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“The Fear Project”

**Dr. David Van Nuys Ph.D., aka ‘Dr. Dave’ interviews Jaimal Yogis
(Transcribed from www.ShrinkRapRadio by Gloria Oelman)**

Introduction:

My guest today is journalist Jaimal Yogis, an adventure loving journalist and we'll be discussing his new book *The Fear Project* in which he recounts stories dealing with confronting his own fears and what he's learned about fear from interviewing numerous neuroscientists. Jaimal Yogis is an author, journalist and outdoorsman. His first book, a coming of age memoir called *Salt Water Buddha* was praised by The Times of London, The Age, Publisher's Weekly, The San Francisco Chronicle and is currently being made into a film. Jaimal's second book *The Fear Project* is a personal and journalistic investigation into our most primal emotion. To report the story, Jaimal plunged into the water with great white sharks, surfed waves as tall as four storey buildings, visited the world's most cutting edge neuroscience labs and interviewed some of the top extreme athletes and psychologists.

A graduate of Columbia Journalism School, Jaimal's magazine reporting has won awards such as the 2005 Lesley Rachel Sanders Award for social justice reporting, a 2007 Maggie Award for best magazine feature and two Scripps Howard reporting scholarships. In 2010 The Common Wealth Club voted him “The New Face of San Francisco Media” for his popular writing in San Francisco Magazine, thebolditalic.com, and The San Francisco Chronicle. His stories have also been published in ESPN Magazine, AFAR, Runner's World, The Surfers Journal, The Washington Post, The Chicago Tribune, and many others. He has been a guest-lecturer at UC Berkeley, Columbia University and San Francisco State.

Jaimal lives in San Francisco with his wife Amy and his son Kai.

Now here's the interview.

Dr. Dave: Jaimal Yogis welcome to Shrink Rap Radio.

Jaimal Yogis: Thanks so much Dave.

Dr. Dave: Well, it's such a pleasure to have you on the show. I love your book. I feel like I should prostrate myself on the ground; ‘I'm not worthy, I'm not worthy.’ I have to tell you, you're one of my new heroes. I love your book and I feel like I know you through it and it really made me question interviewing you on Skype as opposed to our getting together in person because I know you live in San Francisco and I'm up in Sonoma County, not so far away and I thought ‘Well, maybe we could meet midway in Marin County somewhere’ but I'm actually able to make a better recording using Skype because I can get our voices on separate tracks which I can then edit if one of us is coughing or something like that, so this will have to do.

Jaimal Yogis: Well thank you for your kind words, I'm really honored to be on the show because I'm a huge fan as well and as I was saying to you just before the show I don't think I have the knowledge base of some of your acclaimed guests like Joseph LeDoux and Philippe Goldin and some of these world renowned psychologists and neuroscientists but I'll do my best.

Dr. Dave: Yeah, well I'm not worried about that at all because in your book you really showed that you are an attentive student at the very least. Now your book is titled *The Fear Project*, which is perfect for what you set out to do, so maybe you can share with our listeners what that vision for *The Fear Project* was.

Jaimal Yogis: Sure, I mean *The Fear Project* stemmed out of a personal need to understand fear. You know I think fear plays a huge role in all of our lives but sometimes we don't notice how much it's playing a role until a crisis hits.

Dr. Dave: Yeah.

Jaimal Yogis: And for me that crisis was just something that sounds pretty ordinary; a break up with my girlfriend but as a lot of people have experienced with break ups, it can feel like the end of the world. It can feel like the death of a loved one because for all intents and purposes this person who you've loved more than anyone is now out of your life and...

Dr. Dave: Oh, yeah. I'm remembering a time when I actually felt fairly suicidal due to a break up, so it's definitely...

Jaimal Yogis: And I mean when you read the statistics on divorce and the health impacts that a divorce has on most people, you realize well, this is one of the most stressful things the human psyche can endure. Losing a loved one through a break up or through a death which I think is ultimately much worse but it can feel that way and so I had... that's what sort of got me into that deep dark hole and I needed a way to clamber out and my parents are big into Buddhism and so I've grown up doing meditation and that was a big part of my life and still is but when you are really in the darkness, so to speak, sometimes the things you've relied on in the past, you no longer trust, especially as relationship is so caught up with... our romantic relationships are so intertwined with our relationship with our parents, that this breakup had made me want to throw everything from my past in the garbage and start at square one. I felt like I needed new tools and that's when I started interviewing neuroscientists and psychologists. I felt as a journalist I had this free ticket where I could call these people up and say 'Hey, I'm writing an article, or I'm writing a book, can I interview you?' and I could read their books and I just needed a fresh take and so I decided to come at it through this neuroscience psychology angle mostly out of necessity. It seemed like that was the field that had the most, sort of, concrete answers, like if you do this, we know that this can happen and we've seen it on other people. It wasn't nebulous, it wasn't... didn't have any airy fairyness and I can say O.K. this guy did that, or this woman did that and it works and I'm gonna try it.

Dr. Dave: Yeah. Well you know I love the title as I said, *The Fear Project* and it seems like the perfect title because you made it such a project and it has these dual aspects that you've integrated so well, with one aspect being your personal story not

only of the break up that you start out with but also athletic challenges of... scary athletic challenges of deep water swimming and major surfing and then you interviewed all these major neuroscientists and it sounds like, unlike me who's interviewing people over Skype and the phone, it sounds like you actually went in person to a number of them. Do I have that right?

Jaimal Yogis: Yeah, I did whenever possible I got together face to face and one of the key interviews that really set a foundation for the book was going to Daniela Schiller's office at Mt Sinai Hospital in New York City where I actually got to be a guinea pig in her lab and she's a protégé of Joseph LeDoux, who I only got to interview over the phone because he's so incredibly busy but experiencing her experiment in the lab was really transformational and I came back to that point again and again that fear is an experience and so to overcome fear we need to have an experience because just talking to ourselves can help but to really reach those deeper layers of the primal brain where fear comes from, we need to have an experience and that's where the athleticism came from and where wanting to interview these people in person came from and wanting to spend time with extreme athletes came from, was I wanted to absorb through osmosis as much as I could from these people and also have an experience and so yeah, I did get to have the honor of spending time with a lot of these people.

Dr. Dave: Yeah, and we get to go on the journey with you and just reading the book I felt like I had an experience. I just finished it last night and I was so moved by the story that you tell around the birth of your first child and so I'm kind of skipping all over the place here. By the way your book is so chock full of great stories from your personal adventures and from these neuroscientists that you visited so feel free to sprinkle them liberally into our conversation.

Jaimal Yogis: Sure, yeah. I'll talk about that one because I just got off talking about Daniela Schiller and our experiment. I'll talk about the actual experience and why I thought it was so foundational for the roll out of the rest of the book was Daniela is doing these experiments with conditioned fear responses, where basically she took me down into a little basement room where there's no windows and her intern works steadfastly taking during this experiment on patients in collecting data and basically what he did is hooked one of my hands up to a fear measurement device which measured the sweat on my skin and could measure just the slightest fear response. So even anxiety or stress that I wasn't even aware of it would show, you know.

Dr. Dave: I imagine that's the galvanic skin response and kind of, part of, sort of part of the heart of most lie detectors, too.

Jaimal Yogis: Right, exactly. So I'm hooked up to one of those on one and then on the other a little buzzer, or a shocker, kind of like Peter Venkman uses in *Ghostbusters* and you know these are old tools, you know all about them and basically I would see... Daniela asked me to find a pattern in the shapes that she was about to show me on the screen and so a series of blue and yellow squares arose and I noticed that often when the blue squares appeared I got a shock. Not always. And it turned out that after just one of those shock... blue square shock pairings – I had developed a fear response to the blue square... and not just when the blue square appeared but when I thought the blue square might be coming, I got an anxiety spike

and soon the fear response for just the blue square without a shock was getting more of a response than when I was actually getting the shock, which was so telling because often times experiencing a thing that we're afraid is so much better than thinking about what it might be like when we experience it.

Dr. Dave: Yeah.

Jaimal Yogis: And so that was powerful in and of itself but what Schiller has done is taken what we know about conditioned fear responses a step further and she's started trying to understand why sometimes people can overcome a fear permanently and why sometimes we relapse and so what she's done is, once you're afraid of the blue square and you know that, you come back the next day into the lab and you get positive exposure therapy to the blue squares. So one group will come in and get repeated blue squares without a shock, so positive exposure and you're basically telling your primal brain 'this is safe.' Sorry, I left out one important detail is that you get a reminder of the blue square first and then within six hours of that reminder that so you get the stress response, within six hours you get the positive therapy. With the other group you get the reminder and you wait longer than six hours to do the positive exposure therapy and what the group that gets it within the six hour window they will remain fear free of the blue square but what the group that waits longer than six hours they relapse into fear the next day and basically what Schiller was showing is that there is a window of time in which once you conjure up a fear memory you have time to sort of reassociate it, or reconsolidate it but outside of that six hour window it's already been consolidated and so... I mean there's so many important aspects to this study – one it's saying that our memories are solid entities and they can... and every time that you fall back on one, or every time you conjure one up, you're actually bringing back the original memory, or that real estate in your brain, so to speak and that there are ways to do that that are more reliable than others. And so I just found this like... I mean this just blew the doors off my whole paradigm of the way memory works and the basic message is that we can change our fear memories and thereby change our outlook and how we react to things but it helped me so much to experience this and be able to see the data on the screen and see how I could heal a fear memory through positive exposure and that became foundational for wanting to take all my fears and basically give them positive exposure therapy because... and it became clear that action is such a key component of that. As wonderful as talk therapy is and as much as I have done it and will continue to do it, that basic exposure and basic action is so helpful and it's so easy to avoid because it's difficult to find ways to do it in your daily life but that really... that first experiment really influenced the rest of the book and continues to today.

Dr. Dave: Yeah and what you're referring to actually I've done several interviews with people on the topic of memory reconsolidation and so this is part of that research. You say it kind of blew the doors off some of your conceptions. I think it's also blown the doors off of our understanding of how effective psychotherapy works and so it's really... it's been a really breakthrough set of data and it's fascinating the way that you've kind of embraced it and used it in your own life because as you point out we tend not to because it's fearful, we don't want to go where the fear... and in some of my own personal darker moments, I've had the strong intuition that fear lies at the bottom of my mental processes. I can't remember what provoked this or exactly when it was but I remember just kind of laying in bed during the dark night of the

soul, you know, awake and in a self examining mode and it... you know, and what I saw at the bottom was a lot of fear, which was scary to look at and it seems like some of the neuroscience that you've just covered kind of supports that idea.

Jaimal Yogis: Well, what you're describing is exactly the feeling I had when I began the fear project was lying in bed awake unable to sleep and thinking everything in my life is covered in fear right in this moment and maybe this is the origin of so many of my actions without me knowing and I wanna go back to that... I just wanna, before we get off the exposure therapy topic, I just wanted to address one insight I've had after having our baby. My son Kai who's 11 months old now, is that you know, this exposure therapy stuff – we use it intuitively with our children. With Kai he was afraid... we went on a trip this summer, we had him sleeping in his crib basically and it took a while to get him feeling comfortable and safe in his crib alone at about 5 months. We'd done it and then we went travelling in Europe over the summer and we couldn't keep him in his crib, so he slept in the bed with us for 2 months and then when we came back we put him back in the crib and he just... he was so upset at even seeing his crib, or of the thought that we would leave him in there, I mean he would revolt and he could stand up now, so he would rattle the bars and just, you know, scream. He'd scream at the top of his lungs and we just thought, there's no way. We tried various things, letting him cry or... none of it seemed to be working and we just thought well maybe we're gonna be sleeping in the bed with him but we talked with one consultant who said, you know, in really extreme cases, what I've done is to climb into the crib with the baby and let him know that this is a safe place, you're not abandoning him and then gradually you know leave him for long... you know play with him in the crib and I did that, I actually slept in the crib with Kai for one...

Dr. Dave: You're over 6ft tall aren't you?

Jaimal Yogis: I know, I mean this was murder on my back but I did it and immediately his opinion changed and then we played with toys with him in the crib and then we were basically doing a systematic desensitization technique where we were exposing him to his lowest fear, which was being in the crib with dad and then to a slightly higher one. We did baby steps and it struck me that with our children we do this constantly right? Oh, you know the dark isn't so bad, let me show you how the dark isn't bad by going there with you but as adults I think this becomes... it's almost like we try to... we think we're too smart. We're operating so much out of the logical parts of our brain that we forget that our fear centre basically operates the same way a baby's does where it needs to feel safe. It needs to feel an experience to feel safe and so I've really started thinking of myself like a baby and that I need, just like Kai, to say 'Oh, I'm afraid of public speaking' I need to do it and make a small toast at a party, you know, as that first baby step and gain confidence like that 'cause I think it feels a bit babyish to do that as an adult but it works and so I did wanna say that but as far as fear being at the base of what we do and our actions, I do think fear is a very early primal emotion. I mean I'm not an expert on this but my feeling is that desire comes before fear in the sense that if you're an early organism, you know, getting food and reproducing is above fear. You also have to learn how to avoid predators and avoid dangers but if you don't have that basic desire to move forward, that attraction, I think that fearing is almost obsolete because you know you're not gonna survive long enough to be in a situation where you should fear, so I think fear is one of the basics but I think attraction comes first and that's been interesting for me,

thinking in terms of my background in Buddhism, because the Buddha didn't talk as much about fear. The Buddhist tradition talks a lot about how desire is at the... is the root of (unclear) and I noticed that a lot in my own life, that the root of my fear is that I want to succeed and so I fear failure, I want love in my life and so I fear losing it and so I don't think it's at the root but it's a very basic emotion and the other side of the coin when it comes to attraction, aversion.

Dr. Dave: Yeah and one of the things that came out in your overview you do a really good job of integrating all the neuroscience and one of the things that is clear about why fear is so powerful is that it's sort of on the fast track, you know, it comes up from the bottom most areas of the brain and activates the amygdala and which seems to be kind of the fear centre, if you will, among others associated with it but sort of totally bypassing, or not having a chance to get to the prefrontal area of the brain where we kind of judge and moderate things and you know kind of reason them out but fear just gets there right away.

Jaimal Yogis: Yeah it does, I mean it's needed to be... the way a lot of the scientists explained it to me is that the brain developed like an onion, right, with like the most basic stuff at the core – the heartbeat and breathing and fear and because fear is so basic, it's there at the core and then we develop these layers, where you know we can build rocket ships and stuff, the prefrontal areas you're referring to and so... but those basic ones they're sort of like the, I mean they're the most animal and they're the fastest and they send their messages - LeDoux's done work on this, you know, down to the millisecond of how quickly the amygdala can get its responses out to the body versus the cortical areas and so that, yeah we have this slow lumbering professor and we have the ultra fast sort of Ninja emotional center and yet Ninja's not really a metaphor because it's more of an ultra fast caveman, in that you know, it's throwing out all sorts of good fear responses and all sorts of bad ones so, you know, going back to that blue square shocker analogy, it's becoming really afraid of the blue square when the blue square isn't doing anything, it's that darn buzzer that's doing the shocking that you should be becoming afraid of right? And so it's our task as modern humans to try to figure out what is the good fear and what is the bad fear and that's not easy to do because we're getting these ultra like fast fear responses that are making us feel funny, faster heartbeats etcetera and then the lumbering professor has to catch up and say 'Hm what is this feeling, is this a legitimate threat or not?' and it takes some expertise to be able to determine whether the threat is legitimate or not and my determination through the course of the book was that understanding how our brains work and then how our individual stress responses work, is the key to doing that. You can't apply a blanket statement and say this is how to differentiate between sort of the paper tigers and the real tigers, you have to take each individual and say 'O.K. what are your set of experiences, what's your base level of anxiety, what are your triggers?' and then figure out, you know, what... how do you fear to your benefit and then how to toss the rest and say 'this is garbage and I don't need this in my life.'

Dr. Dave: Yet we seem to, as much as we have this fear based thing that serves the need for survival, we also seem to be drawn to face our fears. I'm thinking of babies who like to be tossed in the air, or toddlers who like to be tossed in the air, or later ride roller coasters and so on, so that as much as anything we seem to also have some kind of inner sensibility that says 'well, let's try facing some of this stuff.' I'm thinking in the psychoanalytic tradition some personalities are described as counter

phobic or engaging in counter phobic behavior and psychoanalysis at least in the past tends to give that a negative cast but it seems to me that it might be fairly common and somewhat adaptive and in my earlier years – and this is probably one of the things that really attracted me to you with your adventuresome soul – in my own earlier years I was prone to doing lots of dangerous things, such as riding motorcycles and hopping freight trains and skydiving and becoming a glider pilot, not to mention tempting fate in various amorous adventures, which we will not go into here (laughter) and there was lots of fear underlying these adventures but at the root it seemed to me to be important to do these things, that they were somehow part of my self initiation into manhood if you will.

Jaimal Yogis: Yeah, you make a lot of great points there and I would just add that I do think that courage has been more adaptive for the humans, at least more modern humans, than fear has and it's what has allowed us to survive and become the alpha species of the planet. I mean it's... we wouldn't have spread into so many new areas of the earth if courage had not been driving us to... exploration might be a better word, you know, what's over that hill, do we... who's gonna be the one to go look for the new source of food because we're running low, who's gonna be the one to venture into the neighboring tribe to have an affair and diversify the gene pool. We're risk-taking species and that's the work of Marvin Zuckerman who I put in the book as well. I didn't get to interview him but I've read a lot of his stuff on high sensation seeking personalities and he often casts them in a sort of negative light too because high sensation seeking personalities are often the people who get involved in crime and take unnecessary risks and such but I frankly think that that is because we have tried to place these parameters on an adaptive piece of our make-up, which is exploration and courage and risk-taking and we live in a fairly risk averse world now, where we're told we should sit at our desk eight hours a day and sit at our... in school we're rewarded for staying put and following rules and yet for the last, you know, two million years, it's been the opposite to a large degree, where those people who were willing to go out and venture over the mountain were rewarded and often were the heroes and you know other times they were the people who died early and that's why some of the high anxiety traits also, I think, exist in the gene pool. Sometimes that was the adaptive trait but they're both very important and I think we're at a point in history where we're rewarding to some extent that ability to stay put and follow rules, rather than to explore and take risks and you know some of that's changing now with the entrepreneurship that's going on in, you know, Silicon Valley and...

Dr. Dave: Interesting point, that's a good point.

Jaimal Yogis: ...where it's all about risk and failure and letting yourself fail, so that's exciting.

Dr. Dave: Yeah, yeah. Now I know that you're an athlete, which I've made reference to. I was struck by your observation that those who've been the hunters and warriors in the past are today's athletes, that somehow athleticism is a way to channel and express that same drive that hunters and warriors used to embody and of course I'm thinking about ADHD as you, you know, are talking about today's life and how we live in a more regimented world and it reminds me of a fantasy that I had some years ago – I still kind of think it would be a good idea. Kids, young males in particular, need to take risks. That just seems to be part of our make-up, to have adventures and

I thought urban... we could make use of the urban environment by having... by offering activities to inner city urban youth, teaching them to climb buildings, tall buildings, doing something called buildering, you know, under supervision, probably with ropes and so on but that would be a way to make use of this rather cold and barren structure that we have in our cities and expose kids to real challenge and real risk without even having to go out into the other wilderness. What do you think about that?

Jaimal Yogis: I think it's a really neat idea. Yeah, I was talking with David Zald – who studies the dopamine system – I bandied about the same idea and basically, you know, he's studied the fact that people who have this high sensation seeking and easily bored... high boredom susceptibility, often become our greatest heroes and they also become our psychopaths or, you know and so if they are able to channel their risk-taking tendencies into something productive, like becoming firemen, or you know, going into the coastguard, or something, that's great but oftentimes they don't have that chance when they're young, especially if they're growing up in an urban environment where, you know, getting a gun is a cool risk to take but you know, yeah climbing a building is not something that's available and I think you know ski boarding parks and all these sorts of things are a good push in that direction but it needs, you know, people... a lot of adults still tend to think it seems that these... that's just a distraction from your studies and what not but you know, if this risk taking sort of residue that we have and that we have to work through and it's gonna take, you know, a long time to get worked out of us, or it may never get worked out of us and that may be a good thing but at any rate it needs to be honored and I think having a, you know, sort of safe ways for youth to take risks – real risks – could be a really positive thing especially for ADHD. I mean, the diagnoses have gone through the roof, as you know in the last decade and you know medicating more kids with amphetamines, just doesn't seem like the answer and it seems like it's necessary in some cases but I think we need to fundamentally shift the way we're looking at education and especially young boys and their need to take risks and...

Dr. Dave: I think you've got a story in the book about one of your buddies. I think it was about a buddy and not about yourself, who was diagnosed as ADHD and was having all kinds of trouble in school and put on medication and then he kind of found a way out through athleticism. Do you...

Jaimal Yogis: Yeah, JT Holmes is a character in the book and JT was diagnosed ADHD, put on Ritalin as a kid. The Ritalin gave him headaches. He said it did work but he didn't like the side effects, was a skier and a good skier and he noticed early on that he functioned better in school, that he focused better in school, when he was on the mountain, when he could've (unclear 47:22) a weekend to ski dangerously, basically and he followed that instinct got off Ritalin and starting skiing every chance he got. His parents were supportive of it, fortunately and he was able to graduate high school a year early actually because he put himself through summer school and skiing really hard through the winter and he became one of the best extreme skiers in history and he still is competing on the world tour and he is the sharpest athlete, you know, one of the sharpest athletes I've ever met and so he was able to get his college degree while he was skiing professionally. He got off the Ritalin and Adderall and he's just continued being a risk taker and but he's very calculating in his risks, he trains hard you know he's gotten some injuries but he's stayed safe and he's a really happy guy

and so I think not every kid is going to be able to become a professional skier but I think his story is telling and there's so many athletes who were ADHD who have excelled like Michael Phelps and Jamie Patrick, who's another character in my book.

Dr. Dave: Yeah, in fact you describe going skiing with JT on a double black diamond run, I think it was at Squaw Valley and as courageous as you are, he wasn't cutting back and forth – he was just going straight down (laughter).

Jaimal Yogis: He just sort of bombed right down and I thought 'okay, I don't think I'll be skiing much with JT today.'

Dr. Dave: Yeah, yeah. He sounds like the kind of guy that I've seen in Warren Miller films and other films where you see these guys... kind of it looks like they're going over cliffs and you're just amazed that they can do that.

Jaimal Yogis: It is but the key point is that so much training went into what they're doing and so they've been pushing their fear incrementally and a lot of people look at them and say 'oh, those guys are nuts, they have no respect for their lives da, da, da, da, da' when you actually sit down and talk to these people, they really don't like the feeling of being panicked, you know, they want to be in control and they wanna push just to that point where they're a little bit out of control but still sort of on that edge and that's where, you know, psychologists who study performance are finding that there is a sweet spot where we can get into the zone or a flow state where there's this balance of fear and also sort of dopaminergic pleasure – that shot of pleasure that we get from being in a new environment, or trying a new challenge, or new type of food – and when we get that special combination of adrenaline and dopamine and everything has to come together because one false move could mean something very bad, we're capable of amazing athletic maneuvers and I think the same is true intellectually, if we're able to find that sweet spot in writing or public speaking. That's when we can get into peak performance and it's an elusive territory that people have tried to nail down but it clearly has something to do with combining a risk with something that you love and so I think these sports have... offer a model for that that then you can experience and then try to take into other aspects of your life and I talk to JT a lot about this, how his experiences skiing, he's been able to translate into his life off the mountain too.

Dr. Dave: Yeah, yeah and in the book you really do emphasise the preparation part and tell your own stories around surfing, because you've gotten to know some of the top surfers in the world and I get the impression you may have even joined their ranks. You talk about how you prepared and trained to surf at Maverick's, which is a fairly well known surfing area on the California coast, where unfortunately some people have died and you kind of underscore that if you really do your homework and the right preparation it doesn't have to have that ending.

Jaimal Yogis: Yeah, I mean Mavericks is an unpredictable character. For people who don't know, it's a wave off the coast of Half Moon Bay where you can get 30 to 80 foot wave faces and it unfortunately has taken lives of two really successful big wave surfers and it's funny, I do think you can minimise your risk in an environment like that but you can never guarantee it. You're putting yourself at the mercy at something so much stronger than yourself and as I was training to go out there, I

would constantly ask myself sort of 'why am I doing this?' and yet I was driven to and I think it did have a big part to do with sort of becoming a man and I was going through... I'd fallen in love and I was sort of contemplating whether I could get over my commitment fears and propose to the woman I'd met and there was a lot going on for me and for some reason Maverick's was this rite of passage and when you think about, you know, Lakota warriors doing their sun dance, or all those rites of passage we've been... young men have been going on throughout the ages, you realize there may be something in us at a certain time of life, that needs to approach death, or at least approach the... confront our fear of it and I'm not recommending that everybody go out and do that but for some of us it does seem to be important and for me it was and now I look back having done that and think you know there's... I'm not sure that I need to do that anymore now that I have a son and my responsibilities are to him and my wife but it was a really important aspect of life for me at that point and I think it is for a lot of people.

Dr. Dave: Yeah. Shifting focus just a little bit. One of the things you talk about is that some fears are genetically programmed into us and I think one example maybe was snakes. What are a couple of other examples?

Jaimal Yogis: Yeah, there do seem to be fears that we're born with and there's a debate in the community of whether, you know, those fears are innate, or whether they need to be triggered before they become actual fears and it brings in a lot of philosophical questions about what is fear. Do you have to know what fear is for it to be a fear? But it seems that the dark, heights, spiders, sharks, a lot of these types of fears that were... loud noises... that were probably very important to avoid in the wild are still there and it's interesting because the things that kill us in the developed world – heart disease, car accidents, guns, are not innately feared and so it's interesting that, you know, we go around having trouble crossing bridges and getting into fMRI tubes and you know having nightmares about snakes, when cheeseburgers and assault weapons are really what we should be born fearing these days but it's gonna take a while for that to change.

Dr. Dave: Yeah, you cite public speaking as one of the most powerful and universal fears, which I can personally attest to. Is that an innate fear or what?

Jaimal Yogis: It does seem as though some of us are born with innate social anxiety and I was talking with Rick Hanson about this and he was basically saying that the tribe, when we were wandering around the Serengeti, was so important to our survival that if you were ostracized that was likely a death sentence and so the tribe's approval is still so important to us and when (ELTS?) is that, you know, a more make or break situation and when you're presenting to the tribe, you know and asking, essentially, for their acceptance and their praise, so it makes sense that public speaking is right up there with snakes and spiders because we really wanna belong and we really wanna be accepted and... because that likely has been so important for our survival in the past. I mean when you talk about why our brains sort of got to the funny size that they are, it seems like cooperation was the key point there and so any time we're making ourselves vulnerable to the tribe and asking for their approval and praise, is gonna feel nerve racking to some of us. On the flip side there are all these people who love it, right, who crave to get up and...

Dr. Dave: Yeah (laughter)

Jaimal Yogis: ... and I think that's a very similar situation where, you know, there're some people who don't wanna drive over a bridge and there's others who wanna be jumping off them and so both have been adaptive obviously throughout evolution and it's just a... but whichever *you* got saddled with, it seems to be the case that you can coax your brain into changing and people like Flea (Darryl "Flea" Virostko) a big wave surfer who I profile in my book and who is probably too much on the risk taking side and got himself into lots of trouble, drug addiction and nearly killing himself numerous times, he's been able to reel himself in and say 'You know I'm trusting my fear now. I've been on the... I've used up my nine lives' and whereas others have to be pushing themselves to break through their fear and it's just about knowing yourself, I think.

Dr. Dave: You know in the book you tell a fascinating story about a woman who was born without an amygdala or, as you point out amygdalae, I didn't realize there's one in each hemisphere of the brain, therefore she was fearless, which had some pluses but also some big minuses, right?

Jaimal Yogis: Yeah, that was a really fascinating study. She had a rare congenital disease where she literally just had holes where her amygdalae usually would be and the interesting, most interesting part about it was to me, was that she was a mother, she'd been able to be high functioning enough that she raised children and they ran all these tests on her, you know, taking her to haunted houses and showing her the scariest horror movies and she did not show physiologic stress response to any of, you know, the snakes, spiders, horror movies, roller coasters and that had gotten her into some trouble. She seemed to have been a victim of domestic violence and had almost been... she'd been stabbed in a park and went through the same park that very same night... er, very next night, so she didn't have the normal caution that she should have but even so without that, she was able to be a mom and raise her family. So it raises the question, I think, of obviously fear is important but most of us probably over-emphasize it, or the amygdala is so active in our lives and creates a lot of pain and takes years off our lives too when we're chronically stressed, so I thought she was a fascinating character and example of the benefits of fear but also the minuses.

Dr. Dave: Yes, well we've seen that our brains seem to have a hair trigger for a fear response and you give many examples of this, for example, those instinctual unreasoning fear of sharks who, actually as you point out, have much more to fear from us than we do from them and our fear of razor blades in Halloween candy, to our fear of the Muslim world and terrorism and you write about those and you quote Rick Hanson as saying that our brains have become like Velcro for negative experiences and like Teflon for the positive ones. So it would seem that our fear on the whole might be potentially as dangerous, or even more dangerous, than the things that we fear. You know what I'm getting at?

Jaimal Yogis: I do, I do. Yeah, I mean Robert Sapolsky's done a wonderful job of showing that our fear response is killing us and by that he means chronic fear and stress which create all... basically, what the fear response does is shut down the immune system and so when you're chronically stressed nothing is ever rebuilt, you suffer from insomnia and erectile dysfunction and you're more likely to get colds and

heart attacks and I mean the list goes on and so fear is very dangerous especially the chronic sort and...

Dr. Dave: But there's another kind though that I took from your account of research that's been done on Halloween and the fear that we have of razor blades in the kid's candy and you point out that that's basically an urban myth. That's, you know, that never happened. So there's an emotional contagion aspect about fear that we haven't really spoken about and it makes me think of all these people now who're rushing out to buy guns in the wake of the recent shooting of twenty six people in Connecticut on the one hand and the fiscal cliff on the other. Can you comment on these?

Jaimal Yogis: Yeah, I see what you're getting at and yeah I agree with you. There are certain situations where our automatic fear response gets us into a lot of trouble and the example I use in the book is this Halloween candy scare which, you know, ever since I can remember, we've been told every year that you might get a razor blade, or strychnine, or cyanide in your Halloween candy and it's on the news and Joel Best, this professor who's looked into it, has found that there's actually never been a single death from Halloween candy sadism in the United States. There's been a few cases where like a dad poisoned his kid for insurance money and there's been a couple of pranks, or a time when a kid died of a heart attack or something and had happened to eat some Halloween candy but these basically tap into our worst fears, right? Somebody's out to get our kids and they spread like wildfire and fear because it was such an important survival mechanism, does spread between us and we can actually recognize a scared face and get a fear response from that scared face before our conscious mind even knows what that face is. So it flashes so fast on a screen that it doesn't even register consciously but the fear response has already tracked it, logged it, started releasing adrenaline and cortisol and that's happening constantly with all these little triggers around us. We're being duped by fear and reacting in the wrong direction. So the guns case is a perfect example. I mean, here we had a horrible mishap in Newton and the proper fear response in my opinion is to fear these assault weapons, they're... if there weren't access to these weapons, you know, these things wouldn't happen but a lot of us jump to the equivalent of the blue square in my Daniela Schiller experiment and said we're gonna fear sending our kids to school until we get armed guards and we buy our own guns, or what have you and so that's an example of the associative mechanism of this ancient fear response casting a blanket fear over everything and instead of being precise and saying, well the thing to fear here is the assault weapons and the fact that we don't have proper treatment for the mentally ill, you know, we're gonna fear schools and we're gonna set up that fear association for our children and if kids don't feel safe in school they're not gonna learn as well, right? The neuro research is very clear on that, that if a kid is stressed at school, the prefrontal cortex doesn't develop as well and so I think the knee jerk reaction to, you know, to securitize schools though understandable, is actually puts children in greater danger of not having... feeling safe at school and making the wrong association that the sharks example is a more clear one because it's so obvious... that sharks actually kill fewer than one person in the United States per year dies of a shark attack and for years we've felt great killing sharks because we thought the fear of sharks, the fear of the number of humans who will die, well meanwhile we didn't realize that sharks are an apex predator who are extremely important to our environment, our ecosystems and without sharks, you know, the fisheries we rely on go haywire and so now finally we've started passing laws against shark finning and

killing sharks but somewhere between thirty and a hundred million sharks are killed every year, just for their fins and so they're in great danger and in China where a lot of the fins go, they're still using that excuse that sharks are dangerous and so the more you kill the better and so... and that can feel right to the ancient fear system but it's just a knee jerk reaction that isn't actually helpful.

Dr. Dave: Yeah, still on the topic of emotional contagion of fear. I have really mixed feelings about reading the newspaper in the morning. It's kind of a habit that I have and feel like well, I'm supposed to be an educated citizen but on the other hand it seems like it's a real blue square moment. There's all this upsetting, fear invoking stuff and even if I can kind of take a consciously hardened, maybe numbed, attitude at some level, you know, I'm getting all these little blue squares popping up, bracing myself.

Jaimal Yogis: I know, yeah, I feel the same way. I think there's a balance that has to be struck there, you know as a journalist, I'm immersed in the news a lot of the time and I don't think we realize how much we're triggered by it and now triggered by getting the same news in our Twitter feeds and Facebook and texts and such, constantly and the... I'm thinking of writing an article called the paleodiet for the mind, where if we don't basically respect the fact that our primal brain was not prepared to be inundated with this many threats per day, we are liable to become mentally ill. I mean there's no other way to put it because look, I mean, for the last two hundred million years we've had an incredible amount of down time, right? In between hunting and gathering, there were times when you were just walking and you know looking at the sun, or sunset, or you know, resting and recuperating and now we're taking in so many threats per minute, or per hour, that we don't really know how to sort through it and you won't notice it until you go on a vacation or a retreat. I just did a three day retreat where I didn't allow myself to read or write or read the news and I just kinda stayed outside and meditated and did stuff like that and the first bit of news you pick up, you're extremely sensitive to after a time like that and you realize that usually you just sort of steam roller over that feeling and you go to the next one and you steam roller over that and it collects and if you don't have time to empty out, then you start feeling really weird and you have trouble sleeping and I don't think it's just the news, it's the number of threats that we... you know, the threat can be your boss texting you on the weekend, or what have you but I think there needs to be at least one day a week from my experience where it's sort of like a non blue square day, so to speak, where you're only gonna deal with the threats that actually pop up in your physical consciousness, you know, like your kid's running towards the waves and you need to stop him or something 'cause you went to the beach with the family but having a day where you're not taking in everyone else's threats, basically, half way across the world because as much as we need to be aware of people's problems around the world and try to help, we can't do it all and we certainly can't do anything if we're feeling sick from stress.

Dr. Dave: Well that's a great point and this might be a good place for us to wind down although I'm sure we could go on and on and on. I wonder if there are any final points that you'd like to make, maybe something you kind of... a point that you had hoped to make that maybe I didn't ask the right question to evoke it?

Jaimal Yogis: Well, I think that last point is the one that I'm feeling the most... I go into a lot of different points when it comes to fear and different ways that we can manage fear and embrace fear and turn fear around and use it to our advantage for performance and etcetera but as we're going into the new year and we're sort of finishing up a rather stressful year... twenty twelve, you know, we had the Newton shooting and the flooding and the Colorado shooting and it was a lot for the psyche to take in and I think the whole country could use sort of an unplugging and a recalibrating because it's not as bad as you think. I mean we had actually an amazing amount of good news in twenty twelve. There was the violent crime fell for the fifth straight year, cancer deaths were down yet again for the twelfth straight year or something like that, teenage drunk driving was halved in the last decade, there were a lot of good news points out there but we will feel as if the world is more violent than ever before because like Rick Hanson said, the brain is like Velcro for the negative experiences and Teflon for the positive ones, so we won't look back on twenty twelve and say 'oh, what a great year' we'll tend to say 'thank goodness that's over, let's bring in twenty thirteen' but there were a lot of positives in twenty twelve and there's going to be a lot in twenty thirteen, so I think, you know, giving ourselves a break at the start of the new year and reminding ourselves to focus on the positive, is a great way to get our fear response sort of functioning as it should, which is to be able to react to the real threats and you know, shred the paper tigers essentially and so give yourself a treat in twenty thirteen and take a break.

Dr. Dave: I think that's a great recommendation and by the way I subscribe to something, I can't remember the exact name but it's something like the *Good News Newsletter* that I get through email and it's a great antidote and sometimes I'm so caught up in other stuff that I don't read it, which is a telling, a very telling thing, you know, about how we're wired. I'll generalize it beyond myself, to say it's how we are wired, to kind of place higher priority, all the things that we busy ourselves with and tend to be sort of nervous and concerned about but I'm probably opening up whole 'nother other oyster here. So, let me say Jaimal, that I hope that twenty thirteen is very good to you. I think this book ought to be on the bestseller list and that's what I'm rooting for as we go ahead. So it's been great to speak with you and I want to thank you for being my guest today on Shrink Rap Radio.

Jaimal Yogis: Oh, it's been so much fun, Dave. Thanks. Keep up the great work.

WRAP UP:

Dr. Dave: I'm sure you could tell that I feel very drawn to Jaimal. I guess in part because he's lived out some of my own unrealized dreams. My appreciation and understanding of the importance of my own athleticism came late. I've always been at an intermediate level of all the sports activities I've taken up. I don't think I was born with any dramatic gifts in that department but I'm like the little engine that says I think I can, I think I can, I think I can. At about 125 pounds in High School I showed true grit playing tackle football and in track as well. Later in my thirties and forties I became a solid intermediate skier and tennis player and somewhere in my later forties I became an intermediate mountain biker and later a road biker. I tried to take up surfing a couple of times but I discovered I really needed to have started much earlier in life. In judo I got as far as a second degree brown belt, again a kind of an intermediate level. I'm glad to have been given a sturdy enough body to participate at

the levels I did and as I look back I really relish all the good times I had in those activities, especially when they were shared with a friend or two. I've often said that if I ever get reincarnated I'll be a surfer and also a better skier and a musician – a pianist in particular. So Jaimal represents my ego ideal both in his physical accomplishments and his courage and spirit and he also represents an ego ideal in terms of his writing. I do believe that his book belongs on the bestseller list. If it doesn't make it, I think it's because there's been such a rash of books on neuroscience and flow and so on of late. I think he's done a masterful job of sharing his personal stories and integrating them with relevant findings from neuroscience and psychology. His book is a very compelling read. As if I didn't already have enough to read, what with putting out a new podcast every week, almost always focusing on a book and me being increasingly visually challenged due to the ageing process but I'm really feeling like I'm going to want to read his earlier book, *Salt Water Buddha*. He tells me a documentary will be coming out about that one and I think I'm going to want him back on the show and we'll focus on the documentary and that earlier book. He's one of those somewhat rare souls who is both very physical but also very introspective and sensitive. I can own that I have those qualities myself to some degree and he makes a great projection screen for my own not fully realized self. I'd like to close this section with reading a paragraph near the end of the book to give you a feel for Jaimal's writing. On page 195 he writes and I quote:

I have no idea how I will feel when death comes and I have no idea if freedom from the fear of death is completely possible even for the monk or nun who sits in meditation as the last bit of life leaves the body, or the soldier who wants to die with honor, or the mother who throws herself into harm's way to protect her child but if I've learned anything in this research on fear, I guess it's not specifically about death, or even about fear. If I've learned anything, it's that nature has selected a whole variety of traits for us, some good, some bad and some a combination of the two but the brain and the mind and the body have more plasticity than we ever imagined. We're constantly evolving, we learn from events, from one another, from our own emphases and awarenesses. A single thought changes the very structure of our brains. Think about that for a moment. A single thought moves matter and that's a good thing, if we use that malleability wisely. We can take this biological mess of wild impulses, hormones, ferocious emotions and sharp intellect that we're saddled with and do something worthwhile. Maybe something beautiful.

Thanks to today's guest, Jaimal Yogis, for sharing his many explorations, both personally and neuroscientifically on fear.