

# Gelotology with Dr. Lee Berk

## Ologies Podcast

### February 5, 2018

HI! Hi, Ologites! Hai!

Alie Ward heeerrrrre. It's me.

So, first off, I want to apologize to the many thousands of you who think that this episode is about gelato. 'Cuz it's just straight up not. It's not about gelato at all.

*Gelotos*, in Greek, means laughter. *Gelare*, in Latin, means to freeze or congeal: two different things and origins. But, that doesn't mean you can't eat gelato while you're listening. I can't see you. You can gnaw on a ham. You can lick your tile grout listening to this. It doesn't matter to me. I'm just glad you're here. Haaaaay!

Okay. Let's get creepy first, shall we? Your [reviews](#) help *Ologies* stay up kicking ass in the science charts and I appreciate them so much. It's so great to look at the science charts and see *Ologies* up there in, like, the top 25. Just little ol' us making this podcast, guys!

Also, I frequently write and research all alone wearing no pants and your reviews make my day. I read every single one. Each week I like to read you one that just *tickled* me. More on tickling later.

God, it's getting creepier and creepier every second.

So, I Get Others Drunk says:

Thank you, Alie Ward, for showing the world that these usually academic nerds are fun, funny, interesting, besides smart. This show makes me wish I was an Ologist so that Alie would ask me dumb questions. Hey, Alie, if you ever need to chat with a distiller, I will happily meet you in the lobby of an airport hotel.

Actually, I think that there are some *Ologies* related to distilleries. So, Holler!

So, rate and review. I see all of your names and I think "Hey! Thanks, Name!" So, spread the word. You can tell a friend or two about the show, you can become a patron on [Patreon](#). You can hit up [ologiesmerch.com](#) if you want to ever want to wear *Ological* love on your human body.

So, on to the episode.

Now, gelotology was a huge factor in my developing an obsession with ologies. I remember seeing it on this big list of, like, various different fields of study. It was wedged between, like, gastrology, which is the stomach and, I think, gemology, which was Episode 5. Go listen, y'all! But I saw the

study of laughter and I was like: WHOOOO DOES THAT? Who are these people? What are their liiiives? Who are theeeey?

So, I started researching and reaching out for people to interview and last year I started looking and this ologist was at the top of my list. And I got in touch with the university, I explained this was a podcast that didn't exist yet, but it would, and I promise I'm not a terrorist or anything, and could I come and meet him and after a year of email tag - A YEAR, YOU GUYS! A YEAR! - I was in my car on my way to Loma Linda California, which is a dusty academic town in the Inland Empire and I was ushered to a basement lab for an interview.

Now, shockingly and hilariously, this gelotologist may be one of the most serious subjects I've ever sat down with, which I love. I know this is an episode about humor, but it gets intense and kind of dark but also inspiring. This is not a party clown in a lab coat, he is not the Michael Scott equivalent of your family physician. This ologist is all business. In his words, he says "he's the guy who's serious about laughter." And he is. It's wonderful.

In the last few episodes of Ologies, we heard from a herpetologist who was telling me all about snake butts, and an ichthyologist who was musing about fish getting it on, and they were both hilarious. And then then this episode about laughter is one of the more factual ones. Which is great. This chat was surprising in a lot of ways.

He's an immunologist, a psychologist, and because his life's work is about how laughter affects the endocrine and immune system, he is a is gelotologist.

Now, in this episode, you'll learn why things are funnier in a packed theater, how a joke works, (broadly), why stress is maybe literally killing you (no big deal), and some interesting science behind roast jokes.

So, in the doc's words, make time to get off your work merry-go-round for a bit and gorge on some gelotology with Dr. Lee Berk.

*[Intro Music]*

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**Alie Ward:** I'll get some levels on you.

**Dr. Lee Berk:** One two three four five.

**Alie:** How long have you been at this university?

**Dr. Berk:** Heh. I started in 1971.

**Alie:** Wha? Here?

**Dr. Berk:** Yes.

**Alie:** Wow.

**Dr. Berk:** 1971.

**Aside:** 47 years, you guys! 47 years. He started in laboratory medicine and immunology. He was working on transplants for infants. He holds degrees in psychology, sociology, clinical laboratory science, a master's and a PhD in Clinical Preventative Care. So, the things you can do to stop from getting sick in the first place. Other than just washing your hands... obsessively.

**Dr. Berk:** But to be to be involved in psychoneuroimmunology you have to be very eclectic.

**Alie:** So how many degrees do you have?

**Dr. Berk:** One, two, three...

**Alie:** I'll give you a minute.

**Dr. Berk:** Five.

**Alie:** Five degrees?

**Dr. Berk:** Yep. So, five degrees. I started in psychology. I was going to go into clinical psych and I decided it, nah, doesn't have all the answers because there's more to wellness or staying well, which was my passion, than just the psychological, theoretical component. So that's why I decided to step into the heavier sciences, if you please.

**Alie:** And now in 1971 I imagine that science didn't necessarily look at the mind and the body as super connected. Or did they?

**Dr. Berk:** No. There was no real appreciation for mind-body connection in the late '60s, early '70s, and when it came to light the medical community didn't know what to do with this bizarre thing of a connection between mind and body.

You have to remember that the historical context of the separation had to do with 450 years or so ago with Descartes, and that there was a split when there was interest of integrating mind and spirit into medicine. And there was great chastisement that, "don't you ever attempt to do that."

**Aside:** So, who? What? Who was Descartes? I'm sorry. I'm glad you asked me to ask to ask Google because I could not remember. I had no idea.

So, French-born and Dutch-lived mathematician and philosopher. He wrote about something called dualism, which is the mind and body being separate: made of separate types of matter, the mental can exist outside of the body, but the body cannot think.

So, this philosophy kind of jives with a lot of religions that claim that immortal souls occupy this independent realm of existence distinct from the rest of the physical world. Nowadays, we're like, "Meh... yeah, not so much."

But this whole situation, gloriously, has a Wikipedia page called the *Mind-body problem*, which sounds very dramatic and/or like it would have something to do with the mind wanting to eat peanut butter pancakes but the body is like, "Could you not?"

**Dr. Berk:** So, the separation of dualism took place back then and we had medicine dealing just with the somatic, or the body. And at that time the all-powerful entity was the church, which dealt with the mind and the spirit. So, medicine was told to keep its hands off and stay with the body and the mind and the spirit would stay with - whatever that meant by mind at that time - would stay with the venue of the church.

And not until probably the mid-1900s did we start to reintroduce the fact that there was a component that medicine wasn't dealing with and that was what do we do with the mind because the patient that got sick and had mental illness, as most of us remember, was thrown in the room and the door was locked and we call them insane asylum.

And it was not part of the venue of medicine knowing what to do with patients, either in helping to keep them well or trying to treat them relative to that aspect of the mind.

**Alie:** How did you get interested in studying humor and its effects on the brain? Because there's not many people out there doing that, I feel like.

**Dr. Berk:** Yeah, great question. How did I get started with looking at that humor?

I was always intrigued with the ancient wisdom, ancient Biblical wisdom actually, of "A merry heart does good like a medicine" in the Old Testament of the Bible.

**Aside:** So, when Dr. Berk said 'merry heart,' I thought he was talking about either Mary Hart from Entertainment Tonight or, like, Biblical Mary. I was all confused. So I looked it up and it's merry as in cheerful, which makes way more sense. The whole quote is: "A merry heart does good, like medicine, but a broken spirit dries the bones."

Honestly, I'm now realizing that for centuries, when old-timey people needed a pick-me-up, like, y'know, all of your 7 children just perished of diphtheria or whatever, you'd crack open the Bible instead of looking on Instagram for those lifestyle accounts that sometimes post inspirational quotes by Beyoncé. So, whatever gets you pumped, man!

**Dr. Berk:** The statement of "A merry heart does good like a medicine but a broken spirit dries the bone," nothing could be more modern in interpretation of the field of psychoneuroimmunology than that statement. But I was intrigued with the positive aspect, knowing that there was this communication between brain neuroendocrine hormones and the immune system. What was going on relative to positive behaviors of

keeping one well, of staying away from disease. So, I got really interested from those perspectives.

**Alie:** What is a laugh? What is happening in the brain and the body?

**Dr. Berk:** A laugh is the physical expression of something that triggers the brain to say that this is really funny enough to provide some sort of overt expulsion of air.

**Alie:** [giggles]

**Aside:** I laughed. Why did I just laugh? Maybe because I didn't expect such a technical answer? But what happened physically to my face and my lungs?

So, a researcher named Robert Provine found that 15 muscles in your face contract and your respiratory system gets jacked up by your epiglottis - which is that throat flappy thing - half-closing your air passage, so your air intake occurs irregularly, and it makes you gasp [*gasping sounds*].

But not everyone who enjoys humor *Ls OL*.

**Dr. Berk:** Or, in some cases with some individuals, not an expulsion of air, or a laugh, or a sound that one hears from the other person. We found the latter out to be true when we were doing some early pilot studies and one of our subjects happened to be a pathologist.

Not targeting pathologists, but I'm just saying this was a pathologist that was somewhat passive and not overt. And we hooked him up with a needle in the arm and we said, "Now here and watch this humor video that you like and laugh."

So, we took blood from him every 15 minutes through an hour's period of time to see what was happening with some of his stress hormones, and we thought we had really just blown the experiment because all we got out of him were snickers and a little giggle but nothing that would be considered a laugh. We thought this was just a waste of time.

**Alie:** What was he watching?

**Dr. Berk:** He was watching an Abbott and Costello video.

**Alie:** Okay!

**Dr. Berk:** We asked him how he enjoyed this. "Was it funny or did you enjoy?" Oh, he thought it was a scream! Although there was no overt evidence of that.

So, one doesn't have to be falling on the floor laughing, if you please, as we typically will think, in fits of laughter. And yet, the hormone response that is the decrease in the detrimental stress hormones was just as significant as one who is laughing overtly or out loud. So, we learned a lot about what laughter is or isn't.

**Alie:** And what triggers a laugh? Is it something that is surprising? Is it something that is ironic? Why typically do we laugh?

**Dr. Berk:** Gosh... It's a question I can't answer. There are a number of different theories about laughter or what is humorous that causes one to laugh.

**Aside:** They say, most laughter isn't about humor, necessarily. It's about relationships between people. Which I think is really interesting.

One theory is called the 'relief theory,' and Freud said laughter releases tension and something called 'psychic energy,' which may be one reason why it's seen as healing, or why laughter can be used as a coping mechanism when someone is upset, or angry or sad.

This happens to my sister. I've never seen anyone else have this happen to so much but, in times when she's been really shocked or scared, she gets the giggles. It boggles us all and even to her. She's like "I can't... I don't know why I'm laughing." Apparently it's a way of releasing tension.

So, another theory is that humans are just biologically wired to laugh as a communal relief once danger passes. This was so interesting to me. So, a joke creates this inconsistency and if we can figure out the riddle, this brain riddle, and realize that the surprise isn't dangerous, we laugh because we're relieved. So, we have to get a little bit scared and then we go "okay, nevermind, it's fine."

So in general, something is funny when we expect one thing, and then the punchline causes us to abruptly shift our understanding of the whole situation. And then we snort and hiccup and expel air or fart or whatever. Okay, but what makes us ROTF... ML... uh, laughing-on-the-ground one?

**Dr. Berk:** The best definition that I think we... that I have to date would be that we stumble on an incongruity of what is expected and what we stumble into. So, it's that incongruity of what you are anticipating is going to be that does not occur that causes you to trip on yourself, so to speak, mentally. And as a consequence, you laugh. Beyond that I still don't know how we can describe it any better.

**Alie:** Do you laugh a lot in your daily life?

**Dr. Berk:** Ummm... That's a good question. I probably don't overtly laugh a lot because one of the indicators of who Dr. Lee Berk is that "He's the guy that's serious about laughter."

**Alie:** *[laughs]*

**Dr. Berk:** And essentially that's true but I enjoy humor just incessantly. I grab it as much as I can and I will sit and watch humor on places like YouTube constantly.

**Alie:** Really?

**Dr. Berk:** Yeah. And that's done intentionally because... Now I'm going to step a little bit into the whole world of lifestyle medicine, where I firmly believe that one needs to get off the merry-go-round periodically, because you want to break the cycle of the distress hormones, which as we proceed through our daily life we exacerbate or ramp up the distress response, which is detrimental immunologically.

**Alie:** I gotta ask: What YouTube videos?

**Dr. Berk:** I watch a lot of *Carol Burnett Show*

**Aside:** There's a pair of comedic actors from the *Carol Burnett Show* he really loves: Tim Conway and Harvey Korman. I looked it up.

**Dr. Berk:** They do a dental scene, going to do an extraction on his colleague on the show and it's probably one of the funniest videos I've ever seen.

**Aside:** Conway and Korman performed this legendary sketch that involves a very bad dentist and one of them, Korman, could not control his laughter during shooting the scene. And apparently at one point he had a little bit of an accident and he wet himself. But it's that legendary of a comedy scene.

[clip from "The Dentist"]

*Korman: Doctor, please. Get this tooth out of my mouth, now! Ah, ah, ah...*

*Conway: All right. Let's see. Now, if we're going to pull'er out we'll have to have those pully things... the pullys, and let's see... pinchy things... and the little picky things. There. [singsong] Pinchy picky pullyyy!*

Dr. Berk says he'll put on videos like this in the middle of the day if he needs, like, a little boost. For you, it might mean falling down a rabbit hole of Twitter memes. Or researching, y'know, a pig getting a massage from a cat. Which, if you have a chance to you... you should look that one up.

**Alie:** So a stressful day, you fire it up?

**Dr. Berk:** Oh, I watch several times in the day. I'll just stop and just turn something on.

**Alie:** Was there a moment in your career where you realized you wanted to take a turn and study the effects of laughter on the immune system? Was there a moment where you thought "Aha! I'm going to be the guy that does this?"

**Dr. Berk:** The way that came about deciding to take a look at laughter was more by accident than by design. I think Albert Einstein said if we had all the answers, we wouldn't call it research. Or... if we knew what we were doing we wouldn't call it research.

**Aside:** So, in 1988 Dr. Berk was researching exercise (and I hope it was, like, gnarly leotard-clad jazzercise stuff) and the effects of that on the brain, and they were finding a correlation with laughter.

**Dr. Berk:** And indeed that is the case. We were playing around with laughter because we found, prior to that, that moderate exercise could literally enhance the production of something called beta endorphins. And we would put individuals on treadmills, and put in what we call IV angiocatheters in a cubital vein, that's the vein that you have your blood drawn. And we saw that indeed endorphins would increase differently in individuals that were in physically fit condition versus those that were not, and that was sort of a historic finding at the time.

What intrigued me was that people were saying... at least an individual by the name of Norman Cousins who was saying that he would laugh and get pain-free sleep from watching his Laurel and Hardy movies. This is a gentleman who had a disease called ankylosing spondylitis. It's an autoimmune disease.

**Aside:** So that's a type of arthritis that can cause wicked back pain. And Norman Cousins, he was a writer, a journalist, and he was world peace activist. And he'd get these massive bouts of pain and he'd watch Laurel and Hardy via projector. This was in the '70s before VCRs, which were these things that were like YouTube but they weighed 50 pounds. Side-note: *Laurel and Hardy* was a comedy duo from the 1930s, so that's kind of the equivalent of people now, like, watching *Carol Burnett* videos. Or your grandchildren watching Tim & Eric in a space capsule, which we will definitely have in 40 years.

Anyway, Norman Cousins: Cool dude in a lot of pain watching old comedies.

**Dr. Berk:** He was able to sleep after laughing for about 20 or 30 minutes at a time and sleep for about 3 to 4 hours without any pain. So, that was a trigger that I wondered what was happening with the stress hormones? And that's when we started pursuing the studies of looking at what stress hormones were affected - the term that we use is 'modulated' - as a result of watching and enjoying mirthful laughter humor videos.

And when we started that journey somehow the word got out that we were then contacted by *CBS 60 Minutes*, who wanted to come and video what we were doing. And my first responses were "No, thank you" because it was a terrifying endeavor to invite *CBS 60 Minutes* to come in the door.

**Aside:** So *60 Minutes* comes and the interview goes well and in short, people are like whaaat haaaay.



**Dr. Berk:** So, as a result of that scenario, we decided that this was serious business and we started to pursue it.

**Aside:** So then, Norman Cousins, *Laurel and Hardy* watcher with the back pain, hits up Dr. Berk for a hangout and Dr. Berk is, like, “Yo, come to my lab, let's chat.” Norman's, like, “How can we get more serious about this research on laughter?” Dr. Berk is like, “Well, research costs money, unfortunately. So, y'know... bummer, dude.”

**Dr. Berk:** And he said “How much?”

Well, I've never been asked the question of how much money I wanted to research. So, that that caught me off guard, and I thought, well, if I ask too much I'll sound foolish and if I ask too little I'll sound foolish.

So, I basically gave him the sum of money and, without question, the next words out of his mouth were “Who do I write the check to?”

And that was that was our beginning.

**Alie:** Wooowww!

**Aside:** So, why does laughing help? Okay, well, laughter can help lower what are called detrimental stress hormones, like cortisol and adrenaline. That does a few things.

**Dr. Berk:** So, if we release cortisol on a chronic basis we will suppress our immune system, so we are immune compromised - that's the word. So, that's the detrimental effect of chronic stress, one of the mechanisms.

So, in 1989 we indeed stumbled on the study... not stumbled, but we produced the study of medical students showing that we could lower detrimental stress hormones while watching a humor video. And, it was very real. And then through the 1990s we continued the journey presenting different aspects of the immune system that were modulated, changed, or affected. And the key finding at the end of the 1990s was that we published... the culmination paper included most all of the data in that paper, I think, in the year 2001.

As a consequence, one of the things that Norman Cousins was always intrigued and wanted to say was the fact that laughter could benefit the immune system by increasing natural killer cell activity. Now, natural killer cells are immune cells that affect the immune system in that they go after virally infected cells and they go after specific cancer cells. They're very real. Actually we can prognostically, in women who have breast cancer, in laboratory medicine there's a type of testing for natural killer cell activity. And it showed that it was very effective in increasing natural killer cells to kill the cancer cells. Not that it's panaceic but it's, again, part of the totality of lifestyle or

lifestyle medicine, and choices that we make in whether we want to be happy or not happy makes a difference.

**Alie:** Is that a choice, do you think? In your in your research how much have you discovered yourself that happiness is a choice or behaviors that increase happiness, rather, are an important choice to make?

**Dr. Berk:** I cannot... to be happy one has to pursue happiness. Sounds strange, sounds maybe selfish, but it's not. Can I become physically fit by sitting in this chair wishing to become physically fit?

**Alie:** Probably not.

**Dr. Berk:** Probably not.

**Alie:** [giggles] I'm no doctor.

**Dr. Berk:** Okay. No, you really can't. So, there is a criteria of certain behavior that you have to do. I have to get up off the chair and I have to move and I have to exercise to become physically fit: have so much aerobic exercise, so much anaerobic exercise to become physically fit or cardiovascularly fit. Well. the same thing is, I think, very true relative to being happy. One has to pursue those things in life with, obviously, a rationale and reason, that makes them happy.

One of the things that we're finding out that makes us happy is when we make others happy. So, there is a whole science of happiness. Berkeley has an incredible program called *The Greater Good*.

**Alie:** Oh, yes! I covered them in another episode!

**Aside:** For more on this, you can listen to the episode entitled *Grateful-ology Is Not A Real Word*, in which a very grumpy Alie Ward tries to science herself into a better mood.

**Alie:** What is that? What do you need in your brain to be happy? Do you need certain kind of theta waves/ gamma waves?

**Dr. Berk:** It's a change or modulation in the type of brain frequency and it would be somewhat similar to what one wishes to attain when one reaches a true state of meditation.

Mindfulness meditation and long-term meditation are now well recognized to be associated with a frequency that heretofore was not recognized as even existing and that's called the gamma frequency, and the gamma frequency is a frequency that ranges in the range of 25 to 30 to 40 hertz. It's like a radio dial.

**Aside:** Let's talk brain waves r'il quick. This is crazy and cool if you're into brains, which, I think, we all are. We have them.

Isn't it weird that right now your brain is thinking about your brain? And my brain is thinking about your brain, thinking about your brain. *And now your brain is thinking about my brain thinking about your brain thinking about your brain!*

Okay, so brain waves are essentially these synchronized electrical pulses. They're from these masses of neurons that are off chatting with each other. And these waves come in different frequencies, depending on your level of chill.

Gonna run through them super quick:

Delta is a deep sleep wave. It's like deep, dreamless sleep. Transcendental meditators get into delta waves. Awareness is pretty detached.

Theta waves: light meditation, sleeping waves. These are present during light sleep, including REM sleep, which is also known as Dreamtown.

Alpha wave is a deep relaxation wave. So, usually your eyes are closed, when you're daydreaming or doing some casual light meditation.

Beta brain waves are, like, your everyday, awake consciousness. That's when you're alert, you're using logic, you're using your brain. You need these to function, but they can also cause a lot of stress & anxiety.

Gamma is somewhat newly discovered and is the fastest frequency. Scientists think gamma waves are associated with these, like, bursts of insight.

**Dr. Berk:** Well the benefit of the gamma frequency is that, indeed, it is a frequency that in neuroscience we now associate with what we call 'neural synchronization.' Neural meaning nerves synchronizing or talking to each other. Well, that's a real effective brain if the brain is talking to itself, and indeed that is the case with gamma frequency.

The other intriguing aspects of gamma frequency as a result of the synchronization is that it's a frequency associated with the highest level for cognitive processing - for thinking, for being functional. Well, that's associated with the complete opposite of a depressed state. But the reality is of gamma frequency being extremely beneficial. So, we see the antithesis of depression relative to enhancing gamma frequency.

Now there are other modalities that enhance gamma frequency. It's not just laughter. It is enhanced... as we have studied and our research shows, it's enhanced with high-antioxidant food consumption, that is foods that are extremely high in antioxidants. And I'm talking in the range of maybe 53-56,000 micromoles per 100 grams.

**Aside:** Wait, whut?

**Dr. Berk:** That may not mean much for your listeners. But the reality is that it's in the range of the top foods or spices that exist in the world that we know today. So, apparently the antioxidants are doing something in-brain that causes the induction of the gamma frequency.

**Aside:** Another substance super high in antioxidants? 70 percent cacao or greater chocolate. This can elicit the induction of the gamma frequency in the brain. So eat it. Whatever. You're good.

*[muted excitement voice]* Doctor's orders!

**Dr. Berk:** We also have seen it with a high antioxidant concentration of various nuts: walnuts, pecans, pistachios. This is, essentially, brand new research.

**Alie:** This bodes well for the Turtle industry, chocolate nut turtles!

**Aside:** So: mirthful laughter, nuts, chocolate, exercise. All good things for your brain and immune system.

So, hop on a treadmill, eat a Turtle (not a real turtle, a chocolate turtle) and watch comedians wet themselves.

**Dr. Berk:** So, we are now starting to call all of these kinds of lifestyle behaviors a term called 'eustress metaphors.'

Eustress: "e-u", for the two letters "e-u" come from the Greek, which mean good, stress. Good stress, eustress. It's not a word that I coined. The word coined by Dr. Hans Selye who is the father of the stress adaptation syndrome and discovered the detrimental effects of stress. But before he died he realized that all stress was not bad that there was something called good stress, and he termed it eustress.

**Aside:** Dr. Hans Selye, by the way, was a badass. He was a Hungarian who spoke eight languages! He would wake up at 5am every morning to swim and then he'd ride his bike 6 miles to work, and he kind of discovered stress. He would see patients who just looked like garbage, and a lot of them were under a lot of strain.

So in fact, when he coined the word he was like, "Uhh, let's call it stress." English wasn't his first language. And said he says he regrets using 'stress' and wishes he would have called it 'strain' because that's more accurate. But now we say stress in, like, all the languages, except in Chinese, where it's called 'crisis' and it's depicted by two characters put together; one for danger and one for opportunity, which is so painfully accurate.

**Alie:** Have you ever heard the theory or just the general assumption that a lot of comedians are depressed people? What do you think about that? Is that self-medication, then?

**Dr. Berk:** A lot of them lived very long lives.

**Aside:** Dr. Berk pointed out that George Burns lived to be pretty old. He died at the age of 100. And I looked up 'George Burns + Depression,' but all the articles capitalized the *D* in depression and then I realized they meant "Oh, as in, the Great Depression". Because George Burns was born in the 1800s, y'all, before comedians freebased crack cocaine and set themselves on fire with high proof rum.

I'm looking at you, Richard Pryor.

I did a little more digging and this study was published in a cardiac journal in 2016. And it examined the lives of almost 500 people, including 200 stand-up comedians, around 100 comedy actors, around 200 dramatic actors. So, the average age of death for stand-up comedians was shorter at around 67 years. The dramatic actors lived 3 or 4 years longer.

So, they think that stand-up comedians... well, first off they're more likely to die from car accidents, from suicide, and from drug misadventures. Also, stand-ups also tend to pull late nights in venues and do a lot of travel. But also, the majority of comedians tend to have a few personality traits in common. They have higher-than-average to very-well-above-average intelligence, and some studies have linked high intelligence to depression. You win some, you lose some...

But, humor can also decrease the social distance between people. Patton Oswalt once said in a CNN documentary that, "A lot of comedians are people that are very introverted, very shy, very sensitive to humiliation. The only way to combat that is to go to the one place where you are stripped bare." In his words.

And there's a British comedy researcher, Gordon Claridge, who said that "Comedy may partly be a form of self-medication."

So, it's important to note too that those who make comedy may not always be the same people who benefit from it. Y'know, watching a stand-up special at home is decidedly less stressful on your body than and your mind than, like, working on new material for 2 years, or selling a stand-up special, recording it in front of a thousand people, and then hoping it rates well so you get another one. Again, I'm not a doctor. But watching comedy? Much less stressful than making it.

So, comedians, sometimes they get a little wild.

**Dr. Berk:** But, much like most of us who work for a living, get stressed from our work and have consequence as a result of the work. And by the way that's the reason we get off the merry-go-round periodically and reset your set point with the use of laughter, or music that moves your soul, or some form of appropriate meditation. Just watch the crystals don't hit your head.

**Alie:** *[laughs]* What about laughing yoga? Does that count as mirthful laughter, because mirthful laughter is organic laughter, right? Not psychotic laughter?

**Dr. Berk:** There's a controversy of whether laughter yoga is the same as intrinsic oriented. The laughter yoga, I don't believe it's the same thing as an intrinsic experience.

**Alie:** Are you ready for some questions from listeners?

**Dr. Berk:** Sure!

**Alie:** Yeeeeaaahh! There's soooo many. But I'm going to go through the best ones quickly. We won't ask all of them. There's no way I can ask you all of them.

Okay, these first questions come from a my Patreon subscribers.

So, Priscilla wants to know: does a smile have the same effect on the body as a laugh?

**Dr. Berk:** There is some evidence that a smile elicits a similar response, because for some individuals a smile is equivalent to a laugh because they are not as overt as others are.

There is a benefit of seeing somebody smile, because we have in-brain what we call 'mirror neurons.' Mirror neurons are where we replicate that which we see. And if that sounds strange, it's not so strange in the sense that as we are walking down a hallway and we see somebody laughing at the other end of the hallway, as a group of people, we have no idea of what the context is, yet we will start to smile in response. So, a smile does by virtue of conditioning - we're creatures of conditioning - indeed can elicit beneficial response.

**Alie:** Rachael wants to know: why do some people (me), she says, cry when we laugh really hard?

**Dr. Berk:** I think it's just part of the package. It's just you overflow. Tears would roll down the eyes. I mean, one can get into whether it's a sense of the eyes cleansing themselves. If it's funny, it's good. Enjoy it. Cry, whatever.

**Alie:** That's a great motto.

Katy wants to know: is laughing something that's developed in us biologically or is the origins social? She says, "it seems like we can't control it" but she doesn't "know what the evolutionary advantage of laughter would be."

**Dr. Berk:** Great question.

**Alie:** Right? Way to go, Katy Anderson!

**Dr. Berk:** We are programmed to laugh. We are born to laugh. Have you ever seen a 3-4 month-old child giggle and smile and laugh?

**Alie:** Yeah. They're meaty giggle boxes.

**Dr. Berk:** Where did they learn that?

**Alie:** Innate. So it's innate?

**Dr. Berk:** Sure. Yet they can't speak one word. So the brain is programmed to have laughter, to utilize laughter. Yet, we don't do that in our society. In fact when we go to school... I grew up in Canada and I spent the first 18 years of my life in Canadian school. British system, if you please. And education was serious and teacher told me, so "don't fool around in class." She would waggle her finger at me, "Get serious! Life is serious!" So, we socialize ourselves by removing that reality of being programmed or innately born with the utilization of laughter. After all, laughter is good medicine. We're told to get serious about life and we do, and we pay the price for it.

**Alie:** Laughter isn't something that's conditioned. Rather, the lack of laughter is conditioned more so.

**Dr. Berk:** Yeah. We're de-conditioned, to remove laughter as part of being human, yet we go home in the evenings and look for the best sitcom we can, which is a whole other discussion of the sitcoms that are on television today versus do they really represent appropriate humor.

**Alie:** Right. What is appropriate humor?

**Dr. Berk:** Appropriate humor is when we can laugh at ourselves without mockery, and today's humor is, "your mother looks like a pig." So, we are causing a sense of detriment and derogatory meaning to the sense of humor. So, I'm supposed to find humor that is demeaning and derogatory as being now the new definition of humor. The question is not just the overt observation, but what is then the neuroscience or the psychological translation of that demeaning or derogatory pursuit?

**Alie:** Right. Does it cause as much eustress as humor that doesn't rely on another's kind of misery or are taking down a peg?

**Dr. Berk:** Well, is that degradation now the new norm? So the question, is if I'm laughing at somebody telling me a joke about my mother looking like a pig, and they find it absolutely hilarious, that doesn't fit with my biology.

**Aside:** So remember, laughter follows this perceived threat found to be benign. So, if an insult comic is too cutting, that sense of, "Oh! Never mind, everything is fine" starts to be kind of threatened. I couldn't find a lot of research on this. I did a lot of looking, but

maybe if the jokes are at another's expense, the threat isn't imminent to you, so the laughter comes from having been spared the insult comic's attention. I don't know.

I myself get super uncomfy with insult comics and roasts because, like, human beings are so fragile and it just bums me out. The late Dr. William F Fry, who was a Stanford psychiatrist, kind of the founder of modern gelotology, explained that laughing when someone trips, however, happens when we know that the situation didn't ultimately harm them.

So, watching someone stumble over a pigeon and drop an ice cream might be funny because the ice cream was the only thing that was really harmed, but if that person died in the fall and also killed the pigeon, it would be outside the play frame and not funny. So, we'd empathize with the harm, and the threat could not longer be benign. Unless you were a dick, and you didn't care. Or really invested in the ice cream and that bummed you out.

**Alie:** Thomas Pico asked: Why do we laugh when we watch slapstick? Why is watching someone slip on a banana peel funny, like laughing at the Three Stooges causing each other pain? Is that funny? Should that be funny?

**Dr. Berk:** I'm not sure that the pain is the issue of what's being funny. What is funny is the fact that we know that we have periodically slipped on something and we find that identity. They just take it to the extreme that we can identify with.

**Alie:** When it's directed at the human experience, or back at ourselves, or a surprise factor, it has different benefits neurologically.

**Dr. Berk:** Sure.

**Alie:** Side note: my own question. In a current climate that seems high stress lately, do you feel that people are doing enough to kind of combat stress of the news cycle? Like, given that our news cycle is now 24 hours, we're constantly getting alerts on our phone and things like that, do you think people are watching enough humor? Do you think it's a good balance these days?

**Dr. Berk:** No, I don't think we're watching enough that which counters the detriment. Do we see society improving in its interaction with each other as a result of the enhancement of the technology and the communication with the media and the news as it is today?

**Alie:** Right. Not so much, perhaps.

**Aside:** Here's a theory: It seems to be a depressing time lately, so let's laugh more. Hmm?

**Dr. Berk:** What then is our stopgap? Or how do we counter that? It's at a molecular level!



**Alie:** I imagine, yeah. I think we take stress for granted so much. It's something that we deal with, it's something that happens, and it's something that very much is in the mind, but it's not in the mind when you consider immunology and autoimmunity as well as effective...

**Dr. Berk:** Every thought process has bio translation. There's no thought that either we create in ourselves or it comes into us doesn't have biological translations. The question is then, what is the consequence of that translation?

It's like a fork in the road. Do you want it to benefit you or is it going to be detrimental? So it depends what you're watching, listening to, and what you're doing.

**Alie:** I have a few more questions. These are from people in the Facebook group.

**Dr. Berk:** Sure.

**Alie:** This question came up probably no fewer than six times: Why do we laugh when someone tickles us and why can't we tickle ourselves?

**Dr. Berk:** We haven't studied that yet.

**Alie:** Ooooh! *[laughs]* That's the next study!

**Dr. Berk:** Yeah, I don't have an answer for that.

**Aside:** So, this may not be Dr. Berk's wheelhouse, but some evolutionary biologists think that that we laugh when we're tickled because there's a part of the brain called the hypothalamus, and that tells us to laugh when we experience a light touch. It's the same part that tells says "Hey! A painful sensation is coming!"

So, when someone goes for a tickle zone: like your pits, or your feet, or your throat, they could be killing you with their hands and laughing could have evolved as a defensive mechanism to show that we're submissive to an aggressor, and make the tension go away. You laugh at people's jokes and maybe they'll like you, they won't get peeved, and you perhaps giggle at tickles... maybe your airways won't get crushed by someone.

Thanks, human brain!

**Alie:** Now do other species of animals laugh? McKenna *[phonetic]* asked that.

**Dr. Berk:** Well, certainly chimpanzees have a form of laughter. I even think there is one investigator who studies from the neuroscience standpoint that rats have a form of laughter and they can monitor the frequency with... and he's calling that laughter.

**Aside:** Okay. Go, get your eyes on a National Geographic video about rat tickling.

[clip from video]

*Narrator: Here's the sound a rat makes if you tickle its back. [squeaky laughter]*

The video goes on to note that the rats frickin' love it. They seek out the gloved hand of the researcher for more tickling. They chase the hand around. It's kind of like a [silly playful voice] tiny sewer dog with a long snakey tail.

**Dr. Berk:** If you've ever seen the dog that's panting somewhat and the tail is wagging they claim that to be some form of laughter.

**Alie:** That would make sense given our social relationship with them as a means of bonding or communicating.

**Dr. Berk:** Yeah, but to answer that question more specifically, one would have to look at what its brain is doing, and is it similar in response in their brain? I think most animals have some sense of capability of laughter, or if you want to call it laughter, being associated with happiness, joyfulness.

**Alie:** One last question but it's a two-parter.

What is the hardest thing about your job or your least favorite thing about your job? It could be anything from, like, the vending machines in the cafeteria, to research funding, to having to iron shirts, to the mysteries of gamma waves. I always am curious about what the most challenging thing is.

**Dr. Berk:** Of the job or of life?

**Alie:** Umm... Either! I would say, the most challenging thing about being the psychoneuroimmunologist/gelotologist.

**Dr. Berk:** Not having a 25th hour.

**Alie:** [laughs] Not enough time? What would you do in that one hour?

**Dr. Berk:** Albert Einstein said this real well on his death bed. He said "I've only started."

**Alie:** [gasps] So, that you can't do it all? That's the hardest thing?

**Dr. Berk:** Yeah. Yeah, well I get asked by students... Not asked... The students say, "Dr. Berk, you know so much. You know..." And it's the most humbling statement in a sense. My response is, "No, I really don't. I thought I knew a lot yesterday but I know less today."

**Alie:** [giggles] What is your favorite thing about what you do?

**Dr. Berk:** Everything.

**Alie:** Everything?

**Dr. Berk:** Yeah, I'm pretty lucky. I'm lucky to be doing what I'm doing. I'm lucky to be...

Don't ever... Anybody in your audience, don't ever think because you're so diverse that it doesn't pay off. It certainly does, because you get to see and think of different perspectives that you would never, ever have the opportunity to do so. And I started, you know, with this degree, and this degree in psychology, and sociology, and on and on. It was so diverse. It all came together when I stumbled into psychoneuroimmunology. I realized how everything was intertwined, interwoven, interrelated, and the reality of the consequence of any one thought, either going for benefit or detriment, is very real, and that's by choice.

**Alie:** You are a new hero of mine!

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So, to learn more about Dr Berk and his work - the work of Berk - go to his website at [Dr-Lee-Berk.com](http://Dr-Lee-Berk.com).

And, I post links and photos at [alieward.com/ologies](http://alieward.com/ologies) for all the episodes

You can follow Ologies on [Instagram](https://www.instagram.com/ologies) or [Twitter](https://twitter.com/ologies): It's just @ologies.

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And/or become a Patron at [patreon.com/ologies](https://www.patreon.com/ologies). I tell you what topics are coming up next, you get kinda some sneak information there and then your questions get asked to the ologists. So, you can join for as little as 25 cents an episode.

Thank you to Steven Ray Morris for all the edits on this episode, and to Shannon Feltus and Boni Dutch for their amazing work they do at [ologiesmerch.com](http://ologiesmerch.com) - I have tons of stuff up there that they have helped design and help me manage so head to that site. You can browse the goods.

Also, if you're near Portland on Feb 22nd and you want to meet the thanatologist from a few episodes back, Cole Imperi (She's SO great!), the link for a special dinner with her in Portland on the 22<sup>nd</sup> of February is in the show notes. So, you can click on that.

Nick Thorburn did the music for Ologies and if you like it, you should check out his band, Islands, or his solo work, Nick Diamond. He also did the Serial theme music. *Isn't that crazy?* He's great.

Per usual, I always tell a secret at the end of the episode and, y'know, I thought it would be interesting to hear what the hardest you guys have ever laughed. So, I don't know, tag it #gelotology and let me know. But I want to hear the hardest you ever laughed is.

I'll tell you mine. I think the hardest I've ever laughed was watching this video posted to YouTube by a user called "Food Plot." It's about a dog named Denver who eats cat treats. I just did a whole thing where I thought I'd watch it while recording, but it was just too much shrill cackling so I just deleted it. But anyway, it's really good.

Okay. Ask smart people dumb questions. You know the drill.

Berbye!

[*Outro Music*]

*Transcribed by Jude Kenny, who probably should have learned how to properly use a comma, and not use so many run-on sentences, and figured out if every instance of like or so should have stayed in this transcript and maybe figure out proper punctuation usage, like inverted commas that others call quotation marks, (like maybe they're different than apostrophes?), and also when to use italics, oh man I'm using them now.....*

Some potentially useful links:

[Dr. Lee Berk's website](#)

[History of laughter therapy](#)

[Descartes and mind-body dualism](#)

[Who was Norman Cousins?](#)

[What is a joke?](#)

[Who do laughs work?](#)

[Why do we laugh?](#)

[Carol Burnett dentist sketch](#)

[Laurel and Hardy](#)

[The Granpappy of the word "stress"](#)

[What are brain waves?](#)

[Tickle some rats; they love it](#)

[Why do we laugh when tickled?](#)

[Are comedians depressed tho](#)

[Eat more nuts, okay?](#)

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