clearly, you can also. So this is a great way to transition into your new book. Your publicist gave me a copy, so I've been deep in that, Gnar Country. When is it coming out?

Steven Kotler 24:14

It's coming out on February 28th.

Dr. Jill 24:16

Fantastic. We'll be sure to include links for pre-sales and everything. I am an avid skier; I started skiing at four years old, so I loved your story. I consider myself an expert, but not at your level. I have not done any freestyle, but [I have done] almost everything else. I want to go into the discussion on skiing. And you mentioned skiing at a young age. First of all, how did you start? And then, let's talk about the book and where you've been lately. But when was your first skiing experience?

Steven Kotler 24:42

We had this discussion recently in my house; I was either seven or eight. Skiing swept America in the 70s. Hundreds of ski resorts opened in Ohio, where I was growing up, and all over the Midwest. But Ohio, Michigan, and Pennsylvania literally took garbage dumps [and] piled dirt on top of the garbage. We learned to ski on convertible garbage dumps.

Dr. Jill 25:08

I did too because in Illinois, Wisconsin, [and] Michigan [it was the] same thing.

Steven Kotler 25:10

The same thing. That's all over the Midwest. I learned to ski on converted garbage dumps. When I started my career as a journalist—I always say that journalism is a crazy field because they pay you to be curious, which is the weirdest thing in the world—I was super curious about neuroscience, and I was also super curious about action sports. I got to spend 10 years or so chasing professional athletes around mountains, across oceans, and a lot of them were skiers because I was a skier. I was living in Squaw Valley at the point [where] it was sort of like the birth of, what was back then, extreme skiing and [what] is now big mountain skiing and whatnot. So I've done it my whole life, and then I think I lost my mind a little bit when it came to [the book] Gnar Country, but in a good way.

Dr. Jill 26:05

I agree. I was like, 'Wow!' It's actually motivating because as I've gotten busier and older I don't… And now the [inaudible] ski resorts. I'm in Boulder, so I just have a lot of access to skiing. But the traffic is so difficult that you really have to make sure you're [doing] a weekend versus a day or two. I used to go every Friday. When I came out here, I set my clinic schedule [from] Monday through Thursday, so Friday was ski day. Now I get too busy, so that doesn't happen like it used to. But I totally, totally love skiing. So the first question is: What was the factor that was like the switch for this book and this idea? Did you have the idea before Covid?

Steven Kotler 26:40

Yes. Peak performance aging is about 11 different fields coming together into one, and they're all over the place, from embodied cognition and flow science and adult development to longevity technology and regenerative medicine—a whole bunch of stuff. So I have a long history with all the subjects that feed into it. I've been researching—some of it was the dog work, some of it was just as an athlete breaking myself and having to fix myself—for 20 years. But what happened is [that] I worked—because I'm a psychopath—nine years without [taking a] break. Literally, I would ski, but I would work, get up at 3:00 A.M., work till like 8 A.M., and then go skiing.

Dr. Jill 27:35

I saw some of your hours, and I'm like, "That's insane!"

Steven Kotler 27:39

I literally had nine years without a break. And we were moving; we moved from New Mexico to Nevada, and I was just burned out beyond belief. My break was going to

be [in] April. I was publishing a new book with Peter Diamandis. It was launching in February. I knew I was going to be doing book stuff in March, and then in April and May, I was just going to ski. I was going to take two months off and I was going to ski. It was going to be my first break in nine years, and Covid happened, and they shut the ski resorts down, and I got Covid, actually. All those things happened right at once, and I sort of lost my mind. We were in the middle of a pandemic, and I was trying to save my company. I was doing all the stuff that everybody else was doing at the start of the pandemic, and yet they had shut the ski resorts down. I was so angry, and it wasn't going away—[that] was the thing. I could get angry, sure, but I've got a flash temper. I get really hot, and then it goes away a minute later, and it's gone—and I'm really good at that, [but] it wasn't going away. Day after day I was waking up, and I was madder and madder, and there was snow on the mountain, and I couldn't even go hiking at that point because I was so sick with Covid. I was just really, really, really frustrated. I was hiking my dog through the backcountry and sort of talking to myself in my head like, "What is this about? You've got to put this anger down. There's stuff going on that's really serious, and you need to be [inaudible]. How do I get rid of it?" I was like, "Why are you so mad?" I was like, "What was stolen from me?" I realized that progress had been stolen. I'm getting older, [and] this is the thing I love most. I haven't accomplished all I wanted to accomplish on skis at all—not close. They just took like three months of my ski season away from me, and two of them were going to be spent...

Steven Kotler 29:43

I was mad, and I was like, "Okay, so at least now you know why you're mad. What makes this okay?" I realized that if I could find a way to progress as a skier in the middle of a pandemic with the ski resort shut down with no snow because it was summer, that would make it okay. If I somehow found a way to enter the next ski season as a better skier than I had ended the last ski season, that would be okay. Okay, so how in the hell do you become a better skier? I'm hiking my dog through the backcountry, and I came across an abandoned gold mine. There were these enormous tailing piles everywhere. I realized [as] I'm looking at the tailing piles and I'm like, "They're steep" and "You can't ski down them; they're not big enough to make real turns." They're 50 or 60 feet. but I was like, "You could certainly shape them into a hill to get to a jump, but I've fallen on dirt a lot and broken things, so that's a bad idea." I was like, "What about a rail?" I never slid a rail or a box in my life; I never even thought about it. I was never a free[style] skier, I was never a park skier—it didn't even interest me. I didn't know how to do any tricks. I was a big mountain skier. But I was like, "Hell! Rail sliding is... " One thing led to another. We built a rail and set up an abandoned gold mine. It's a nightmare trying to learn how to slide rails on dirt.

Dr. Jill 31:03

I can't imagine. When I read that, I was like, "You're crazy!"

Steven Kotler 31:06

That was actually one of the crazier things in the whole book, but I didn't know any better. And then one thing led to another. By the way, there are 10 or 12 different biological factors that say there is no way anybody over the age of 35 should be able to learn how to park ski. There's a lot going against you in these particular sports, like gymnastics or ballet. The window shuts early. But all this stuff I've been reading and studying said, no, no, no, this is wrong. And I was like: "Well, let's see if the theory works. If the theory works in practice, I should be able to teach myself how to park ski at age 53 using these things." So I made a list of 20 tricks I wanted to learn, and it was really a list of like zero to intermediate. There's a reason for all this. We can talk about the backs of this.

Steven Kotler 31:56

There's a final conversation with Mihaly Csikszentmihalyi, [aka] Mike, that triggers the whole thing that's not in the book that I'll tell you in a second. But [it] triggers this out. I was like, "Fuck it. If it takes me five years to learn all this stuff, great! I'll be in my 60s, and I'll be a better skier—cool." And we took all these ideas and blended them together, and I went [from] zero, like no skills whatsoever, to intermediate in a single season. Wow! And my ski partner, who was a former pro athlete but had gotten hurt and hadn't been a pro athlete in a lot of years, started applying the same stuff I was using. He's younger. But he started making crazy progress. So that's the story told in [the book] Gnar Country.

Steven Kotler 32:46

What's not in Gnar Country that I should finish the story with now with you is that's a pilot study. It's a cool pilot study with two subjects, but it's a pilot study. So this past winter, we took 17 older adults, ages 30 to 68, with the exact same protocol and the same formula, and we brought them into the mountains for four days. [We] gave them four days on the hill. None of them had park skiing experience. I came, at least, as an expert skier. We had low-level intermediates in this group all the way up, and everybody in the group got a mate. The experiment was a runaway success. They learned to park ski, and their whole attitude towards aging in the second half of their life, all of it was fixed.

Steven Kotler 33:36

My whole goal... This was the Csikszentmihalyi story, the last conversation I ever had with Mike, and we were talking like one action sports athlete to another. Well, the story is long, but [I'll give you] the short version. I'm paraphrasing what Mike told me. He said: As you get older, have a backup plan; whatever it is that gives you the most flow, if your body's going to fall apart and you're an athlete—have a backup plan. With skiing, the only way I could get into flow was big mountain skiing really gnarly lines, skiing really, really fast, or doing stuff that was really dangerous. I was like, "Well, that's not going to work as I get older." I was like: "If I can get to intermediate,"—intermediate is when you stop falling down and hurting yourself and you can sort of control your progress—"I will have a million more entrances into flow." It doesn't matter what slope I'm on; I could just creatively interpret the slope.

Dr. Jill 34:28

And you don't even need it to snow because the parks always have—

Steven Kotler 34:33

I was laughing. So we were at Northstar two days ago or three days ago; it was me and my ski partner. They had two lifts open. The one lift that was going halfway up the mountain and the lines—it was crazy. And the other was a beginner lift that nobody was on but the beginners and us because we could turn the side hits into a terrain park. We did 25 laps in a day, and most people got four.

Dr. Jill 34:59

[inaudible] the powder days waiting for the back bowls, and you have to wait till January until it happens, so I totally—

Steven Kotler 35:04

Yes. So I have a million more entrances into flow doing my favorite activity in the world. But the wild stuff was what came out of the peak performance aging research. It's sort of the methodology that we use, which isn't just—

Dr. Jill 35:20

What are some of the core [recommendations]? Say someone is listening [and is] like: "What do I do? I'm aging."

Steven Kotler 35:27

There are two halves to it, in a sense. Part one is that you want to try to turn your life into a high-flow blue zone. We know what the blue zones are. This is sort of standard: Health, well-being, and longevity. I don't know how well I come out on the resveratrol, 'drink wine' research. Ignore that. But the other eight things that make up those requirements are pretty straightforward. What we did was take a deliberate, dynamic, play-based approach to learning. 'Dynamic,' meaning you're using your whole body. Embodied cognition tells us that the more we're using our whole body, the faster we're going to learn anyway. So there's a whole bunch of stuff that comes out of embodied cognition.

Steven Kotler 36:23

Deliberate play—you've heard about deliberate practice. Deliberate practice is Anders Ericcson's fabulous idea about the path to mastery. His stuff works very well, but it doesn't have to produce a lot of flow. Deliberate practice is repetition with tiny micro changes. You build on what you did before over and over again. Deliberate play is often described as repetition without repetition or repetition with improvisation. So you do exactly what you did last time, but you improvise a little bit on top of it. Deliberate play is way flowier than deliberate practice, and because flow massively amplifies learning, you tend to go farther faster. Dynamic, deliberate play is even more so. In embodied cognition, it [basically] says: If we couple movement with thinking or talking or whatever, we enhance [learning]. If you want to learn a foreign language, if you move when you say the words—just move your hand around [for example]—you will learn it faster. That's just standard embodied cognition stuff. But there are all kinds of stuff about activating the vestibular system—balance. The dynamic movements really amplify [and] take that up a notch.

Steven Kotler 37:39

Play is so foundational, especially as we get older. If you look at: What do you need?—the research is really, really clear. If you want to thrive in your later years, you want to have challenging, social, [and] creative activities. That's what a dynamic, deliberate, play-based approach to whatever is exactly. So we found a way to put it all together. There's a ton more I can talk about. Flow plays a major role in adult development as well. I don't know if you know this, but Csikszentmihalyi worked on adult development for almost half his career, and he argued—which has been a long-standing argument in the field of adult development—that flow is actually the engine of adult development. It's going through flow states because we've got more complex people on the back end of them. We learn, we grow, and we become more complex. His argument was that this was actually the engine of

adult development and [is] pushing us forward. There's a lot of stuff there that's just baked into flow that makes it even a tighter fit.

Dr. Jill 38:46

And you have this perfect formula because, like you said you're a group, you're social. One thought as you're talking is—and I think you mentioned this in the book—we have trauma, we have experiences, we have accidents, we shatter our knee skiing. What do you do with those blocks mentally?

Steven Kotler 39:01

Ah. This is a really interesting question. We developed a methodology. What's the core of my methodology? One inch at a time. This was the most important thing that we did. Allostatic overload is the technical term for that buildup of all the trauma and the crap [and] shit that happens over time. Allostatic overload has a huge impact on the challenge-skills balance, which is flow's most important trigger. Flow follows focus. It only shows up when all of our attention is right here, right now. That's what the triggers do—they drive our attention into the present moment. The most famous, the challenge-skill balance, says we pay the most attention to the task at hand when the challenge of the task slightly exceeds our skill set; we want to stretch but not snap.

Steven Kotler 39:49

A bunch of years ago, Csikszentmihalyi and a Google mathematician sat down and tried to figure out: What's the actual difference between challenge and skills? And can we put a number on it? They did a back-of-the-envelope calculation that was not real, and they came up with 4%. We took their fake number and studied it for a while and discovered that it was a lot less fake than they thought and that it was a really good approximation of the difference for most people. It goes up and down or whatever. But what we discovered in older adults is that instead of being a 4% difference between challenge and skill, usually, it's about a 1% difference because there's stuff that has built up.

Steven Kotler 40:29

I'll give you a great example. As an athlete, I'm sure you're familiar with this—where this shows up. You know that if you injure yourself, say [while] skiing, and break something—a leg, a finger, a hand, or whatever—bad enough that you have to take time out, you may heal from the injury within a month or two, but psychologically, it's going to take about a year to a year and a half so that your brain will let you ski at top speed again. There's an unconscious governor that will regulate behavior. I've

been hurt a lot—different times. I've always been fascinated with it because I'm like, "I know I'm not skiing. It feels like I'm skiing at top speed, but I can't keep up with people who I normally can keep up with."

Dr. Jill 41:08

And it wasn't physical, right? It's not like you're physically unable.

Steven Kotler 41:10

It's not physical. Like, I'm in the gym, and I'm lifting as much as [I did] before the injury. I can do all the physical stuff. It's completely psychological, and there's nothing you can do about it until about a year or a year and a half in, then it tends to fade away. And I was like, "That same governor is an allostatic overload thing in a crisis situation, but it's going to impact it." So I was like, "I think one of the problems that most older adults have with dynamic physical activities is that they remember what it was like to be younger and they try to push themselves at like 4% or 5% when instead they need to go, literally, one inch at a time. My rule was: I want to start with a movement I can execute 100% of the time with zero fear, and no conscious interference, then advance it one micro bit at a time, practice that in using a dynamic deliberate play, improv around it but very, very slowly until that new bit of movement is hardwired code, and then repeat. That was sort of the core of it. There is some good motor-learning stuff in there. There's a whole bunch of stuff baked in there. But it was the real secret.

Dr. Jill 42:26

You're really describing neuroplasticity, right?—because you're retraining those lines that we got stuck in.

Steven Kotler 42:33

And just going really slowly. It just required way more patience. The hardest thing for me is… There's a line in the book, and I was actually just talking to a friend of mine about this yesterday, "One inch at a time is no longer fast enough for my ego," which is true. Progress is really addictive. In the beginning, you're just like: "Oh my God! I just landed backward," or "Oh my God! I figured out how to ski backward." It's such a freaking miracle in your mind that you can do any of it. But pretty soon I was like: "Okay, I can do some. I want to get good." And that [meant] holding myself back sometimes so I didn't [end up] in the hospital [or] do something stupid.

Dr. Jill 43:15

You're taking steps and you are rerouting the neuroplasticity. Wow, that's fascinating! That is such a great takeaway. I have two more questions. The first thing is just random. I remember in Jackson Hole, when I first got off the big gondola and went down, there was this shoot. I remember that one time when I was just like, "I don't know if I can freaking do this," and I did, and it was great. In all of your years skiing—you clearly are an expert above the expert level, you've learned a brand new skill with freestyle—do you remember any specific times when you're looking down a shoot or a cliff or something where you have the fear, but you did it anyway, [basically] being scared out of your gourd?

Steven Kotler 43:53

The first time I went to Chamonix with professional athletes, I was 23 years old. I was with the extreme skiing movement—with the earliest two people, in other words. There were two sets of brothers, the Egan's and the DesLauriers': John and Dan Egan and Eric and Rob DesLauriers. We went to Chamonix, and there were a couple of other people there. I am a pretty staunch agnostic. Every night, I didn't sleep, I prayed all night long: "Please God, let me live through tomorrow. Please God, let me live through tomorrow. Please God, I don't quite believe in you or know you exist, but let me live." I literally didn't sleep for a week—prayed. [There is] a magazine I helped start. Friends of mine started a magazine called Freeze, which was one of the early extreme ski magazines. I was their Squaw Valley correspondent, which is now [called] Palisades Tahoe. But every journalist who is on staff at Freeze—we all got PTSD. Literally, all—PTSD. Like, nightmares, flashbacks, and that sort of thing. I'm not joking. I'm not being fisicious. [We] got PTSD our first year on the job. I cannot tell you how many times I had to do things that I was mortally terrified of and didn't think I was going to live—over and over.

Dr. Jill 45:20

Thanks for letting us feel normal. What's the tip in the midst of [nervousness]?—like [when you look down]. I remember that moment and thinking, "I might die, but I'm going to do this." But where do you tip over the edge, and what is that type of thinking?

Steven Kotler 45:36

There's a bunch of stuff. But I want to point out that when you are a freelance journalist and poor, saying no [is not an option]. You have to say yes. So it's like: "I need to eat, and I want a career, and there are a hundred people that are going to say yes. So if I say no, somebody's got my job." That's a lot of motivation. But one of the cardinal rules—and this is in life, not just action sports—you go where you look. One of the things that's really hard for people when they get into scary shit is they

look at the scary stuff. You can't look at the scary stuff because, in skiing or all action sports, you're moving faster than the conscious mind can process information. We don't steer the muscles with the mind; we steer the muscles with the eyes. We go where we look. That's how we do this. So people get into gnarly situations; they're skiing through the trees; they're staring at the trees; then they hit a tree. So that's first and foremost. There's a bunch of stuff that you can do in the moment. This is really Andrew Huberman's work at Stanford to regulate fear. But peripheral vision is an experiment I run in the book. So if you look out the corners of your eye, really far out, automatically your brain goes [in a sense]: "Oh, you're checking shit out and [inaudible]." It's parasympathetic activation.

Steven Kotler 47:13

There's also the physiological side. So you inhale all the area you possibly can and then you sniff air on top of it. That automatically triggers parasympathetic activation, [and] calms [you] down. There's some breathwork; there are some physiological interventions that you can use in the moment. Now, I will also say, and this is another rule that I had in the book, and this is the hardest thing about anything I had to do, I think, in the book: When I was feeling too much fear, I backed off. I did not push through in Gnar Country. I did a ton of really, really scary stuff, but everything was within range if I felt too much fear because it interferes with performance. Earlier younger Steven, who had a less healthy ego or more of a need to prove himself… You know, I've broken 87 bones. I don't want to have any more surgery ever, ever, ever. I would break bones because I would go for it. Now it's not that I won't go for it; it's that there's a line. And if fear interferes with my performance or perception, [I] back off [and] come back later. I'm not going to win that one. So that was really important.

Steven Kotler 48:41

The thing about fear, and this is the most important thing about it in my opinion, and I've done a lot of writing on fear in The Art of Impossible, but in Gnar country—I always tell people—I talk about this at the end of the book: I work for the boss. The boss is the version of myself that makes to-do lists and sets up the rules and all that stuff. In the moment, I'm the same as everybody else: I want the cheap high, the easy out; if I'm scared, I want to run away. But if I've set goals… You know what I mean? That's the boss's version, and the boss has my long-term best interest at heart. What I know is, also with me and fear, most of the time, if there's something I want to do and I chicken out, the question I have to ask myself is: Am I chickening out because I'm scared?—in which case I should do it immediately. Or am I chickening out because I don't have the skills?—in which case I should back the fuck off and come back later. And the reason to do it immediately is that if I don't, I am literally going to beat myself up and regret it every day until I eventually do it.

It's not going to stop, right? So when I choose to do it in the moment, I'm saying I would rather feel intense fear for the next 10 seconds, 20 seconds, 30 seconds, or whatever it is, than beat myself up and have to deal with the voice in my head for the next year, two years, [or] however long it takes me to get back here and do this thing. I know that by walking away from something that is probably easy and within my skill set, it's going to get gigantic in my mind. Now I've got more fear, which is going to halve my performance, and it's a downward spiral. So I set rules at the beginning of my quest, like, "This is when I'm going to take risks," and I follow the rules. I work for the boss; the boss created the rules, which were designed to keep me safe in dangerous situations but were also designed to push me through them. I just learned that those regrets that I have to live with—this may not be for everybody—for me, are so much worse than short-term fear. I will much rather take short-term fear, which is unfucking pleasant, than beat myself up for years, which I will absolutely do.

Dr. Jill 51:06

Oh, I love that because there is a place for an override. And I've seen that with patients—teaching them to not always override—because there is a place for fear to protect us when the skills aren't there. But I love that differentiation.

Steven Kotler 51:16

It's a wonderful, healthy emotion, but it lies to us a lot. And you've got to know: When is it telling the truth, and when is it lying? I said the hardest thing that I had to do… interoception is deeply involved in embodied cognition. One of the reasons I think interoception is so important in this kind of peak performance aging—on top of the fact that it amplifies learning and a whole bunch of other stuff—if you want to talk about pattern recognition, those of us with better interoception have better pattern recognition skills. That's been well established in science. The line between fear and too much fear is the most complicated out of every internal signal. So they know this [through] intuition. If you go deep into the intuition literature, this is where people screw things up a lot. It turns out intuition—before we have words, before we have language around us, not insight; insight is once we get language, but intuition is the sense, the feeling—is less subject to cognitive bias, so we tend to get a clearer signal.

Steven Kotler 52:30

The problem is when the intuition you're getting has to deal with something that's instinctive… So, "Oh, that woman at the bar, I think she's really hot for me." No, no, no, no, no, no. That's instinct, right?—sex, hunger; those basic things. When instinct

is involved, don't trust the intuitive signal. There's really good evidence for this. At a certain level, dopamine, which is one of the things that you can get, will mask an intuitive signal and things like that… But trying to figure out where the hell the line is between fear and too much fear is still, I think, the most complicated interoceptive task that performers have to solve.

Dr. Jill 53:13

That will be another book; I can see that [happening]. The last thing, I want to get you going, but the dogs—I love animals and I love dogs, and I love that about you. And what it says to me is that you're a badass. You're a brilliant writer, and you're award-winning; I admire you in all those ways. But the thing I admire most is what you're doing for those animals.

Steven Kotler 53:32

Because I start every day by stepping in dog shit. I mean, not actually, but it happens.

Dr. Jill 53:37

Has that always been dear to your heart?

Steven Kotler 53:40

[Do] you want the long story, the medium story, or the short story?

Dr. Jill 53:44

If you have time, I have time, but I'm honoring—

Steven Kotler 53:47

Okay, I'm happy to give you the slightly longer story. I have always sort of believed that a chunk of your life should be [spent in] service. By the way, it sounds all altruistic and nice and things like that, but I knew very early on that I didn't really want to be poor and that I wanted to be a writer. The only way you get to be not poor and a writer is you have to get well-known. I came up out of a very weird sort of punk rock community where a lot of people became rock stars and got really famous; 2,000 people out of Ohio. But a lot of major bands came out of there, and a lot of filmmakers and artists and whatnot. As you know, especially when it happens when you're younger, fame is not always the best thing for people. It turned a lot of my dear friends into assholes. I watched it happen, and I was like: "Whoa, I don't want that to happen to me, but this is the only way I know how to get paid. So I'm

going to guard against it with an altruistic service. I'm going to build that into my life." That was the thinking.

Steven Kotler 55:04

At the time, I had built a non-profit called the Reporter's Gym. It was with the LA Lakers and Dave Eggers' organization, 826LA. We were teaching inner-city kids how to be sports writers as a way out of the ghetto, and it was fantastic. It was a really great program, but it had two problems: One—I was living with the woman who would become my wife at the time—we were living all the way across Los Angeles, so I would have to drive all the way across Los Angeles to get to the Staples Center, where we were having these things. It was like three hours to get there. I'm giving my time away anyways, and I'm like, "Okay, this is really painful." But the other thing is that I don't like children. I've never really liked children. I don't have any. I don't want anybody. I don't like your children. I'm not child-proof. My friends who have children know: Don't bring them around me. Here I am trying to teach teenagers, and I was like, "This is not a good fit."

Steven Kotler 56:05

At the same time, I had sort of just gotten together with Joy, and she was doing dog rescue, and I'm a lifelong animal geek. I would go really far out of my way to hang out with scientists who were hanging out with animals. So I would spend two years trying to figure out how to get plane tickets and assignments to go to Madagascar so I could hang out with Patricia Wright, who studied lemurs because I really wanted to hang out with lemurs. I was like, "Well, two years is a long… " I've gone really far out of my way to hang out with animals. And then I met my wife, and she was doing dog rescue, and she was living in the time of the pack of like nine dogs. I was like: "Well, wait a minute. I don't like this altruism thing I'm doing because I don't like the kids. But I can do this thing with dogs, which I like a lot better, and it's in my house. I think I am going to be better at being a little uncomfortable all the time, which is what running a dog sanctuary out of your house is, versus massively uncomfortable a couple of times a week." What I didn't actually realize is that when running a dog sanctuary, you're a little uncomfortable all the time. And then usually I have one or two crises a week—something terrible happens, whatever. So the math wasn't exactly how I thought it was. That was really it. I was like, "Okay, I'm going to switch." And it was such a good fit because I'm such an animal geek that it stuck, and I never wanted to stop doing it. On a certain level, it's an excuse that I get to live with a big pack of dogs. But it's fun. We're running Rancho de Chihuahua, which we ran for like 15 years, and I have 670 dogs that passed through that facility. We did some good in the world.

Dr. Jill 57:52

I love it. I love your story, and I just want to honor your time, but where can people find you? I've enjoyed our talk, and I thank you again because I know your time is precious. I'm so grateful.

Steven Kotler 58:01

My pleasure. StevenKotler.com is me. FlowResearchCollective.com is the Flow Research Collective. And Gnar Country—by the way, 'Gnar' which is short for gnarly, is spelled 'Gnar'—GnarCountry.com is the website for the book too.

Dr. Jill 58:21

You can find all that. Just briefly, Flow Research—because I speak to a lot of other doctors and professionals who listen to this—if people want to get into this, tell us about the program.

Steven Kotler 58:32

Oh yes. Let me do a brief overview on the Flow Research Collective. Perfect. Thank you. We're a research and training organization. On the research side, we team up with folks at USC, UCLA, USC Davis, Imperial College London, and a bunch of other places, and we study the neurobiology of peak human performance—what's going on in the brain of the body when human beings perform at their absolute best. We use this information to train people. We work in 130 countries, so we're global. We train everybody from professional athletes, and U.S. Special Forces, through a lot of major companies—everybody from Facebook to the Air Force to Bain Capital, Accenture, Audi, and the list goes on, to normal folks like soccer dads from Idaho.

Dr. Jill 59:19

I've done your program—it's phenomenal.

Steven Kotler 59:23

We train a lot of doctors along the way. We have been working with two different groups trying to do research on flow and surgery because there's a long history of flow and surgery, and flow and doctors. So we've been doing more research there and trying to sort of figure out how to work with medical programs and things like that as well.

Dr. Jill 59:51

That's exciting. I think doctors will love this. I will include all the links if you're

listening wherever you're listening. Steven Kotler, thank you sincerely. I loved our time together. I appreciate it.

Steven Kotler 1:00:00
My pleasure. Thanks for having me.

Dr. Jill 1:00:02
You're welcome.