iDisorder (Dr. Larry Rosen)

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**David Cutler:** In "iDisorder, Understanding Our Obsession with Technology and Overcoming Its Hold on Us," Dr. Larry Rosen, Professor and past chair of the Psychology Department at California State University, Dominguez Hills, describes changes to your brain's ability to process information, and your ability to relate to the world due to overuse of media and technology. This often results in signs and symptoms of psychological disorders, including stress, sleepiness, and a compulsive need to check in with all of your technology. Based on decades of research and expertise in the psychology of technology, Dr. Rosen offers clear, down to earth explanations for why many of us are suffering from an iDisorder, and what we can do to get better. Today, I am honored to speak with Rosen, who teaches us how to stay human in an increasingly technological world.

I guess I'll just hammer away. Is technology bad?

**Dr. Larry Rosen:** I think that what we're finding, from all of our work, is that it's got its good and its bad points. Like anything, it's certainly showing up, in particularly social media and electronic communications, showing up as predictive of more distractibility, predictive of lesser ability to communicate face-to-face, predictive of more symptoms of certain psychological disorders. Although interestingly enough, it's also predictive of less symptoms of other psychological disorders, it just depends on how you're using it.

**David:** Yeah. In the introduction to your book, you write a lot about disorders that can be associated with technology, that can come about because of it. Some of the things that you mention, attention deficit disorder, hyperactivity disorder, depression, obsessive-compulsive disorder, narcissistic personality disorder, schizophrenia, body, I can't even pronounce...is it dysmorphia?

**Dr. Rosen:** Uh-huh.

**David:** ... and Voyeurism. These symptoms that you delve into, they're so on target and so on point that I guess it's the reality that scares me on how on point you are.

**Dr. Rosen:** [laughs] It is the reality, I guess. Maybe it is our reality that...I wouldn't call it scary. I would say hopefully it should give us pause to think things through, because I think in general, we don't do a very good job of thinking through the choices we make. Obviously younger people make less good choices with the technology. Part of what we're seeing in all of our research is that a lot of it has to do really with anxiety disorders. We're seeing any of those anxiety disorders potentially being predicted by most likely the kinds of technologies that are more, I would say, communication-based. What we're starting to see a lot of, I hear this a lot from teachers when I go around and talk is, "My students have no ability to refrain from checking their text messages during class, or checking in with Facebook during class."
They'll even literally check in and say, "I'm here in this class" while they're supposed to be paying attention [laughs]. All of this I think is an endemic issue that's sort of part of the technology and part of...I don't want to say "bad parenting," but I want to say "more indulgent parenting," not paying attention to their kid.

David: Yeah, it's interesting that you say that. I just actually wrote an article yesterday about that very issue, or related to it, about parents' not being as on top of students with technology as they should. But in your book, towards the beginning, you say that technology can be at least one indicator that we're not functioning at our best level. Just a moment ago, you said that many teachers report to you that students, they need to check their Facebook status. They need to check their IMs. You have a whole chapter dedicated to this. But I think it's bigger than just students. You mention all these great anecdotes. I know that again, at the beginning of your book, you mention that you're in a movie theater and you see all these people texting or checking their messages.

It's to a point where, at least from my own perspective, where it's becoming problematic for us as a society in terms of how we relate to one another in person. I think we're losing something significant there.

Dr. Rosen: Well, I think what's happening is...part of this, I totally understand. That what we do is, when faced with a choice of say, standing in a grocery store line, of actually engaging someone in conversation that we don't know, that could be risky psychologically, or letting our mind just wander and not doing anything, or grabbing your phone and checking in on a few things, most people would opt for the easy solution, which is grab your phone and check in. What that does is, it basically cuts down on communication, it cuts down on mind wandering time, it cuts down on the ability to self-soothe and work your way through situations that might be uncomfortable. Yeah, we see this everywhere. If I were to write that book now, instead of two years ago, I would probably argue that there are a lot more indicators of this than one might think, and that really the indicator is that we're just not very good at when confronted with a situation where we actually have to engage people, or we can simply engage ourselves in something else, we choose to engage ourselves.

I think that's becoming the norm in our world, and it does concern me. I go speak to parents all the time, and teachers all the time, and one of my suggestions is that you need to allocate more time for learning communication skills, because we're not very good at it, and our kids are probably going to turn out to be shitty at it in the long run.

David: That's interesting. I don't know what to do in that respect, but here's where I run up into a brick wall, to be perfectly frank. I feel that I'm pretty tech savvy. I'm part of what you would call the iGeneration. I know about technologies, I keep up with what's out there. How can you, or anybody, expect teachers to teach students proper communication skills? When either A, they themselves lack them either whole or in part, or B, they don't really understand technology to begin with.

Dr. Rosen: You see, I would argue that communication skills have to be taught by parents.
David: Not in the classroom.

Dr. Rosen: No. I think the classroom’s a good place to practice those skills, but I don't think it's the right locale to teach them. I think that it's too easy to give up your parenting practices for other people. This is one where I think you've really got to step up and go, yeah, it's my job as a parent to train my kids to know how to communicate. That means you got to take time. That means you can't just sit them in front of the TV or in front of an iPad, or phone or whatever. You got to actually have communication during dinner time, and you've got to have family meetings where you talk, and you have to play games with your kids, and engage them, and co-view television with them, if that's what it takes. But sadly, that's not happening. [laughs] What?

David: I was talking with Brenda Hunter yesterday. She's a psychologist that wrote this book, "From Santa to Sexting," and you said that's not happening a lot. It really isn't, because more and more, at least where I am in Miami, there are both parents that are working. They come home late, sometimes not at all. Who's doing the teaching of proper communication skills if it's not at home and it's not at school? Where are students learning proper behavior?

Dr. Rosen: Well, they're not. That's part of the problem is they're not. I think it's got to start at home, regardless. I understand that there are two parent families that work, and there are one parent families that work. Yet you still are a parent, and the definition of a parent is someone who raises a child, and that goes with responsibilities. Part of it traces back to, we don't ever teach parents how to parent. We teach them biologically how to get pregnant, but that's pretty much it. Unless you're in one of those schools that make you carry a egg around for two weeks or whatever, and try to understand what it's like to be a parent of an egg. I just think that we have undervalued parenting, and we've let technology take its place, and I think you can't do that. You can't get rid of your parental obligations.

David: There has to be some way to make sure that parents have more face-to-face time, but I guess the million dollar question is, how to do that in today's economy?

Dr. Rosen: I think that the way to do it is, you have to allocate time for it. Parenting has to become a priority again, and right now, it's too easy. I think it's too easy to just park your kids in front of some technology. It used to be park your kids in front of a TV, but TV is a passive modality, and they're not as interested anymore. TV watching is down among young people, and what I think is important to have happen, is instead of parking your kid in front of some interactive technology, that you have to have, even a half-hour a day, talking more. In many cases, that's not even possible, obviously.

David: Just to shift conversation for a second. I really enjoyed your chapter on obsessively checking your devices. I see this in my students, and I see this with other adults as well. If they don't have access to their devices, it's like the end of the world.

Dr. Rosen: Well, I just walked into the grocery store, and I left my phone in my car. I thought, "Hmm, I'm only going to take five minutes in the store to buy food to cook, do I want to go back to my car first?" I actually had to think it through, and I'm an adult.
[laughs] I shouldn't need to have this device attached to me. But part of it is, when it's
gone, because it's such a connection to the world, that we feel naked without it. We feel
anxious if it's not there. I think that part of what we're seeing is the creation of a new set
of anxiety disorders.

That it's not surrounding the traditional things, but it's surrounding...I mean, MTV calls it
the fear of missing out, and I think that's actually pretty apt. That we've got some sort of
fear like if we're not connected, we're going to miss out on something. As adults, we're
supposed to be able to self-soothe, and talk ourselves intellectually out of that. As kids,
it's just not possible.

David: Talking about not being able to separate ourselves from technology, you talk
about something really interesting, phantom vibrations. Or the feeling that your phone's
buzzing, but it's really not, or vibrating, but it's really not. How prevalent is that?

Dr. Rosen: There's only been two studies done, and both of them indicate that about 80
percent of people have experienced it, at least once a week, if not more.

David: What larger underlying issue does that signify?

Dr. Rosen: That's anxiety, that one's clear. Before cell phones existed, if you felt a
tingling, if you were male, and you felt a tingling near your pocket of your jeans, you
would reach down and scratch it. It's a cognitive interpretation. You would've interpreted
that as, oh, this is nerve-endings tingling. I better scratch it, because I've learned that
scratching it gets rid of the bad feeling. But now, because there's such a level of anxiety
built up about this need to constantly check in and be connected, that we automatically
assume it's a vibration from our phone, and that comes straight from anxiety. That is
every bit an anxiety reaction.

David: It seems that, at least from what I've noticed with students, that they mak
posts on Facebook or Twitter, not so much because they want to do it, but because they want
people to like them. Actually click the like button. That seems more important than
anything else. How many likes do you have? How many followers do you have? It's so
self-centered. I think that's probably not a powerful enough word to describe it.

Dr. Rosen: It's really prevalent, period. I just had lunch today with Jean Twenge, who is
the expert on narcissism, and she's written two books on technology and narcissism, and
it's pretty clear that it...I don't want to say promotes it, but it provides an easy platform for
it. It's an interesting phenomenon, because the platform exists, but the reason it works is
because it's behind screens. We've somehow tricked ourselves into believing that if
nobody can see us, then nobody knows us. We're still the same person, and yet we can't
help ourselves to feel like we want to make it centered about us.

David: Can you just offer some ways in which people could help themselves, or maybe
help others?

Dr. Rosen: I personally think that when it comes to narcissism, it's just another one of
those phenomena that happened, because we can't visualize the people at the other end of
the screen. I'm really on this kick to talk to people about how, just because there's a send or a post button, does not mean that it says send immediately or post immediately. Perhaps it's better if when you write a post, or when you write an email or a text, or comment on somebody's website or anything, it doesn't really matter what it is, that you let it sit for a minute, 30 seconds. Let your brain do something different. Get energized from a different vantage point. Then come back and look at it afresh, and ask yourself, "Is this really what I want to say?"

Part of what we start to find, is that when people ask themselves that, they go, "Oh yeah, this looks really narcissistic. I need to take out this I and throw in another couple of we's so that I won't come across looking like a flaming narcissist."

David: [laughs] But again, that's so hard to do, especially in this Web 2.0 age, where everything is immediate. There's immediate feedback, everything. It's...the comparison David versus Goliath isn't even enough to say the challenges that I think we're up against, but I don't know. Am I off base here?

Dr. Rosen: I think that we have let ourselves get swept away, and it's natural. There's certainly historical evidence that any time there's some new thing in town, that we tend to jump on it. The problem is, that this is one of those that's been going on for a while now. It's not new anymore, and there continues to be way more ways for you to act in knee-jerk reaction now than ever before. What it's going to take is, it's going to take us doing this cognitive reflection and undoing the autonomic response. Because I really think it's become almost an automatic response. Click yes. Click like. Click OK. Click whatever. It's almost like there's a click...One of the websites I buy stuff on, click this ridiculously large gold button, for example.

David: [laughs]

Dr. Rosen: They're demanding that you click it now. Well, it doesn't say click now, it says click it. We have to start talking to ourselves about taking time, pausing. Part of it is people think that that's heavy duty and it's going to take a lot of effort, but it really doesn't. We're not talking about write something and then wait and come back in an hour and find it. No, we're saying 30 seconds. It's really all it takes if you do something else to reset your brain, get it out of that vantage point and move it into, "Oh. Let me reevaluate this now." It's almost like the expression with a fresh mind.

That's really what you're doing. It's really about what's going on inside your head and between your neurons than anything else. We need to know what our brain does.

David: It's like we're automatons. To put it even in a stronger way, and I don't mean to use too harsh a language, but it's almost like we're living slaves to technology.

Dr. Rosen: Sometimes we're acting that way now. I think that we are starting to act like we have no choice in the matter. It's not a choice issue. You have a choice. You don't have to push send, yet we're acting as though there's some compelling reason, and compelling is the right word, that's compelling us to do this right now, and mostly it's anxiety. We need to start working on that.
David: Is there a safe manual of how to use technology without being completely consumed by it or is it...

Dr. Rosen: [laughs]

David: I think if someone wrote that maybe he or she would make a lot of money. It doesn't seem like you can just give a prescription.

Dr. Rosen: No, probably not. I don't think people would be ready to hear it. That's essentially what the last chapter of my book is about.

David: Exactly. Yes, exactly.

Dr. Rosen: Here's your guide to staying healthy with this technology that promotes ill health. It's interesting. I've probably have done 500 interviews about this stuff in the book and that's not one of the questions I get, in general.

David: Really?

Dr. Rosen: The question I really should get is, "Given everything you said, what is the answer?" The answer is, become more aware of what's going on inside your head. Become less, like you said, of an automaton simply reacting. Recognize that nobody is making you react immediately. Nobody forces you to press that button immediately. Just to recognize that just because these messages travel at the speed of light, it doesn't mean you have to respond at the speed of light. That's difficult for people, because we've really gotten sucked into it. Certainly, I'm not the only one to feel this way. We all feel this way. I'm probably getting 1,000 emails a day. I'm constantly responding, bam, bam, bam, without thinking a lot.

David: I recall an anecdote in your book or a story that you mention in your book about a family man that can't stop checking his email. That's all he does on vacation. He gets back and he tells you that he's never going to go on vacation again with his family.

Dr. Rosen: Because that's the reality. [laughter]

David: Because of technology. Ah, yes.

Dr. Rosen: The reality is nobody believes they can take a vacation from it and I'm not even advocating that you take a vacation from it. I don't think that works, because then your brain gets just flooded with cortisone and other chemicals that make you anxious. The solution is to figure out how to moderate it. It's an issue that we try to set good boundaries on our kids, but we don't set very good boundaries ourselves. [laughs]

David: That's true. Talking about setting boundaries on ourselves, speaking with even students and adults, I know that they take technology in bed with them. Once they're done working at their computer or wherever the case may be, they go to bed but they have their cell phones on. I know for a fact that my students, not all of them but some of them, maybe more than I would like to think, when they go to bed at night they're tweeting.
When they're under their covers, they're going online on their mobile devices. I can't help but feel that that is damaging their sleep pattern.

**Dr. Rosen:** It is, it is, and we're in the middle of writing up a study that we did on sleep. One of the biggest disrupters of sleep is what you do with your phone when you go to bed. If you leave it on, which about 40 percent of the kids do, or if you leave it on vibrate, which is what about another 30-40 percent of kids do, you're going to be constantly checking it. That's going to disrupt your sleep cycle. We know that [indecipherable 21:41] , you can't sleep. If you don't get a good night's sleep, the kids are a wreck.

**David:** Yeah. Is being addicted to technology similar physiologically or chemically, however one would explain it, to being addicted to a drug?

**Dr. Rosen:** OK, if you're addicted...If I could drill a hole in your head and insert something that would measure chemicals in the part of your brain about an inch and-a-half behind your forehead.

**David:** OK.

**Dr. Rosen:** What I would find is that, for example, if you play video games a lot, you probably do so to get the release of chemicals in your brain, neurotransmitters that signal pleasure. These are neurotransmitters that we are well aware of and have been studied for decades. We know about them and we know that when you do something pleasurable these chemicals are there. Basically, the difference between being addicted to something...Which we very well might be or being obsessed or compelled by it...is really what we're doing with neurotransmitters in our brain. When we're addicted, and the best example is video games, when we play, we get a rush of neurotransmitters, dopamine and others that make us feel better.

We don't see that a lot when people are constantly checking in with their phone. What we see is that they're doing it to reduce neurotransmitters in the brain that signify anxiety, so cortisol, and norepinephrine, and adrenaline, and things like that. When you examine video game players, for example, you find that their brains look an awfully lot like people are addicted, maybe not to drugs but addicted to behaviors like gambling or sex addiction, things like that. The neurotransmitters involved when you're addicted to chemical substances are a bit different.

**David:** Sure.

**Dr. Rosen:** We're not seeing that with reactions or how people are dealing with their phones. What we're seeing is anxiety, so then we're doing that reaction to reduce our anxiety.

**David:** Piggybacking off of that...I don't know if this is a proper correlation to make, but do you think that media or through media the ability to see celebrities and advertisements, that that's increasing the rates of anorexia, or bulimia, or other types of eating disorders?
**Dr. Rosen:** Yeah. There are studies on that that shows that there is a predictive link between media use and body image issues.

**David:** Exactly, that's what I meant to say. [crosstalk]

**Dr. Rosen:** [indecipherable 24:33] image, anorexia. No, there is very clear...That research is actually old and based on mostly television and magazines. Of course, it certainly extends to the Internet and to what we do online. We used to talk about a digital divide, but pretty much that's gone.

**David:** At least in America.

**Dr. Rosen:** Yeah. Even in the poorest areas of America, the penetration rate of smartphones is increasing dramatically. They're not finding much difference between that and the richer areas, and the same thing with poor countries. Their parents are making the decision to buy their kids smartphones as opposed to buying their kids food. [laughs] Things like that.

**David:** Does this all get back to the parenting question?

**Dr. Rosen:** Yeah. My background is as a developmental psychologist with an interest in parenting, so yeah. I always think it has to do with being a better parent, because the first few years are the formative years. If you certainly give up your parenting rights to technology, yeah you're kids might increase their cognitive skills or their manual dexterity skills possibly, too. They're certainly not going to increase their social skills. They're not going to increase the skills of being able to let their mind wander at all.

**David:** Yeah. Going back to video games just for a moment, can you explain the correlation between video games and Attention Deficit Hyperactivity Disorder?

**Dr. Rosen:** ADHD or ADD is very difficult.

**David:** Yeah.

**Dr. Rosen:** Because there really is no diagnostic tool to determine if you have it or you don't. The best diagnostic tool is if your brain responds to the medication then you have it.

**David:** Sure.

**Dr. Rosen:** What we find is that people who have Attention Deficit Hyperactivity Disorder have either one of two versions of it. They either have the, "I can't focus or I can't stop focusing." The ones that play video games are the ones that have the, "I can't stop focusing" behavior. They really have not the hyperactive version, but the attention deficit version. That's a serious issue because they're basically hyperfocused. Unless you get them to hyperfocus on what you want them to, they're lost to you, which is why they have trouble in the classroom, for example. It's not that they can't focus. It's that they're not focusing on what you're asking them to focus on.
David: Or maybe they're focusing too much on a particular facet of what you're saying at the expense of not hearing other instructions or other important matters?

Dr. Rosen: Right. They're not focusing broadly.

David: Broadly, exactly.

Dr. Rosen: [indecipherable 27:29] focus.

David: Yeah.

Dr. Rosen: On a very limited basis.

David: Yeah. I want to ask you now, just moving to a different direction on, "You think you're dying." I have to say [laughs], I guess you term it "cypochondriacs," hypochondriacs...I'm sorry, "cyberchondriacs," which I thought was a very nice play on words there. That was very creative.

Dr. Rosen: No, I don't take any credit for that.

David: [laughs] This actually speaks to home. I'll admit that I've been guilty more than a few times of going on WMD to checkup something. The thing is, though, personally I know what I'm doing is really ludicrous. That no matter what I find...I could have a mere scratch on my pinky that I just need to put a Band-Aid over it. I know I'll be fine, but then I go online and I find out that, oh, you need to go to the doctor. It could get infected. You could get gangrene for a tiny paper cut. It does more harm than good and I know this. I since, got to say, pat myself on the back that I don't go online anymore to WMD.

Are those kinds of sites, WebDoctor, Web Medical Doctor, health sites, are they more harmful than anything else? They presume to do good, but I'm just wondering your thoughts.

Dr. Rosen: I think that it's how you treat them. If you assume that everybody is the same, then they're problematic, because not everybody is the same. Not everybody's opinion is as valid as anybody else's opinion. Part of the problem is that we tend to, as we're on line looking at this site, and looking at this site, we tend to lose track of whose opinion we're getting.

David: Yes.

Dr. Rosen: That's really important. To me, that's an educational issue that our teachers should be teaching our students media literacy. Part of media literacy is all information is not equal. I do this thing with my students in my college class, where I say, "Bring me in your favorite novel." They bring in the novel and I say, "OK. Look at the people on the back who give these laudatory comments about the book," because it's all of these, "Oh, this is the best book. This person's a great writer, blah, blah, blah. I was glued to it."

I said, "Do you think those are unbiased? They all say, "Of course they are." The answer is, "No," they're actually not. In fact I tell them, "Now go look up, take any one of those
people at random and look up," because they always say a quote so-and-so, who is an author of such-and-such book. "OK, go look up the name of the book and look up the publisher, and I'd be willing to bet you 10 bucks that the publisher of the book that they're reviewing is the same publisher that publishes their own book."

David: [laughs] Did you win that bet?

Dr. Rosen: Are these valid opinions? The answer is "No." Then we extrapolated and said, "OK, now what about Amazon?" What about any site that has somebody giving an opinion? How do you evaluate the veracity or the ability of that person to make that opinion and have it be meaningful? Then I say that the biggest issue is when you take it into medical issues, because once you get into medical issues, you tend to lose track of who's making the opinion. Even if it's a valid medical doctor making the opinion, you may need to evaluate that medical doctor's ability to make those opinions, because, as I point out, not every medical doctor got an A in med school.

David: Of course.

Dr. Rosen: Many of them were C students. They were just simply C students, and they got a degree, and maybe they got a degree in one field, and now they're proffering their opinion about another field, which is one of the things that the TV guys do a lot, the TV doctors like Dr. Oz, for example.

David: Yeah, you mention that in the book, exactly.

Dr. Rosen: He's the worst offender. He's the worst offender. He's always making these claims, and you don't know if he's hawking a product that he's getting paid for, or if he's got something behind what he's saying, or if he even knows what the hell he's talking about, and the answer often is no. I talk a lot to students about, you've got to learn to be media-literate, and you can't just accept an opinion from somebody. You've got to make sure that that opinion comes from somebody valid, who gives a valid reason to make that opinion, to express it.

That's why WebMD is considered a really good website, or NIH, or NIMH, or the ones that have websites where they vet who makes what comments. Websites where they allow you to just comment freely and they don't moderate the comments I think are mistakes.

David: Yeah. Because they serve to instill fear, no? Unjustified fear.

Dr. Rosen: Well, because they allow you to treat their opinions as equally valid to somebody who has a right to make that opinion, and that's not necessarily the case.

David: But regardless of that, how can anybody, no matter how proficient they are in their field of study, or in this case medicine, how can they make any diagnosis without you being in the office?

Dr. Rosen: Well, no, there's a lot of things that you can make statements...if I wanted to look up about a rash that I have and I wanted to read opinions about what it might
represent, I'm certainly fine with going to one of several medical sites that have trustworthy people, not asking them their opinions, but you're reading their opinions. You're not asking. You're simply reading what they say, and if your rash looks like this, and here's a picture, your rash looks like this, your rash looks like this, this is what it might mean. Then a responsible site says, "Now you need to go get this verified by a medical professional."

David: ...by a medical...Got you, got you.

Dr. Rosen: Otherwise what happens is, you go on one of these Yahoo Groups, and they say, "Oh, you've definitely got this problem from what you describe your rash as, and you need this lotion right now," blah-blah-blah. Then you aren't being treated correctly.

David: Getting back to media literacy, do you think that schools should teach a class designed just for that purpose, media literacy?

Dr. Rosen: I think it should be a part of every single class. If you're going to have your students, let's say in high school or even middle school, or even elementary school, if you're going to have them use technology, and you're going to have them online electronically communicating, doing whatever, that it's mandatory that you talk to them about having to make media-literate decisions.

David: How about this, though. Do you approve of technology in the school, or to what extent do you approve of technology use in the school setting?

Dr. Rosen: I think it's great. I think it's absolutely great. But I think doing it without talking about what it means to be involved in the media, that's a mistake, and I think that's part of the problem. I had no problem with one-to-one programs, in fact I think they're brilliant, if they're used correctly. Just shoving a computer, or an iPad, or an iPod Touch or whatever in there doesn't guarantee learning.

David: What are some other ways in which people can either cope with these various disorders that you mention in your book, or I guess try to help themselves? Are there resources that you suggest people go out and seek?

Dr. Rosen: I think the resources that we should be seeking is better understanding what the technology is doing to our brains. I think that's why my next book is going to be on the neuroscience of attention, and what is going on in our brains when we [indecipherable 35:42] , because that's really...I think the crux of the issue, is that our attention is being misdirected. Whether it's being misdirected from outside, the fact that I have three screens in front of my face, is that distracting me? Or am I being distracted from inside my head, talking to me about how I better check Facebook because I haven't looked at it for a while? It doesn't matter where it's coming from.

What matters is that it's all part of what goes on in your brain, and we have to better understand what goes on in our brain, because without that, we don't know what to do.

David: Is that your biggest fear?
Dr. Rosen: Yeah, I think my biggest fear is that we just...because the technology is so engaging, we just get swept away by it, and we lose essence of what makes us human, which is our brain. We have parts of our brain that are just simply different from non-humans, and yet one of the things that we're doing, is almost Pavlovian reaction. It's like we're a dog in Pavlov's experiments, and we're salivating. But our salivations happen to be hitting "like" really quickly on a posts on Facebook, or something like that. The reaction is similar, it's at that kind of a base level of, I'm just reacting, and I'm not even sure why, but I'm feeling compelled to do it.

When we're done with it, we don't feel better. What we feel is somewhat relieved for the moment. That's reducing the anxiety complement. But feeling better would mean we should feel pleasure, and we tend to not feel pleasure from that stuff.

We tend to feel, for lack of anything better, we tend to feel a bit relieved. [laughs] At best time that we have to do it. That's really where I'm focused. We just got some equipment, brain scanning...

David: What's one question that you're [indecipherable 37:58] by either reporters or students that you wish you were asked in this field?

Dr. Rosen: No, I think you asked me all the relevant questions. I think that what it all boils down to is...The question we should be asking now, in 2013, is what's going on between our left and right ears that's compelling us to do things that we know intuitively, or cognitively, are not good for us? We know, teenagers have to know, that sleeping with their phone on next to the bed is not good for their sleep. They know that. They're not stupid. They know that it makes them tired the next day, they feel lousy, they can't concentrate. But they still feel compelled to do it.

Part of it is, I think it's really important that we pay attention to our brains and learn what's going on. I think that we're getting into the era, I talk about this a lot, about how we're getting into a biotech era, right now. Where everything's about the body, and we're learning a tremendous amount about the brain, and the neuroscience is experiencing a tremendous burst of writing and books and research, some of it good and some of it crap, but that's what every science goes through as it's coming into its own.

But we now have the tools, and they're relatively cost-effective, to answer the question of, "What's going on in your brain when X, Y, and Z happens?" and I think that's where we should be directing our research questions, as well as our questions about how we behave, because it's all biochemical. It's all about chemistry.

[cuts off]