

# Attention-Deficit Neuropsychology Part 1 with Russell Barkley

## Ologies Podcast

### February 22, 2022

Hi, it's the gnat stuck to your lip gloss, Alie Ward. ADHD, it's here. It's here! Take a minute. [*deep breath*] Just breathe. This is exciting. Here we go.

Okay, who does one get for an ADHD episode, you ask me, your internet dad, when there are so many doctors, and researchers, and bloggers, and TikTok coaches out there? Who do you get? You start at the top. *The* guy. You get the guy who has written more books than I can count. I literally was trying to count them and I had to stop and eat a granola bar. I was fatigued. But you may know him by the ADHD bible, *Taking Charge of ADHD*, which just released a new, expanded, fresh-as-hell updated edition in November. I have it; it's great. He also wrote *12 Principles for Raising a Child with ADHD, When an Adult You Love Has ADHD: Professional Advice for Parents, Partners, and Siblings*. He is to ADHD what Oprah is to talk shows. The Gold Standard.

Not only has he been a professor of psychiatry and neurology, a clinical professor of psychiatry, and is cited in nearly every modern paper on ADHD, but he also takes it to the streets. And by that I mean YouTube. His lecture videos are swiftly paced and have views in the millions. People in the comments are crying in relief. I was so nervous. We reached out; he obliged. We recorded; my palms sweat. I decided this needs to be a two or maybe a three-parter. So next week we'll talk to a few more experts, including Jessica McCabe of How to ADHD, René Brooks of Black Girl Lost Keys, and Jahla Osborne, who is a researcher at the University of Michigan. We'll dive right in.

But first, a quick thanks to everyone who supports the show at [Patreon.com/Ologies](https://Patreon.com/Ologies). You can join for a dollar a month and submit your questions. Thanks to everyone who passes this episode along, and who subscribes, and who leaves reviews, knowing that I read them all. Like Connor.Cook, thank you for leaving the review where they say they were introduced to *Ologies* via a keynote that I did at the Texas Science and Engineering Fair a few years back. Their review made me cry. They said they used my advice to "show up like you belong" and they say:

*That stuck with me as I struggle with social anxiety and doubt myself at every turn. Last week, I interviewed for a student worker position in a plant pathology lab, and I chanted that piece of advice in my head as I was getting ready to go in, so I walked in that building like it was named after me. I was just told today that I got the job!*

Congratulations on that, Connor! That's great! Full-circle moment. And yes, I'm very proud of you.

Okay, Attention Deficit Neuropsychology. Let's do it. Heads up, this episode gets very real. We talk stats, and neuroscience, and personal experiences with ADHD. It also includes a mention about rates of suicide and a very brief nod to self-harm; very brief. This episode doesn't sugarcoat it, it doesn't condescend, but it illuminates the hell out of ADHD. Next week we'll have more tips, and hacks, and self-acceptance for you too.

Let's focus, and let's learn about the brain chemicals that influence focus. What causes ADHD symptoms, how much diagnosis is enough diagnosis, the genetics component, risk factors, accommodations, disorder versus disability, what screens have to do with it, nutritional factors, tips for being in love and having a great relationship with an ADHD brain, how exercise comes into play, his personal connection with ADHD, as well as mine, with researcher, author, retired professor of clinical psychiatry, and internationally-recognized authority on ADHD, Attention Deficit Neuropsychologist Dr. Russell Barkley.

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**Alie:** Hello?

**Dr Barkley:** Hi Alie! It's Russ. How are you?

**Alie:** Hi! How are you, Dr. Barkley?

**Dr Barkley:** Please call me Russ. I'm doing fine, thank you. Much better this month than last month.

**Alie:** Ah! Was it a rough one?

**Dr Barkley:** Oh god, I thought you knew. I'm sorry I brought it up. I was in a severe car accident about eight weeks ago and... I had nine broken ribs, spent a week in the hospital. So, it's taken me a good eight weeks to recover but I'm about 90% back. So, I am thrilled to be alive; I should not have survived. But I did and I'm glad to be out of the hospital. Didn't get pneumonia, all of which are lethal at my elderly age, and doing well. So yeah, it's just delightful to be able to talk to you.

**Alie:** Oh my gosh! I had no idea! I'm so glad that you survived and that you're here!

**Dr Barkley:** Yeah! Well, doing things like this gets me out of my head, which is what you have to do right now, because otherwise you spend a lot of time in there and that's not good.

**Alie:** I'm sure. And you are, like, a national treasure. I have to say, like, hugely revered.

**Dr Barkley:** Oh, thank you for saying so.

**Alie:** I'm so glad your life was spared because you have changed other people's so much. I'm so excited to talk to you because I've had your book for years. I'm very well aware of *Taking Charge of ADHD* for adults, the guide for parents, I know you have a new version coming out soon also.

**Dr Barkley:** Yeah, the adult book is out this month, and the two parents books came out a year ago; the *12 Principles* book and the *Taking Charge of ADHD for Parents* were out last fall. And then I have one more coming out at the end of the year, which is a clinician's guide. So, that'll be it. Four books during the pandemic. I'd say that's pretty good.

**Aside:** How?? How does one publish four books in a pandemic??

**Dr Barkley:** Well, it was writing and wine. That's what got me through the pandemic. And then doing drive-by cocktails with my son and his family, and getting to see my grandchildren, you know. It was a heck of a year. Yeah, like everybody else, we made do. We adapted.

**Alie:** You know, one thing I've always been curious about is your background, because I've watched your YouTube videos, my husband has ADHD, I suspect I might. But you come up so often when ADHD experts are mentioned. How did you come to be such a leader in this field?

**Dr Barkley:** Well, I don't know if you're recording now or not, but...

**Alie:** I am! Yeah.

**Dr Barkley:** Okay, very good. Thank you. It's a long story but I'll shorten it real quick. I had just gotten out of the Air Force. I was back from Vietnam where I served with the Marine Corps, actually, even though I was Air Force. And I finished and went to the University of North Carolina to complete my undergraduate work. And while I was there, I was studying psychology and biology and trying to figure out how to blend the two. And I was looking

for extra things to do to get into graduate school because getting good grades is not enough to go to graduate school.

So I wandered around the medical center and volunteered 20 hours a week free of charge if somebody wanted a research assistant. And everybody kept saying, "There's a psychologist upstairs that just got a grant. Go talk to him." So I did, and he took me on as his research assistant. Within a month or two I became his honor student and never looked back. He was studying what then was called hyperactive child syndrome but we now call ADHD and doing studies on medication, imitation learning, very behavioral, kind of, operant stuff.

And I fell in love with it. I loved the kids, I liked what he was trying to do. He was a very paternal figure in my life at a time when I really needed guidance. And you know, just great. Don Ruth was his name. He was also editor of one of our more famous journals. But Don, kind of, steered me correctly and I never looked back. I started studying ADHD, did my honors thesis, master's thesis, dissertation, all within the ADHD space. And then went on to specialize in child neuropsychology with a research focus on ADHD because clearly it's brain-based problems. Although, back then, it was only a suspicion. Now, of course, it's been confirmed.

So, long story short, it was the influence of one guy in my life at a very formative time who, you know, sort of bent the twig, forced the pathway in that way, and I've always been grateful to him for it. It turns out, of course, ADHD is in my family, and it really helped me to understand my... I have a fraternal twin brother who died from his ADHD risk-taking when he was in his 50s. A car crash. I lost his son, my nephew, to suicide over very impulsive behavior following an argument with a girlfriend. I have other extended relatives who have the condition.

So, it really... The personal side of it, for me, is it helped me understand my family members, and particularly my brother who I grew up with, who was just incredibly impulsive, and risk-taking, and all of those things. He quit school at 16, became a rock-and-roll musician, burned through three marriages, three kids he had no custody of, in and out of difficulties. Gifted musician; Eric Clapton-level talent. But that said, couldn't manage a dollar or his life at all and it eventually cost him his life. So, it's personal for me. It's not just professional. They both intertwine. I didn't go into it for that reason, but having gotten into it, boy, did it help me to understand my family.

**Alie:** Oh, I bet. I mean, it's hard not to get emotional just hearing that because I feel like a lot of what we hear about ADHD are the work, and the productivity, and the grades, and so much of... I know personally, my relationship with my husband, before his diagnosis, most of our struggles were ADHD-related that he had no idea, I had no idea. It really impacts people so much.

**Aside:** So is ADHD just cute and scatterbrained, like an adorable manic pixie dream character in an early '00s romcom? Do you need bangs and cardigans if you have ADHD? Is it just a quirk acquired as an excuse for why you're late to brunch again? Well, it can be cute, and I say that as someone whose partner has a lightning-fast ADHD brain that runs on curiosity, but it's also serious.

In Dr. Barkley's 2018 *Journal of Attention Disorders* paper, "Hyperactive Child Syndrome and Estimated Life Expectancy at Young Adult Follow-Up," alongside co-author Dr. Mariellen Fischer, they write, "The persistence of ADHD to adulthood was linked to an

almost 13-year reduction in estimated life expectancy.” 13 years! There’s a really gutting mountain of research on this. Papers with titles like “Attention-Deficit/Hyperactivity Disorder and Mortality Risk in Taiwan,” which found that patients with ADHD had significantly elevated early mortality risk for suicide, homicide, and unintentional injuries compared with the non-ADHD group. There was a nationwide cohort study out of Denmark that found the mortality rate ratios were more than double for those with ADHD, with higher risks for people who weren’t diagnosed until they were adults. So it’s even more dangerous if you’re not diagnosed early. And the paper reported that the higher mortality was mainly driven from deaths from unnatural causes, mainly accidents.

Interestingly, along the studies defined gender binary. They found a higher mortality rate ratio in girls and women with ADHD than males. And we’ll dive into gender, and hormones, and ADHD later in the episode of course. So, people who have been told to snap out of ADHD, or have been told you just need to work harder, or you don’t have it because you’re not a 5th-grade boy doing a Fortnite dance on their desk, to you, I hear your frustrated wails and I join you in that chorus of vindication and concern.

**Alie:** I’m wondering, when did we start to recognize it from just a “behavioral problem” in kids to what it is recognized as today?

**Dr Barkley:** Yeah. Well, we can go back nearly 250 years. People don’t realize it but... I’m sitting here with an actual copy of the book dated 1770 in Germany in which... this is the first medical textbook ever written in German. It has a chapter called “Disorders of Attention,” if you can believe that. And in it, the author Melchior Weikard describes what today we would think of as classic ADHD. Back then, they didn’t know what caused it; they had a number of recommendations for curing it, which was horseback riding, sour milk on top of some quinine, and if that didn’t work, lock you in a room. *[laughs]*

**Alie:** Oh my gosh.

**Dr Barkley:** None of which works, but very interesting stuff nonetheless. Following that forward, nothing’s written until about 15 years later, his student, Alexander Crichton, writes a textbook. He also has a “Disorders of Attention” chapter, which he describes two attention disorders, one of which is ADHD. And then things get kind of buried for a while until the late 1800s.

Fast forward up to 1900, George Still publishes three papers of his lectures in which he describes these children. Then we have the 1918 flu epidemic in which we have a lot of kids developing ADHD who survive the flu. But we didn’t really get into what I consider the modern age of science until the 1970s and I just happened to be coming into the field at the moment where the match was lit. The fuse was lit and things began to take off. We started seeing research papers, objective evaluation of these children using all kinds of measures. Longitudinal studies were started.

**Aside:** So yes, first described, perhaps, in the late 1790s by Weichert in a chapter titled “Sickness of the Spirit” as a disorder of attention. But treatment took a turn for the more informed in the 1960s and ‘70s.

**Dr Barkley:** That, to me, is the modern age of research. And then by 1990, all the neuroimaging stuff was beginning to start. By the year 2000, molecular genetics was kicking off. And everything just exploded after that. So, we go from a couple hundred papers in 1960 to 400,000 as of a few years ago. I mean, it’s just startling to go to Google Scholar, enter

ADHD in its precursor terms, and do the math. I mean, it's just enormous. I mean, I read all research every week, on Fridays, published in the world, and it's 35-40 articles a week. So, do the math on that. That's 1,500-2,000 papers a year now coming out on this disorder. So, this is no myth. It's very, very well researched. It's got a tremendous amount of evidence for its validity in neurobiology, and genetics, and life course, and risks. So, it's an incredibly well-understood disorder but we didn't really get into it, I would say, until the late 1960s, early 1970s when people started to take it seriously.

**Alie:** You mentioned something about the flu pandemic and survivors of. Was there some reason why there was a correlation made there?

**Dr Barkley:** Well, yeah. We had children who, if they survived, this was the von Economo encephalitis that swept through following the first world war, and it took over Europe and spread here. It left people with a lot of secondary injuries to their brain if they survived because the virus attacked the brain. It left children with altered personalities, altered abilities, reduced mental capacity. But one of the hallmark symptoms was hyperactive behavior, incorrigibility, lack of self-control. So, you had children's personalities literally changing overnight. The disorder, actually, back then was called post-encephalitic behavior disorder.

Then they eventually realized you could get it from other brain injuries and it became brain-injured child syndrome. And then people said, "Wait, there are other children with these behavioral problems but we don't have evidence of brain injury." They then called it 'minimal brain damage'. And then it became 'minimal brain dysfunction', MBD. And only in the 1960s did people say, "Wait, wait. Stop talking about causation because we really can't peer into the brain to see if there's damage there for most of these kids. Let's just focus on their behavior." And that's when it became hyperactive child syndrome.

So, it was really in the '60s when the shift moved away from etiology, like "it's got to be a brain injury," which we still thought but couldn't prove, to "let's just focus on behavior." So, hyperactive, inattentive, impulsive behavior became the holy trinity of ADHD and we stopped speculating about etiology for a while because we didn't really have a lot of hard evidence other than by inference. "Brain injuries cause this syndrome, therefore people who show the syndrome, ergo, must have a brain injury of some kind."

But it was just that kind of logic. It took neuroimaging to come around in the 1990s, followed by molecular genetics and all the studies on inheritance, and now we link the two. We study the effects of genes on brain networks now, and it's all just really come full circle. But that's when the behavior became the focus rather than the brain injury. Now, of course, we blend them all together.

**Alie:** And first off, I'm so sorry about the way it's affected your family and having lost your brother. You mentioned he was a fraternal twin.

**Dr Barkley:** Yes.

**Alie:** Can you talk at all about what causes it from a neurobiology, from a genetic level, what we've found?

**Dr Barkley:** Yeah. I'll try to oversimplify because, let me tell you, it is so complicated that I have trouble keeping up with it. I mean, you really have to specialize in each of these areas. Whether it's brain microstructure, or white matter, or neuroimaging, or functional connectivity, they're becoming almost specialties in themselves. But let me give you the grand picture from 30,000 feet.

**Aside:** Just a fun side note, I was editing this part at 30,000 feet, in a plane. I was like, “Oh, weird.” Anyway, causes of ADHD; let’s get into it!

**Dr Barkley:** You really have two essential domains of causation here. One is genetics and the other is neurological injury-producing maldevelopment. So I’ll just very quickly... I’m going to oversimplify. About two-thirds to three-quarters of all ADHD cases fall in the realm of genetics. They’re either inherited or they come about through what we call new, or de novo, mutations. I’ll come back and explain that in a moment because that’s fascinating.

The second is that about 25-35% of the cases, particularly in boys more than girls, are acquired. And most of the acquired injuries are occurring during pregnancy. So if we break down that 25-35%, at least two-thirds to three-quarters of them have had this problem due to something happening during pregnancy to the developing brain and the executive networks of the brain that leave the individual with this disorder.

Now, what could that be? Multiple infections that the mother has; premature delivery that leads to being in a neonatal intensive care unit; leads to brain hemorrhaging in these brain areas. We also have maternal obesity and type 2 diabetes that the mother may have. That’s kind of questionable but that’s there. Maternal consumption of alcohol, very well-proven. If you’re consuming alcohol at a high rate, you’re poisoning your child’s frontal lobe. And you know, we could go on. We thought smoking might be in there, but it turned out that smoking was just an index that the mother had adult ADHD, and when you controlled for the mother’s ADHD, smoking went away. So, that was kind of a marker, not a cause.

So, you’ve got all of these... Just about anything that can happen during a pregnancy that might impact that brain, particularly the frontal area, which is one of the most sensitive areas to injury in humans because it’s so new in evolution, can cause that. So, you’ve got all these acquired cases, about 10% of whom acquire it after birth, through what? Head trauma, lead poisoning, other exposure to toxins, heavy exposure to pesticides probably. But the biggest ones are the toxins such as lead but especially closed-head trauma, that can lead to this as well.

You’ve got the acquired cases and then you’ve got the other two-thirds to three-quarters that came by it honestly, so to speak: genetics. Most of those people inherit this behavior pattern in their families. It’s there as it was in my family and it gets passed along. However, we have now learned that about 10% of all cases of ADHD are due to new mutations occurring in the parents’ sperm and eggs that are not present in the parents’ blood. So if I did a blood sample, I would not see these mutations. But if I sample your sperm, or if I look at your child, I will find the mutations in that baby and you and your spouse don’t have them unless I look at eggs and sperm.

How is that happening? Because the longer you wait to have children, the more your gametes, your eggs and sperm, are likely to suffer mutations from just surviving; from radiation, from chemicals, from external trauma to male testes and things like that. You are racking up mutations. And if you wait a decade to have children, from age 20 to age 30, then you now have eight times more mutations in your eggs and sperm, but particularly in your sperm. Males are more likely to have those. And those get passed along to your child.

Now, you say, “So what?” Well, it turns out that the genes most likely to mutate under these circumstances are the genes for self-regulation, language, and sociability. So guess

what goes up? Autism and ADHD. The longer men and women wait to have children, those disorders begin to rise in frequency. Some of the rise we've seen in both of those conditions over the last 20 years has been the shift in delayed parenthood as a result of people wanting to have it all. Have the job, have the career, have the house, and then we'll have our kids in our 30s.

**Aside:** Just a side note. This isn't just a factor of wanting it all either, of course. This has been heavily influenced by the 1965 Supreme Court victory of *Griswold v. Connecticut*, and that eliminated local and state laws that barred access to contraceptive pills. Plus there was the 1973 *Roe v. Wade* case. And this sociologist, Dr. Constance Shehan writes a lot on this and also explained in the paper that the Civil Rights Act of 1968 included Title IX, which was the Fair Housing Act, and that prohibited discrimination in selling homes to people of any race, color, religion, national origin. In 1974 they were like, "Oh, I guess we should add gender too, huh."

And then this acquisition of equal rights was then blamed for housing prices going up and everyone having to be dual income in order to purchase a home, making it nearly impossible to afford a place to live and to afford children until you're, like, 50. But that is a whole separate episode. Anyway...

**Dr Barkley:** So, I understand that's complicated. I could really get into the weeds. Believe me, this really is the 30,000-foot overview. But that's what's going on here. So notice, multiple causes all converging on a single network in the brain that is the brain's executive system that gives us self-regulation. And for various reasons, it goes wrong.

**Alie:** Can you go through, perhaps, a few of the most noteworthy impairments or symptoms? Because I know probably a lot of us feel like, "My focus is fractured," or, "I can't put down my phone." It's difficult to parse out.

**Dr Barkley:** Sure. I'm glad you asked that, Alie, because there's a lot more going on here than the surface features of inattention, distractibility, impulsiveness, and maybe some hyperactivity. That's really an early childhood symptom more than it is an adult symptom. But that said, to me, that's the superficial nature of ADHD that everybody sees.

Now, let's look under the hood. What's going wrong under the hood, in the mind, that is leading to you behaving that way? And that's where we get into the executive functions. There are seven major executive functions that come from, largely, your frontal lobe, but also interactions elsewhere in the brain. And they give us our capacity for self-regulation. They take about 30 years to mature, and they're delayed in people with ADHD by several years, or what I estimate to be probably around 25-30%.

But the number doesn't matter. The fact is, these abilities that everybody else is getting, you're not getting. What are they? [*Let's have it.*] Number one, inhibition; self-restraint. Number two, self-awareness; the ability to monitor and attend to your own behavior. Both of these start very early in life, each takes at least 10 years to mature if not more, and then when those start to kick off, you get the next two, which has to do with working memory. The first one is nonverbal working memory, but you know it as visual imagery, which is the capacity to imagine things. You recall images in your mind from your past, call it hindsight, and you use those to anticipate what could happen next, foresight.

The fourth thing you're going to get is the mind's voice. You're going to start to develop language to yourself. It's all out loud. Little children talk out loud to themselves. But by the time you're eight to ten, that should all be in your head. You should be able to talk to

yourself without people hearing you and without you moving your lips and your face. So now you've got four executive abilities. You can self-restrain, you can monitor yourself, you can visualize to yourself, and you can talk to yourself, and that's a little Swiss army knife of mind tools that allows you to control yourself.

Then you get the next three. You use those four to manage your emotions; emotional self-regulation comes next, and with that, right along with it, is self-motivation. And then finally, you get the biggie, the last one, which is planning and problem solving. The ability to manipulate stuff in your head to come up with solutions to get around obstacles, and help you get to your goals, and solve your problems.

**Aside:** Dr. Barkley cites the work of Dr. Joel Nigg, who argues that ADHD is more of a spectrum disorder with wide ranges in impairment. And an incredibly oversimplified, 60,000-foot view is that the brain has two kinds of signaling. Bottom up, where what we sense influences our attention and our emotion; we react to it. And then top down, where we respond to that bottom-up signaling and toss a command back from our prefrontal cortex to the interior and the back of the brain to say, "Hey, it's cool. We're good. Don't worry about it."

So, in an article in *Attitude* magazine, Dr. Nigg writes that in a neurotypical brain, there's a good balance of top-down and bottom-up signals, but in the ADHD brain, the top-down signals are relatively weak and possibly overpowered by the screaming bottom-up signals that are reacting to stimuli. So what is the result? Things like inattention, impulsivity, and emotional dysregulation, leading to a spectrum of those seven deficits, the ones we mentioned a couple minutes ago.

So, pop quiz. What were they? Come on. Were you not listening? Can you not name the seven? Just kidding! Probably no one can. What were they? They were self-awareness, inhibition, nonverbal working memory (aka mental imagery), verbal working memory or your inner monologue, emotional self-regulation, self-motivation, and then planning and problem solving was number seven. There will be no pop quizzes in this episode. That would be mean and not fun.

**Dr Barkley:** Those are the seven deficits that people with ADHD have to varying degrees. How would you recognize that? You would see that because, number one, they're very impulsive and show very poor self-control and self-regulation. Two, they're not as aware of their difficulties as are the people around them because they're not self-monitoring to the extent that you do. Three, they are horrible at time management because the working memory system, in part, gives you your sense of time and timing and allows you to think about the future to deliberate what is coming next and then use that to inform your own behavior.

So, time management becomes a major deficit that just gets worse and worse with age because life becomes more time-sensitive with age. Three-year-olds don't have to manage time. 30-year-olds are incredibly time-sensitive. Most of your day is filled with deadlines, schedules, promises, commitments, bills. Everything has a time tag on it. So, that's when I came up with the word, as you saw in my book, 'time blind'.

Adults with ADHD – kids are too, but especially adults – struggle with this concept of time and how you cope with this and manage yourself relative to it. And then of course you're going to see the emotional self-regulation problems, impulsive emotion, difficulties getting control over your emotions the way other people can do.



You're going to have a lot of trouble with self-motivation. You're going to procrastinate. Anything that doesn't have an immediate payoff is very hard for you to stay with, and you'll keep being distracted by anything that offers you a promise of immediate gratification. And then when you're faced with problems, instead of sticking it out and trying to problem solve, people with ADHD tend to quit. They tend to simply shift over and go do something else.

So, they have a life that's filled with half-completed projects, and goals they could never reach, and accomplishments everybody else is able to do and they can't do or they struggle to do. It really gets very demoralizing by the time you're a teenager or an adult because all these problems are piling on. Year after year, as other people get each of those executive abilities, you get another deficit. By adulthood, you have at least seven or more problems with self-regulation that other people don't have, and it leads to a whole swath of downstream problems in major life activities. People just don't realize ADHD is one of the most impairing disorders we treat in an adult outpatient basis. And people think it's just some trivial little problem that a cup of Starbucks is going to solve.

**Alie:** Have you seen the way clinicians classify it... I understand it's a deficit, it's a disorder. Is it looked at as a disability more so accommodations can be made? How is that language changing?

**Dr Barkley:** Well, the clinicians call it a disorder because that's our term for anything that creates excessive, persistent, and severe symptoms that lead to harm to the individual. There are two criteria. First, you have to have serious and persistent symptoms that go well beyond your age and your sex, your gender. Second is it must be producing impairment, harm. You must be suffering. The environment must be kicking back so that you're experiencing hardships. And when those two criteria are met, you have a disorder. That's the clinical term.

Now, the government however, invented the concept of disability. The government comes in and says, "How disordered are you? Are you disordered enough that we would consider you to be disabled in various major life activities like school, or work, or self-support..." By self-support, I mean that you can dress yourself, bathe yourself, and support yourself, and so on. So, the term disability is really a government term for whether or not your disorder rises to the level that you deserve accommodation, support, social security disability, ADA accommodations, IDEA school accommodations, and all these other things. That's really the difference. Clinicians use 'disorder', governments use 'disabilities', and the two of them blend together.

**Aside:** Just a quick follow up on that, I asked the *Ologies* Twitter how neuro-atypical people self-identify, and I found the sentiments, essential, echoed. @Ana\_George said, "My experience is that "disability" trumps "disorder" in terms of academic accommodations... It seems like you need to have a 'disability' in order to seek accommodations as well."

I have friend, David Radcliff, a TV writer who is the chair of the Disabled Writers Committee at the WGA West (which is a big deal), and he chimed in and said "Yes, this is part of the push to de-stigmatize the word 'disabled' because recognizing someone as disabled, not special needs or differently-abled, offers them legal protections, etc., under the American with Disabilities Act."

And I thought this was interesting, ologite @QuinsQuirks [phonetic] noted that they think it depends on the person and what that community thinks. Some communities prefer the term condition in place of disorder, they say. The autistic community, they write, has been talking about reframing autism spectrum disorder to autism spectrum condition. But in general, accommodations and support are a good, equitable thing. Please more of them.

And when you are neurodivergent, framing your own experience in a way that is comfortable to you is important. Jarrett refers to his ADHD as his good bad brain, and we're constantly celebrating his brain for what it is and what it does while also acknowledging that having ADHD is not always a fucking picnic.

**Alie:** Now, let's talk about, as my husband calls it, his friend dopey. Dopamine. *[laughs]*

**Dr Barkley:** *[laughs]* Yes.

**Alie:** He's constantly wrangling with dopey. What is the role of dopamine in ADHD?

**Dr Barkley:** Well, we used to think it explained everything and now we know that things are a lot more complicated. But back in the day when I came in in the '70s and '80s, the guessing was that ADHD had to be due to dopamine deficiency because the drugs we discovered to manage it all produced increases in dopamine availability in the brain, and they did it through various mechanisms. They don't all do it the same. But at the end of the day, the net result is that there's more dopamine in the brain to do the job that it's not doing in people with ADHD.

And it turned out that, while that is true, we also began to discover that norepinephrine, which is related to dopamine, also is implicated in the disorder. Hence, you have Eli Lilly coming out with Strattera, which is a norepinephrine drug that increases norepinephrine in the brain. Then you have the new Qelbree that came out just this past April, and that's a new drug that's a norepinephrine drug.

But then we also began to realize, "Now, wait a second. There's other things going on in the brain here." We're discovering that these alpha-2 ports, as they're called, in the frontal lobe, which are little, I'll call them sphincters, [*"A sphincter says what?"*] but portholes on neurons in the front lobe that open and close to determine how much noise is in the nerve cells. These alpha-2 ports, which are responsive to alpha-2 drugs, also are beneficial for ADHD because they fine-tune the nerve signals in the executive brain.

So, we can get at ADHD now through at least three and probably more neurotransmitters; dopamine being one, and that's what the stimulants are doing. Norepinephrine being the other, and that's what the non-stimulants are doing. And then managing the alpha-2 ports and the noise in the frontal lobe, and that's what the anti-hypertensive drugs are doing; Clonidine and guanfacine.

So, we've got six different medications out there and we've got many, many new delivery systems for those medications. But those are the three classes of medicines that we're using. You can see that there's more than just dopamine. Now we realize that it goes beyond neurochemistry because the genes we're discovering for ADHD, of which we've already found 12, (we're guessing there's at least 45-50)... There's actually a recent paper from last week that shows that it's probably closer to 500. But there are multiple genetic sites in the human genome that build and operate your brain. And ADHD results from having different pairs of these genes than other people have.

You and I might both have the dopamine gene DAT1, but your version is different than my version. You might have seven, eight, or nine copies of the DAT1 gene, whereas the average person has four or five. And those extra versions are wreaking havoc in building the brain. They're creating a very different brain than other people get. And we see this very early in the development of the brain, where nerve cells that are under the control of these genes are not migrating properly, they're not growing properly, they're not reaching the end points in the brain where they should be connecting properly, and it leads to problems with connectivity in different brain centers.

There was literally a paper yesterday, published on 32,000 people with ADHD demonstrating beyond a shadow of a doubt these functional connection difficulties in children developing ADHD. It was just staggering to see the number of different regions that are not connecting as well as they should. And even when they connect, the connections are quite variable in how well they function, creating a lot of variability in behavior. So, just to say that we're linking behavior with brain, brain with genes, genes with functional connectedness in the brain, and you just have to sit back and go, "Wow. I had no idea at the level of complexity." It's beyond dopey.

**Alie:** Yes! I will definitely tell him.

**Dr Barkley:** *[laughs]*

**Alie:** You know, when it comes to creating the architecture of a treatment plan, whether it's medication... rather, deciding medication, how does someone go about figuring out which of those three types of medication, from stimulant to non-stimulant, to maybe even hypertension drugs... Do you recommend trial and error?

**Dr Barkley:** At this point, besides clinical trial and error, as well as clinician preference... Let's understand, some clinicians prefer, they're more comfortable, working with certain drugs than other drugs. We know in research that we can create literally a checklist of different issues that one might want to contemplate in choosing a medication. One would be urgency. "How fast do I gotta get control over your problem because you are experiencing a lot of suffering?" Well, the stimulants would be the choice because they work much, much faster than the non-stimulants do.

But on the other hand, you have an anxiety disorder. [*Why yes, I think I do.*] Well, hold on a second. We know that in a subset of people, stimulants can make anxiety worse. That's arguable; it doesn't happen in everybody, but it happens enough that clinicians get a little concerned about that. And that's where we might want to go with a non-stimulant like a Strattera or a Qelbree because that actually treats anxiety in the context of ADHD as well.

Then we might also have somebody who's showing very high levels of hyperactive aggressive and just, sort of, over-aroused behavior. Well, I might prefer to use an anti-hypertensive drug, or would recommend to my colleague because I don't prescribe, being a psychologist. But that's where we would look and say, "That drug actually does very well at managing hyperactive, aggressive, impulsive behavior. Maybe we'll go there." I could go through all 15; I won't. But sophisticated clinicians will think that through and say, "You know, given your portrait of your disorder as well as your other disorders..." Let's remember that 80% of people with ADHD, or more, have a second disorder. 50% have *two* more disorders. So, we're really dealing with disorder

combinations here and very rarely are we dealing with ADHD alone. It's about one out of every seven cases is a pure ADHD case.

To me, the real clinical work here is in, "How many disorders do you have? How do they affect my treatment planning? What drug should I be using, given your constellation of issues and urgency? Are you a college student living away from home? Well, one in four of those kids diverts to medication; maybe I'm not going to send Adderall or Vyvanse into that environment just yet until we see how responsible you are with a Schedule II stimulant." It's just thinking it through and knowing where your prescription's going, and who's using it, who's around you, and how responsible you can be, etc. There's a lot of complexity to walk through, but many clinicians simply go trial and error. "I'll start with this one, and if that doesn't work I'll go to the next one. Then the next one..." Eventually, about 93% of the time, we find a drug that works for you, but not always. [*"Fingers crossed."*]

**Alie:** What are some of the reactions you've heard from people who have been either recently diagnosed or recently medicated, in terms of how that changes the way that they live their life?

**Dr Barkley:** Oh my god. Let's understand, about 8-10%, the drugs don't help them at all or they have adverse reactions and we have to stop. But for the remaining 90%, what we find is – get this – 55% are completely normalized on the medication. Normalized! They're no different from anybody else. And those are the people who say, "You saved my life! I can finish my college. I saved my marriage. I can manage my children. I can literally have an intelligent conversation without going all over the map, and mind wandering, and not being able to even remember what we were talking about."

By the way, just as an aside, if you have not googled Dani Donovan, google her. She's an illustrator who's created some hysterical cartoons and illustrations about what it's like to have adult ADHD.

**Aside:** Dani Donovan's website is ADHDDD.com and that'll be linked on my site. And for more great ADHD comics, also see @ADHD\_Alien on Twitter, and that's by Pina Varnel.

**Dr Barkley:** So, have a look at Dani. And you can also go over to the website HowToADHD.com. Jessica's got a great website over there as well.

**Aside:** And stay tuned for Jessica McCabe of How to ADHD in a special part two next week, along with René Brooks of Black Girls Lost Keys, who also runs an online support group for Black people of marginalized genders. That's called the Unicorn Squad. We'll be chatting with both of them, and also Jahla Osborne of Black In Neuro, who is an ADHD researcher. I'm telling you, this is why this episode took so long! It was too exciting. I kept adding more and more things.

**Dr Barkley:** So, these are just resources that get it. And when you see them, you say, "Oh my god. That is me in spades." Like, Dani has an illustration where she said, "It's either now... or not now." And she's got a light switch. That's it. That's her concept of time. Now or not now. And if it's not now, I don't care. And if it's now, I'm all over it so I can hyperfocus on it.

She has a diagram of what it's like to have a conversation with her. The diagram for the typical person is, "Start at A, want to explain this, and I get to B." And it's a straight line. Hers looks like a maze of all over the place, getting distracted, talking about irrelevant things, can't remember what we were describing, have to ask you what we were talking about. She's just everywhere. And that is so typical of ADHD.

So, all of that is to say that people who get diagnosed, first of all, the diagnosis alone is therapeutic because it takes you out of the realm of moral judgment and puts it in the realm of neuroscience. Up until then, you thought you were a bad person. You were a lay-about ne'er-do-well. You were lazy, unmotivated; your mother was right, you just failed to launch. "We just can't get you out of here." And you buy that. You become so demoralized about yourself because everybody else is succeeding, and here you are stuck, you know, in quicksand and you can't seem to get from A to B. So you start blaming yourself and you literally buy into this societal stigma that there's something wrong with you in terms of your personality, and your morality, and your self-discipline. "You just have no willpower."

When you get the diagnosis, it's now in the realm of neuroscience. And you get it! You are experiencing a neuro-developmental disorder or disability. And that alone, to me, that mindset becomes very therapeutic because you didn't cause this. You're not choosing to be this way. You can't get up and smell the coffee tomorrow and become a different person. You are struggling, as are people with autism spectrum or bipolar disorder with something you didn't ask for but that you've been blessed because of your genes or other factors that you now have to cope with.

So on the one hand, I'm taking you off the hook. You didn't cause this and neither did your parents in terms of how they raised you. On the other hand, I'm going to put you back on the hook because you're the person that has to do something about this. And there's nothing wrong with that. That's the neurodiversity movement in spades. You're just a neurodiverse person. But you gotta stop denying, and blaming, and shifting the source of the problem to your spouse, or partner, or boss, or mother, or friend because you're the common denominator here.

It took my twin brother 37 years to wake up and realize that his life was the result of his decision-making and not all the other people he wanted to blame for that. And I see that all the time. I really love that idea about, you know, you've got to own it before I can help you.

**Aside:** Dr. Barkley notes that Maroon 5 singer, Adam Levine, I think he's also on the show where you push the button with the chair, he is a person with ADHD and he participated in this pharma campaign a few years back called Own Your ADHD to destigmatize neurodivergence but also empower people with adult ADHD to be active stewards of their treatment. And given that approximately 10 million adults in the United States are estimated to have ADHD, that's an important thing.

But who's *not* feeling overwhelmed, and distracted, and forgetful sometimes, and maybe a little emotional, particularly these days? How do you know if you actually have ADHD? What if you relate to every TikTok but you feel like everyone relates to every TikTok? Can't I just pee on something and wait for a line to materialize yes or no like the ghost of executive function past?

**Alie:** And you mentioned that process toward diagnosis. I've heard it from everything as, "If I give you Ritalin and it works, you have ADHD. If it doesn't work, you don't have ADHD." I've heard that, which is not true.

**Dr Barkley:** Not true.

**Alie:** And to my cousin who, in her 30s, finally realized that she had ADHD through a long diagnostic process that involved interviewing her loved ones to ask about her

background, and it was a huge relief. So, when it comes to diagnosis, I feel like that in itself, if you have ADHD, there's a lot already about life that can be really intimidating and overwhelming.

**Dr Barkley:** Yes. Right.

**Alie:** I know that my husband, just the struggle to get his Adderall refilled every month involves, like, going to six pharmacies, and getting paperwork mailed, and he's like, "This is the one thing I'm already bad at!"

**Dr Barkley:** Yeah, I know. And it's a Schedule II drug, unfortunately. The other drugs are not, but the stimulants are Schedule II, which means they have the potential to be abused, and that's why they clamp down on them and all the paperwork. And then you're going to run into the occasional pharmacist who believes in Tom Cruise and Scientology and may lecture you about the evils and the wickedness of the prescription you're trying to fill.

Let me tell you, I've had families call us and say, "You're not going to believe what this pharmacist is telling people!" And it's like, you know, then switch pharmacies. We're not going to deal with Tom and his disciples here. [*No offense.*] So, you know, there are the people who think this is just a myth, and you're using this as a crutch, and it really doesn't exist. All of which is so naïve it goes without saying. Every time I hear somebody saying, "This is a myth," or "It's just so trivial," it reflects to me a stunning ignorance of the real science, of the hundreds of thousands of research papers. And it really tells me more about you than about the disorder. That's sad.

Can I walk through what I think are the five things you really gotta do to deal with this disorder?

**Alie:** Yes!

**Dr Barkley:** I'll make them very quick because I know we have other things to chat about. Number one is: Get a proper diagnosis and identify the various disorders that may be there because there's often more than one, and we have to treat them all. So, I call it Evaluation; that's step one.

**Alie:** Okay, great.

**Dr Barkley:** Step two: Education. Read, read widely. David Lindsey the novelist had a great phrase in one of his novels. "Truth is an assembled thing." You don't get it from one guru, one website, one book. I want you to read widely but read credible sources. The foundations, the charities, the NIH, the CHADD organization in Canada, the CADRO organization, the ADD.org here, the World Federation for ADHD. There are at least ten websites with lots of information, including my website, which has a lot of free fact sheets on it. Just read widely.

Read the books. Go to YouTube, look at my videos. Acquire the information because you're going to assemble... Out of that, the truth keeps popping its head up and the nonsense will fall by the wayside because it won't be replicated across these websites, and you'll begin to get a really core understanding of yourself and your disorder.

Number three: Medication. Of all the treatment components, that's the most effective we have. It doesn't matter whether you like that, whether you agree with it. Medication's not a religion that you believe in. The facts are the facts. It's three times better than anything else out there. And while it doesn't help everybody, it helps most people to an incredible

degree, and as I've said, it can actually normalize over half the people who take it once we find the right medicine.

**Aside:** Just a note on the word 'normalization'. That's a clinical term that means the use of medication to bring mental functioning or performance in line with a prevailing cultural norm, as opposed to trying to achieve performance enhancement. So the norm is the typical. Normalization could easily be called typicalization.

**Dr Barkley:** So, medication. I look at ADHD as the diabetes of psychiatry. You would never turn away insulin if I told you that you were diabetic. And yet you have as much of a biological problem as the diabetic has. Why are you turning this down? It's because you think the medicines are covering something up, that they're a band-aid. And they're not. The medicines are exactly like insulin. They literally are correcting the neuro-genetic basis in the brain that is giving rise to your symptoms. Part of owning it is realizing that if this is neuro-biological, there is nothing wrong with a biological agent being part of the treatment package. It's not the sole thing we do, but it's an effective component; one of the most.

**Aside:** I'll link all that and the other sources he mentioned at [AlieWard.com/Ologies/ADHD](http://AlieWard.com/Ologies/ADHD), which is linked in the show notes. Also, once a pharmacist told me I didn't need the antidepressant I was prescribed to deal with mood swings from my ovarian failure; I just needed Jesus. This was a pharmacist in LA! So, Russell's not kidding. Anyway...

**Dr Barkley:** Okay, so we've got evaluation, education, medication. Next: Modification. What can I do to modify my behavior in order to cope better with the demands of this disorder? That's where cognitive behavior therapy for executive function deficits comes in. That's where adult ADHD coaching comes in.

That's where learning mindfulness meditative approaches like in John Mitchell and Lidia Zylowska's new book that just came out on mindfulness-based practices for adult ADHD. These are the things we want you to participate in. And if you're on medication, you're more likely to benefit from them than if you're off your medication, because of just what the medication does to help you with organizing yourself, and persisting, and motivating yourself. So, number four is modification to the extent that you can. Remembering it's neuro-biological, but there's some latitude there, some give and take with how you deal with yourself.

Number five: Accommodations. Accommodation refers to, "How can I physically change my environment so that while my disorder is still there, I'm not impaired by it?" And that means looking at your workspace, looking at your computer and saying, "Okay, all games go on the computer over in my den and only the computer in my office has work apps on it. Even then, I'm going to download apps that deal with time management and self-regulation, that block out distracting websites. No gaming on this computer." That's an accommodation. It's like a ramp coming into a building for somebody physically disabled. You didn't get rid of the physical disability, but you allowed them to participate effectively in the things that the rest of us can do.

So, things like time management, and using a day planner, and a week-at-a-glance calendar, and Outlook, and making yourself accountable to your colleague, or boss, or supervisor, or spouse for the things you commit to, and checking in with your adult ADHD coach several times a week on your goals, and your strategies, and what you're

trying to do. These are all ways of rearranging your environment so that you get to do the things your disorder otherwise would preclude you from doing. You're still ADHD, you still have to own it, but oh my god there's hundreds of things in my book that we talk about of ways of altering environments to lessen the impact of the disorder.

**Aside:** A few tips: Bluetooth noise-canceling headphones, maybe prayers to the universe that your employer doesn't think a bunch of open tables all in one giant room fosters corporate community, because it doesn't. Studies show that people get about a third of the work done and have higher rates of anxiety, illness, and turnover in a bullpen type of office environment. So, cubicles with opaque walls or an office with a door if possible, getting those things from an employer might require advocacy on your own behalf, but it can be worth it.

**Dr Barkley:** But you won't do those if you don't own that disorder. So again, to reiterate: Evaluation, Education, Medication, Modification, Accommodation. Do all five of those and you will be doing a great job.

**Alie:** What about that evaluation? Any tips on how in-depth that evaluation needs to be?

**Dr Barkley:** I don't think the diagnosis can be accurately or reliably made in less than two to three hours. Now, that may mean that I'm going to see you three times for 45 minutes to an hour because of the way physicians and psychiatrists schedule their time. Psychologists, on the other hand, are used to blocking out three to five hours to do their evaluations all at once. So, just understand that it may not be done all at once, but it usually takes that long because I've got to go back through your history. I've got to survey all these symptoms. I have to look across all these disorders. I have to have you complete these rating scales, and score them up, and then I have to interpret those.

I may need to do some psychological testing with regard to your intelligence and your achievement because two of the rule-outs for having problems in work and education are, "Do you have adequate intelligence for the environment that you're in?" and "Do you have any learning disabilities?" Because 50% of people with ADHD also have a learning disability that's not their ADHD. And if I don't realize that, then I've missed part of the explanation for why you're struggling in school, or college, or in the workplace.

**Aside:** There are other tests like the Qb test or T.O.V.A., which may track an infrared ball attached to your forehead as you undergo some computer quizzes, but Dr. Barkley says Nah. He actually says... Nah-nsense.

**Dr Barkley:** That's nonsense. [*warped and slowed down to sound like "Naaansense."*] First of all, those things are not sufficiently accurate to diagnose ADHD, even though their test developers will tell you they are. They're not. And secondly, they're misleading because half of adults with ADHD can pass those tests and still be legitimately ADHD. So, I just tell people, you know, forget the test scores because a lot of the time they're wrong, and the history tells the story.

Plus, as you pointed out, we need to interview people who know you well. That's part of our diagnostic criteria. We need to corroborate what you're telling us through other sources. Hopefully, that's going to be your parent, or siblings, or good friends, or a spouse, or a partner. But in some cases, all I have are the archival records; your school report cards, your driving record, your work record, your criminal record. All of those are things I may need to take a look at in order to look for evidence that this has been a



longstanding problem for you. So yeah, it takes time. But as I said, no less than two to three hours.

**Alie:** And you have a whole section in the book, which I think is great, about finding a clinician too, which is so helpful. Do you ever have to recommend to people, who either have a diagnosis or don't, if they're going to digest literature on this, is there a preferred way to do it? Like, as you take notes? Audio? What's the best way?

**Dr Barkley:** Well, I'll tell you what we heard from people when I was writing the book, and we actually field-tested that book. If you look at that book compared to all my other books, it's organized vastly differently than my other books. The reason is we field-tested the manuscript on adults with ADHD, and that's why you see that it's all broken up. There's little sidebars, and there's glitchy little microscopes, and there's call-outs, and bold emphasis. It's enough to drive a typical person crazy when they look at this thing, "How do you pay attention to this??" because they're used to reading continuous prose and narrative and this is so far from that, as you know. So, that was field-tested. We found that at least if you're going to read, that captured your attention better than a typical narrative does. [*Well done.*]

The second thing that we do, of course, is a lot of adults tell me that the e-book is better for them than that. I also get five to ten emails a day of people saying, "I discovered you through your YouTube lectures and that's the first time I was able to actually sit through and listen to this stuff. So maybe now I'll go and get the e-book or look at some of your podcasts that you've done with other people and start to pick it up that way." And then eventually they wind up back at the book.

But we understand that reading is very hard for adults with ADHD because of their working memory problems. They can't retain what they read the way other people can, and they find themselves mind wandering while they're reading and then they've got to go back to the top of the page seven times. So, I understand. I get it. Text isn't always the best way for adults with ADHD to learn stuff.

**Alie:** I was looking through the e-book and I was so excited to see, like, "Oh, there's a post-it note and a sidebar!" It really does kind of engage it. I've even heard you say, like, leave post-it notes for yourself, have them be different colors, something that engages you and is novel will help.

**Dr Barkley:** That's right.

**Alie:** Obviously, we got a lot of questions from listeners ahead of time.

**Aside:** Literally the most questions ever, so to avoid overloading you with names of Patrons, I'm just going to read the names of first-time question-askers for some of these. But before we do, let's support some causes that are supporting people with ADHD. Donations for this and next week's episodes are going to a few places. Namely, for this episode, CHADD, Children and Adults with Attention Deficit Hyperactivity Disorder, which has local support groups in every state in the United States and offers assistance for parents, children, young adults, and adults via advocacy, and support, and networking, and information. More information about them is available at CHADD.org. We're going to be donating to a few more places next week as well. All of that was made possible by sponsors of the show who you may hear about now.

[*Ad Break*]

Okay, without further delay or distraction, your questions.

As a person with anxiety, I found it soothing that so many of you asked about anxiety and ADHD or other comorbidities. I'm looking at you, first-time question-askers Becky Nesel, Aurelia, Heather E Stewart, Alyson Bardsley, Xenia Holm, E.J. Warner, Britt Kline, Annabelle Marks, DanRWin, Kelin Jackman, Sarah Albrecht, Maya Roopnarine, Erin Cimino Osowski, and Adèle Maisonneuve, (not Mesonowayvay like I said last time). They all had a common question.

**Alie:** One thing that I thought was really interesting, we got a lot of, was like Becky Nesel says: I'd like to know some differences between general anxiety disorder and having ADHD. They have a lot of the same symptoms. Skella, Stephanie, a bunch of people asked about this. How do you parse that out during diagnosis?

**Dr Barkley:** Right. Well, I think superficially people would assume that because there are attention problems that go with anxiety and depression, and so people automatically think that all attention deficits are ADHD, and that is way oversimplifying. We now know that there are at least two, and eventually there will be five, but at least there are two kinds of inattentiveness.

The one that goes with ADHD is being externally distracted, so I'm skipping from one thing to another and all of the irrelevant events going on around me are pulling me in various directions, so I am overly coupled to my environment and not coupled enough to my mental information about my goals, my plans, my to-do list, the things I said I was going to do today. I'm not governed by mental information the way other people are. I'm overly governed by context and the now. So that's ADHD.

Now, let's look at anxiety and depression. What we see with them is the opposite. They are overly coupled to mental information, rumination, obsession, fear, anticipation, worry. [*Sounds like fun.*] So, they're inattentive, but they're going to be inattentive in a staring, daydreaming, mind-wandering kind of way like an absent-minded professor. They're not hyperactive, they're not distracted, they're just in their head way too much. And ADHD people are not in their head that much, and if they are it's because their ideas are skipping all over the place.

So, the two disorders are not that hard... I mean, ADHD does not lead to fear, worry, anxiety initially. Now, after about 10-20 years of not being treated, anxiety disorders begin to become a coexisting disorder with ADHD, such that by the time you're in your 30s, 35-50% of adults with ADHD have developed an anxiety disorder.

**Alie:** Eugh.

**Dr Barkley:** But that's because of the chronic failure that ADHD is leading to. You don't have to fail in social situations or at work too many times before you get really anxious in those environments, but that's a different kind of anxiety that comes from overexposure to negative consequences and even traumatic consequences that other people don't experience.

On the other hand, if you have a legitimate anxiety disorder, yours is much more forward-looking. You are over-anticipating punishment, negative consequences, what people think about you, that you're going to die when you get in the car, that your parents aren't coming home when they leave the house. Those are anticipatory anxieties and that's not what we see in adult ADHD. Adult ADHD, it's more learned anxiety. So, one is driven by the past, that "I frequently fail in this situation," or it's driven by the working

memory deficit. There was a photographer in Atlanta who put it beautifully. He said, "I'm out on a photoshoot, and I can't remember whether I agreed to pick up our five-year-old at daycare today or my wife." And it's four o'clock. The kid's been out of school for an hour. Is he sitting at a curb with his teacher because I'm not there? And he freaks out.

You see what I mean? He's questioning his memory, his forgetfulness, because it's happened before. These are the people who get out of the car and leave the car seat on top of the car and walk into work like, "Wait a second, your kid's on top of the car!" Because they're just so distracted by everything going on around them that, as I say, the 'Now' pulls them along by the nose. So, that's a lot different than somebody with a legitimate anxiety disorder. But understand that by the time you're in mid-life, the two disorders go together more than we like to think.

**Aside:** Who out there questioned the role of gender and assigned sex at birth in diagnosis or hormonal influences? So many. First-time question-askers Brittany Twenter, who said: I would love to hear more about how women and girls often go undiagnosed. Alyssa Williams-Pierce, Marisol, Bryn, Roman Robin, Dakota P, Ali Vessels, Rozelyn Hesby, Rebekah Hatherly, Kirra, Elizabeth Traylor, Garrett Robinson, Kaitlin, Heidi Wismath, Layla Green Touchet, and Tara Allen, who wrote: It would have been awesome to know sooner. And Eva Haisova, who wrote: Omgomgomg! This is exciting!

**Alie:** Do you ever see that there is a gender bias in terms of diagnosis, where maybe girls would be...

**Dr Barkley:** Yes. Yes. Clearly.

**Alie:** ... diagnosed with anxiety and boys ADHD?

**Dr Barkley:** Yes. It's getting better, but I have to tell you that girls were the silent majority for many years. Back in the day, when I came in, it was six to seven boys referred for every girl. That's now fallen down to about three to one, which is about the legitimate sex ratio. The disorder is more common in little boys than little girls, but having said that, girls were not getting referred even when they had a legitimate disorder.

There are various sociological reasons for that that we don't need to go into because, you know, people might find them... although they're factual, they're offensive. People worry more about their sons than their daughters because, the bottom line is, you can always marry your daughter off. But your son has got to become independent. Now, life has changed. I'm speaking back in the '60s and '70s when that was clearly the case.

**Aside:** Just a heads up, a li'l fun fact, until the Equal Credit Opportunity Act, a bank could refuse a credit card to an unmarried woman. But if she was married, it was okay. Her husband just had to give permission and co-sign. This was in 1974, years after we launched human people in rockets to the Moon. Ladies could finally get their own bank accounts! Feel free to break something, but don't actually, because of emotional dysregulation, but you know what I'm saying.

**Dr Barkley:** So, there were various reasons why girls just didn't get referred. The other thing is that girls are less hyperactive and aggressive, and nothing will get you referred faster to a mental health clinic than being a pain in the ass. And the boys are just a pain in the butt. So, they got referred, whereas the girls are simply Chatty Cathies. Social butterflies, not doing any work, flitting around, drama queens, but none of that gets you referred because you're not punching anybody, you're not talking back to your teacher. You're not

so defiant. So, the girls kind of got overlooked because they tend to have less of the hyperactivity, a little bit more of the inattention, than the boys do.

But that is changing. We now get it. Virtually every week I'm seeing three to four articles in my news feed on girls and women with ADHD, so, hoorah. The information's getting out there. Another reason for the girls being overlooked is, as I said, the disorder occurs three times more often in boys than girls, so it's hard to spot it in a girl, and a girl has to be more severe to get referred and treated. But there's another reason for that.

We now know that girls have, kind of, a two-phase onset. There are some girls whose onset is in childhood like the boys, and they tend to be pretty bad cases. But there's a second wave of onset at the onset of puberty and menstruation. We're now realizing that female hormones and their balance play a role in exacerbating ADHD symptoms in women.

So, we have a second wave of onset of girls who were, kind of, marginally ADHD in childhood who hit their menses and now are full-fledged women with ADHD. And each month, as their cycle comes back around, are going to have three to five days of exacerbated symptoms that clinicians have to deal with, particularly with regard to emotional dysregulation and their forgetfulness. But the emotional ones tend to be really exacerbated by these changes.

Now let's fast forward. You're 55, now you're going through perimenopause, and we now have women coming in who were marginally ADHD who are just falling apart in their mid-to-late career because of perimenopause and the changes. There are some great articles coming out now on the impact of the imbalance of estrogen and progesterone on women with ADHD. So, like I said, we're catching up. More girls are being referred, more girls are being treated, more girls are being put on medication than ever before. And that's all good news to me, but it's also to say, you know, we've still got a ways to go. There are some differences.

The disorder is the same between men and women, but the comorbidities are not. Girls tend to have more anxiety depression, boys tend to have more conduct problems, antisocial behavior, defiance, risk-taking, and drug use. And although the girls can show those things too, for the girls it tends to be more the anxiety, depression.

**Aside:** And of course we know there are many genders, gender can be on a spectrum too, but this is speaking broadly about people assigned female at birth. And those with ADHD who were raised as girls also tend to show higher rates of self-harm, including disordered eating, which can be completely missed.

Now, speaking of things we have to do every day that take foresight and planning, and task initiation: Food. What should you be eating? How do you eat if you have ADHD? So, in Dr. Barkley's book, *Attend Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*, he wrote that essential fatty acid supplementation may make a difference in ADHD symptoms. But more research is needed, and he also notes that two pilot studies suggest that low iron levels can exacerbate ADHD and supplementation can help.

If you listened to the Microbiology episode, you might be wondering, how do my simmering, waste-filled guts feel about all this? Or rather, how do they make me feel? Well, patron Gwen Kelly inquired: Is there any research connecting microbiome and ADHD?

And in fact, I dug in, I got in the muck, and I found a study published just last month in the journal *Nutrients*. It was titled, “Current Evidence on the Role of the Gut Microbiome in ADHD Pathophysiology and Therapeutic Implications.” But it warned that evidence of the role played by the microbiome gut-brain axis in ADHD is still scanty and heterogeneous. So, it’s aaaaall the fuck over the place.

It went on to say that in children and adolescents with ADHD, that microbiome gut-brain axis is involved in the pathophysiological mechanisms of neuro-information. Thus the gut microbiome could represent a potential therapeutic target in children and adolescents with ADHD. But, sadly, very womp-womp trombone, it noted that inconsistencies were found among the three supplementation clinical trials on children with ADHD. So, they haven’t quite cracked the code yet.

There’s this diet though, called the Feingold program that just, kind of, wipes your plate of any artificial colors and flavors, sweeteners, or preservatives, but not all research on it can be replicated. Many experts are like, [*doubting*] “Hm...” on the fence. But research has shown that about 5-8% of folks with ADHD may have sensitivities to those things. But it can be a heavy burden to have a diet so strict.

Patron Adam Weaver asked: Why does red dye #40 really set things off for my ADHD?

**Alie:** How about additives? We got questions about, like, red dye. Does that have an impact on brain chemistry?

**Dr Barkley:** Scientifically, there’s a minuscule amount of evidence to show that among preschool children, about 3-5% of them are exacerbated if they’re exposed to a food coloring. It’s not additives, it’s not preservatives, it’s not flavorings. It turned out to be food coloring.

So, I don’t want to just throw the baby out with the bath here. There’s a little bit of information out there that does show a reliable exacerbation, but primarily in preschoolers. So, there’s a little bit there, but that doesn’t mean you should go around consuming this stuff. But we have found nothing in the diet that is causal of ADHD that can turn a typical person into an ADHD person through sugar, or additives, or plastics, or any of those kinds of things.

**Aside:** Dr. Sandy Newman is one ADHD practitioner who advocates for balancing your diet and recommends sussing out food sensitivities to see if it has any effect on your noggin. He’s written a bunch of articles, and in one writes:

*Try this technique I use with my patients. Eliminate a whole set of foods (dairy, wheat, corn, soy, and eggs are common culprits) for three weeks. And if improvement is detected, start adding the foods back one by one for a couple of days. I usually recommend starting with gluten first. Give it three to four days and see if there are any developing behaviors associated with each food. The process should take six weeks in all. [“You can do it.”] Now, if no improvement is detected, then food sensitivities are likely not an issue.*

So if you’ve been meaning to do, like, a Whole 30 or something, maybe this is your cue, I say to myself, pointing at my own face. Ask me if I watched people making Paleo pad thai out of spaghetti squash at 2am last night. I did.

Speaking of that, a bunch of patrons asked about screens grabbing our attention, and I’m looking right at you, Bailey Ricketts, Heather Wills, Daphne McKee, and Coral Taylor. Does Dr. Barkley have any thoughts? Of course!

**Dr Barkley:** And it's not screentime, by the way, the idea that the more time you spend with screens and computers, the worse that makes this. People think there's an acquired ADHD because of technology. There is no evidence underlying that particular mythology. It's the other way around. People with ADHD gravitate toward engaging technology and are more engaged by it because of its highly reinforcing properties. So they're on social media, they're internet gaming, they show internet addiction that other people are able to pull away from and lead a more healthier, better-regulated life.

So, the chicken and egg has been pretty much sorted out. ADHD leads to an abuse of screens and technology. Not the other way around.

**Aside:** So if you do have a problem with too much screen time, maybe you could do it safely on a treadmill, like the ol' indoor scroll-n-stroll.

**Alie:** Laura Stacey wants to know, they were diagnosed later in life and have found certain things especially helpful. A big one being movement and exercise. Is there any research on the effects of exercise on ADHD?

**Dr Barkley:** Yes there is. Over the last decade, it started out to be, sort of, a clinical observation. A lot of us began to realize that our kids were better on the days they played sports. They're better after recess. So people started exploring this, and then we realized that both, what I call macro-movement, which is where you go out for a run, or climb three flights of stairs before you go into a business meeting, you play sports, that's great. That research shows that that is very helpful for managing and containing your disorder. It doesn't buy you cure, but it can reduce your symptoms for 45 minutes to an hour and a half by engaging in vigorous activity.

Now what we're realizing is that even micromovement is helpful. For instance, if I go into a business meeting, or I have to listen to somebody who... I have an educational video for instance, as an example. You are better off squeezing a tennis ball with one of your hands, or taking notes, or standing and pacing while you do that. So, stay in motion while learning and you will be able to pay attention longer than if you have to sit like a cadaver with your hands in your lap, and your head forward, and now you're a dead person. [*I'm dead.*]

We now have a number of schools that are adopting this, where kids are allowed to sit on balance balls, and they've got little swings under their desk they can put their feet on, and they're allowed to have a stress ball in their left hand, and they can stand, and sit on their knees, and walk around their desk while they're working. All of which leads to better productivity by these people. So, the answer to that question is Yes. Exercise helps and we're learning that increasingly now.

**Aside:** And your PodMom, Jarrett, says exercise definitely helps him. The kinds that work the best for him also engage his brain, like martial arts or weightlifting with actual, good technique as opposed to how I weight lift, which is just poorly, looking like someone scrambling up a hill with luggage.

But do you have pet peeves with exercise? Jarrett says team sports, like being stationed in the outfield, having to stand there with a mitt and just wait for something to fly at your head while a collection of screaming people are like, "We're relying on you! Don't mess it up!" Those are his least favorites. There's also running and listening to podcasts. Hey!

What about the sport of hittin' the sack? Patrons, NanoNaturalist, LungOx, Janelle Shaw, Carter Hildebrand, and first-time askers Christie Fudurich and Stacy Simmons all had sleepy bedtime questions. As well as...

**Alie:** Celia LaBonte wanted to know... They were diagnosed at 26 but they want to hear about sleep procrastinating and the intersection of sleep and ADHD, and how ADHD can fuck up sleep patterns. And just procrastination in general...

**Dr Barkley:** Yeah, yeah. Sure. Well, I'll view those as separate because sleep procrastination is also insomnia, so let me deal with the sleep issue first. 40% of kids and adults with ADHD have serious sleep disruption. That goes with the genetics of this disorder and it can be difficulties with falling asleep, it can be frequent night waking, it can be restless leg syndrome or just restless sleep, it can be early rising. All of which leads to, at the end of the night, very inefficient sleep, leaving you tired the next day, which feeds back to worsen your already terrible attention span because now you've got sleep interacting with ADHD inattention, leading to problems.

On top of that, research particularly in Holland by Sandra Kooij and others, has shown that people with ADHD get a different version of the clock gene, which is the gene that determines your, sort of, mental tempo and your peak hours of alertness and arousal. Adults with ADHD tend to have a peak time of arousal three to four hours later than typical people. Typical people, it's mid-to-late morning. Adults with ADHD, it's mid-to-late afternoon. So, sometimes what we teach you to do is to play around with that. Can you get a flexible work schedule? Are you better off going into, say, self-employment where you can alter your schedule? Or working from home and having a flex schedule with your boss?

Understand that the disorder has created in you a delayed diurnal rhythm so that your peak times of concentration are not the same as other people. And trying to manage that with caffeine is not good because it doesn't help all that well, and trying to cope with it by simply saying, "I just need to learn better ways to fall asleep," well, I'm sorry; biologically, you're not programmed to fall asleep when other people do.

**Aside:** For more on this, you can see the double Somnology episodes on sleep, or the Chronobiology episode on circadian rhythms and why you should make sleep your number one priority always and forever. Sleep, your number one crush. Oh my god, the best. Sleep is King. Or Queen. Or Full. Even twin or couch. Sleep is Couch. Whatever is good is good for you.

**Dr Barkley:** So, that's all by way of saying that, you know, a lot of times we have to address that sleep problem through other means, whether it's through another medication, whether it's through switching away from a stimulant because stimulants cause insomnia whereas the non-stimulants don't. Maybe we have to send you to a sleep lab for a 24-hour polysomnogram where we look at your rhythm day and night but particularly during sleep to see if it's inefficient.

We know that about 10% of the people with sleep problems, it's due to obstructed airways, so tonsillectomies are indicated and result in significant improvement in children and possibly adults but more of the research is on kids. So if you're snoring a lot, if you have sleep apnea, then we want to look at how do we expand that airway, surgically or otherwise. And you can find that that improves sleep and then the kids are better the next day. So, there's a lot going on around the sleep thing that I don't want to

oversimplify. And it isn't just procrastination. There really is a diurnal rhythm problem here with alertness. Now, that said, procrastination's probably the number one problem that adults with ADHD report as part of their attention deficits.

**Aside:** Okay, Sidenote. We did touch on this in the Volitional Psychology episode, and Dr. Joseph Ferrari, leading expert in the world on procrastination, said this:

*[clip from Volitional Psychology episode, Dr. Ferrari:] I hesitate to say this because sometimes people get very annoyed with my comment, but there's only been one study that looked at procrastination in ADHD, and I did it, and I found practically no relationship.*

*Really?*

And it's true that the procrastination, or volitional psychology, community hasn't done a ton of studies on this. And the one that Dr. Ferrari mentioned was the paper "Procrastination Rates Among Adults With and Without AD/HD: A Pilot Study." And it was published in *Counseling and Clinical Psychology* in 2006. But, the study involved 29 people, most of whom were married with children, well-educated, white-collar professionals living around the same Midwestern urban area. All white too. Median age? 49 years old. And all active in a support group for adults with ADHD, which I personally have been meaning to attend for years and haven't gotten around to it.

Even then, this small, really limited study found that adults diagnosed with ADHD reported significantly higher decisional procrastination and avoiding procrastination. So, this was his study. I don't know, I count that as a relationship. Thankfully, more people want answers, because a 2021 *Frontiers in Psychology* article acknowledged that few other studies exist, but found that, yes, chronic procrastination occurred more frequently in ADHD patients than those without ADHD, regardless of gender.

And I found an article by another procrastination expert, Dr. Timothy Pynchyl, who noted that fear of mistakes and fear of boredom can contribute to procrastination in folks with ADHD, and that a good reminder when it comes to a task you're avoiding and you just do not have the motivation to start, that it doesn't have to be perfect. Leaving yourself time to come back later and revise can really take the stakes down. Next week, we have some really, really great tips about that.

But what does Dr. Barkley say works for procrastination?

**Dr Barkley:** A lot of life and a lot of work we're asked to do is scut work that isn't very reinforcing to engage in. But if you don't get it done, there's going to be hell to pay. So, the consequences for not doing it are longer term, whereas the thrill of doing it is absent. And hence, as I said, the adult with ADHD is pulled along by things that are immediately gratifying more than things that involve delay of gratification.

And that's why work is very hard for them and why they procrastinate so much, that there are plenty of things around us that offer engagement, excitement, reinforcement, interest, stimulation. And yet a lot of what we have to do in life is to turn away from those seductions and pursue that longer-term goal even though it's not very fun to do.

So how do we deal with that? One is medication. Medications correct that. What the stimulants do is they enhance the reward value of this information so that now you engage it where you didn't previously. The second thing is, as I've said, to make sure that you've managed your workspace and reorganized it so a lot of the more compelling



distractions are not there, not available to you. The third thing is, we know making ourselves socially accountable to somebody else on what we agree to do heightens the likelihood we're going to do it. That's true of typical people; it's true of ADHD people. So if I tell somebody, "I'm going to get this done in the next half hour," just making that commitment to another person enhances the consequences for me, makes it more likely that I'm going to get it done.

**Aside:** Dr. Ferrari's advice was to post your goal on Facebook, or Twitter, or tell a friend, because just a whiff of potential future public shame can really get the job done. Go on your crush's Facebook and just be like, "I'm going to vacuum my car today." I bet you'll get it done.

**Dr Barkley:** You're now accountable to someone else for what you agreed to do, whether it's your coach, your spouse, partner, colleague. That's why public accountability is a great strategy for adults with ADHD, because it ramps up the consequences for not getting it done. Whereas you just promise yourself you're going to do it, you're going to cheat yourself. We all do it. If nobody knows I'm cheating, then I'm going to cheat, right? And I'm not going to do it.

So, it really is learning to know thyself and where the demons are and get them behind you, so to speak. Get them out of the way and use other people to manage yourself, and then go on medication. There's a lot of strategies in my book that we could go through. That can help.

**Aside:** And some patrons like Mckenzie Faas, Michelle Krebs, Kelly Semon, Heather Moore, Team Morris, and first-time question-askers Erin Spencer and Dave, don't worry. I did not reject your questions. They were good ones, and they were super important to me. As well as to Postofficer69.

**Alie:** Can I ask you one more question from a listener? Postofficer69, first-time question-asker, says: Could you have Dr. Barkley discuss rejection sensitivity in relation to ADHD? I'm trying to learn as much as I can to better support my fiancé.

**Dr Barkley:** Yes, that's great. Number one, there is no such disorder in clinical practice that is officially recognized. This was invented by a particular clinician to explain the heightened emotion that people experience in their social relationships with others, particularly when those social relationships can be frustrating. So you get this, what he calls, rejection sensitivity. Just know this: there's no disorder, no clinician will diagnose you with that because there's no DSM disorder there.

**Aside:** So, sensitivity to rejection and criticism is a thing, it very much exists, and folks with ADHD may be much more vulnerable or reactive in that regard. So is RSD, rejection sensitivity dysphoria, a specific disorder that you have? No, just because it's not recognized by the greater psychological and neuroscience community in a book. There's not a consensus on it yet. There's not a label that actually exists. Who knows what might change though?

But the feelings are real, and – this is just my opinion, your internet dad with unbrushed hair and a lot of "been there" feelings – if rejection sensitivity helps you to put your own emotions in perspective, or calms you when you need some objectivity, or helps explain to a partner why you are so clinically butthurt, use it! Knowing how to soothe each other and see vulnerability and hurt is probably one of the greatest tools a relationship can ever acquire and maintain. I call it a win.

And Dr. Barkley concedes that yes, those feelings are valid.

**Dr Barkley:** On the other hand, do people with ADHD show a heightened emotional reaction in these situations? The answer is yes, but we know where that comes from. One of the executive functions is emotional self-regulation, and we know that ADHD individuals can't do that as well as other people. And therefore, when they are faced with environmental situations that are frustrating, impatient, non-rewarding, or even aggressive toward them, or when they sense rejection from another person, they're going to react emotionally much more than other people do.

But it's not just to social relationships. It is across the board. They're going to be more emotional even when they're alone and encounter frustration. I had a weightlifter tell me that he tore the door off of his car because when he parked and went into the parking lot, he felt the keys in and he locked the door. This was back in the old school days, where these days it's very hard to do that because cars are programmed to do that. But this guy literally spent 30 minutes by the side of the road in a parking lot tearing the door off a car. That's how angry he got.

Road rage is characteristic of 45-50% of adults with ADHD. All it takes is another driver to cut you off aggressively and you engage. So the emotionality of ADHD permeates almost everything. It explains why there's a lot more intimate partner aggressiveness, frustration in intimate partner relationships because they can be some of the most challenging, frustrating, and emotional situations that we have.

**Aside:** Does your partner have ADHD? Or do you? The book *The ADHD Effect on Marriage* by Melissa Orlov is a book you may want to get yesterday. Even if you're not married; Jarrett and I wouldn't be married if we hadn't both listened to that book in 2017, I think. It changed our relationship so fundamentally. We would not still be together if we hadn't both listened to it at our own pace on audiobook. We listened to it over the course of a week or so. It helped us a bunch. *The ADHD Effect on Marriage*. I'll link it to my website.

**Dr Barkley:** So it goes beyond just rejection by another to incorporate any emotionally provocative situation, including relationships but beyond relationships. So, we can account for this rejection sensitivity without adding in and inventing whole cloth a new disorder for which there is very little evidence.

**Aside:** Dr. Barkley is a world-renowned expert on this, and his work and lectures have changed and saved lives. And next week we'll give the bright sides, and the tips, and the perspective on ADHD. This episode, we learned to take it seriously. What sucks about his job?

**Dr Barkley:** Worst thing about my job right now is I'm 72 and I see the end of my career ahead of me, and you know, it's been a great ride. I just can't tell you how rewarding it has been to work in this field. That's why I wrote the four books during the pandemic. The one for parents, the *12 Principles* book, I basically sat down and said, "If you could reduce over a half-million research studies, papers, conferences to crucial ideas that we've learned that everybody needs to know, it would be those 12." And the adult, *Taking Charge*, has the same information, I just didn't phrase it that way.

So, the bad thing for me is I can see this coming, and I'm stepping back, and I'm moving into semi-retirement and enjoying my grandchildren, but I'm going to miss the ride. It's been extremely rewarding to be this helpful to so many people through the act of

scientific discovery. And more importantly, as Carl Sagan and others have shown, is to disseminate it. Leave the lab. I keep teaching this to students and young faculty. You do nothing when you publish a paper. You do a great deal for humanity when you go out and meet with the people who have this problem, and share the science, disseminate it. And you change lives that way. And yet, my colleagues don't value that. They value the publication, the scholarship. If you write a trade book, if you give a lecture... like my lecture on YouTube is over a half-million views. So, disseminate the science.

The upside for me has been just the excitement of the discoveries. Every time I think I'm getting bored, a paper appears like the one yesterday on, you know, the delay in functional connectivity in the brain, and the areas of the brain, and what that means for their symptoms, and explaining the disorder and what it might mean for new treatments for us. To me, that's just... It's so incredibly exciting to an inquisitive person like myself, to keep seeing these discoveries come along.

**Alie:** Thank you so much for the way that you do disseminate it. Your books are incredible. They are the bible when it comes to ADHD.

**Dr Barkley:** Well, I've got to thank Chris Benton, my co-author. Chris, she's my writer. She makes it sing. I bring the science. She brings the way to deliver it.

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So ask experts some amateur questions, because as you heard, they want to share it! And besides, we're all going to die one day; you might as well just ask questions. I hope this episode is a springboard into greater understanding for you. Next week, more experts, more folks with ADHD, and people who study ADHD. Just you wait! You do have to wait though, about one week.

If you need more info now, though, you can get yourself to a bookstore and obtain [Taking Charge of Adult ADHD](#), 2nd edition. That's by Dr. Russell Barkley. Just came out with a brand-new, updated edition in November. There's so many links to his books and studies we mentioned, and other resources, including his videos. That'll all be up at [AlieWard.com/Ologies/ADHD](#). Russell's website is [RussellBarkley.org](#). And from what I can tell, there's a weird imposter Twitter account that's not really him. But we're @Ologies on [Twitter](#) and [Instagram](#). I'm [@AlieWard](#) on [both](#). Come say hi.

Thank you to the *Ologies* Podcast [Subreddit](#). Thank you to Erin Talbert for adminning the *Ologies* podcast [Facebook group](#), and Boni Dutch and Shannon Feltus of the podcast *You Are That* for helping out too. Noel Dilworth helps so much behind the scenes with scheduling. So many meetings I would miss without her. Susan Hale does [merch](#) and helps with those really cool Instagram quizzes. Emily White of The Wordary makes professional transcripts. Caleb Patton bleeps them. Transcripts and bleeped episodes are up for free at [AlieWard.com/Ologies-Extras](#). And for truly kid-safe episodes, check out Smologies. Those are in your feed every few weeks and they are scrubbed of my filth. Thank you Zeke Rodrigues Thomas of Mindjam Media for heading those up. And Steven Ray Morris for helping out.

Major thanks, huge thanks, to lead editor, right-hand, and the most glimmering, shiny, beautiful big brain I know, Jarrett Sleeper, also of Mindjam Media, for editing it all together and making it work every week with me. Nick Thorburn wrote and performed the theme music. And also, if you're a patron or you're thinking about joining, I'm going to be doing a live stream on Patreon, March 6th, Sunday, at noon California time just to chat about the making of this episode and some brain stuff I personally have been going through in the last few months. And you can check out the Women in STEM panel on March 3rd through the California Academy of Arts and Science. I'll be moderating a

live chat in person for the first time since March 2020. And you can see that online; that's March 3rd at the California Academy of Arts and Science.

Also, special thanks to Matt Shep, who's on TikTok, who was also my server over the weekend as I was posted up at a restaurant and I sipped one latte for four hours working on this episode and he asked if he would get a thanks in the credits and I was like, "Yes, you will actually." Thank you, Matt Shep.

If you stick around to the end of the episode, I tell you a secret, and that secret is there's been this streetlight outside my window for maybe a year and it was gradually turning bluish, and then a deep, beautiful violet. It was such a weird color. And I was like, "What's going on with this streetlight?" And I looked it up, and I guess streetlights all over the country are just doing that randomly because of a coating over it that shifts the color temperature warmer, but that coating has been degrading, turning these lights super, super blue.

But number one, a bunch of people think it's actually a blacklight conspiracy that's, I think, spying on you. But number two, I mentioned it to my friend McKenzie, this purple streetlight, and we both confided that we love the messy purple ones. And this week, I went to water the wildflowers in the garden we just planted and I looked up and I noticed that they fixed the purple light. But I miss the purple light. I thought it was so cool.

Next week: Productivity hacks. Relationships. And neurodiversity. Life-work balance and boundaries on your energy and accepting yourself. I can't wait.

Okay, berbye.

*Transcribed by Emily White at [TheWordary.com](http://TheWordary.com)*

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Additional [books](#) and [papers](#) by Dr. Barkley

Dr. Barkley's seminar, [30 Essential Ideas you should know about ADHD](#)

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[Prevalence of ADHD](#)

[An Institute for Family Studies analysis of US Census data found that a record 35% of US adults ages 25 to 50 had never married as of 2018. In 1970, that share sat at 9%.](#)

[Attention-Deficit/Hyperactivity Disorder and Mortality Risk in Taiwan](#)

[Søren Dalsgaard from Aarhus University in Denmark, found the relative risk of dying was much higher for women than for men with ADHD.](#)

[Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study](#)

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[Meta-Analysis: Reduced Risk of Anxiety with Psychostimulant Treatment in Children with Attention-Deficit/Hyperactivity Disorder](#)

[Methylphenidate 'normalizes' activation in key brain areas in kids with ADHD, study suggests](#)  
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[Dr. Ferrari's study on ADHD and procrastination: Procrastination Rates Among Adults With and Without AD/HD: A Pilot Study](#)

[The ADHD Diet Plan: Healthy Foods and Supplements for Kids & Adults](#)

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[Dr. Sanford Newmark's paper in Nutritional Intervention and ADHD](#)

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[Current Evidence on the Role of the Gut Microbiome in ADHD Pathophysiology and Therapeutic Implications](#)

[The Moderating Effect of Attention-Deficit Hyperactivity Disorder Symptoms on the Relationship Between Procrastination and Internalizing Symptoms in the General Adult Population](#)

[ADD.org](#)

[The World Federation for ADHD](#)

[ADHD Effect on Marriage, by Melissa Orlav](#)

[Open office plans: a 66% reduction in productivity – with added anger and illness!](#)

[Psychology Today article by Dr. Timothy A Pychyl on Procrastination and Adult ADHD](#)

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