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On The Frontiers of Neurotherapy

Dr. David Van Nuys, PhD, aka "Dr. Dave", interviews Paul G. Swingle, PhD

(transcribed from http://www.shrinkrapradio.com by Jill Ebsworth)

Introduction: My guest today, Dr. Paul Swingle, is author of the 2008 book Biofeedback for the Brain, and we'll be discussing the branch of biofeedback known as "neurotherapy". Paul G. Swingle, PhD was Titular Full Professor of Psychology at the University of Ottawa prior to moving to Vancouver. A Fellow of the Canadian Psychological Association, Dr. Swingle was Lecturer in Psychiatry at Harvard Medical School, an Attending Psychologist at McLean Hospital in Boston where he was also Coordinator of the Clinical Psychophysiology Service. Dr. Swingle is a registered psychologist in British Columbia, Certified in Biofeedback and Neurotherapy. His latest book Biofeedback for the Brain is published by Rutgers University Press. Now, here's the interview.

Dr. Dave: Dr. Paul Swingle—welcome to Shrink Rap Radio.

Dr Swingle: Thank you.

Dr Dave: Well, it's good to have you on Shrink Rap Radio—I'm really glad to have this opportunity to catch up on developments in biofeedback, because I took a training from Dr. Thomas Budzinski, back in the late 70's

Dr Swingle: Yes

Dr Dave: and I don't recall anything about "neurotherapy" at that time—it was all about biofeedback relating to galvanic skin response, muscle groups, hand temperature and respiration, as I recall.

Dr Swingle: Yes, that would be the case.

Dr Dave: Yeah. From your book it's clear that things have moved along quite a bit.

Dr Swingle: Yes

Dr Dave: Now, you're in Vancouver, but somehow I hear in your voice that you might not be Canadian.

Dr Swingle: Well, I'm originally from New York City

Dr Dave: Yeah, that's what I thought

Dr Swingle: and then, up until about, oh, fifteen years ago, I, uh, commuted between Ottawa and Boston where I was professor and at Ottawa University and I was teaching in the department of Psychiatry at Harvard Medical School,

Dr Dave: unhuh

Dr Swingle: … so I'm picking up a little bit of Boston accent

Dr Dave: (*laughing)* Yeah

Dr Swingle: on top of a New York accent on top of an Ottawan accent. (*laughs*)

Dr Dave: Oh yeah, and I was hearing all of that, so I thought I should raise the issue. Well, let's start out by having you bring our listeners up to date by sort of giving us a definition of neurotherapy.

Dr Swingle: Sure. You commented that in the '70's what you learned from the late Dr. Budzynski was basically what we call "peripheral biofeedback", that is, the resistance of the skin, muscle tension, heart rate, and so on forth. Around that time the only thing we were doing with the brain, basically, is looking at what's referred to as the Alpha frequencies; these are brain waves between about 8 and 12 cycles a second

Dr Dave: mmhmm

Dr Swingle: and it's classically associated with relaxation—the more alpha you have the more quiet and relaxed you are, so, basically during that period of time there was very little going on other than, it was considered an exotic form of relaxation.

Dr Dave: Yeah—I remember that period, and I remember all the excitement about, uh, in relation to meditation, alpha, uh, and theta, and there was, you know, there was a lot of—since I'm in California *(laughs)* there was a lot

Dr Swingle: Yes

Dr Dave: going on about all that.

Dr Swingle: That's right. It was considered technologically assisted meditation, I guess is the best metaphor for it.

Dr Dave: mmhmm

Dr Swingle: but around that time the, uh, situation changed rather markedly—Dr Barry Sterman at UCLA was doing some work on the effects of rocket fuels, hydrazine, on seizure threshold—this was a NASA supported project and by a, uh, series of chance events he discovered that the cats that he had trained in a particular kind of way in terms of a brain activity were much more resistant to seizures evoked by hydrazine, and this was the birth, so to speak, of the neurofeedback treatment of epilepsy. Now, from that, the field just exploded, and basically, what it is, is we measure particular functions of the brain in terms of various levels of activity, and based on those measurements we can determine what is normative, and anything that's outside of normal range in terms of brain length wave functioning is usually a predisposition to something like depression, sleep quality problems, anxiety, mood disorders and so forth. Now, what that means of course is, if you can see that there's an imbalance so to speak in a particular area of the brain, and you hook it up so that they're doing biofeedback of brain activity as opposed to muscle activity, we found that you can normalize some of these anomalous functions in the brain, and, what happens under those circumstances is as you correct these anomalies, the symptoms remit. So basically, what you're doing is you're doing a fitness procedure for the brain, you're bringing the brain into more normative, normal functional ranges. Now, an extension of that, of course, is you can optimize, just the way an athlete does in the gym, you know, once they get their body into decent shape then they can optimize particular, uh, functions, uh, and these are the elite athletes. You can do exactly the same thing with the brain, and as many people may know, about half of the Canadian Olympic Gold Medal winners at the Vancouver Winter Olympics, did neurotherapy.

Dr Dave: No, I, I certainly didn't know that, and I watched a lot of the Olympics; I'm sure that'll be….

Dr Swingle: It was our secret weapon. (*both laugh*)

Dr Dave: Were you the, uh, fortunate person who got to work with them, or was that someone else?

Dr Swingle: No, that was my old alma mater actually, University of Ottawa. (*laughing*)

Dr Dave: Uhhuh. You know, in your book you give some outstanding case examples, and I want to encourage you to feel free to weave any illustrative stories or case examples into our discussion,

Dr Swingle: Sure

Dr Dave: and, uh, I want to tell you that initially I was a little put off in the introduction by statements to the effects that neurotherapy makes the brain more efficient, uh—in what

you just said actually, you didn't talk about efficiency but you talked about normalizing, which, uh, is more palatable to me, having finished the book now, and perhaps, uh, the efficiency phrasing was intended for the lay person. My reaction was, "Do we really know enough scientifically about the brain to talk about efficiency?" I've interviewed a number of leading neuroscientists and none of them spoke about efficiency—we're still in the infancy of learning how the brain works, although great strides have been made, and I've always thought of EEG as kind of like, you know, because there are, what, hundreds of thousands or millions of neurons, uh, underneath any spot on the skull, so I've always thought of it as sort of like putting a stethoscope up to a refrigerator to figure out how the refrigerator or the dishwasher works. Um, that was my, you know, my initial take, uh, but as I read on, I became more of a believer, because the word "efficiency" implied to me that we have standardized norms, and what I discovered as I read on was that, in fact, you talked about brain maps and normative data bases, so in fact, I began to have some feeling that well yes, it does feel like there've been some scientific development of, of brain maps and norms, so maybe you can speak a little bit to that.

Dr Swingle: Sure, uh, we have several databases—there was one developed at NYU, um, the, uh, one that`s commonly used is referred to as NeuroGuide and so forth, uh, basically what they do is they measure the brain waves of people, uh, that have no clinical designated symptoms, in other words a "normal" quote, unquote, normal population. Now, uh, what they do is they divide it up in terms of gender and age, and so forth, and we can see what the norms look like. And this is just standard statistical procedures

Dr Dave: sure

Dr Swingle: so that you can determine if somebody has brain waves activity that's outside statistical normal range. So, uh, the, several of these databases are FDA registered and compliant, and, now, there's a difference between a normative database and a clinical database, and this is an important consideration. Normative database—there are a lot of people walking around with what we call predispositions to conditions, but they're happy as clams

Dr Dave: *(laughs)*

Dr Swingle: the reason is that nothing that's turned the key to release that predisposition. Now the biologists have been doing a lot of work, uh, people like Bruce Lipton, for example, in terms of the environmental conditions required to turn on a neurological predisposition.

Dr Dave: yes

Dr Swingle: Now, the difference now is an individual who's sitting in front of me in my clinic in Vancouver uh, has a condition—they're there because they're depressed, for example—now, what do I find in their profile that would be consistent with depression? Now that's a clinical database in which the data are collected from clinical clients, those who, for example, report depression—and what does their brain wave look like, so it's more like pattern recognition as opposed to a normat [unfinished word], a departure from a normal database, so there's a statistical distinction here. And a clinical database is far more precise as a clinical instrument.

Dr Dave: Yeah, I think, in part what you're getting at is, uh, is somewhat generic to the field of psychotherapy, that clinical, sort of clinical findings versus research findings, and it seems like there's always a gap between the two, I think with the clinicians often on the leading edge and the researchers back-filling with scientific substantiation down the line.

Dr Swingle: I think that's a good metaphor, uh, my feeling is that the real, uh, discoveries take place in the clinic

Dr Dave: mmhmm

Dr Swingle: and what I call practice-oriented research and all that is is just being systematic about collecting data on your clients.

Dr Dave: Yeah

Dr Swingle: that's really all that it amounts to, and looking for patterns that emerge, and the, uh, we're getting to be, uh, very very capable of looking at sub-cortical regions in the brain so that we can do neurofeedback and brain wave work, uh, neurotherapeutic work, on sub-cortical structures, and there are a number of procedures used for this, and basically, in the early days, when I was at the University of Ottawa going back oh twenty years or so, what we were using is basically oceanographic data collection systems, so oceanographic software

Dr Dave: huh

Dr Swingle: uh, you know, if you want to find out what's on the bottom of the ocean what you do is you send signals down from various locations, and then you look at the rebound associated with it so that you can kind of map out what's on the bottom of the ocean—we use a similar kind of thing in terms of patterns that are arriving at the cortex at the various electrode sites and then you plot all of that, and we can come within a few millimeters, in a very precise localization, uh, localization of the generators of a particular wave form that we're measuring at the cortex, so we can do neurofeedback of sub-cortical structures that, a very very powerful neurological technique for correcting a lot of these conditions.

Dr Dave: Well before we get into the therapy, the biofeedback therapy, I'm interested in the diagnosis that you're able to do, in fact you say that you are usually able to diagnose individuals based on what you're seeing in the brain waves without them actually telling you what has brought them into the office.

Dr Swingle: Yeah, that's the exciting thing about the clinical database is they are *so* precise *(laughs)*

Dr Dave: Yeah, that was surprising

Dr Swingle: there's a local uh, I'm sorry…

Dr Dave: I was just, I'm just saying that was surprising to me to read about the degree of specificity that you're able to bring into it.

Dr Swingle: Yes, *(laughs)*, uh, there's a local, uh, psychiatrist who says that, you know, that the EEG, uh, you cannot diagnose on an EEG is basically what he's saying,

Dr Dave: Yeah

Dr Swingle: and I love to call him up and repeat what, uh--George Bernard Shaw's famous quote, you know, "Those who say it can't be done should get out of the way of people who are doing it." *(laughs)*

Dr Dave: *(laughs)* right, right, I can understand that, your feelings there

Dr Swingle: Well, see, here again it's the importance of a clinical database—what do these people look like when they come in and they sound depressed, you know, where in the brain is that, is that, you know, can you find that? And basically what we find is pretty consistent and it's been something that we've known for oh, the better part of fifteen years or so, and that is, if the right pre-frontal cortex, the right frontal area of the brain, is considerably more active than the left, and there are a lot of ways that can happen, that's the signature for predisposition to depression. And if they're sitting in front of me, it's likely that they're going to admit to being depressed. I'm not talking about the guy on the street that I've captured and done a brain wave on and say, "Hey, you're depressed." What I'm doing is dealing with a person who has a symptom—they're sitting in front of me. So whatever the predisposition is has been manifested by some kind of event, it could be fatigue, poor sleep, a trauma, who knows.

Dr Dave: Yeah—in fact, speaking of trauma, you also say that brain wave monitoring allows you to identify the specific areas of damage in cases of traumatic brain injury—uh, can you give us an example of that?

Dr Swingle: Oh yeah—we see a lot of individuals with brain injuries…

Dr Dave: From car accidents and things like that?

Dr Swingle: Car accidents, uh, we see, uh, hockey players and other professional sports folks who have concussions, and, uh, we do full brain maps and see the areas that have been affected by the injury. The typical thing in traumatic brain injury is the frontal cortex—no matter how you're hit, whatever location, whether it's top, bottom, side or whatever, generally speaking you're going to have damage to the front part of the brain, and the reason for that is the way the brain sits in the cranial vault, so no matter how you're hit, you're going to have some kind of frontal injury, and that's why you have one of the principal, cardinal, symptoms associated with traumatic brain injury are mood changes, and that's because the front part of the brain, particularly the right side, is damaged, uh, injured in some way by the injury, and, you know, it's part of the, uh, our culture in terms of knowing that individuals who have brain injury very often become violent, and some of the notorious cases of that of football players who have become very violent after traumatic brain injury. So, we can isolate those areas and uh, neurofeedback can be very helpful in terms of speeding up recovery. The other thing that's very important with traumatic brain injury is the old nonsense we were taught when I went to school and that is that you have an eighteen month window—after eighteen months of recovery, normal recovery, game over, you're not going to get very much more in terms of gain, so that's just not true—we have a lot of evidence for that. A neurologist in Texas, John, Jonathan Walker, a board certified neurologist who does neurofeedback has treated individuals twenty, thirty years post-injury, with very very substantial improvement. …(inaudible)

Dr Dave: So, in other words, by giving, uh, sort of technologically assisted feedback, you're able to push the brain recovery past where it would go with just the mere passage of time.

Dr Swingle: Correct. And the reason for that is you're increasing the peripheral, uh, you're increasing blood flow to these areas, you're getting increased dendritic growth, I mean, all of this has been substantiated. Now the other issue associated with trauma, one of the things I talk about in the book, of course is not physical trauma but the emotional trauma. Again, associated, can be associated with something like an automobile accident, or it can be abuse, or, you know, rape, or whatever, uh, very often we can see that in the brain—you know, the brain has markers for trauma.

Dr Dave: Mmhmm. Now, uh, what you're saying sounds very exciting, and I'm bewildered that we haven't heard more about this in the sort of general media, and, to what extent is neurotherapy controversial, if at all.

Dr Swingle: Ah, there are three levels to this; the first is individuals who had never heard of it, and I uh, if a person from the general public says they haven't heard about neurofeedback, neurotherapy, that doesn't trouble me very much. You know, it's a problem associated with our ability to get the resources and the P.R. and all the rest of it, you know,

Dr Dave: mmhmm

Dr Swingle: I mean, we're competing with billion dollar industries, you know, like the pharmaceutical industry,

Dr Dave: Yes

Dr Swingle: and there's just no, uh, you know, it's no contest

Dr Dave: Right

Dr Swingle: That doesn't disturb me as much as a neurologist, for example, who will say that he doesn't know anything about neurofeedback—in my judgement that's malpractice

Dr Dave: mmhmm

Dr Swingle: because we are dealing with situations that have track records, is FDA registered and compliant, the fact that an individual not be aware of a neurological treatment condition to me is appalling, so, uh

Dr Dave: Well, it seems like it ought to be taught in neurology programs, in medical school.

Dr Swingle: It should be taught in psychology programs, and, you know, um, I had a program at Ottawa U, we had a program at McLean Hospital, you know, the teaching hospital at Harvard Medical School, there was one at University of Alberta, there's one in north Texas, but they're very few and far between—we just do not have the biological or neurological orientation in our schools of psychology and psychiatry, you know, I mean it's an outrage

Dr Dave: mmhmm

Dr Swingle: we're talking about doing all of this kind of psychological work without any basis in neurology, I mean, *(laughs)* it's ridiculous.

Dr Dave: Yeah, this really could be the marriage of all the recent findings that are, you know, coming from brain imaging studies and so on, or increasing knowledge about brain systems on the one hand and our psychological, uh, verbal therapies on the other—and you do, in a number of places, you advocate, you say that, uh, neurotheraphy should not be considered a stand-alone treatment, and it wasn't clear to me whether you meant that the neurotherapist

should have additional therapeutic skills and not just rely solely on EEG, or if you were talking, saying that the neurotherapist should be able to refer out to other professionals for supplementary kinds of treatment—or maybe you were saying both.

Dr Swingle: Yeah, I think it is both—my feeling is that neurotherapy should be practised by individuals who are licensed to practise a, uh, a mental health or a health profession, that is you should be a licensed physician or a psychologist or a social worker and so forth. Neurotherapy, as I've indicated, or neurofeedback I guess more clearly, is not a stand-alone discipline. If you're working with depression for example, once you correct the neurological condition associated with that you still have the legacy; a person has learned how to pattern defensive structures and so forth and so on to deal with the depressed mood state—an individual who's familiar with how you help an individual in terms of processing, rapidly processing that in an efficient sort of fashion, I think is really important in terms of the marriage of neurofeedback with the other therapies. Uh, that's certainly the case in trauma, you know, if we have an individual comes in," I can't sleep", is their complaint and that they have poor stress tolerance and you see that in addition to the neurological condition associated with stress tolerance they also have a trauma marker—if an individual's not familiar with how you deal with emotional abreactions associated with trauma, then they're going to be very ill-equipped to deal with a client who suddenly has trauma release. What do they do with it? Well, a lot of individuals will simply try to quiet the person down and then get rid of them, I mean, that's really the strategy associated with it, as opposed to a therapist who's comfortable with working with trauma, that the marriage of neurofeedback with other forms of trauma therapy makes it extremely efficient, I mean we can deal with these severe traumas in a number of, you know, ten or fifteen sessions, as opposed to two years of therapy, but

Dr Dave: Have you had any opportunity to work with veterans?

Dr Swingle: Oh yes, yes yes

Dr Dave: Because, you know,

Dr Swingle: That's an interesting issue

Dr Dave: that's a huge problem these days with veterans returning from Iraq and other places in the Middle East where they've been exposed to these, uh, these improvised bombs, and I've heard it said that there, although lots of people tout approaches for dealing with trauma, um, I've heard it said that really there is no good reliable approach.

Dr Swingle: Yeah, I don't believe that. And there are several things above and beyond neurotherapy that are very effective in this—you know it's interesting—where I discover the

trauma markers is working, was working with, uh, Vietnam vets who had post-traumatic stress disorder—they were hospitalized, uh, you know, disabled by it. They all show this severe trauma marker which is how I, uh, I uh, discovered it basically, and when you work with releasing that and you have some other therapy as a mechanism for helping the person process it, then it's a very efficient procedure. Now, you know, there's a second part to that and that is every one of the disabled vets that I looked at, in addition to having a trauma marker, also had the marker for predisposition to poor stress tolerance, and one of the issues we've been talking about with a number of the force agencies is what we call "preparation for duty", and that is, if the individual shows that marker for poor stress tolerance, predisposition for anxiety, sleep problems and so forth, they're the guys that are vulnerable to post-traumatic stress disorder. And again, where I kind of discovered that was again at Harvard Medical School, with these disabled vets—their buddies would visit them, and their buddies—I chatted with a number of them—they'd gone through exactly the same thing.

Dr Dave: mmhmm

Dr Swingle: What's the difference between a guy that, you know, has some sleep problems, a guy that has some psychotherapy, you know, to deal with it, another guy who's troubled by it and doesn't want to talk about it, versus the disabled guy. What's the difference? Now, the military went through this nonsense of deficits of character and so forth and so on, but the bottom line was every one of those guys, the disabled vets, showed the severe deficiency of stress tolerance. I'm talking about neurological stress tolerance now.

Dr Dave: Yeah

Dr Swingle: So, you know, if you put that on the front end, preparation for duty, then you, uh, insulate the guy, or inoculate the guy, against, you know, being more vulnerable to post-traumatic stress disorder—it's that simple and straightforward, in my judgement.

Dr Dave: Well, you know that puts in mind the work of Martin Seligman who

Dr Swingle: Yes

Dr Dave: has actually got a whole bunch of money to inoculate people against stress. Do you have any thoughts or observations about that approach?

Dr Swingle: Yes. Neurotherapy isn't the only game in town, you know, I mean we, there are a lot of individuals who work with this concept of being able to quiet the neurological system and I really believe that, that, uh, if you're trying to deal with something, you can sit under a banyan tree and go into meditative, self-hypnotic quieting states, or you can do

neurotherapy. Neurotherapy, in my judgement, is just much more efficient and much more rapid, but nonetheless, there are other procedures to this. Uh, we work with, uh, I do hypnosis and one of the things that I've discovered is that you can do what I call neurologically correct hypnosis. What I mean by that is you direct the person to image brain functioning, and you do the hypnotic inductions around that brain functioning.

Dr Dave: Hmm

Dr Swingle: and we get nice changes in brain activity associated with it, so , you know, there's nothing—neurotherapy is just another technological way of accomplishing some of these things, and, in my judgement, particularly using my brain driving procedures, it's just remarkably more efficient, you know, because it's very direct and data driven.

Dr Dave: Yeah, boy—that opens up another whole other area that's of some interest, talking about brain drivers, and one that I've done some interviews around is a system called Holosync, and then there are brain driving apparatuses for people who want to engage in lucid dreaming, for example,

Dr Swingle: Yes.

Dr Dave: Are there, are, are there risks or dangers in brain driving; there are programs out there that use auditory signals, uh, to drive the brain—is there anything to be worried about there, because there's a lot of this is just available on the internet to the general public.

Dr Swingle: Yes, of course. Uh, yeah, the old notion that,uh, remarkable effects require remarkable data—the, uh, the flip side of that is anything that's efficacious, that has dramatic results, can have dramatic side-effects, and that only comes with the territory

Dr Dave: uhhuh

Dr Swingle: you can't have one without the other. Now that opens up a–we could have five more interviews about my feelings about that.

Dr Dave: *(laughing)* Yeah!

Dr Swingle: Uh, the first order of business is, uh, I don't feel that any of this should be done by individuals who aren't properly trained. The second thing is, what's available to the public should be something that again is markedly limited in terms of the potential damage it can do, uh, the notion that you're going to train up someone in a weekend to do neurofeedback I think is, uh, laughable, and, uh, to provide things to the general public that have brain driving capabilities without some mechanism for controlling side-effects is a risk factor associated with that. The flip side of it is, people are pretty robust

Dr Dave: Mmmhmm—I believe that too.

Dr Swingle: and, if, you know, they do something and they don't like it, they're going to stop, but some of the brain games that are available for kids, uh, I think are dangerous for kids that are vulnerable, particularly those that have an attention problem for example, and the reason for that is the early games, uh, one of the feedback wave-forms they used was slow frequency, and the reason they did that is it's easy to work with, and slow frequency amplitude is the problem with ADD, so you're messing with something that can make a situation—you can really exacerbate a situation, in my judgement.

Dr Dave: Mmmhm—speaking of ADHD, you say that, uh, the three conditions for which there is the most research establishing the efficacy of neurofeedback, including control studies published in peer reviewed journals, are epilepsy, which you mentioned at the outset, depression, which you've also mentioned, and ADHD.

Dr Swingle: Yes.

Dr Dave: Why these three?

Dr Swingle: Well, epilepsy by accident, in that, uh, Barry discovered that training up what's called the sensory motor rhythm—that's a rhythm between roughly oh, twelve and fifteen cycles a second in the cat, over the central part of the brain, the sensory motor cortex, when that's strengthened, the cat is more resistant to hydrazine induced seizures. So that was quite accidental. Uh, depression *(coughs)* –excuse me—individuals, uh, one of the fundamental reasons that people come to a therapist is for depression, so our catchment group, our population, is much larger there, and I think it was just simply a matter of that—that, uh, individuals who came in showed particular kinds of patterns and we were able to demonstrate that you get this shift in, uh, in activation of the front part of the brain associated with depression, both normally incurring depression and induced dysphoric mood states. ADHD? Uh, that's the bread and butter of the neurotherapist, and, uh, every child that comes in had loads of slow frequency, and if they were given a situation of arousing the brain, which was driving down slow frequency, you got these improvements so it was kind of like a, uh, you know, hit and miss situation until we started to see what the patterns were.

Dr Dave: That now, you say *(both speaking at once)*

Dr Dave: You say the ADHD

Dr Swingle: but I think really the answer to your question is it was a function of how many people walk in the door, so we had more folks with ADD and more folks with depression.

Dr Dave: *(laughs)* Yeah. Now you say that the ADD kids had too much slow frequency brain waves, and that you needed to kind of speed them up, and that made me think of Ritalin, and I'm, you know, and it always seemed paradoxical that hyperactive kids would need speed—is there some relationship here between that pharmacological approach and what you're doing with the brain?

Dr Swingle: Oh yes. A particular form of ADHD—there are many forms of uh, there are many conditions that give rise to problems with attention in a child, and a lot of my research is, uh, could be captured by the phrase, "Are you sure it's ADD?"

Dr Dave: Mmmhm

Dr Swingle: You know, trauma, anxiety, sleep problems, etc etc all give rise to problems associated with the kid's paying attention, but legitimate forms of ADD, uh, one of them is elevated slow frequency over their, particularly the sensory motor cortex, central part of the brain, an area of the brain associated with sensation, perception, motor movements—now, if that area is hypoactive, then the child is self-medicating by bouncing around, so, you know, they're bouncing off the wall

Dr Dave: Hmmm—that's an interesting way

Dr Swingle: Yes

Dr Dave: That's an interesting way to think of it.

Dr Swingle: Yup. Well, that's exactly what it is—it's self-medicating. They're activating that area of the brain by being hyperactive, and the reason that it's self, uh, sensory motor stimulant, which sounds so crazy—why would you stimulate a hyperactive child? The reason is, it affects that hypoactivity of the sensory-motor strip, in essence, making it more active, in essence, the child doesn't have to self-medicate. As I say to parents, you know, we tend to think it's volitional, but it's really *painful* for that child to sit still, and if you think of it in that, in that context, it just changes the way you deal with the child.

Dr Dave: Wow—that's fascinating material. Now I understand that you also, you spent some time in China studying acupuncture, and, um, observed some correlations between the two—what can you tell us about that?

Dr Swingle: Yes, I, uh, I was working with some electrical stimulation procedures based on some of the work that came out of eastern Europe, you know, the eastern Europeans, Russia and so forth are miles and miles ahead of us in terms of electro-medicine, you know, they weren't crippled by the pharmaceutical companies the way we were, and, you know, just looking at some of the things they were doing with, uh, electrical activity, both alternating

current and DC, pulsing DC currents, uh, I tried it on a couple of acupuncture points, you know, based on my discussions with some licensed acupuncturists, and it really looked promising, so, I was very fortunate—one of my interns was a fellow from China, and he said, "Look. Why don't we go over and get ourselves trained in acupuncture?" You know, he had some uh, he had family right in Shanghai, and we had a look around, and one of the principal training centers was at the, yeah, it was in Shanghai, and it was also very fortunately associated with a psychiatric hospital, so we were dealing with acupuncture associated with psychiatric conditions, which was, I mean, what a mine-field that was, what a gold-mine that was, so we went over and got trained, and, uh, I was trained in needling, but what I use it, I use it in terms of electrical stimulation of acupuncture points, and I just went through and systematically mapped what stimulation of a particular acupuncture point does in the brain, and the reason acupuncture works is that it influences the brain in some way, I mean, it has to—the brain tells us everything, you know,

Dr Dave: Yeah

Dr Swingle: as I love to say, "It's all in your head"—of course, where else would it be?

Dr Dave: Yeah, *(laughing)* I have a catchphrase for this show, actually, that says something very much like that. You know, what you're making me think of is something I had not planned to ask you about, but, I've suffered from ringing in the ears, tinnitus, for quite a while

Dr Swingle: yes

Dr Dave: and the research seems to su [unfinished word], originally it was thought to have something to do with the tiny hairs in the cochlea,

Dr Swingle: Yes

Dr Dave: but more recent research seems to—first of all, it doesn't seem to be simple, and secondly the brain seems to be more and more implicated, with some researchers investigating things like, uh, strong magnetic transcranial fields and so on—have you had any experience or done any research in relation to tinnitus?

Dr Swingle: Yeah, we treat a lot of tinnitus, uh, there are various forms, as you say, it's complicated, uh, the one that's a miracle waiting to happen is if it's associated with hypertension, and if it is related to hypertension and you take care of the hypertension, the tinnitus, you know, improves, and these people are, you know, they think you're a miracle worker. The more difficult ones have to do with various forms of damage, and, uh, there's a whole series of things that can be done, uh, one is—one of the reasons why these maskers tend to work is that the maskers at some point actually tend to reduce the amplitude, uh,

the subjective amplitude of the tinnitus because of habituation effects. The second is match the sample procedures and this is a feedback procedure in which you get the individual to subjectively match the amplitude and tone of the tinnitus, and then what you do is you reduce either the amplitude or the, uh, frequency, and you get the person to match this sound, this subjective sound they're hearing in the tinnitus to the stimulus that you're presenting—the matching the sample procedure—it's very

Dr Dave: So you're trying to kind of get them to sort of drive down as they learn to kind of reduce it softer and softer?

Dr Swingle: That's correct

Dr Dave: Okay

Dr Swingle: a third procedure, is to treat it—and we find that there's an area of the brain that, uh, is associated with involuntary movement, that also improves tinnitus, and, uh, that's very similar to the treatment for, uh, seizure disorders by the way, and of course, the fourth one is cognitive, and this is the one that we always emphasize no matter what else we do is we always emphasize the cognitive because the research is quite clear; subjective distress and subjective amplitude are not highly correlated factors which is contra-intuitive, but that's the case. And what we find, and there are a lot of treatments centers that focus entirely on this procedure, is if you can redefine the meaning of the tinnitus it markedly affects subjective distress.

Dr Dave: Yeah—I don't have a lot of subjective distress around it, and I've actually sort of—that's interesting to hear because on my own, I, uh, not having heard what you just said, I decided to, uh, try to, uh, use the—when I become aware of it to say, "Oh, that's a signal to remember to, uh, to think about God, or it's a signal to meditate, a signal to be present here, now, so I've kind of hit upon that myself

Dr Swingle: Bingo

Dr Dave: But still, if I had a way to get rid of it I would definitely choose to get rid of it *(laughs)*

Dr Swingle: Yes, well, *(coughs)* excuse me, that's, uh, you know, that's exactly the focus, you're listening to the sounds of the universe and only you can hear it, you know, that kind of mentality.

Dr Dave: Oh, I like that idea too—that's great, and, uh, you know, you've been very sort of open-minded and wide ranging in your openness to a variety of techniques—I understand that you've also done some work with EFT, Emotional Freedom Technique, or energy

psychology, and that initially you were skeptical but then became something of a believer. What changed your mind, and how does it relate to your work in neurotherapy?

Dr Swingle: What changed my mind was harassing colleagues *(laughing)*

Dr Dave: *(laughing)* Was what? Harrassing what?

Dr Swingle: *(laughing)* Harassing colleagues.

Dr Dave: Oh, yeah, *(laughs),* right

Dr Swingle: Colleagues that harassed me *(laughing)*, uh, I *(hesitates)*—well there are several levels to this, I guess I'm a slow learner. Uh, when I was at Harvard Medical School a guy called me from New England Medical School, which is an osteopathic school, and he asked if I would be kind enough to bring my apparatus, my EEG apparatus, up to the New England School, and do brain assessments of patients who were undergoing an osteopathic procedure, and I said, "Sure, why not." And what they were doing was cranial-sacral therapy. Now, I didn't know cranial-sacral therapy from, you know, a hole in the ground—I didn't know anything about it, and I hooked up the physician and the person he was treating *(coughs)* excuse me, and I set it up a couple of ways, one as though it were one brain, so that both the, uh, physician, and the, uh, and the patient, it was set up as though that, uh, there was one brain operating there, and then also to measure the brains independently. And I did all the controls, you know, the hands on the table, hands on the shoulder, hands on the head, then the manipulation and so forth and so on, and when the guy did whatever it was he did, there were profound changes in brain activity, and the hair stood up on the back of my neck, you know, that something that he's doing with the—he told me that the amount of pressure he was using was five grams—that's about the weight of a nickel, so, uh, it turns out I think he was doing what's called the still-point, but in any event the, uh, you know, the short version of this is I registered the next week and got myself trained in cranial-sacral, and then

Dr Dave: Yes, I've heard people rave about that too

Dr Swingle: and then I did the brain maps, you know, and it's true—you get these marked changes in terms of some brain activity and then we use it for trauma processing. If I see a trauma signature that doesn't, uh, release rapidly with neurofeedback, I do a procedure referred to as somato-emotional release, which is a cranial-sacral procedure to get the trauma to release, and when you release the trauma that way, the brain changes—if you change the brain, the trauma releases, so it's a bi-, you know, a bi-directional relationship. So that was one of the issues—the other was I took a course on EFT, you know, one of these brief workshops.

Dr Dave: Yes

Dr Swingle: Frankly, I thought it gave nonsense new meaning

Dr Dave: Right (*laughs)*

Dr Swingle: so I was lamenting about all of this with a colleague who actually uses EFT and he just told me, you know, you're pig-headed, you know *(laughs)*

Dr Dave: *laughs*

Dr Swingle: and what I did was I brain-mapped it, and sure enough, one of the procedures increased a wave form associated with increasing seizure threshold, so I actually use EFT now with, uh, with epileptic clients, but I, there's an interesting aspect to that, that in addition to increasing the wave form that improves, uh, seizure threshold, that is, raises seizure threshold, it also raises another form—another brain wave, uh, amplitude that reduces seizure threshold, so I have to combine a couple of procedures, uh, to use, uh, to have clients use at home to, uh, prevent seizures.

Dr Dave: Mmhmm. Well, boy, we're running out of time here—there's so many other topics and questions that I have that we could touch upon, but, uh, I think I'll have to, uh, skip over some of those. It's been four years since you wrote your book, and I'm wondering if there have been any new developments since then, and also, where you see neurotherapy going in the future.

Dr Swingle: Oh, there've been huge, uh, developments, uh, I'm finishing up the second edition of my clinician's guide in which we cover a lot of these, uh, these changes that have taken place, primarily in terms of diagnosis, uh, what the brain actually tells us, and then ways of being able to correct it. As I said, we're able now to do feedback of sub-cortical structures so we can go right inside the brain and I, I really think that it's, uh, once the communities become aware of the, uh, potential for neurofeedback that it's going to be, uh, it's going to be the new medicine, I mean I think that's really what it's going to be, and it's going to replace all this pharmaceutical nonsense that's going on, in

Dr Dave: Well

Dr Single: terms of just sedating problems

Dr Dave: Yeah

Dr Swingle: Get medicine, that is, get the pharmaceuticals back to what they're good at, yeah, in terms of, uh, you know, treating some of the physiological conditions—get them out of the arena in which they're destructive.

Dr Dave: Yeah, yeah (*laughs)*—that's a whole nother big topic. What would be your recommendations as to how an interested listener might find a qualified neurotherapist?

Dr Swingle: Uh, what I would do is, *(coughs)* excuse me, is, uh, go to, uh, bcia.org

Dr Dave: Can you give us the phonetics on that?

Dr Swingle: Yeah—it's, uh, "b" as in boy, "c" as in Charlie, "i" as in, uh, I for—what's the military for "I"?

Dr Dave: Uh, maybe India?

Dr Swingle: India!

Dr Dave: (*laughs*) Yeah

Dr Swingle: *(laughs),* and, uh "a" as in Alpha: bcia.org, and that's the biofeedback certification international alliance, uh, these are individuals that are certified in neurotherapy, *(clears throat),* now all that means is that they've presented their credentials for minimum qualifications, ok?, so the client always has to trust their gut in terms of does this person really know what they're doing? The second thing is somebody who's licensed to practise a health profession, a physician, a psychologist, social worker, and so forth. The best of all is word of mouth.

Dr Dave: Ok. And as we wind down, I wonder if there are any final points that you would like to make.

Dr Swingle: Yeah, uh, I really feel that, uh, neurotherapy and neurofeedback, as I said, it's the new medicine, and, uh, we have some real problems with cleaning out our own house in terms of individuals that are franchising all kinds of, uh, what they're calling neurofeedback and neurotherapy, uh, clinics, and the qualifications that these people have is, uh, warm blood and a cheque book. So,

Dr Dave: (*laughs)*

Dr Swingle: so, you know, the population really has to be cautious, uh, there's several reasons that this is a concern, uh, you know, the most obvious of course are serious side-effects with being treated by an unqualified person, but there's a more subtle one, and that is individuals who've done some sessions with this individual might have some mild improvement, and then later, when their, uh, when their symptoms emerge again, they don't go back to neurofeedback because they think they've done it already.

Dr Dave: Mmmhm yeah, so they conclude that it doesn't work.

Dr Swingle: Bingo, Yeah, we had—that happens a lot. The person will be told, you know, "Go see Swingle's clinic", you know, and they say, "Well I've done that"—they finally come in, and that's when they realize the difference between doing something like an assessment to find out what's wrong and then correcting what's wrong in a data-driven procedure,

Dr Dave: mmhmm

Dr. Swingle: with individuals who have other kinds of skills to be able to deal with your problem. I mean, it's a different thing entirely.

Dr Dave: Yes, and that's definitely the impression I left your book with. Well, Dr. Paul Swingle—thanks for being my guest today on Shrink Rap Radio.

Dr Swingle: Well, thank you very much for inviting me—I've enjoyed it.

(Music)

Dr. Dave's comments: I hope you learned as much as I did from this interview with Dr. Paul Swingle. As you heard, my initial reaction was that his claims were over-reaching in terms of what might be possible through neurofeedback. However, as I got deeper into his book, I realized both that the art and science of biofeedback has grown in sophistication since the last time I visited it, and that Dr. Swingle has a real commitment to rooting his work in a scientific approach. There are many issues I would have liked to explore more, such as his assertion that IQ can be increased by as much as ten points, the varieties of brain-wave frequencies and skull locations used for different conditions, the range of conditions he treats beyond the big three of epilepsy, depression, and ADD/ADHD, the role of brain-wave feedback on traumatic memories, when he decides to monitor from five locations on the skull versus twenty locations, and so on. Actually, most of these questions and more are addressed in the book. Later, after the interview was over, I realized I really should have probed more deeply into his assertion that neurotherapists are now able to target sub-cortical regions—the implications of that didn't really sink in until later. How can you monitor what's going on beneath the cortex? That would mean having to filter out cortical activity, which I would think would be strongly in the fore-ground. If you are at all interested in this topic, I highly recommend his very authoritative and informative book, which again, is Biofeedback and [sic] the Brain. It's available in paperback, and, of course, you can order it using the amazon widget in the right-hand side-bar on our site.