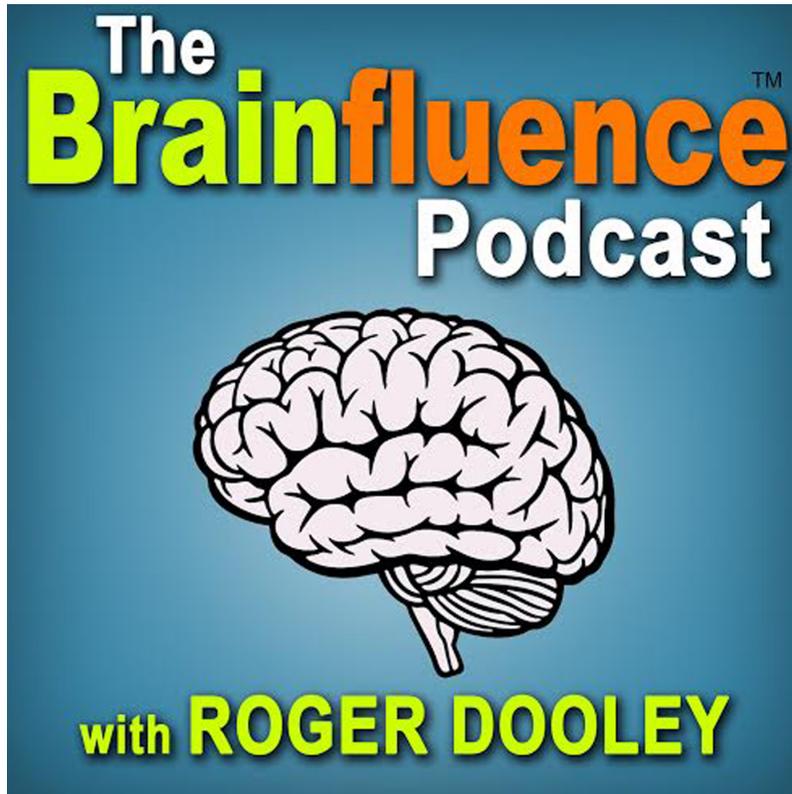


**Ep #3: The Seven Characteristics of Flow with Steven
Kotler**



Full Episode Transcript

With Your Host



Roger Dooley

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Welcome to the Brainfluence Podcast with Roger Dooley, author, speaker and educator on neuromarketing and the psychology of persuasion. Every week, we talk with thought leaders that will help you improve your influence with factual evidence and concrete research. Introducing your host, Roger Dooley.

Roger: This is the Brainfluence Podcast and I am Roger Dooley. Today we have with us Steven Kotler. He's an author of multiple best-selling books and also a journalist who's had articles published in dozens and dozens of magazines including things like The Atlantic Monthly, Wired, Forbes, GQ, National Geographic. His most recent book is really a fascinating topic. The title of it is The Rise of Superman: Decoding The Science of Ultimate Human Performance. Steve, why don't you tell us just a little bit more about you. That was a very minimal bio there. Tell us about what you do these and how you got interested in the topic of flow.

Steven: You pretty much nailed it. I'm an author and a journalist so I'm kind of more of an author and less of a journalist lately. I'm the co-founder and director of research at the Flow Genome Project, which studies peak performance states known as flow states.

Roger: I guess before reading your book I had thought of flow sort of in terms of an NFL quarterback, somebody like Peyton Manning who's there with multiple decisions to make in just a few second with 21 other guys running around and trying to determine what's happening, where people are going to be in a few seconds, and so on. It would be impossible to really consciously think through all that. In reading your book, I was surprised that it focused mainly on extreme athletes, people

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who are really risking their lives as part of their sport whether they're free climbers scaling insane walls or base jumpers going off tall buildings and that sort of thing. How does flow end up being concentrated in these extreme athletes?

Steven: It's worth starting at the beginning here. Flow is ubiquitous. It shows up anywhere, in everyone, regardless of age, sex, class, gender, whatever - provided certain initial conditions are met. Flow science dates back about 150 years. Past 20 years we've been able to understand the neurobiology of flow a little bit and this has led to us what are called "flow triggers." These are preconditions that lead to more flow.

The reason I have focused on action-adventure sport athletes so much in Rise of Superman is, even though flow shows up everywhere, and I mean everywhere, action-adventure sports athletes for reasons that have to do with these flow triggers, have gotten better at producing the state than just about anybody. In fact, you brought up regular athletes and there's studies been done.

Ken Ravizza is at Cal State Fullerton, this study where he looked at instances of flow in regular athletes, ball and ball sports, track and field sports, and found that these states do show up but they tend to be highlight moments, peak experiences that show up every now and again in an athlete's career, while studies done on action sport athletes show that flow states show up almost every time these athletes go out and participate in their sports. The question apart arises: why are these athletes so good at having flow and can we apply this knowledge across all domains in society?

Roger: That's really fascinating. Flow dates back to Csikszentmihalyi about 50 year ago almost?

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Steven: No, it actually dates back farther. The original modern science of flow dates back to the 1870s to a man named Albert Von St. Heim. William James picked up on the idea at the turn of the century. He was a Harvard physician-philosopher and the godfather of American psychology. The great American psychologist Abraham Maslow worked on it in the 40s, and then Mihaly Csikszentmihalyi got involved in the 60s and 70s. The progression sort of went ... back when William James and those people were looking at it, they thought they were looking at a mystical experience. They thought these were spiritual experience confined to religious people.

Maslow came along and said, "Hey, wait a minute. No, no. They seem to show up in all successful people and a lot of the people in my study group are atheists. They don't believe in god, there's no spirituality whatsoever so these are obviously not mystical experiences." Csikszentmihalyi came along and said, "No, wait a minute." He found them everywhere. He did one of the largest psychological studies everywhere; it was like 9,000 people by the time he was done, and found flow in everyone.

Roger: Why is that we don't hear more about it? Maslow isn't known for his flow work. All you hear about these days is his Hierarchy of Needs. It still seems to be something that hasn't necessarily permeated the broad consciousness of either regular psychology or business psychology. Why do you think that is?

Steven: There are people who are going to argue with this on me so I don't want to state this is a definitive opinion, but here's my feeling. We spent about 120 years from 1870 to about the early 1990s really getting a grip on the psychology of flow. What are the characteristics of the state? What are the psychological conditions that lead to more of it? We started poking at the

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neurobiology. The problem was, the technology wasn't there. There was a lot of interest. We heard all about runner's high and being in the zone and flow states and all these synonyms, so a lot of interest - it was everywhere. The technology just wasn't there.

We didn't have advanced brain imaging technologies at that point that could look deep into the brain, especially in athletes, when people were moving. The EEG technologies weren't quite there yet and neurochemistry, we couldn't actually measure neurochemicals in the brain. All that has changed in the past 20 years. To me, what happened more than anything else, is in around 2002 one of those tug and war back and forth with the self-help and the new age industry winning their battle for "we want to claim flow as our own" or were the scientists going to win? They were looking at the question of endorphins in the brain which had long been associated with flow back to the 70s, I believe, as a cause for runner's high.

Huda Akil, who was then the president of the American Society for Neuroscience - she's an endorphin expert - said endorphins in the brain causing runner's high, causing flow, is a total fantasy. She told the New York times this. Not only was she wrong, and we definitively found that out in 2008 when a number of teams in Germany found endorphins in the brain during flow so it's now an established fact, but at that moment in time when the president of the Society of Neuroscience says this is a fantasy, researchers who need government grants to continue their research - they got nervous. I think people started shying away from the topic for a little while, which is not to say research didn't keep going. It did, significantly, but it got talked about a lot less.

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Roger: It's kind of an interesting parallel. I write a lot about neuromarketing and the-

Steven: Same exact thing...

Roger: An eminent neuroscientist complaining to the New York Times is a common theme between the two fields, I think.

Steven: Neuromarketing, neuroeconomics, it's interesting because, in Abundance which is the book I wrote before Rise of Superman, we talked about what's called the Gartner Hype Curve and it shows up anytime a new technology shows up. There's a lot of initial excitement and then the technology invariably it's overhyped, it under delivers, and there's this trough - they call it literally "the trough of disillusionment." Usually what happens is technologies pull out of it and creep into the mainstream but they've already kind of fallen from view.

Most technologies follow this same category and I think of flow as a disruptive technology. It's not an external disruptive technology like the internet; it's a disruptive internal technology. It allows us ... self-help is 5 to 10% improvement, we know from tremendous amounts of studies that flow is a step-function in change. It's 5x, 10x, improvements, not 5% or 10% improvement. It's much, much bigger; it's very different from self-help. I think that's one of the other problems is that we're not ... you start seeing some of the actual hard numbers on what flow can deliver and it seems ridiculous. They're crazy.

McKinsey, for example, did a ten year study and they found that top executives in flow report being five times as productive as out of flow. Five times as productive is 500% more productive. It means you can go to work on Monday, spend Monday in flow, take Tuesday through Friday off, and get as much done as your steady-state peers. It's a massive

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amplification. Creativity, the studies are kind of all over the place, but the general number that most people cling to at this point is a 7x improvement in creativity - 700% percent improvement in creativity.

In studies run by DARPA, the US military and snipers, and these were run out of advanced brain monitoring in Carlsbad, California, they found that learning by artificially inducing flow - and we can talk about how they did that if you're curious - they found that learning improved 200 to 500% in everybody they tested. Those are huge, huge numbers. They show up reliably and repeatedly and they're pretty well confirmed at this point. I think what happens is scientists start seeing those numbers and they're totally out of proportion with everything else that we've ever seen with self-help. I think even the state itself, people don't understand A, that it's optimal performance and everybody's hard wired for it, and B, how big of a jump flow can actually deliver to performance.

Roger: How does flow differ from mere concentration? I know that occasionally while working quietly in my own office on some kind of a task, perhaps a coding task or a writing task, I become super-absorbed and I just sort of vanish into to it for a couple hours and then wake up and find out, well, that time went by really quickly.

Steven: That's flow. That's absolutely flow. What you have to understand is flow, like any other emotion - pick anger. You can be a little irate, mildly irate, or you could be homicidally murderous. It's still anger, right? There's a spectrum of experience. Flow is the same way. Csikszentmihalyi came up with the seven characteristics of flow. They go from focused attention to complete absorption in the moment of the task at hand. Time dilation, which means sometimes time speeds up

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and five hours, just as you described, will pass by in five minutes. As soon as it slows down, you get the freeze frame effect like in a car crash. Your sense of self can vanish. You have this deep, deep feeling of control even though you're controlling things you shouldn't really be able to control. Those are all characteristics of flow.

When they talk about the state, there can be microflow, which is what happens when one or two of those characteristics show up, which is sort of what you were just describing with your experience while writing. Or, there can be full scale macroflow where you get all ten of these characteristics all at once. It's still the same state. This is why I think most people have difficulty talking about it because what they don't realize is, if you've ever got so sucked into a great conversation that you lost a whole afternoon or if you get sucked into a work project and everything else seems to vanish - that's flow. That's what we're talking about.

What the action-adventure sport athletes have gotten so good at is deepening it and using it. They're very good at taking that microflow state that you were describing where you're so sucked into your writing a couple hours go by and you pop up and you're like, "Oh my god, what happened?" All the way up to really, really, really deep flow experiences that are almost quasi-mystical and truthfully we now actually know what goes in the the brain during mystical experiences and during flow states, or so-called mystical experiences. There's a lot of overlap. Flow follows focus. Anytime you get massively heightened focus on the task at hand you're going to start sliding into flow.

Roger: Since most of my listeners are interested in business, clearly most folks aren't going to be jumping off mountains. How can

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one apply this in business and in particular, is there a way of fostering it, of artificially inducing it, triggering it, and so on?

Steven: There's a lot of different answers to this question, and none of them are quick. As I said earlier, there are 17 triggers for flow, pre-conditions that bring on more flow. There are three environmental, three psychological, ten social, and one creative. Let's just talk about the three environmental because these are the ones that action-adventure sports athletes rely on the most and let's translate from what the action-adventure sports athletes are doing into the business world.

Of these 17 triggers, as I said earlier, flow follows focus, so what all these triggers are doing is they're driving attention into the now. It's essentially harnessing evolutionary biology, the way all of us are hardwired. We're hardwired in certain circumstances to pay more attention than others. These 17 triggers are ways of upping attention.

The first one, and this is the obvious one; it's going to make a lot of sense and then we'll talk about how to apply it to business - is, we call it high-consequences. Flow follows focus; consequences catch our attention. Action-adventure sport athletes are performing in very dangerous environments; they're high-risk environments. A lot of the situations they're at the upper-edge of putting themselves into today, you fall you die. They have to get into this state, otherwise they're going to end up in the hospital or dead.

Here's what's important: first of all, the brain doesn't know the difference between physical risk, emotional risk, social risk, intellectual risk, creative risks. You don't need to just take physical risks to drive flow. You do need risk taking. It's also totally proportional. A professional big wave surfer, he or she

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may have to paddle into a 50 foot wave to pull this trigger, but for somebody who's just kind of quiet and understated, all they have to do is raise their hand and speak up at the big meeting to pull this trigger. It's totally individual.

You can replace physical risk with all kinds of other risk, but this tells us something important for business. This tells us that those Silicon Valley companies that believe fail early, fail often, or fail forward in the shorthand, they are giving their employees the space to take risks, which they absolutely need to produce flow. If you're not creating that kind of corporate environment, if you're not creating an environment where people can actually take chances, you are denying them easy access to flow. That's the first environmental trigger; anybody can use it in any situation.

Let's talk about another one and how it applies to business. Another one is known as a rich environment, which is a fancy way of saying lots of novelty, lots of complexity, and lots of unpredictability. When there's a lot of novelty, complexity, and unpredictability in the environment, we pay attention more. It focuses our attention much like risk. How would this show up in the business world?

Well, one of the great examples of it is Steve Jobs and what he did at Pixar. As most people know, Steve Jobs designed Pixar; he designed all the architecture and everything else. He famously built this giant atrium in the center of Pixar and then he positioned the meeting rooms, the cafeteria, the mailboxes, and most famously the bathrooms - the only bathrooms in the building - next to this giant atrium. Why? Because, normally what was happening in Pixar was employees were staying balkanized in their various departments.

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They were not bumping into each other so there was not a high degree of novelty, complexity, or unpredictability. Putting the atrium in the center, he created artificially the environmental conditions that massively upped the amount of novelty, unpredictability, and complexity in the environment because people started running into each other across departments, across disciplines, and having conversations and what not. As a result, flow went up, innovation, creativity went up - all those things went up. There's the second environmental trigger applied to this world.

The third one, and this is a little trickier, this is a little harder in the business world, but it's known as deep embodiment. Deep embodiment is a fancy way of saying you're paying attention to multiple sensory streams at once. Athletes pull this trigger all the time, especially in action sports, because they are experiencing multiple g-forces, zero g-forces, and polyaxial rotation or spinning - rotation around your middle. When we experience these things, they immediately grab hold of our attention because they're not, for gravity-bound creatures, normal sensations.

How would you ever pull this in a business environment? Well, Montessori education is an extremely high-flow environment. Studies have found that of all the educational systems out there, Montessori produces the most flow. Why they called it embodied education, they emphasize learning through doing. Instead of reading about the lighthouse, go out and build one. If you want to move this into the the business world more, you just need more rapid experimentation, more learning through doing. Get more of our senses involved in the process at once - very, very useful.

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Those are the three big environmental triggers. There are obviously psychological triggers, social triggers, creative triggers; there's way more we can talk about. You can find them online, by the way, if you just search "17 flow triggers Steven Kotler" you'll find a free slideshow online so everybody can look at the rest and we don't have to go into too much detail here. That's how anybody can hack flow by applying these 17 triggers in their lives.

Roger: Very good. One thing struck me, I'm curious how you feel about open office plans. On the one hand they sort of foster the social interaction you were talking about and the unpredictability and so on, but at the same, it seems like they can be concentration destroyers with interruptions and so on. What do you think about open offices, or what's your ideal design?

Steven: It gets a little more complicated. What we've been talking about so far is individual flow - you or me on our own getting in the flow. You can also say there's something called group flow. This is a shared version of the flow state. If you've ever seen a fourth quarter comeback in football where suddenly it looks like ballet because everybody's in the exact right place at the exact right time, that's group flow in action. If you've taken part at work in a great brainstorming session, that too is group flow in action.

The interesting question here is, as a general rule - and Csikszentmihalyi actually wrote an article for the New York Times about this - open office plans are terrible for individual flow because you need uninterrupted periods of concentration for flow. To go back to Montessori education for a second, one of the other reasons Montessori education produces flow so much, is it's built around these 90 minute blocks of uninterrupted concentration. These things are sacred to

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Montessori education; you don't mess with them. It's always there, even though the schools are independently owned, they always emphasize this. Open office plans destroy that, but they, if set up correctly, can be used to foster group flow.

Facebook, for example, not only do they have open office plans, they have everybody on walking desks facing one another. They are denying their employees individual flow but what they are doing, they have inadvertently created conditions that up the conditions for group flow. I think, and I use this loosely - first of all I think what needs to be done is you need to figure out ... studies have to be done comparing productivity with group flow vs. productivity in individual flow. It may be a company by company decision, which is more important.

I would tend to believe that you have to offer employees both options. They need the nooks and the crannies and the private hideaways to go lock themselves off, turn off the cellphones, turn off the pagers, turn off the blackberries, turn off the whatever - I don't think people use pagers anymore but anyways - and focus. I also think you need to create environments that are great for group flow because there are times when you want group flow and there are times where you need individual flow.

I think what we're going to find is the mix and match paradigm is what's going to work better. Instead, employees are going to have to learn to know what they need at what moments in time and where to go get it. I think that's where the work needs to be done, and for certain, there's more research to be done here. I don't think we've solved this one. It's a question that keeps coming up over and over again so hopefully our organization, The Flow Genome Project, will be able to get it to and at least look at it sometime in the next couple of years.

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Roger: Might well be a role-dependent thing too, because somebody who's coding software may require that individual flow more than some sort of marketing group.

Steven: I've got to tell you something; I would think so, too. Let's go back into the flow triggers and let's talk about Facebook for a half a second. One of the other psychological flow triggers - and this shows up in expert performance theory as well, but it originally came from flow studies - is known as immediate feedback. Flow follows focus and what happens when we have immediate feedback, meaning there is an immediate relationship between cause and effect, we can stay focused, we can course correct our behavior, we can modify our behavior in the moment. We don't have to break state, we don't have to have outside conversations, we're getting immediate feedback.

One of the things that's happened at Facebook for example, and immediate feedback is good for both individual flow and group flow. They put everybody on these walking desks and they all can see each other. If somebody starts to have a problem with their code, everybody in the room can see, can tell, and they can immediately start getting feedback to fix it. Again, it's one of those weird questions where, until I heard what Facebook was doing, I would have said, "Hey, absolutely you're right. We need to give coders this privacy and this space," but now that I'm hearing what Facebook is doing and they're getting great results out of this, it's raising questions in my mind and I'm not 100% certain. I don't know how to answer it yet; I just think more needs to be done.

Roger: Very interesting. Why don't you tell us a little more about the Flow Genome Project, Steven?

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Steven: The Flow Genome Project is an international organization dedicated to adapting flow science and culture. We have two sets of focuses. At a research side, it's geeky. We want to map the psychology of flow onto the neurobiology of flow onto the physiology of flow. What's going on in the mind, what's going on in the brain, and what's going on in the body? We've got a pretty good handle on mind. We're just now starting to get a handle on brain, and body, the physiological components of flow, we're really at the front end of doing this research. It's only been in the past couple years that we could actually start measuring a lot of this stuff we needed to look at. Nobody's overlaid all three of those, so at a really geek level, that's what we're trying to do.

At a more public, general, level we're working to help people get into flow more frequently. We run flow seminars, flow trainings, we go into business and we train people up on flow. We do all kinds of things. I will say that primarily we've been working at a behind-closed-doors level with companies or with athletes or with special forces, those kinds of things. We haven't really worked with the general public. That changes on May 1; we're having our very first flow fundamentals course. It's a six week online course, our very first open-to-the-general-public course.

Roger: Very good. It's international? There are people participating all over the world?

Steven: Yeah, we have some people in Hong Kong and people up in Canada, and some people in Australia and all over Europe.

Roger: Just to take a little bit different tack here, we're both contributors at Forbes, and I was looking at some of your posts. You have a really fascinating post on the brain leverage one gets from

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reading books; compared them to blogs, too, which is maybe a little bit of irony there. Tell us a little bit about that, the way you sort of run the math on the leverage you get from books.

Steven: It just dawns on me that people think that they're consuming and they're getting the same quality of information and the point I was making is, if I have to write a 1,000 word blog, that's about three days worth of work. I'm going to have a handful of conversation, you're going to get a bunch of my knowledge - it's three days of work. If I write a 10,000 word article, that's usually about three months' worth of work. If I write a 75,000 word book, Rise of Superman, well, Rise of Superman is 15 years of my research and it's ten years of Jamie Wheal, my partner in the Flow Genome Project's research, and the research of all the best experts I know in the world anywhere on this topic.

You start doing the math on it and you start figuring out that you're getting way more value per page than you would with blogs. Even if you sat down and read blogs for 5 hours straight, which is what it might take you to read all the way through the book, you're still not getting the information density that you're getting from the books. There's really no better information dispersal system in the history of the world. It's the best way we have ever learned to communicate.

Roger: Probably should avoid the topic of the ROI of podcasts which is probably, in terms of time spent, somewhat worse than blogs, although they do have the ability to be consumed while driving or working out or that sort of thing, so there is some advantage there.

Steven: I'm not sure, I actually think podcasts because they ramble ... They don't go everywhere but they're a little more free-flowing. You tend to surround the problem a little more, meaning

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because it's conversational, they can be a little more scattered than a blog. If I were to try to write down everything we've covered in this podcast in a blog, it would have to get very, very long for it to be comprehensible. I'm not sure what the value prop is there; I haven't really thought about it. I think you're not giving podcasts quite enough credit.

Roger: Right, well good. Actually, your rambling comment was a great lead in here because we're getting pretty close to the end. One of the things you're involved in that really fascinated me was the Rancho de Chihuahua which I saw was a dog rescue or dog sanctuary. At first I had this vision of all these chihuahuas having various health and maladjustment problems, but in fact, the name comes from the location, not the breed that it focuses on?

Steven: It does come from the location. Very close to us, I live in Northern Mexico, in Rancho de Chimayo. We live in a place called Chimayo - the town. That's a very, very, very famous restaurant. We started calling ourselves Rancho de Chihuahua as almost a joke but we do specialize in very small dogs with very big problems. We do hospice care for the elderly and we do special needs care. We work with very, very sick animals and it's not actually as tangential as you would think because we have flow at the heart of our healing methodology.

We didn't talk a lot about this but one of the things we know from flow - and this was actually some of my earlier research, and research done all over the place but this is what got me interested in the question originally - all the neurochemicals that show up in flow actually boost the immune system and they reset, they calm down, settle down the nervous system. We have flow as a fundamental part of our healing methodology.

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We found ways that we can get the dogs into flow and it works spectacularly well.

We have tremendous, tremendous, tremendous results, which is not surprising considering what we know about flow, but even to see it, because most of our dogs who come to us immediately from a vet and they usually come with very stern, dire warnings - three weeks to live, maybe a month at most which is not surprising in hospice care. Our dogs end up living for years and a lot of it has to do with the flow-based healing methodology.

Roger: That's about all I've got for today Steven. What I'd like you to do if you can is please tell our listeners where they can find your stuff online, and if they want to connect, how to do that.

Steven: Absolutely. The book we've been talking about is Rise of Superman; you can find that at riseofsuperman.com. You can order it through Amazon or what not. You can find me at stevenkotler.com That's S-t-e-v-e-n K-o-t-l-e-r, and if you're interested in the Flow Genome Project, you can find us at flowgenomeproject.co, dot c o. If anybody's curious, on the Flow Genome Project, there's an absolutely free flow diagnostic that basically is a short questionnaire that surveys your life and looks at those areas where you might be the most flow-prone. If you wanted to start playing with these techniques a little bit more, that would probably be the direction to move in first. That's on the Flow Genome Project site and then you can take it, it's free.

Roger: Great. Thanks so much for spending some time today, Steven. Look forward to it and good luck with the book.

Steven: Thank you so much. Thanks for having me.

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Thank you for joining me for this episode of the Brainfluence Podcast. To continue the discussion and to find your own path to brainy success, please visit us at RogerDooley.com.