

Science-Based Tools for Increasing Happiness | Huberman Lab Podcast #98

I explain the science of happiness, including the different types of happiness and how our actions, circumstances and mindset control them. While it is difficult to standardize happiness from one person to the next, I outline a structured framework of what is critical to increasing your innate “natural happiness,” including financial security, purposeful work and relationships, and I explain specific tools to increase internal happiness (so-called “synthetic happiness”). I review how specific types of human connection and attention to our choices (or lack thereof) can increase or undermine our level of happiness. I also discuss the importance of certain types of physical contact, gratitude, financial choices and volunteer contributions that research shows can maximize happiness. And I discuss how factors such as children, pets, physical well-being, substance use, prior traumas and life-phase milestones affect our quest for and depth of happiness.

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ANDREW HUBERMAN: Welcome to the Huberman Lab podcast, where we discuss science and science-based tools for everyday life. [MUSIC PLAYING] I'm Andrew Huberman, and I'm a professor of neurobiology and ophthalmology at Stanford School of Medicine. Today we are discussing happiness. We're going to discuss the science of happiness, because indeed, there are excellent laboratories that have worked for many decades to try and understand what is this thing that we call happiness and what brings us happiness in the short and long term. In fact, we could probably point to happiness as one of the most sought-after states or commodities, or emotions. Whatever you want to call it, happiness is what many people are seeking in work, in relationships, and in general. And yet most of us can't really define exactly what happiness is or means for us. We can point to certain experiences, we can try and describe our states of mind and

body, but most people recognize the feeling when we have it, and we certainly recognize the feeling of not being happy. Whether or not that means simply not being happy as the absence of happiness or all-out depression. Now one of the key problems in trying to understand happiness and, indeed, the science and psychology of happiness is that it does indeed involve other similar things. Things like joy, and gratitude, and meaning. And indeed, many scientists and psychologists have argued for many, many decades about what happiness really is. Now we can come up with so-called operational definitions of happiness. Operational definitions are basically agreed-upon terms or agreed-upon definitions and conditions that will define something such as happiness. Much in the same way that we can all probably come up with an operational definition of milk. But of course, milk can be cow's milk, it can be oat milk, it can be soy milk, et cetera, et cetera. So too, something like happiness can be micro-divided and sliced and diced into as many things as we decide. Today we are really going to focus on three main things. First, we are going to define happiness as a brain state and as a state of mind and body. We're going to take a look at what the science says about all of that. Second, we are going to talk about tools and practices for placing ourselves into states of happiness. And while for most of us, we think of happiness as something that only arrives through the acquisition of some goal or some thing external to us, and of course, that is true. There is also something called synthetic happiness or synthesized happiness which turns out to be at least as powerful and perhaps even more powerful. Now I'll just say right off the bat that I'm not going to tell you that all you have to do is sit in a chair and imagine being happy in order to feel happy. Synthesize happiness actually involves some very concrete steps that have been defined by excellent labs in psychology, so we're going to talk about synthesized happiness as it relates to what you can do to obtain happy states more readily or more frequently. And then, third, we're going to talk about some of the misconceptions or what I would call the contradictions of happiness research. And what I mean by that is most of you have probably heard about the general conditions for obtaining happiness. And they always seem to circle back to some of the same basic features of get great sleep, have great social connection, pursue meaning, don't focus too much on things like pursuing money because there are indeed these studies that show that the amount of money that people make does not necessarily scale directly with happiness. We'll talk about those studies in some detail a little bit later. And while all of that literature is very powerful and informative, there is what I see as a contradiction. Which is for instance, that for many of

us, including myself, especially in the years when I was in graduate school and a postdoc, there were times in which pursuing and being involved in work and pursuing degrees and finding meaning in my vocation actually separated me from the opportunity to have quite as many social connections, or quite as much sleep, or quite as much exercise, or even quite as much sunshine, for that matter. So all of the things that we're told that we need in order to access happiness on a regular basis oftentimes contradict with the pressures and the requirements of not just daily life but in building a life that allows us to have the kind of resources that we need in order to have things like quality social connection, and the time and opportunity to get regular exercise and great nutrition, et cetera, et cetera. So, again, while this isn't necessarily a complaint with any of the research out of the fields of psychology on happiness, it is important that we acknowledge these contradictions that exist in the discussion around happiness. In particular, the popular discussions around the science of happiness. So today, what we are going to arrive at, what you will finish this episode, with is a set of tools and a framework for understanding the pursuit of happiness in the short and long-term as it relates to the research from psychology but also the neuroscience. And my goal today is really to try and place that all into a structured framework so that you can know where you are in your journey or the landscape around happiness in your pursuit of happiness. And what I won't tell you is that you need to abandon all goals in terms of pursuing money, career, et cetera, and simply focus on relationships. But we will talk about what constitutes an excellent social bond or even in excellent conversation. There's excellent research that points to the fact that even rather shallow connections, that is, connections between people that you happen to just see in the hallway on a regular basis, not even requiring close bonds of any kind, can be built into close bonds that can deliver a tremendous amount of feeling and genuine social connection provided certain conditions are met. So today, again, it's really about understanding the science of happiness, understanding the mechanisms underlying what we call happiness. And providing you a framework by which you can pursue and achieve happiness not just as a long-term goal and not just as a day-to-day goal of little micro exercises of gratitude, et cetera, but rather as a way to think about happiness as a state that you have control over, at least in terms of your ability to access

00:06:27 Tool: Light Exposure Timing & Brightness Timing

what I would call the algorithms that enable us or open the opportunity to experience happiness. Now before we begin today's episode, I'd like to talk about a very specific tool that applies yes to our pursuit of happiness but actually to our pursuit of everything, including quality sleep and ongoing motivation, et cetera. I've talked many, many times before on this podcast and on other podcasts, and on social media about the critical value of getting regular bright light, ideally sunlight, in your eyes within the first hour of waking. Or if the sun isn't out when you wake up in the morning, to turn on a lot of bright artificial lights and then get sunlight in your eyes for anywhere from 5 to 20 minutes, depending on how cloudy it is in the early part of the day. Absolutely outsized effects mood and focus during the day and quality of sleep at night. Now there's another sort of central tenet of getting great sleep and improving mood and focus throughout the day. And that's to avoid bright artificial light exposure to your eyes between the hours of about 10 PM to 4:00 AM. Now leaving shift workers aside, and we have an entire episode devoted to shift work, most people are asleep at night and awake during the day. And you would be wise to avoid exposure of your eyes to bright artificial light between the hours of 10:00 PM and 4:00 AM. If you're going to use screens or artificial lights, dim them down as far as you can. Now there are several studies that point to the fact that one of the major issues with getting bright light in your eyes between the hours of 10:00 PM and 4:00 AM is that it has a negative impact on the so-called dopaminergic or dopamine circuits of the brain and body, which can enhance depression. That is lead to ongoing lower mood and affect. So that's a reason to dim the lights or avoid bright lights between 10:00 PM and 4:00 AM. However, I and many others need to use artificial light and screens sometimes, even between the hours of 10:00 PM and midnight or even midnight to 3:00 AM, depending on what's going on in my life or your life. That may include you as well. Now it turns out that there are powerful ways to offset some, not all, but some of the negative effects of viewing artificial lights between the hours of 10:00 PM and 4:00 AM. And one of the most powerful ways to do that is to simply adjust the overall brightness of your artificial lighting throughout the day and in the evening. So one of the issues nowadays that we're really facing is that people are simply not getting enough bright light in their eyes from sunlight or from other sources during the daytime, and they're getting far too much bright light in their eyes largely from artificial sources, of course, in the evening and at night. Not just from 10 PM to 4:00 AM, but also in the evening hours from 6 to 10 PM and so on and so forth. So a very simple yet powerful solution that supported by peer-reviewed research in humans is to try and make your

indoor working and/or home environment during the day as bright as possible. Now, if you can achieve that through direct sunlight, terrific. If you can get outside a lot during the daytime, terrific. But many people simply cannot. But most people do have some windows in their environment. I realize some don't but, most people do. And as a consequence, most people are using rather dim artificial lighting indoors during the day and then very bright artificial lighting indoors in the evening, and at night, that's a problem. And if you think about it, logically, you want to do the exact reverse. So it's been shown that if you simply increase the amount of bright artificial light that you were exposed to during the day, and remember this is not an excuse to not get your morning sunlight viewing, but in addition to that, to make your indoor artificial lights very bright, bright, bright, bright, bright throughout the day. And then much dimmer from the hours of 6:00 PM until bedtime. Or if you can't do that, then maybe as soon as you get home from about 8:00 PM until bedtime. And then dim them way, way down between 10:00 PM and 4:00 AM or off entirely. That's going to be a far better pattern for your sleep-wake cycles, focus, mood, et cetera than what most people do, which is to have a few windows in their indoor working environment during the day and keep the indoor lights rather dim at a time when they need more photons, more light energy. And then in the evening, when they get home because it's dark outside, they tend to turn the lights much brighter. You actually want to do the reverse. Now there's an even simpler solution, which is to get some bright sunlight in your eyes right around the time of sunset. It doesn't have to be exactly at sunset, it could be in the late afternoon and evening. But it's been shown now in studies on humans, and I'll provide a link to at least one of those studies, that by getting some bright light in your eyes, ideally from sunlight, in the late afternoon and evening. And, of course, the timing will vary depending on time of year and where you are located on the planet. But facing the sun around sunset, you don't actually have to see the sun cross down below the horizon, but facing the sun around that time for anywhere from 5 to 10 minutes or even less, even two to five minutes, can adjust the sensitivity of neurons in your retina that communicate light information to the brain and make it such that in the evening when you use artificial lights, they aren't going to have as much of a detrimental effect on your dopamine system and for impairing your sleep. So the idea is as much bright light, ideally from sunlight but also from artificial sources, from the time you wake up in the morning until the evening. Maybe around 6:00 or 7:00. Maybe in the summer months, a little bit later. And then really try and get as little bright light in your eyes as you can in the evening and nighttime hours. And ideally, you would

also get some sunlight exposure right around the time of sunset or in the late afternoon. Go outside, take your sunglasses off. Don't try and do this through a windshield or through a window. It will not work. You have to get outside. If you're under an overhang, at least try and get some direct sunlight in your eyes at that time. And that will adjust the sensitivity of your retina such that bright artificial lights or artificial lights of any kind that you're exposed to in the evening and in the late hours of the night won't have as much of a detrimental effect. That said, if you go to the bathroom in the middle of the night, try and keep the lights dim. Many people have asked whether or not, for instance, a nightlight or a flashlight is going to have as much of a negative effect. This is very straightforward. If you think about it, if you shine a light at something, you can see into your environment. If you've ever been camping or you've walked with a flashlight, you can see things around you that you wouldn't otherwise, of course. But if you were to shine that light in your eyes, it would be far brighter. So yes, of course, if you get up in the middle of the night and you can use your phone flashlight to illuminate the environment that you're in so that you can safely go to where you need to go and then back to bed, that's going to be far better than turning on the lights or, of course, shining light in your eyes, right. So the idea is bright, bright, bright in the morning and throughout the day. And as dim and dark as possible at night. And that afternoon light viewing provides, sort of, what I call a Netflix inoculation that will allow you to adjust your retinal sensitivity and give you a little bit more flexibility in terms of allowing some nighttime light exposure without the detrimental effects. Now I realize today's episode is about happiness, it's not about sunlight or dopamine. And yet, as we'll talk about more in just a moment, if you're not optimizing your sleep and if you are using or being exposed to light rather at the wrong times of the day/night cycle, that is going to make it very hard for the other sorts of practices that relate to happiness to have their full impact. So the backdrop, where I would say the kind of landscape of your chemicals and your hormones, is powerfully controlled by not just the brightness of light but the timing of light and your exposure to light. In particular, your exposure to light to your eyes is something that you have a lot of control over. You don't have absolute control, but you have a lot of control over. And it's been proven that even these small steps, which are completely cost-free. They require just a few minutes of time, but no purchase a product or anything else can allow you to greatly adjust your neurochemistry

and your hormones in the direction of better mood, better sleep, and happiness. Before we begin, I'd like to emphasize that this podcast is separate from my teaching and research roles at Stanford. It is, however, part of my desire and effort to bring zero cost to consumer information about science and science-related tools for the general public. In keeping with that theme, I'd like to thank the sponsors of today's podcast. Our first sponsor is Thesis. Thesis makes custom nootropics. And as I've said many times before on this podcast, I am not a fan of the word nootropics because it means smart drugs. And frankly, there are no specific neural circuits in the brain or body for being quote-unquote smart. Thesis understands this, and they've developed custom nootropics that are designed to bring your brain and body into the state that's ideal for what you need to accomplish. They use the highest quality ingredients, things like phosphatidylserine, alpha GPC, many ingredients that I've talked about before on this podcast and that I happen to use myself. I've been using Thesis for over a year now, and I can confidently say that their nootropics have been a game changer. For me, I like their nootropic for clarity. I used that before cognitive work often. And I like their nootropic for energy. And I often used that before workouts. In particular, workouts that are especially intense. To get your own personalized nootropic starter kit, go online to takethesis.com/huberman. Take their 3-minute quiz, and these will send you four different formulas to try in your first month. Again that's takethesis.com/huberman. And use the code Huberman at checkout to get 10% off your first box. Today's episode is also brought to us by InsideTracker. InsideTracker is a personalized nutrition platform that analyzes data from your blood and DNA to help me better understand your body and help you meet your health goals. I've long been a believer in getting regular blood work done for the simple reason that many of the factors that impact your immediate and long-term health can only be analyzed with a quality blood test. One of the problems with a lot of blood tests and DNA tests out there, however, is that you get information back about lipids and levels of hormones and levels of metabolic factors and so on, but you don't know what to do with that information. InsideTracker has a very easy-to-use online site where you can monitor your levels. And you can click on any specific marker, any specific hormone, or metabolic factor, and it will tell you the behavioral tools, for instance, exercise, the nutrition tools, and the supplementation-based tools that you can use in order to bring those numbers into the appropriate ranges for your immediate and long-term health goals. If you'd like to try InsideTracker, you can visit insidetracker.com/huberman to get

20% off any of InsideTracker's plan. Again that's insidetracker.com/huberman to get 20% off. Today's episode is also brought to us by Helix Sleep. Helix makes mattresses and pillows that are of the absolute highest quality. I started sleeping on a Helix mattress well over a year ago, and it's been the best sleep that I've ever had. One of the things that makes Helix mattresses so unique is that they match the design of the mattress to your unique sleep needs. So, for instance, if you go on to their website, you can take a brief quiz. It's only takes about two or three minutes. And you'll answer questions like do you tend to run hot or cold throughout the night. Or whether or not you sleep on your back, your side, or your stomach, or maybe you don't know. Regardless, they will match you to the custom mattress that's ideal for your sleep needs. For me that was the dusk D-U-S-K mattress. Which, for me, was not too firm, not too soft, and was ideal for my sleep patterns. You take the quiz, and you'll find out what mattress is ideal for your sleep patterns. So if you're interested in upgrading your mattress, go to helixsleep.com/huberman, take their brief sleep quiz, and they'll match you to a customized mattress. And you'll get up to \$200 off any mattress order and two free pillows. They have a 10-year warranty. And you get to try out the mattress for 100 nights risk-free.

00:17:51 Imprecise Language for Happiness

Again, if you're interested, you can go to helixsleep.com/huberman for up to \$200 off and two free pillows. Let's talk about happiness. This thing that everybody seems to want, and yet not everybody can agree on what exactly it is or how to get it. Now I want to start by quoting a previous guest on the Huberman Lab podcast. And that is a colleague of mine at Stanford School of Medicine, Dr. Karl Deisseroth, who's both a bioengineer and a clinician. That is, he's a psychiatrist who spends a lot of his time both running a laboratory and seeing patients, human patients, of course. And I once was at a meeting where I heard Karl say something to the extent of we don't know what other people feel. In fact, most of the time, we don't even really know how we feel. And while that statement was meant to report several different things about the way that the brain works and emotions, et cetera, one of the things that he was emphasizing, and I know he was emphasizing it because he confirmed this for me, was the fact that language. Things like the word happiness, or joy, or meaning, or pleasure, or delight, are actually not very precise when it comes to describing our brain and body states. So, for instance,

if I tell you I'm feeling pretty happy. I know what that means for me, at least in this moment, but you don't really know whether or not it means the same thing as what pretty happy means for you. If I say I'm extremely happy and I have a big grin. I have a grin on my face that I can't seem to wipe off my face. Well, then, you might get a sense of how much happier I am than pretty happy. But it's still hard to calibrate my level of internal state or happiness, and the same is true for you and for everybody else. And it's important for us to acknowledge this because at this point in human history, 2022, we don't really have a measurement like body temperature or heart rate or heart rate variability or even a way to measure neurochemicals in the brain and body that give us anything better than a crude correlate or an estimate, at best, of what happiness is. So that's really important to understand and to keep in mind throughout this episode. It doesn't mean that we cannot have a strong data-driven conversation about happiness and what brings us to a state of happiness. But it's very important to understand that language is not an ideal and maybe even a deficient tool in terms

00:20:26 Happiness: Neuromodulators & Neurotransmitters

of describing our emotions and our states of mind and body. Now equally important is to understand that while we do have neurotransmitters, that is, the chemicals that are released between neurons, nerve cells that allow neurons to communicate, things like glutamate and gaba, for instance. And we have what are called modulators. These are chemicals also released by neurons that impact the electrical firing and chemical release of other neurons. Things like serotonin, and dopamine, and acetylcholine, and epinephrine. Neuromodulators and neurotransmitters are always present in a cocktail in our brain and body. That is, they are present in different ratios and at different levels. So we need to completely discard with the idea that any one neurotransmitter or any one neuromodulator is solely responsible for a state of happiness or for a lack of state of happiness, for that matter. That said, it is true that for people that tend to have lower baseline levels of, for instance, dopamine, their levels of happiness, or we should say their self-reported levels of happiness, tend to be lower than for those that have greatly elevated baseline levels of dopamine. Now, this can be best appreciated at the extremes where, for instance, in conditions like Parkinson's disease or other conditions where people's levels of dopamine in their brain is severely depleted. Mind you, we also see this in drug-addicted individuals that are in a withdrawal state because they're trying to

quit or they don't have access to the drug that normally stimulates release of dopamine. Think the cocaine addict who can't get cocaine. Or the methamphetamine addict that can't or is trying to avoid taking methamphetamine. Or the Parkinson's patient who has fewer dopamine neurons because they degenerated. Those individuals do tend to be more depressed. They tend to have lower affect. They are less happy. At least, that's how they report themselves to be emotionally. And that's what we observe when we look at them behaviorally in terms of the amount of smiling, the amount of energy they seem to have. At the opposite extreme. And while still focusing on the kind of pathology of neurotransmitter and neuromodulator systems, an individual who is in a manic phase of bipolar will tend to have very elevated levels of dopamine. And those people will talk a mile a minute, and they won't require sleep. And at least to them, every idea is an exciting idea and one that they want to pursue. We did an entire episode about bipolar depression, A.K.A. Bipolar disorder. So if you'd like to learn more about that, please check out that episode. That and all other episodes of the podcast, of course, you can find it hubermanlab.com in all formats. But the point here is that very low levels are very high levels of dopamine are correlated with certain states of, for instance, low happiness or the absence of happiness. We could even call it depression in some cases. Or extreme happiness or even euphoria. Sometimes even inappropriate euphoria, as is the case with bipolar depression or sometimes called bipolar mania or bipolar disorder. Now, of course, there's a range in between depressed and manic. And most people, fortunately reside somewhere in that range. And it is indeed a continuum. And I think it's safe to say that levels of dopamine probably do correlate with levels of happiness. But there is no one single chemical nor chemical signature, that is, no specific recipe of two parts dopamine, to one part serotonin, to one part acetylcholine that we can say equates to happiness. Indeed there's now tremendous controversy as to whether or not, for instance, having lower levels of serotonin is actually the cause of depression or merely correlates with depression or maybe doesn't even correlate with depression, at all. This became especially controversial because, in the last year, the so-called serotonin hypothesis of depression has been called into question. And indeed, it does seem to be the case that for individuals that are depressed, their levels of serotonin can sometimes be normal. However, and this is an important however, that does not mean that administering drugs that increase levels of serotonin in depressed people does not sometimes and indeed often help ameliorate some of their symptoms. And I should mention that many of the selective serotonin reuptake inhibitors. So-called SSRIs such

as Prozac and Zoloft, et cetera, are still considered excellent treatments for conditions like OCD and so on and so forth. But what I'm trying to do is make two important points. First of all, that language is not a great indicator of internal state. Especially when trying to understand other people's internal state. And that is especially true for things like happiness. And that there is no one chemical signature of happiness. There's no one neural modulator or combinations of neuromodulators that we can say is the cocktail for happiness. But, and it's a very important, but when levels of dopamine and serotonin tend to be chronically low for an individual below their typical baseline, they will, yes, tend to be lower in affect and have lower mood and less episodes of happiness per day, per week, per month, per year, et cetera. Conversely, when an individual has elevations in dopamine and serotonin levels, in particular dopamine levels and the other so-called catecholamines, which include epinephrine and norepinephrine. So the catecholamines are dopamine, epinephrine, and norepinephrine. They're all very similar biochemically. They all lead to states of elevated motivation, energy, and so on. When those chemicals are elevated above baseline, people do tend to have elevated sense of mood and well-being, and in particular sense of possibility about what they can do in the world and what the world can offer them. So we need to acknowledge those two features of language and neurochemistry as we wade into the discussion about the psychology of happiness. And, in particular, about the controlled experiments

00:26:32 Harvard Happiness Project

that have been done in excellent laboratories focused on the psychology of happiness and what brings happiness and what does not. There have been some excellent studies on happiness. And these come in two forms generally. One form of these studies is individuals come into a laboratory. They participate in an experiment over the course of a day or months. And then, data are collected analyzed, and the papers are submitted, and published, and discussed. The other form is so-called longitudinal study. Where individuals come into the laboratory, and they are studied over a very long period of time. Ranging from months to years and sometimes even decades. And then, the variables of age, life circumstances, and other factors can be incorporated into the data. And typically, there are multiple papers, there's data published throughout the longitudinal study, or sometimes it's just one paper at the end of the longitudinal study. Let's talk about one of the more famous and perhaps the longest-running longitudinal

study on happiness. This is a study that was initiated or conceived in 1938 at Harvard University. The so-called Harvard Happiness Project. Some of you probably heard about this. It involved Harvard College sophomores and other individuals who were incorporated into this study as well. It's a study that initially had more than a couple of hundred subjects. But because some have either dropped out and not been able to be contacted and monitored over time or died, or for whatever reason, are no longer participating in the study, they're very few of these individuals left. And yet there's tremendous power to a study like this. It's such an impressive study, and we're all so grateful that laboratories at Harvard decided to initiate and continue this study because it is one of the few studies, perhaps the study that has allowed us to understand happiness in our species over a very long period of time. Like any study, it's not perfect. It didn't include a lot of matching by sex or matching by vocation, or matching by income and background. And back then, there was also a lot less discussion about trauma and histories around trauma, as well as positive episodes in people's lives. Nonetheless, there's a lot of power in a study like this. And there are some very basic takeaways, some of which you may have heard before but some of which may be surprising those of you who haven't. So one of the key things about the study is people in the study, at least those who still have intact memory, which many of them do, are able to think back on not just their previous year or week but 10 years ago, 20 years ago, 50 years ago and compare what makes them happy at one age versus another age. A number of things have emerged from that conversation.

00:29:22 Income & Happiness; Social Interactions & Peer Group

So I just want to discuss some of the highlight points then we'll get into a little bit more of the nitty-gritty of the data. First of all, it's been discussed many, many times that the total amount of income that an individual makes or has, and again, this could be income from work, or it could be money that they inherited, does not seem to directly relate to their level of happiness. Now a lot of people take that point and think, oh, money doesn't matter. Other people hear that point and think to themselves, yeah, right, easy to say if you have a lot of money. We'll talk about the interpretation of those data in just a few minutes. But I do want to earmark that finding. Because I agree that while money or total resources itself does not predict happiness in any kind of direct way, that is not the same thing as saying having very few resources will make you happier, of course. I don't think

anyone would imagine that. But it also tends to overlook an important point, which is something that I certainly have learned to appreciate in my life and something that I especially appreciated when I was a student and post-doc, which is the following. People will say money can't buy happiness. And we'll talk about the buy aspect of that in a moment. And indeed, that's true. If you look at this longitudinal study or you look at other studies that are done on a more short-term basis. Once people get past a certain level of income relative to their cost of living, the amount of happiness does not scale with that income. That is, for every additional \$1,000 or \$10,000 that they earn, they don't report being that much happier on a daily basis. Now that said, I venture the argument that while money truly cannot buy happiness, it absolutely can buffer stress. And in particular, it can buffer stress in the form of the ability to purchase or pay for goods and services, and in particular services. You're not going to tell me that having children doesn't involve some increase in the demands on your life, less sleep, and more demands. And it certainly is the case that if you can hire help to clean. You can hire nannies if that's your thing. You can hire help to assist with babysitting or even night nurses if you're having trouble sleeping that will literally allow you to sleep while they take care of your child in the middle of the night. Often give excellent care. One hopes excellent care. That that won't offset some of the stress associated with lack of sleep. So there are a million different examples one could give of this, but I certainly experienced this during graduate school. In fact, I experience both sides of the equation here. I made very little money as a graduate student. I had essentially no savings when I started graduate school, and I made very little money. The amount doesn't matter at this point, but I could just barely afford rent and my food. I actually opted to live in the laboratory a lot of the time. And by doing that, I had more money to spend on other things that were important to me. Now I did not have a family at the time, and so I was able to do that. Something that not everyone can do. But I made very little money, but at the same time, I was in laboratory all the time, and that's where I wanted to be. And so my level of stress was actually pretty low because I was investing all my time and energy into the very thing that I knew would eventually help bring me more resources. When I moved from being a graduate student to a postdoc, for instance. A postdoc is generally a three to five-year period. It's sort of like residency in medicine, where you're no longer taking courses, but you continue to do research. In fact, entire new lines of research and prior to getting a professorship. My income went up slightly, went up by about 30% to 40%. But because of where I moved and because of the times, my cost of living went way,

way up and I was extremely stressed. So it wasn't my absolute income, it was my absolute income relative to my cost of living. The other thing that one needs to consider when considering income versus cost of living is there's also this notion of peer group. And we're going to talk more about social bonds and connections later. But one thing that I noticed when I moved from being a graduate student to a postdoc was I was a graduate student in a small town where I had access if I chose to participate in most, if not all, of the social gatherings because they were all very low cost. People tended to aggregate at the farmer's market on Saturday. Most people wouldn't even purchase anything, at least not the graduate students wouldn't purchase anything. It was just a place to aggregate. People sometimes play pickup games of soccer or just hang out have a cup of coffee. There was a volleyball game on Fridays. Sometimes people would go out to eat that evening, which of course, costs money, et cetera, but it was relatively low cost of living. And social connections and peer group interactions were all generated around the same fairly low-cost activities. When I transitioned to being a postdoc, I made more money, but cost of living went up. But in addition to that, my peer group tended to want to engage in the same kinds of activities that people in that larger city were engaged in. So peer group has a tremendously powerful influence on whether or not we gauge the amount of money that we have as bringing us happiness or not. And that really speaks to the critical importance of social interactions and certain kinds of social interactions, in particular. Now, if any of that was unclear, what I'm basically saying is it's not just about being able to pay your rent. It's also about being able to access the kinds of social interactions that you deem are quote-unquote correct for you at that stage of life and in the place where you happen to be living. Because if you can meet all the demands of costs of rent and paying your power bill and food, et cetera, but you are socially isolated because your peer group, or those around you that you want to engage with, are engaging in activities that you either don't have time for, literally, because you're doing other things or that you don't have the financial resources for, then that can actually severely impact this rating of what we call happiness. Why am I parsing this so finally? Well, I'm parsing and finally because I think that most of us have heard the outcome of this study from Harvard or the more short-term studies, also many of which are from Harvard. We'll talk about the just phenomenal work from Dan Gilbert's laboratory and other laboratories who have focused on issues like these. And I certainly don't want to take anything away from those results. They're very powerful and important results that really point over and over to the fact that people's happiness does not

necessarily scale with income. In fact, it tends not to past a certain level, and yet I think we'd be remiss, I think actually it would be inappropriate for me to say that the amount of income that one makes is not important. Because if the amount of money that you happen to have or are making does not allow you to meet your basic needs of shelter, health care, et cetera. And/or doesn't allow you to access the kind of social interactions that can renew and reset or, I would say, directly enhance the kind of neurotransmitter systems and hormones that lead us to feel that we are happy in our life and we're having quality social connections, well then that's very stressful. And this brings me back to the statement I made earlier, which is, indeed, money cannot buy happiness, but it certainly can buffer stress. And one of the ways that it buffers stress is by allowing options of different kinds of social interactions. Options of different types of recreation that one can engage in to access new forms of social interaction and so on and so on. So we need to be a little bit careful or at least nuanced about this statement that money can't buy happiness and that the data support the fact that wealth doesn't determine happiness. I think there is a truth to that but there's another side to that, I think is less often acknowledged

00:37:20 Work, Sense of Meaning & Happiness

and that certainly I've experienced and that I think many of you out there have probably experienced as well. One other major finding of the Harvard longitudinal study on happiness, as well as shorter-term studies on happiness, is that much as you've heard, perhaps that no one on their deathbed says they wish they had worked more, well indeed, the total amount of time that one spends working does not seem to determine one's happiness. And yet I also want to earmark that result as one that we need to parse a bit more carefully. Because work, last time I checked and certainly for me, is the way typically that people earn an income. And as we just talked about a moment ago, income is often a way that people have access to or provide access for their family to things like recreation that opens up the opportunity for more social connection, right. So we have to be careful with how we interpret these blanket statements that have become very popular that money doesn't determine happiness and that the amount that you work isn't going to determine happiness. It certainly is the case that if you earn more money from working more and that money is devoted to things that bring more opportunities for social connection or for buffering stress in other areas of your life, including health care,

care for your children, care for yourself, recreation, other things that you enjoy, well then I think it's a little bit naive to assume that work itself is somehow counter to happiness. Which, of course, it isn't. And it especially isn't if we combine that feature of work with another important feature of the human psyche, which is this notion of meaning. Now in the not-too-distant future, we will do an episode of this podcast on meaning and what constitutes meaning in a given endeavor, work or otherwise. But much of the psychology of the last century, and still today, focuses on this feature of meaning as a critical one in terms of what makes us happy and what doesn't make us happy, certainly in the long term. And I can certainly say for myself that learning and teaching, and doing research in my laboratory brings me tremendous feeling of meaning and happiness. Some people consider their work simply a way to gain a paycheck, and other people find that they would do the very work they do regardless of whether or not they were paid. In fact, many people will do volunteer work and other forms of work for zero money. So this idea that money isn't important or that work is not as important as we deem it to be, that also needs to be considered from a number of different perspectives. And again, by no means am I trying to undermine the data of these impressive studies, both the longitudinal and short-term studies, but I think we do have to be cautious in our discussion

00:40:13 Toolkit for General Wellbeing

of results like these because the internet is replete with conversations about the big factors that determine happiness. It's going to be social connection, not income. It's going to be the amount of time that you are able to have open thinking and creativity, which I think is an essential feature of happiness, by the way. Physical health. In particular, one's ability to stay mobile and to be able to access the kind of daily activities that one needs to accomplish unassisted is a strong correlate of happiness and so on and so on. And, of course, there are the basic physiology factors. The things that feed back onto our overall feelings of well-being. And I've talked about these before, and we'll just put these quickly into a bin. You can think of this as a toolkit of things that you and everyone really should be constantly trying to access, if not optimize, on a regular basis because they raise the tide or what I would call the buoyancy of your overall system, meaning your brain and body. And that would be getting sufficient deep sleep at least 80% of the nights of your life. And ideally, the remaining 20% you're not getting deep

sleep or as much of it because of positive events. Quality nutrition. Quality social interactions. And we will define that a little bit better. In fact, we will define that in a lot of detail later in this episode and actually how to get better at creating quality social interactions, even very brief social interactions. So we have sleep, we have nutrition, we have social interactions. We have purposeful work, whether or not it's paid work or non-paid work. And, of course, there are things like exercise and maybe relationships to pets and things of that sort. And there are a few others as well. All of those are known to increase your overall state of well-being, that puts you in a position to access more meaning and happiness, et cetera. But for most people, I think it's fair to say that earning a living. And earning a living by working is the typical way in which we spend most of our time. So I think we need to put a special bracket around those activities. And it's something we will return to a little bit later in terms of trying to understand how periods of life in which there are big or extensive work demands or extensive family demands on us are indeed compatible with states of happiness or frequent states of happiness and how better to access those. Rather than simply say money isn't important or the amount of time at work really isn't important. That's not what people are going to pay attention to. In fact, I don't know how I will feel on my deathbed. How could I? Human beings are pretty good about understanding how they feel in the present. If not describing it, they are pretty good at feeling it if they have any sense of internal state. That is interception. And you could have some idea of how you feel in a moment. We're pretty good about describing our past feelings, at least in broad contour, but we are not very good at projecting how we will feel in the future.

00:43:06 Happiness Across the Lifespan, Does Having Children Make Us Happier?

And in fact, that's a theme that's going to come up again and again today. Nonetheless, what we do know on the basis of really solid data are that certain aspects of our well-being tend to change across our lifespan. Now lifespan is something that we need to consider from also a bit of nuance because humans are indeed living longer and longer. And if we look at the data on happiness across the lifespan dated maybe 30 or 40 years back or even 20 years ago, it is consistently described in that literature as a so-called u-shaped function. Where people in their 20s report being very, very happy, but as time goes on and they acquire more responsibility. So typically, getting married and having children in their mid to late 20s and 30s and into their 40s. Having more work demands,

et cetera, happiness tends to be rated lower and lower, at least in those previous studies. And then happiness tended to increase as people approach their 50s and 60s. And they tended to retire, and their work demands were shed from them, and they were able to enjoy the small things of life despite the fact that, in general, I would say almost always people's health is not as vigorous when they're 70 as it is when they're 20. There are exceptions to that, of course. Of course, you can adjust the rate of cognitive and physical decline. But in general, people in their 20s feel more physically and mentally vigorous than they do in their 60s and 70s, in general. That u-shaped function that I just described still holds true today, but of course, there have been some major shifts to the general life stages and when people undergo those life stages. For instance, many people are getting married much later. Many people are opting to not have children. In fact, if you look at the data on whether or not people have children or not and how that relates to happiness, everyone will tell you that their kids are their greatest source of joy, at least most people will tell you that and are a tremendous source of happiness. It's obvious. Kids are delightful, and raising kids while hard is a wonderful experience. If you look at the ratings of happiness among people that elected to not have children versus those that had, most people who have children report their overall levels of happiness as lower than that of people who opt not to have children. Now there are a lot of ways to interpret those findings. And by no means am I encouraging people to not have children. That's a issue that you have to resolve for yourself, of course. But we could imagine, for instance, that people who opt not to have children have more income to devote to things more focused on themselves or their partner or other aspects of their life. We don't know if that's the underlying reason. We could perhaps conclude that people who opt not to have children are getting more sleep on a regular basis or have more time for exercise or the other sorts of things that elevate states of mood and well-being. Again we do not know what the underlying reasons are for this finding. But it does seem that despite most every parent reporting that their kids are their greatest source of joy and quote-unquote happiness in life that people who opt not to have children are at least as happy or report being at least as happy or even happier than those that opt to have children. And, of course, I want to be very clear that I'm not trying to settle any arguments about whether or not people should have children or not. I happen to find children and animals delightful. And I'm always happy when people opt to have children provided they are taking good care of their children or doing their very best to take good care of their children. So that's my stance. But of course, you're all entitled to your own stance on

this. There are also the general arguments that people like to have about whether or not the population of the Earth will be sustained or not sustained based on current birth rates, et cetera. Indeed many areas of the world, birth rates are going down. It is actually something that just as a perhaps point of interest has been studied from the somewhat unusual but logical perspective of whether or not child diapers are selling at the same rate as they were some years ago and whether or not adult diapers for the elderly are being sold at the same rate or greater. If you think about it is one indirect measure of whether or not people are living longer and/or opting to have children.

00:47:33 AG1 (Athletic Greens)

Definitely in discussion for another time, probably for another podcast entirely. I'd like to take a quick break and acknowledge one of our sponsors Athletic Greens. Athletic Greens, now called AG1, is a vitamin-mineral probiotic drink that covers all of your foundational nutritional needs. I've been taking Athletic Greens since 2012, so I'm delighted that they're sponsoring the podcast. The reason I started taking Athletic Greens, and the reason I still take Athletic Greens once or usually twice a day, is that it gets me the probiotics that I need for gut health. Our gut is very important. It's populated by gut microbiota that communicate with the brain, the immune system, and basically all the biological systems of our body to strongly impact our immediate and long-term health. And those probiotics and Athletic Greens are optimal and vital for microbiotic health. In addition, Athletic Greens contains a number of adaptogens, vitamins, and minerals that make sure that all of my foundational nutritional needs are met. And it tastes great. If you'd like to try Athletic Greens, you can go to athleticgreens.com/huberman, and they'll give you five free travel packs that make it really easy to mix up Athletic Greens while you're on the road, in the car, on the plane, et cetera. And they'll give you a year supply of vitamin D3K2. Again that's athleticgreens.com/huberman to get the five free travel packs and the year supply of vitamin D3K2. So this u-shaped function of people being happier earlier in life and then reporting feeling far less happy and then happiness returning to them, that is, the rising of the u again in their later years, is something that I do believe should be repeated in modern times. And repeated in a way that takes into account that you might be shifted to the right. That is, I am certainly aware that people are tending to get married later. Many are opting to not have children. So, for instance, the question arises whether or not that

u-shaped curve should have a bump down at the bottom of the u among those that opt not to have children. Because the argument was made in the discussion of those papers that the reason why happiness is lower when people are in their 30s, 40s, and 50s is because they're devoting more time to raising their children and devoting more time to work. I would hope people would enjoy their work, but not everybody really enjoys their work. And many people, even if they do enjoy their work and they find meaning in it, still find it stressful, which certainly can run counter to happiness. Nowadays, you could imagine that because a number of people are opting perhaps to work less or to not have children or both, where they find tremendous meaning from their work that there would be a bump at the bottom of that u among those that decided to simply not take on these additional responsibilities. That would be an interesting test,

00:50:20 Birthdays & Evaluated Happiness

I think, of whether or not the total load of responsibility is really what's correlating with reported happiness or not. Now one very consistent finding that has absolutely stood the test of time, and it's kind of an interesting one. It's a little bit of a pop psychology finding, but I think it points to something interesting that we will return to again and again is that people tend to report feeling lower levels of happiness, believe it or not, on their birthday. And the argument for why this is the following. That typically, we go through our year not comparing ourselves to our peers terribly much. We might do that a little bit more when we're in elementary school, high school, et cetera. We're sort of age match, maybe even college as well. But an evaluation of ourselves to our age-match peers is not typically something that we do on a daily basis. Whereas on our birthday, we get a snapshot of where we are in the arc of time, or at least in our life. And many people report feeling rather low on their birthday because they use that as a benchmark or a window into the things that they have not accomplished. The things that, despite being age blank, they still haven't accomplished. And so that's interesting because what it really points to is two things. One the extent to which much of our feelings of happiness are relative, in particular, relative to our peers. So there's that social aspect again. And the fact that most of the time, we are not very good at orienting ourselves in the longer arc of time. We're pretty good at knowing where we are in the arc of a day, or the arc of a week, or the arc of a month, or even a year, but that most of us are not very good at reflecting on where we are in our life arc. And, of course, most of us don't know how long we will live

anyway, but we do have some general sense. I mean, very few people live past the age of 100. Many people live to be 70 or 80. And again, life span is extending as far as we know from year to year. But, in general, people report that on their birthdays. And I should say these are for birthdays aged 25 or later, at least in the studies I was able to access. I don't think that a lot of three-year-olds sit around comparing themselves to other three-year-olds and how well they're doing or 12-year-olds. You can imagine some people might do that at 18, et cetera. But it's really by the mid-20s that people start evaluating themselves to their peers in terms of life progression and so-called milestones. It's been argued that that's one of the reasons why people report lower affect, lower levels of happiness

00:52:45 Smoking, Alcohol & Happiness

on their birthday. Something that's a little bit counterintuitive. And, of course, there are things that are anti-correlated with happiness. I'd be remiss if I didn't mention a few of these. That's longitudinal study, the Harvard happiness project has reported, for instance, that people that are chronic smokers of nicotine and chronic consumers of alcohol, in particular alcoholics. That is, people who suffer from alcoholism or what sometimes is called alcohol use disorder that is strongly anti-correlated with happiness. And I should also mention that the family members, and in particular, the romantic partners of people who are chronic smokers and the partners of people who are chronic alcohol users, often will report lower levels of happiness. Especially if they themselves are not chronic smokers or regular consumers of alcohol. So we've done episodes on nicotine in particular, and that touched on smoking, of course. And we've done an episode on alcohol and the effects of alcohol on health. Again, you can find those at hubermanlab.com. This study from the Harvard happiness project really has strong data supporting the fact that avoiding being a nicotine smoker. There are positive health effects of nicotine that are discussed in the episode nicotine. But being a-- but smoking nicotine, in particular, is counterproductive for people's at least self-reported happiness and certainly overall health. I think there's zero question that smoking increases cancers of different kinds. And that alcohol consumption. And in particular, alcohol consumption beyond two drinks per week. Two drinks being the typical volume of a beer,

00:54:23 Trauma & Happiness, Lottery Winner vs. Paraplegic Accident

a glass of wine or cocktail, et cetera, is detrimental for various aspects of health. And, of course, there are other things that you could imagine would relate to a lack of happiness. For instance, a major trauma. Physical or emotional trauma. That could include the loss of a major relationship, a death of a close one. Being the victim of a violent crime and things of that sort. And yet it's been argued, in fact, strongly argued that when you look at people's levels of happiness after a trauma, that if you wait about a year or so, sometimes is even as short as three months after a trauma, that people self-reported levels of happiness are not significantly lower than they were prior to the trauma. Now I very much want to highlight, underline, and bold and asterisks that statement as one that we really need to explore carefully. Because there are other data that strongly point to the fact that major life traumas can severely disrupt one sense of happiness and well-being. And I think as long as we're going to have this discussion, we should point to a useful definition of trauma. And the definition that I'll paraphrase is one that was supplied by a former guest on the Huberman Lab podcast, Dr. Paul Conti, who's a psychiatrist who's written a book called Trauma. I personally think it's the best book on trauma and tools for alleviating trauma. It's incredibly thorough, easy to read, and well-informed. And here again, I'm paraphrasing, but Dr. Conti describes trauma as something that fundamentally changes the way that our brain and body function in a way that makes other aspects of living more challenging. Again, an event, either emotional or physical, or both, that fundamentally changes the way that our brain and/or body, our nervous system, and other organs function in a way that prevents us from enjoying daily activities. And that could even be ongoing distraction. Traumas can create rumination, or they can create obsessive thought, or they can create dissociation. Any number of different things. Again check out that episode with Dr. Paul Conti if you'd like to learn more about trauma and how it manifests. But the idea that's been put forth by a number of researchers in the field of happiness that three months after a major trauma, people aren't reported that they are feeling any less happy than before the trauma, that was surprising to me. So I went into this literature a bit more deeply. One of the basis of that general line of thinking is a-- what I consider a now classic and very important and frankly excellent talk that was given by Professor Dan Gilbert on the science of happiness. You can find this on YouTube. I say a classic one because it was done some years ago. It's received millions of views. And one of the points that he makes in that talk which is grounded in research carried out by his laboratory and other laboratories is that-

- he poses a question. He says you know, let's do a quiz. Would you rather be someone who wins the lottery and he shows a picture of somebody who just won, I think it was several hundreds of millions of dollars in the lottery, or was recently made paraplegic lost use of their legs? And then goes on to state that one year after people have won the lottery, this major monetary windfall versus have become paraplegic is that their self-reported levels of happiness are the same. Which I think is incredibly surprising. I heard this, and I immediately thought of an experience that I've had where I teach a course at Stanford School of Medicine on neural regeneration. And it's actually a course that I attended some years ago when I was a post-doc at Stanford, so well over a decade ago. And we had-- excuse me. We had an individual come into the course. This was an older gentleman. So older meaning he was in his early 70s. And he had become paraplegic fairly late in life from a cycling accident. And he was and is an expert in what it is to become a paraplegic, of course, because he had that experience, but also because he spends a lot of his time doing volunteer work with people who have become paraplegic and have become paraplegic at different ages. And what he described to me was that the overall outcomes for people that are rendered paraplegic in terms of their mental health and their physical well-being and their management of general life skills scales with how early they had that injury and how long they had the use of their limbs. So it's not straightforward. When I heard this result described by Dr. Dan Gilbert, that winning the lottery and becoming paraplegic basically don't impact your levels of happiness to any different degree when people look back a year later, I was pretty surprised given my experience of hearing this lecture at Stanford. So I thought, wow, from what I understand. Indeed, there are people who are rendered paraplegic and manage that transition very easily. It doesn't seem to disrupt their feelings of well-being, et cetera, but for other people, it can be severely disrupting to their sense of well-being and so on and so forth. I went back and examined these data. And in fact, a subsequent talk, it's actually a podcast that was given by Dr. Dan Gilbert some years later. So this would be just a few years ago. I think in 2019-- there is a specific date in which it was recorded but just a few years ago. And indeed, he corrects himself in that podcast. What he says is that he misspoke in that earlier talk. That the difference in self-reported levels of happiness for those that have been rendered paraplegic for versus those who've won the lottery is not as great as one would expect. I think most people would expect that being rendered paraplegic would make people far less happy. That's the expectation, I think, anyway. And that people would win the lottery, at least for some period of time,

would be far happier than they were prior to winning the lottery. And especially given the tremendous amount of money. And again, the fact that money can't buy happiness, but that money does indeed enable the ability to buffer stress provided people were responsible with that money and just didn't blow it or spend it all right away. That they could start to afford things that they couldn't afford, not just in terms of luxury items but also the ability to hire help that would free up time that would allow them to do anything from travel that they couldn't access before to meditate if that was something that they didn't have time to do before. And so on and so forth. So the result quote unquote that winners of the lottery and recent paraplegics have the same levels of happiness is actually not true. At least according to the author of the original study. Now what he did not point to is the degree to which that is not true, but he did point to the direction of the result. And the fact that people who are rendered paraplegic, in fact, are reporting themselves as less happy than they were prior to their injury. And certainly that their levels of happiness are lower than those that simply won the lottery hundreds of millions of dollars, which I think is the more intuitive result. And so I think it's important to be aware of that discrepancy because it's something that was lost in the communication around those results the first time around. And indeed, Dan Gilbert is an excellent scientist and was quite good about trying to correct the narrative. I myself, as a podcaster who puts information on the internet, know that the challenges of correcting narratives, especially of things that came out some time ago, we always attempt to do this as best we can, but not everyone that saw that first video will necessarily hear the discussion that has happened subsequently. So my hope is that Dr. Gilbert will interpret me communicating this now not as an attempt to criticize him but rather as an attempt to praise his willingness to try and correct the narrative to be more accurate. So to be very clear about what this study did and didn't show. And here, I'm going to combine these results with other studies that I was able to find that explored similar phenomenon. So major trauma, for instance. Not necessarily becoming paraplegic but traumas of a different sort, emotional traumas. When you look at the whole of those data, at least, my read is that when people win the lottery or acquire wealth through inheritance, some form of wealth acquisition that is sudden and that wasn't preceded by a specific effort to gain that wealth, right. Buying a lottery ticket is a pretty quick thing. Inheritance is something that you simply get by virtue of who you are, not necessarily by effort. Well, that led to increases in self-reported happiness compared to prior to the inheritance of the lottery win, but it wasn't as substantial as you might imagine if you are approaching

the notion of happiness simply from, well, more money equals more happiness. And while it is true that people who are rendered paraplegic or who undergo psychological traumas or physical traumas of any various kind are, and frankly, are remarkably resilient in many cases. They can still manage to go about life and work and engage in relationships, et cetera. There is a visible decrease in overall levels of happiness and well-being, in particular, if the psychological and physical trauma renders their nervous system different in a way that impacts other major areas of life and enjoyment for them. And that's certainly true one year out from the trauma. So the point is that we do need to reframe this idea that whether or not you win the lottery or become paraplegic or suffer some major trauma, your levels of happiness are going to be the same three months or a year later. I don't think that's accurate. And in fact, Dr. Dan Gilbert emphasized that that's not accurate even in that initial study. And I think it's an important thing to frame because that's such a popular notion. Or that that idea combined with the idea that increased earnings don't make us happy combined with the idea that we are happy early in life but then as more demands arise in life, we become less happy, and then we become happy again. And that idea is we already explored is not necessarily true. Frankly, I knew a lot of teenagers and people in their early 20s that are pretty unhappy who then become happier later as they acquire more resources. Sometimes distance, let's be honest, sometimes distance from our family of origin makes us more happy, sometimes less so. It's highly individual. So I think those general themes that we've heard over and over, while they have merit and they certainly stand up in some of the more powerful longitudinal and short-term studies, there is nuance, and in some cases,

01:05:05 Synthesizing Happiness

there are now additional data that are causing us to revise those understandings. Now there is an important point, or I should say the important point, that we can really credit Dan Gilbert and others in the field of psychology with and that we owe them a great debt of gratitude for is that we do have far more control over our levels of happiness than we might think. And many of the things that reside at that level of control. That is, the things that we can do and think and say and access don't come from external things. They don't come necessarily from the acquisition of material goods, but rather there are things that we can do that can allow us to so-called synthesize happiness. And I think this is one of the great gifts of modern psychology is that-- Dan Gilbert and others, the Harvard

happiness project, work at Yale and elsewhere. There are excellent labs working on happiness all over the US and all over the world, frankly. One of the great gifts that they've supplied us in the form of data is that there really are things that we can all do and think and access to allow ourselves to so-called synthesize happiness. Now, this notion of synthesizing happiness, or synthetic happiness as it's sometimes called, can sometimes ruffle people's feathers a bit. Because people immediately flip to the idea that, oh, you're just going to tell me to be grateful for what I have or to just navel gaze or just to imagine that I'm happy. But that's really not what synthetic happiness is about at all. Synthetic happiness actually has to do with some really important larger principles about the way that our emotional system and the way that the reward systems of our brain really function. And they point to important concepts that we're going to now discuss. Things like the hedonic set point, for instance. Or the dopamine system of anticipation of rewards versus receiving rewards just as a brief insight into that. Our anticipation of something positive oftentimes leads to greater increases in the sorts of neurochemicals that support a state of happiness and well-being than the actual acquisition of the thing that we're trying to obtain. And this goes back to a theme I've discussed a few times before in this podcast, in particular with my colleague at Stanford School of Medicine, Dr. Anna Lembke, who wrote the fabulous book *Dopamine Nation*. If you're interested in dopamine and addiction, in particular, that's a wonderful clear, and extremely informative read. And if you're interested in dopamine more generally, not just in the states of addiction but in everyday life and in pursuit and motivation, *The Molecule of More* is an excellent book related to that. And as I mentioned earlier, we have this episode on dopamine motivation and drive. The notion of synthetic happiness is not simply about imagining happiness, or thinking about happiness or anticipating happiness. To some extent, it is, but it relates to a number of other important themes. But it is grounded very thoroughly in the neurobiology of dopamine rewards. And I'll talk about some of that neurobiology in a few moments. But I want to take a couple of minutes and talk about what synthetic happiness is and what some of the conditions are for allowing us to access the state of so-called synthetic happiness. And I want to point out at the outset that synthetic happiness, while it might sound synthetic A.K.A. false, it's anything but. It actually turns out to be among the more and perhaps the more potent form of happiness that we can all access. And this is where themes related to our control over our own internal state really become not only valid but very powerful. So, for instance, Dr. Dan Gilbert and others have explored how opportunity and choice, that is,

freedom can and can't lead to states of happiness. And the results of those studies are very solid and, frankly, very surprising. Until you understand the results, and once you do, I think you will immediately see areas of your own life that you can start to access more happiness, again genuine happiness, simply by framing

01:09:18 Natural Happiness & Synthetic Happiness; Music

certain choices in a particular way and maybe even by eliminating choices. Now I'd like to focus on the research aimed at understanding what increases our levels of happiness. And I'd like to frame this under the umbrella of two major themes. The first theme is so-called natural happiness. Natural happiness is the sort of happiness that most of us are familiar with. So the kind of happiness that we expect to have if we, for instance, complete a degree. Hopefully, a degree in a topic meaningful and interesting to us but a degree nonetheless. Or we find a mate. Hopefully, a mate that we enjoy spending time with. Or, for instance, making a certain income or finding work that we enjoy on a regular basis. All of those are forms of happiness that, from a very early time in development, we are taught exist. For instance, even when we are very young, we are told that our birthday is coming and that we are going to get presents, and those presents are going to be focused on knowledge of things that we already enjoy. So if you're a little kid, and you like trucks, or you're a little kid and you like dolls, you can sort of expect that those gifts will bring you some level of joy or happiness. And while that's a small child example, that general notion of natural happiness is, of course, one that persists into adolescence, into young adulthood, and into adulthood. And we quite understandably come to associate this feeling of joy or happiness with the receiving of things or the acquisition of things, whether by effort, by gift, by inheritance, or some other form. So that's natural happiness. And yet, as I mentioned a little bit earlier, there's also this notion of synthetic happiness. And some of the more interesting and exciting research in the fields of psychology and, in fact, neuroscience point to this idea of synthetic happiness as at least as powerful a source of happiness as natural happiness. Again, at least as powerful and perhaps even more powerful. And of course, one has to take a slightly different view of what happiness is in order to accept this idea that we can create happiness for ourselves, but that doesn't mean that the whole notion of synthetic happiness is merely a passive one where all we do is sit back and imagine being happy and then we are happy. For better or for worse, our nervous systems and our neurochemistry simply don't

work that way. In fact, synthetic happiness has almost always been understood as something that we have to put some effort toward achieving. But, and this is an important thing to point out, synthetic happiness also requires that certain situational or environmental conditions be met. A good example of this is some of the work by Gillian Mandich, or I should say Dr. Gillian Mandich, who's done some interesting work on the conditions for creating happiness within our mind and in our overall state of being. And she's been involved in a number of different studies. But one of the ones that I found particularly interesting is one in which they explored different types of music and other aspects of environmental settings. So you bring subjects to the laboratory play them different types of music. There are, in fact, certain aspects of music that can create different states of mind sadness, happiness, anticipation. In fact, there are certain patterns of music that can reliably induce anticipation of the fear and anxiety base type. So, for instance, think the movie Jaws. If you recall, for those of you who have seen Jaws, there's this ongoing theme music any time the shark might be present in the water or in a given scene. That essentially goes [HUMMING] Now for the musicians out there, this has basis in things like tritones and things that are understood from the mathematics and the musical side. And from the neuroscience side, are known to create a neural state of anticipation. Yeah, a neural state of anticipation and not necessarily a positive one. And indeed, there are other patterns of music that involve up tones. Think some of the music that's typically been used in cartoons of various sorts. There's a long history of this. Indeed there's a whole literature of psychological and now even a smaller but still interesting literature on the neuroscience of how certain patterns of music can induce a state of joy and joyful anticipation, in particular. A lot of those patterns of music are incorporated into so-called happy cartoons and Disney movies

01:13:45 Tool: Synthesizing Happiness: Effort, Environment & Gratitude

and things of that sort. In any case, Dr. Mandich and others have explored how music, in particular, but other features of the environment can or cannot induce states of happiness. And the basic takeaway from those studies is that while having a certain environmental sound, musical tone, or visual feature to a given space, a room, is necessary for a state of happiness, it is not alone sufficient. What is required is that individuals not only be placed into an environment that contains music or visual items or a combination of music and visual items that can induce states of joy or happiness or

positive anticipation, but that they also are given some sort of instruction or instruction manual as how to synthesize happiness inside of that environment. This is important because what this says is that our ability to create states of happiness is dependent on our environment but also requires effort from us. That also makes sense as to why when we are under conditions of deprivation. So it could be social deprivation or financial deprivation. Or even for people that are very sensitive to whether. There are a certain number of individuals, about 30% of people, who report feeling very, very low under conditions where the sky is overcast. Especially if it's been overcast for a number of days. The so-called seasonal affective depression. Those individuals, by the way, can often receive tremendous benefits in terms of elevating their mood if they make an effort to get sunlight. And if they can't get sunlight, artificial light of the sort that we talked about earlier. But in any case, there are a number of people that are profoundly negatively influenced by the lack of positive visual and auditory cues in their environment. But for most people, we are in what I would call a dynamic relationship with our environment. Our environment has an effect on our mood. But the research indicates that we also need to make some sort of effort toward being happy. Now effort toward being happy is a very vague term. So let's better define what that is. In the case of Dr. Mandich's work, this took the form of doing so-called happiness inventories, right. That can be focusing on things that one is grateful for, things that they particularly enjoy. This is somewhat of a gratitude-type practice but includes some other features as well that are more focused on the things that bring you meaning and actually engaging in the things that bring you meaning. So if you're trying to think about how to improve your levels of happiness, what this research essentially says is that you would be smart to try and adjust your home environment, adjust your work environment so that it is cheerful to you. Maybe that means a plant. For me, in my laboratory, one of the things that was really critical that I had as a postdoc and in my own laboratory when I first started my lab was I love aquaria. So I had multiple fish tanks. In fact, people in my laboratory were always rolling their eyes. Why do we have to have all these fish tanks with all these-- I like freshwater tanks, not saltwater tanks, for reasons that aren't interesting for this discussion. But freshwater tanks with discus fish, for instance, to me, are just beautiful. They make me happy. I just enjoy them. Music is a complicated thing in laboratories because it's a shared space. So headphones are the general requirement. But having either silence if you love silence. And I happen to like working in silence or listening to certain forms of music. I do also use the 40 Hertz binaural beats. Or I particularly like listening to Glenn

Gould while I work or listening to whale song, believe it or not, while I work because it doesn't have any structure that I can follow. I don't speak whale, and so I can't follow. But it sort of fills the space in a way that I find pleasant. And I've put substantial amounts of effort into making my laboratory spaces and my office spaces, my workspaces, nice places to be. Now I had no knowledge of this work from Dr. Mandich and others at the time when I did that. But what I found was that over the years, I was challenged in maintaining a kind of elevated mood while working in a laboratory, not because I didn't thoroughly enjoy the work, I love doing experiments with my hands, and I loved being in lab, but at least the labs that I was in as a graduate student and post-doc there were no windows so I wasn't getting adequate sunshine. The windows that we didn't open, so I wasn't getting a lot of fresh air, and so on and so forth. So I've personally found it very valuable to create an environment both at work and at home that I find aesthetically pleasant, at least in some way or another. And I realize people have varying levels of control over their aesthetic environment. Certainly, the auditory environment can be controlled nowadays through the use of headphones if you're allowed to use those. So, for instance, using music or using background sound that you find very pleasant combined with a concerted effort on your part to create states of happiness by hopefully doing work that's meaningful to you or at least is leading to meaningful outcomes. We'll talk a little bit more about that. But these happiness inventories also turn out to be interesting and important sources of creating so-called synthetic happiness. And we'll also talk about other ways that one can create elevated levels of synthetic happiness. And I realize the word synthetic probably draws up connotations of false happiness or contrived happiness. I wish instead of calling it synthetic happiness. They had called it self-created or self-directed happiness or something of that sort because then it wouldn't sound as false. Because it's simply not false. It leads to the same, as far as we know, identical neurochemical and psychological states of happiness as natural happiness. And might even be more persistent than natural happiness. It certainly, is more under our control. But the key point is that environment and self-directed work at being happy are both important, and they interact with one another. So if you're somebody who has a hard time synthesizing happiness through any of the methods that we talk about today, don't consider yourself deficient. It could very well be that the environment that you're in, social environment or physical environment, or auditory environment, is simply not conducive to synthesizing happiness. And for that reason, I think the work of Gillian Mandich and colleagues and others in the field is tremendously important because it

removes us from this pressure to just synthesize happiness from within despite our circumstances. I think many of us have heard of the incredible stories of people like Viktor Frankl or Nelson Mandela who were stripped of their freedom and yet managed to maintain some sense of positive anticipation or at least some sense of identity that allowed them to still access forms of happiness. Those are highly unique situations, of course. And they speak to the power of the human psyche for synthesizing happiness and certainly for synthesizing a sense that there might be a future and to live into that future. In their cases, incredibly impressive ways. But I think for most everybody, the environment that we're in has a powerful impact on our mood. And some people more than others. I know people that are perfectly happy with blank walls. No pictures on the walls. Other people benefit tremendously from having photos or plants in their environment and so on. You really have to determine what's needed for you and do your best to try and place those things into your environment, or rather, place yourself into an environment that is conducive to you synthesizing your happiness. In fact, the powerful interaction between our environment and our own ability to generate certain kinds of emotions is well established not just for happiness but for things like gratitude. So, for instance, there's a classic study from AMES A-M-E-S in 2004 that was focused on gratitude. And we've had an episode on gratitude before. The basic takeaway of that episode is that it turns out receiving gratitude is a more powerful stimulus for the release of neurochemicals and activation of brain areas associated with so-called prosocial behaviors and feelings of well-being, including happiness. But also observing stories in the form of movies or books or other narratives of other people receiving help is also a very powerful stimulus for gratitude. Also, giving gratitude is very powerful but not as powerful as receiving gratitude, at least that's what the research says, or observing powerful exchanges of gratitude between other individuals. What the study from AMES showed is that gratitude as a state of mind and as an emotion does not exist in a vacuum. It's not independent of our surroundings. So, for instance, just writing down all the things you're grateful for while it has some positive impact, the impact of that or receiving gratitude or observing gratitude is far more potent, right. Bigger increases in happiness and feelings of well-being and indeed neurochemicals and activation of brain areas associated with happiness and well-being when there's a reciprocity. When the person receiving understands something about the person that's giving to them and understands that the person is giving genuinely, for instance. So there's an environmental interaction. It's not just about receiving, it's receiving from somebody that

you know genuinely wants to give. And likewise, for the giver in that equation, the feelings of well-being are far greater when the person receiving whatever it is money, food, assistance in some form or another. Could be physical assistance, et cetera. When the giver has knowledge that the person receiving it genuinely needed the thing that they are receiving. So the important finding within the research, again and again, is that happiness doesn't exist in a vacuum. It's partially our own responsibility to synthesize happiness. You know, I was told that many times you're like happiness is in your head. Well, yes, indeed, it's in your head, but it's also dependent on interactions with your environment. Physical environment and social environment, and so on. Likewise, gratitude is something that we can create inside of us right through gratitude lists and appreciation, or we can give both powerful sources of evoking neurochemical changes associated with gratitude and happiness and well-being. But it, too, doesn't exist in a vacuum. There's a much greater positive effect when we have knowledge about why the giver is giving us something or that the person receiving something is going to benefit tremendously from receiving it. So I'm highlighting this because I think that when we hear about synthetic happiness, there's a kind of automatic erasing of context that tends to occur. And in fact, if you were to peruse the various videos online or papers that exist on PubMed around happiness and synthetic happiness, in particular, you would come away with the impression that synthetic happiness is just something that we're supposed to snap our fingers in access or perhaps do very specific things in access. But while that is true, context really matters. And I think that's an important point. Much in the same way that the point needs to be made that while money doesn't buy happiness, money can buffer stress and certainly offer opportunities that can provide opportunities for more happiness.

01:24:50 Tool: Pro-Social Spending/Effort, Happiness

So I think we are starting to arrive at a general theme here, which is that nothing related to our mood exists in isolation. And in fact, that leads me to a discussion of one of the major scientific findings in the realm of what sorts of mindsets and behaviors can, in fact, lead to happiness. And this is a paper that was published in 2008. Even though that might seem like a while ago, it forms the basis for a large amount of literature that followed. It's a very interesting literature. This is work from Elizabeth Dunn and colleagues and was published in the Journal Science. Which, again, is one of the sort of

three apex journals, Nature, Science, Cell, I always say is sort of the Super Bowl, NBA championships, and Stanley Cup of scientific publishing-- very, very stringent in terms of the number of papers they let in. Very few, that is. And the title of this paper makes fairly obvious what the paper is about. The title of the paper is "spending money on others promotes happiness". And I know a number of you probably hear that title and think, oh boy, here we go. He's going to tell us that giving away all our money is going to make us happier than receiving money. And I promise you, that is not what I'm going to tell you. But nonetheless, this is a very interesting study, and it's one that I think that we really ought to pay attention to. Because what the study is based on is the fact that income, provided one's income meets a certain level of basic needs, indeed has been shown to have only a weak effect on overall happiness. OK? So quoting from the paper in the first paragraph, quote "income has a reliable but surprisingly weak effect on happiness within nations". Within nations just mean they looked at this in not just the United States, but a number of other places, as well. "Particularly once basic needs are met." OK, so if that's the case, then what aspects of money and having money are related to happiness? Certainly, there are people who have a lot of money who are very happy. Certainly, there are people who have very little money who are very happy. And of course, the reverse is also true. There are plenty of people who don't have very much money who are unhappy, and in fact, there are people who have a lot of money who are very unhappy. A point that whenever it's made often leads those with less money to kind of roll their eyes, because the assumption is more money does increase happiness. And in fact, it doesn't. And later, we'll get back to this idea of whether or how one acquired their money has any impact on whether or not that money increases their happiness or not. Let's kind of earmark that for later. In the meantime, let's talk a little bit more about the findings in this paper. This paper is interesting, because what it did is it explored something called prosocial spending. Prosocial spending is a phenomenon where people are taking a certain portion of their income, and they are giving it to others. Often for causes or for things that they think are important to see happen in the world or change in the world. That could be a hungry individual having access to food or medical care. It could be for environmental causes. It could be for animal wellness. It could be for any number of different things. It could even be giving somebody money so that they can buy themselves a gift or giving somebody money and not having any understanding or expectation of what they're going to do with the money. Again, one of the central themes around gratitude is that while receiving is great, giving is also great in terms of increasing

sense of well-being. And one of the more important features to that is when we give, either in the form of words or in the form of resources, knowledge that the person receiving benefits from that in some real way, greatly increases the chance that there's an increase in happiness for the giver, as well as the receiver. Again, that's a note about gratitude, but not an insignificant one as it relates to the study. So what the study found was that higher prosocial spending was associated with significantly greater happiness. This was a very statistically significant effect. And they found that the effects of income and prosocial spending were independent and similar in magnitude. Independent and similar in magnitude. I'll explain what that means for those of you that might be confused by that statement in just a moment. Whereas, quote, "personal spending remained unrelated to happiness". So what this study basically found was if people are allotted a certain amount of money to give away, and one adjusts for overall income, and this is important, because you could imagine that for some individual giving away \$2,000 might represent a significant portion of their yearly or monthly income. And for another individual it might represent a tiny fraction of their income. But when you adjust for income level, what you find is that people who gave away money benefited tremendously in terms of their own increase in happiness. In fact, quote, "employees who devoted more of their bonuses to prosocial spending, that is giving away more money, experience greater happiness after receiving the bonus, and the manner in which they spent that bonus was a more important predictor of their happiness than the size of the bonus itself". This was an actual experiment they ran with real income, real money. I'm going to read that again just to make sure it hits home, because I found this to be really impactful. "Employees who devoted a greater fraction of their bonus to prosocial spending, that is giving away money to others, experienced greater happiness after receiving the bonus. And the manner in which they spent that bonus was a more important predictor of their happiness than the size of the bonus itself." So the actual bonus, the receiving of the money, led to greater increases in happiness if they gave it away. And the act of giving it away itself, led to greater increases in happiness than receiving the bonus. So it's a twofer, as you might say. So the takeaway from this study and studies like it, I think is pretty obvious that to the extent that we can. And again, when I say to the extent that we can, this means whatever percentage of our own income that we can afford to give away, or if we don't have income, the percentage of our effort. I mean this is about money, but it's also about effort. We can help others, right? You can serve in food kitchens, you can do community gardening, you can pick up

trash, you can do any number of things. You can assist a neighbor with child care or you can assist a neighbor who is physically less able to retrieve their paper, et cetera, et cetera. The point is that giving resources, certainly in the form of money, but also in the form of effort and time, is immensely beneficial for synthesizing our own happiness. That is for the giver, us, to increase our levels of happiness. But the degree of increase in our own happiness is proportional in some way to the extent to which the person receiving actually needed that help

01:31:55 Tool: Focus, Wandering Mind & Meditation

and registers that help. Excellent research also points to the fact that another potent way to synthesize happiness, that is to create genuine states of happiness in ourselves, is to leverage the so-called focus system. Or rather, I should say to de-emphasize the tendency of our minds to wander. There's an excellent paper on this, also published in the Journal Science. This is now a classic paper. I talked a little bit about it in the episode on meditation, but for those of you that did or perhaps didn't hear that episode, I just want to briefly touch on a few aspects of the paper. And in particular, a few aspects of the paper that I didn't talk about previously. And the title of this paper, again, is a very straightforward in terms of telling you what it's about. And that is, "A wandering mind is an unhappy mind" by Killingsworth and Gilbert. This paper was published in Science in 2010, and we will provide a link to the paper. This is frankly, a very interesting paper. This paper involved several subjects, or I should say, 2,250 adult subjects. And what they were able to do was to contact these subjects while they were going about living their daily lives and ask them both what they were doing and what they were feeling. Some additional questions that they asked them, but they were able to establish whether or not people were watching television or doing housework or working on a home computer or resting or listening to music, et cetera, in their natural environment. So this is outside the laboratory. And they were able to assess to what extent those people were happy or unhappy or neutral, or had some other emotional state at the time when they were engaging in any number of different activities. And they assessed whether or not those individuals were also focused on or focused away from whatever activity they were engaging in. And the takeaways from this study are many, but for sake of today's discussion, what I think is especially interesting is that regardless of whether or not people were engaging in activities that they enjoyed or not, the tendency for their mind to

wander from an activity predicted lower levels of happiness than if they tended to be focused on the activity they were engaged in. Now that itself should be surprising. I mean, what that says is that even if somebody was engaged in activity like cleaning their house or doing homework or reading something that they weren't enjoying, if they were focused on what they were doing, they tended to report as happier than if their mind was drifting elsewhere. Now this also points to the idea that perhaps our minds drift to unpleasant thoughts more than pleasant thoughts. But they also addressed that in the study. Point I'd like to make here is quote "although people's minds were more likely to wander to pleasant topics than to unpleasant topics" and there the difference is pretty significant. People's minds tended to wander to pleasant topics about 43% of the time as opposed to unpleasant topics about 27% of the time. Or to neutral topics and the remaining 31% of samples. "People were no happier when thinking about pleasant topics than about their current activity". Think about that. "People were no happier than when thinking about pleasant things than their current activity". In fact, the mere focus on what they were doing was more powerful than anything else, even if they didn't enjoy what they were doing. So they go on here to say, quote "although negative moods are known to cause mind wandering, I now see strongly suggested that mind wandering was generally the cause, the cause, and not merely the consequence of unhappiness." So there are a lot of aspects of this study that are worth going into. But the major takeaway, or the one that perhaps we should all be most concerned with, is that when we are not focused on what we are doing, we tend to be far less happy than when we are focused on what we are doing. Even if what we are doing is something that we don't deem very pleasant. And certainly, if we are engaged in something that we consider very pleasant and we are very focused on, well then our levels of happiness are the highest. That's sort of obvious. But what this really speaks to is the tremendous power of building our ability to focus on what we're doing. And to stay present to what we are doing. Now this whole notion of staying present is one that itself is a little bit complicated. And in the episode on meditation I talked a little bit about whether or not it's beneficial to be present to our internal state, or that is our inter-receptive state. Our feelings of our heart rate and how full or empty our gut feels or our state of being from our skin inward, or whether or not we should focus on being present to things in our immediate surroundings. Both our versions of being quote, unquote "present" as you can imagine. But in the one case, we're focused internally, in the other we're focused externally, and of course, most of the time it's some combination of the two. But what this study really says is that any practice

that can powerfully impact our ability to remain present in the activity we are engaged in, could even be a phone call, could be texting for that matter, could be social media for that matter, right? We're not placing judgment on the activity here. In fact, what we're really talking about is the enormous happiness increasing value of being present to what we're doing regardless of what we are doing. And a practice that's known to be beneficial for increasing our ability to focus is, among other things, a short meditation practice. In fact, work from Wendy Suzuki's lab at NYU, again, Wendy's been a guest on this podcast. Her laboratory has shown that even a very brief meditation of about 13 minutes, and this would be the sort of quote unquote "classic" type of meditation of eyes closed, focusing on one's breathing. Even a very brief meditation of just 13 minutes or so done consistently, so ideally, every day. But I have to imagine that even if you skip a day, there are still benefits. That sort of meditation can greatly enhance one's ability to focus. In her studies, that was also shown that sort of brief meditation could also greatly enhance mood and sleep and various aspects of cognitive performance. And work from my laboratory, in collaboration with Dr. David Spiegel at Stanford, department of psychiatry has shown that even briefer meditations of even just five minutes per day can have fairly outsized positive effects on a number of different parameters, as well. Those very brief types of meditations, because they really are focusing and more accurately, I should say, refocusing exercises. When you do that sort of activity of closing your eyes and forcing yourself to focus and refocus on your breath and internal state, that is directing your perception inward. Or if you choose, you could deliberately focus your perception on some external object or sound, for that matter. When one does that, the circuits of the brain involved in focus dramatically improve. That is they rewire and increase their ability for you to achieve focus. Many of us have heard about meditation, many of us think about meditation as a "mindfulness" exercise. Mindfulness in quotes, because that itself needs definition. But I prefer to view meditations of the sort that I just described as perceptual or focus based training, which is really what the data point to. Notions around consciousness and states of mind are very hard to define, but it's very clear that even a 5 minute a day or ideally, an up to a 13 minute a day meditation can greatly increase our ability to focus. And based on the findings in this paper, "A wandering mind is an unhappy mind" also make it very clear that the ability to refocus again and again and again on what we're doing throughout our day, regardless of what we're doing, can

01:39:40 Tool: Quality Social Connection

have a very dramatic, in fact, a statistically significant increase on our levels of overall happiness. So what else does the research tell us we can do to increase our levels of genuine happiness? Well, it's very clear based on the longitudinal study from Harvard, as well as the Yale happiness project and the work of numerous laboratories in the US and elsewhere, that quality social connection is extremely powerful in terms of its ability to increase our levels of happiness. What is quality social connection? Quality social connection falls into a number of different bins. This can be romantic connection, this can be friendship, this can even be coworker or just daily superficial interaction type connections. That's surprising to a lot of people, because I think a lot of people hear quality social connection and they think deep conversation. But it's very clear from the research that oftentimes our conversations with people that we are closest to are actually quite shallow. If you think about it, if you've been in a romantic relationship or a friendship for a long period of time, or maybe even a sibling relationship or other family relationship, much of what you talk about is fairly superficial or fairly trivial. In fact, it's often a sharing of the trivial day to day things between two people or through groups of people that leads to the feeling that people are really connected to one another. In particular, if it's involving shared experiences of any kind, good or bad. So there's an extensive literature on social connection and how to build social connection. This certainly should be the topic of a full episode of this podcast in the not too distant future. But because social connection can have such a powerful impact on our states of happiness and overall well-being,

01:41:28 Brief Social Connection, Facial Recognition & Predictability

I want to emphasize a few features of social connection that I think most people might not appreciate. Once again, when we hear quality social connection, I think most of us tend to think about deep, meaningful conversation or long walks on the beach or camping trips together or travel together. And while all of those certainly qualify as wonderful opportunities for social connection, opportunities for quality social connection are certainly not limited to those kinds of interactions. In fact, I can recall times in my graduate career, so this would be times when I was living in the laboratory. Because that was a significant portion of my graduate years. And one of the more important social

connections for me was the staff that worked there in the wee hours of the night and that came in very early in the morning. So one of the more regular social connections I had is I would brush my teeth in the hallway bathroom. And there was no one else really around at that time, except for the janitors that tended to leave early in the morning. They had worked a good portion of the night. Or that were arriving very early in the day. And the fact that I would see them on a regular basis and maybe exchange a few words about their work or their families or the holidays, actually for me, became very meaningful. In part, because my social connections at the time were really limited to only social connections that I had in the context of work. Now some people might look at my schedule at that time and look at my life at that time and say, well, that was very unhealthy. You were lacking in certain number of ways. But frankly, looking back, and at the time, and I know this because I journaled at the time, I was exceedingly happy, at least for that stage of my life. At that stage of my life, I wanted to be focused primarily on doing experiments and immersing myself in my scientific training. And for me, the even seemingly insignificant interactions of talking to the janitor in the morning or some of the other regular staff was not insignificant. In fact, for me it was very significant. And over the holidays when their hours were reduced, I actually missed them quite a lot. And even as I talk about this, I can recall the feelings of well-being of just seeing familiar faces. And that brings up an important point, which is there's quite extensive literature pointing to the fact that when we see faces, especially faces in the morning and in the late afternoon, there is a positive impact on the emotional circuitry. Or I should say, the circuitry of the brain that underlies emotional well-being. And that shouldn't come as surprising. We as old world primates, much like other primates, are very dependent on faces and facial expressions in terms of registering our own place in life and our emotional state. Now the origins of this are many. In particular, we have a brain area, it's actually called the fusiform face gyrus. This is an area of the brain that was largely discovered by a woman by Nancy Kanwisher at MIT. And the Kanwisher lab has done extensive work showing that this brain area that's dedicated to the processing of faces, and not just faces in real life, but faces on computer screens and elsewhere, are intimately tied to areas of the brain that are associated with emotionality. That's actually a work from another laboratory, Dorsal's laboratory at Caltech, now at Uc Berkeley, has shown that this face processing area in the brain in both non-human primates and primates is directly linked to the areas of our brain that associate with anxiety and fear. But also, areas of the brain that are associated with well-being. So it comes as no

surprise that when we see faces, in particular, friendly faces, even if we have just brief interactions with those faces, and even if no words are exchanged, that creates the sense of social bond. And it creates a sense of predictability. And I raise this again because I think a lot of people think that social connection always has to come in the form of close friendships, which of course are wonderful. Or close romantic relationships, which of course, are wonderful. Or close family relationships, which of course, are wonderful. But as we'll soon discuss in our model of happiness, or how to achieve happiness based on the scientific literature in a few minutes, social connection can and should come in various forms. And when I say various forms, I mean forms of brief interaction, more superficial interaction, and forms of deeper interaction. All of those are relevant to our states of happiness. And there's research to support that daily interactions with somebody at a cafe or just a brief hello or a smile. Provided that we are both present, or we make the effort to be present to those interactions, however brief they are, can have a positive effect on people's overall well-being. And not just in that moment, but consistently. Evidenced by the fact, I think, that when I look back on those years of working long hours in the laboratory and essentially restricting myself either to exercising, sleeping, eating or working. Again, that's what I wanted at that stage of my life. Certainly, not the way I live my life now. But that's what I wanted that stage of my life. That even those seemingly insignificant social interactions were important to me and had a potent impact on increasing my level of happiness. And frankly, still do.

01:46:33 Deep Social Connection, Presence & Eye Contact

And I feel that right now. That said, I think all of us can appreciate the immense value of social connection that is of the more long lasting, and for lack of a better word, richer type, whether or not that is with siblings or with parents or with friends or with romantic partners. For that reason, I want to emphasize a little bit about what constitutes connection and what constitutes social connection. There are basically two forms of social connection that have been studied and I'll review both, as it relates to increasing our levels of happiness. And the first one is presence and eye contact, and the second is physical contact. So in terms of presence and eye contact there's been a lot of studies about whether or not people exchange direct eye contact during conversation or not, dictating whether or not each individual in that interaction feels as if they had a connection. Now again, keep in mind that while we think of connection as relating to

some deep or meaningful conversation, and oftentimes that can be the case. Think for instance, an excellent therapist patient relationship. Or an excellent romantic relationship. Or an excellent friendship where you really feel heard and understood, or at least to the extent that people are willing to explore certain topics with you. You're willing to hear them and listen really carefully for what they're saying, and they're willing to hear and listen to what you're saying in an attempt to understand. That certainly can enhance the sense of social connection leading to what people would call social bonds leading to increased happiness. But eye contact is also known to be an important feature. The thing about eye contact is that most people assume that a lot of eye contact, and in fact, ongoing eye contact, is critical to a sense of connection. And in fact, that's not the case. There's a recent paper that I find really interesting that was published in Proceedings of the National Academy of Sciences in 2021. The title of this paper is "Eye contact marks the rise and fall of shared attention in conversation". I find this paper interesting for a number of reasons. First of all, my laboratory works on internal states and vision, so it relates directly to the work that my laboratory does. But also, that it violates what I thought was a general rule of social connection, which is this idea that two people needed to be focused on one another, that is looking at one another directly and fairly consistently throughout a conversation in order for the feeling of connection to emerge. But it turns out that's not the case. And in fact, just to give you the takeaway and then I'll flesh it out a little bit with some data, eye contact, or I should say mutual eye contact, so two people registering the presence of the other person looking at them. You're looking at me and I'm looking at you. If you're watching this on YouTube, then perhaps we are actually doing this at that moment. And if you're listening, just know that I'm looking directly into the camera as I'm saying this at this moment. If we were to be looking directly at one another, that, it turns out, signals the next step, which is that it's very likely that we will each both look away. And that turns out to be a way in which we set and reset attention continually during conversation. So again, I really like this study because of the high fidelity. The high temporal precision. That is, the precision over time at which they looked at eye contact and engagement of attention between individuals. And they did this by looking at things like pupil size and of course where the eyes were looking and so on and so forth. The basic takeaway of this study was the following. And here I'm quoting from the study. Quote "Rather than maximizing shared attention, good conversation may require shifts in and out of shared states accompanied by eye contact". So what this basically says is that when two people are involved in a very, let's

call it an intimate conversation, but the word intimate should not be misconstrued to mean something about intimacy or sexual intimacy or physical intimacy. Just a conversation in which both people feel present to the conversation and focused on that conversation and that conversation and its contents only. The tendency is for people to take turns talking, although sometimes, depending on the individuals they might interrupt more or less. Again, interrupting can be a sign of interest, it doesn't always have to be rude, by the way. But they're sharing information. Hopefully, about a common topic or set of topics. They will at some moment look at one another. That's what the study shows. And that after briefly gazing directly at one another, attention peaks, and then they will look away, and attention will get reduced. And then the conversation consists of a series of focusing back on one another with their eyes, and then focusing off, focusing on and focusing off. And those mutual eye contact moments actually predict the breaking of attention. So it's this ramping up of attention and braking of attention. Ramping of attention and braking of attention. I think these are important results because they violate this stereotype or assumption that deep social connection of the sort leading to happiness always involves ongoing eye contact or ongoing focus. Just as with meditation, just as with any activity, frankly, we undergo shifts in attention and focus. That is focus ramps up and then it breaks, and then it re-engages. It ramps up it breaks, and then it re-engages. And that, it turns out, is the basis of in-depth connected conversation. So for those of you that are interested in creating social connection in any context, and in particular for sake of increasing happiness, because it's very clear that social connections, even if they are fairly superficial social connections, can increase our sense of happiness. Seeing faces is important. Ideally, faces in person, although I suppose these days, over Zoom or over other screen type medium would be a close second. But the point is that if you want to increase happiness you need to have quality social connections. And if you want to have quality social connections you need to be present and engage in those social connections. And that requires a viewing of each other's faces, ideally, which is not to say that a phone call or text exchange can't be meaningful. But that faces are really the most powerful way to engage in social contact. And that eye contact, not consistent eye contact, but eye contact of the sort that builds up and then breaks and builds up and breaks across the interaction is going to be the best way that we are aware of to feel that one had a real connection. This should also remove any pressure that you might feel to constantly look at somebody or to be completely eyes open staring at them without blinking or diverting your attention at any

point during a conversation. This also frankly, is an opportunity where if somebody says, hey, you're not paying attention because you look away, that you may actually be engaging in what is the more typical form of healthy connection. I talked about this long ago on an episode about focus. It turns out when we are listening very intently to somebody and trying to remember the information they're telling us, we will often close our eyes. And that's not a form of lack of attention, that's actually a form of attending in. Because we have so much of our brain devoted to vision. When 40% of our brain is devoted to vision in some way or another, when we close our eyes, we can actually devote more attentional resources to remembering the specifics of what people are telling us. But again, please don't go through conversations with your eyes closed the entire time.

01:54:00 Physical Contact & Social Connection, Allogrooming, Pets

I think that would certainly not be conducive to building social connection. So we know that faces are important for social connection as it relates to synthetic happiness. And we know that eye contact is really important for building social connection. Physical contact is also important for social connection. And not just romantic or sexual type connection. In fact, there is a form of physical connection that is present in other primates. In fact, it's present as far as we know, in all mammals. And is also very much a feature of the human nervous system. And that's something called allogrooming. I have to imagine that most people probably haven't heard of allogrooming. The reason I'm bringing up allogrooming is that it stems from a fairly extensive literature about the prosocial, pro happiness effects of pets on humans. In fact, if you want to read up on this, there is a paper out of Yale University on this topic that was published in 2018. The title of the paper is "The influence of interactions with dogs on affect", OK emotion, "anxiety and arousal in children". And it references some other studies that were performed on humans. And the basic takeaway is that these so-called AAAs, animal assisted activities, represent a really potent way to increase people, including children's feelings of well-being. Now what's interesting about this to me is that dogs themselves don't really have to do much except be present in the room in order for these positive effects, that is, the reductions in anxiety, increases in happiness, et cetera, to occur. And in fact, they can be very, very brief. As they describe in the paper, "brief unstructured interactions with an unfamiliar dog", so you don't even need to know this dog, "after

exposure to a moderate stressor showed higher positive affect relevant to participants who received a soothing object or waited for the same amount of time." So just even seeing a dog for a brief amount of time has been shown to reduce stress and improve happiness, or I should say, increase feelings of happiness overall then a child receiving a soothing object. Which was, at least for me, a little bit counterintuitive. I would have thought that children receiving a soothing object would have been the more powerful stimulus. But in fact, it wasn't, at least not in this study. The real question I think we should be asking ourselves is, what is it about interactions with others and with other animals that could potentially have this prosocial happiness enhancing effect? And the reason I raise this is also because I think many people are interested in either owning or having interactions with pets as a way to improve their feelings of well-being. And I say having interactions with because I myself am a good example of somebody who wasn't always able to have pets. So when I was a graduate student in a postdoc, I very much wanted a dog. Very, very, very much wanted a dog. In fact, there was a rule in my family at some point that I wasn't allowed to talk about dogs anymore because I was talking about all the breeds of dogs. Going to dog breeders, examining different breeds, going to the pound, et cetera. The point was that I was obsessed with getting a dog, but I knew I wasn't in a good position to own a dog yet. I didn't have the finances, I didn't have the correct living situation and so on. Eventually, I did own a dog, of course. But at the time I couldn't. So what I would do is every Sunday I would go to a place where they fostered dogs and they needed dog walkers. And I would walk their dog. I would also walk my neighbor's dogs. I didn't charge them for it. In fact, I felt like I was being paid by getting time with those dogs. And in fact, I put an ad at that time on Craigslist that I would walk people's dogs for free, and only a few people took that seriously. But of the ones that did, I had a great little cadre of dog owners that would allow me to take their dogs out and I was super happy. It just made me very, very happy. And I really enjoyed it. And frankly, it was a great opportunity for me to also get to the various dog breeds and the different dog temperaments and to learn a bit about my ability to interact with dogs in a certain way. I actually got to be a pretty good dog walker. Unfortunately, later I got a bulldog. And it turns out no matter how good a dog walker you are, Bulldogs just simply don't like to walk. In fact, if you've ever walked up to a bulldog and you've offered to scratch or pet that dog, you'll notice that Bulldogs love that. And I would argue, having been a bulldog owner, that they like it because it's an opportunity for them to stop moving. But that's more about the bulldog than what I'm about to tell you next, which is

this principle of so-called allogrooming. Allogrooming is a pattern of behavior that's observed in essentially all mammals but very strongly in nonhuman primates and primates, where individuals within a species touch one another. And this is non-sexual touch. So this would be someone brushing somebody else's hair or combing their hair or even using a lint roller on them, for instance. Or someone grooming somebody else. Now typically, one needs to have an established relationship with this person. So it could be a professional type relationship where this is a barber cutting somebody's hair or a hairdresser cutting or styling somebody's hair. It could be somebody giving someone a manicure or a pedicure. Could be somebody doing skin care or massage for somebody in a professional context. Or it could be two people who have agreed that it is appropriate for the context and for the relationship for one person to be grooming somebody else. Can even, believe it or not there's literature on this, can even extend into the realm of people sort of cleaning and picking off other people. Now when we see this in primates, it seems like a very cute and sort of almost understandable behavior. We can see these pictures online. If you look them up, you can just look up allogrooming and you'll see vast number of pictures of for instance, baboons picking little things out of each other's hair. Or grooming and kind of perusing one another, to find things, presumably parasites or like little bits of plants or something like that they want to remove from them. Allogrooming is known to stimulate a certain category of neurons called the C tactile fibers. These are a particular category of so-called sensory neurons that innervate our skin. So these are literally like little endings of neurons, little wires that end up in the skin, that when they are touched lightly tend to create a feeling of well-being in the person that's being touched. Again, this is consensual touch that's very context appropriate. But it's known to increase levels of oxytocin, a kind of hormone slash neurotransmitter. It's both, really. That is known to evoke feelings of bond. Or of feeling bonded to somebody or something. And for many people we hear about oxytocin and we think about the bond between parent and child, in particular mother and infant where it's been most extensively studied. Or between two members of a romantic couple. But if you look at the literature on allogrooming, what you find is that when humans groom one another, the increases in oxytocin that are experienced are at least on par with and in fact, more often, more dramatic in response to allogrooming than in response to other forms of touch. So the point here is that allogrooming is a prosocial behavior that tends to associate with and promote feelings of well-being and happiness. And this is not a trivial effect. If you look at the brain imaging data or other forms of data

on this, allogrooming is a very powerful form of bonding between individuals that's completely nonverbal. In fact, most often it doesn't involve eye contact. I suppose two people could be looking at one another grooming one another, but typically, this is done from the side or from behind. Why did I bring up the paper on pets? Well it turns out that when humans stroke dogs, or brush their dogs or stroke cats or brush their cats, et cetera, that is a form of human to animal allogrooming. And it's one in which both the pet and the human receive huge increases in oxytocin and other related neurochemicals that make us feel bonded. I bring this up because the Harvard longitudinal study on happiness, and many, many others, if not hundreds of other studies on happiness, point to the importance of quality social connection. You hear this over and over again. People on their deathbeds don't say they wish they had worked more. People on their deathbeds talk about the richness of social connections or the wish that they had invested more in social connections. I think a lot of people think of social connections only in terms of travel with or conversation with others. But much of what we perceive as deep social connections also involves physical contact. And that's something that's deeply rooted in our evolutionary biology. And it's present both in us and in non-human primates. And it's clear that we can engage in these kinds of pro-social, non verbal, non eye contact type behaviors through things like non-sexual tactile touch, a.k.a.

02:03:00 Freedom & Choice; Synthetic Happiness

allogrooming. So we've been talking about a number of the different things that one can do in order to increase levels of happiness. And certainly, before we conclude today, I'm going to touch back into not just synthetic happiness and the various things we can do, such as prosocial spending, allogrooming, social connection, et cetera. But also things related to happiness that involve focus on vocation and work and pursuit of goals. Because as I mentioned at the beginning, those are also critical to increasing our state of happiness, and certainly our state of security and the feeling that we can provide for ourselves and perhaps for others, as well. So we will talk about that. But I think it's also important to talk about this notion of choice and choices, and whether or not having a lot of freedom to choose or limited freedom in choosing what we do and what we get, and what we are able to pursue in life, how that relates to both natural happiness and synthetic happiness. Dan Gilbert and others have explored this issue of freedom of choice and how it relates to happiness. And there I must say, the findings are incredibly

counterintuitive. But very, very well supported by all of their data. I'm going to summarize a large amount of those studies at once by saying the following. Dan's laboratory and other laboratories have done experiments where they give people a series of options. And one of the more classic examples, they give people the opportunity to rate a number of different paintings or pictures in ascending or descending order of preference. In other words, they're deciding which ones they like most which ones they like least. Then what's interesting is the experimenter will vary the extent to which they have to stick to that choice. So this could be sticking to the choice by receiving that painting to take home. Or in another experiment, it was having to make a choice between giving up one photograph that they, the research subject took, or another photograph that they took. One of the photographs was going to go off to a publication, another one they could keep for themselves. And the conditions in that experiment were either that you had to make the decision and it was final, that is, you could keep one and rate your decision, or you could keep one and then you had the opportunity to swap out that picture for the other one at some later time. In other words, these experiments really weren't about rating pictures, they were really about whether or not constraining your choice, meaning forcing somebody to make a choice and stick to that choice, led to greater levels or lesser levels of happiness and satisfaction with that choice. And what they find consistently is that when people have an ongoing set of choices it leads to reduced levels of happiness. Now that might come as surprising to many of you, but I want to be clear about what this means. This is not to say that having a lot of choices of what you like most leads to lesser happiness. And that having fewer choices about things you do, or objects you acquire, et cetera, leads to greater happiness. What this set of experiments really points to is that when we make a choice, if we are forced to stick to that choice we tend to be far happier with that choice than if we maintain the option to change our mind. The results of these experiments are extremely informative, I believe, in terms of understanding our real life happiness. That is, happiness outside the laboratory. But I think they are often misunderstood as meaning that if we have a lot of choices we tend to be less happy than if we have fewer choices. That is not the case. Having freedom of choice is terrific. And actually, correlates with elevated levels of happiness. But once we make our choice, it's clearly the case that killing all other choices or having all other options killed for us increases our satisfaction with the choice that we've made. Whereas, leaving doors open, leaving options open greatly diminishes our sense of satisfaction. This has been exported to any number of different domains.

So this has been exported to the domain of making choices about what college to go to or what partner to select in life. In every one of those instances, we see that our happiness with our choice is very much related to that choice being either the only one or one of very few other options. There are a number of different ways to interpret this. Through the lens of neuroscience we might say that the prefrontal cortex, the area of the brain that's involved in decision making and evaluating different options, is an area of the brain that's vital, frankly, to our evolution as human beings and to our daily life and to our whole life. It is, of course, the thing that allows us to evaluate different rule sets, to change rule sets, to switch contexts and to create meaning, et cetera. To interpret what's good what's bad. But it's also a fairly costly process, meaning it's very metabolically demanding. And there's an entire literature related to what's called ego depletion. This is certainly a topic for a future podcast. But ego depletion essentially says that if I have you attend very intensely to a given task, for instance, asking you to count backwards from 1,000 to 0 in increments of 13. And then have you switch about halfway through, that's hard for a lot of people. If I have you do that, then your ability to suppress impulsive behavior and to do a hard cognitive or physical task immediately after that is actually suppressed. This so-called ego depletion. It relates to a number of different things, but it certainly relates to engagement of the prefrontal cortex, which is very metabolically demanding. So evaluating choices and doing computation of numbers or attending to things with your mind and forcing yourself to focus intensely is metabolically demanding. And that's a limited resource that can be reset by things like sleep and non sleep deep rest or idle time or letting your mind wander. In that case a positive mind wandering to allow your brain to reset its ability to focus. But the other thing that it does is it impacts the reward circuitry of the brain, the so-called dopamine reward circuitry and other reward circuitry of the brain. And here I'm painting with a broad brush. But it essentially divides them such that for instance, if a given choice of a let's say a partner or maybe buying ourselves an article of clothing, not that I want to compare selection of a life partner to selection of an article of clothing. But just to give multiple examples. Might give us, and here it's arbitrary units, x units of dopamine increase. Well, if we buy that article of clothing or we select that life partner, and then we emerge from the store or the wedding and we are focused on what we purchased for ourselves, our choice, or our life partner choice, and only that, well then there's a certain amount of neurochemical reward associated with that. And happiness and well-being. But it's also very clear that if we leave those choices, the store or our wedding for instance, or a life with somebody

for a moment, even just mentally, and start thinking about the other options that we might entertain as possible. If those are still open to us in reality or in our mind, well then our reward circuitry becomes fractured in a way. Not physically fractured, but less attention is devoted to the reward circuitry associated with our choice. And as a consequence, instead of it being x units of dopamine, it's x divided by however many other choices we might have available to us in our mind or in reality. So instead of, and again, these are arbitrary units, but instead of a certain amount of reward, it's a certain amount of reward divided by the number of other options that we might be considering as alternatives to what we chose. And I think this is a very important aspect of understanding how limiting our choices after we've made them is a vital part of what we call synthetic happiness. In fact, we could even go so far as to say that focusing on the choices we've made and really investing in those choices as good ones, or great ones, and really trying to limit our thinking to the choices that we've made once we've made them is perhaps also important to our natural happiness. Because it's so inextricably entwined with what we think of as a good life. And what I mean by that is if we are constantly in a mode of evaluative decision making, even after we've made a decision, we are not neurochemically nor psychologically able to extract the feelings of happiness associated

02:11:57 Happiness Toolkit

with the choice that we made. So we've talked about a number of different dimensions of happiness, both in synthetic and natural happiness. And some of the more counterintuitive aspects of happiness. For instance, that people tend to adjust their levels of happiness not regardless but often in spite of their life circumstances. But as we emphasized earlier in the episode, that is not to say, at least the research does not directly support the idea that a major trauma or loss won't impact our happiness. In fact, it tends to. And that's why it's important that people access resources and work devoted to overcoming trauma, which certainly exists out there. And of course, there are the longitudinal studies in short term studies showing that income level and material things don't necessarily scale with happiness, and vice versa. And yet, we also acknowledged early in the episode that while indeed money can't buy happiness, it can buffer stress. And while work doesn't necessarily bring happiness, per se, work can bring a tremendous feeling of meaning and resources which can then put you into context in

which things like prosocial contact and enhanced bonds and caretaking of others and of you can be enhanced. So it would be unfair and in fact, inaccurate, to simply view happiness through the lens of money doesn't matter, it's all about social connection. And so on and so forth. Absolutely, social connection is important, which is why we spent some minutes talking about some of the ways to enhance social connection both with other human beings and other animals, and them with us. I think there's a opportunity here to take the research on happiness, the research on the neuroscience of what happiness and gratitude and prosocial connection tells us, and to combine it into a bit of a model or a toolkit, if you will. And I think indeed, this will be a toolkit in one of our future toolkit episodes, likely merged with the toolkit on gratitude, which we haven't done yet. And perhaps even we will do an entire episode on social bonds and how to enhance or build social bonds. Or at least what the science tells us about that. If we take a step back and we look at the concept of happiness, we can make a couple of absolute statements. That is, statements that I think very few people, if any, would contest. First of all, there's no single molecule or chemical associated with happiness, but that the chemical milieu of the brain and body is important for setting the stage or the opportunity for happiness. Hence, why there are treatments aimed at alleviating depression or mania that target certain neurochemical systems and hormone systems. Happiness, at least the way I'm framing it today, has essentially two components. One is meaning. That is, what sort of meaning do certain types of interactions or behaviors, could be work, could be social interactions, et cetera, carry for us? And nested in that is this concept of connection. And we talked a bit about tools for enhancing connection. Things like eye contact, but not constant eye contact. Things like being very present to a conversation or an activity that you're engaging in. Remember, we talked about the paper, "A Distracted Mind is an Unhappy Mind"? The paper published in Science. And we talked about the study, also published in Science in which giving money, but also knowing how that money has positively impacted others, leads to this feeling of pro-social connection and happiness in the giver and in the receiver. And I should mention again that it's not just the giving of money but also the giving of effort and time and attention that can have similar effects. So we have meaning and connection, and a number of different ways to access those. And then we have this access that I'm referring to as performance and resources. And I'm talking about performance and resources as it relates to natural happiness, not synthetic happiness, but natural happiness. Because we would be wrong, I believe, if we were to say that income doesn't matter. I think it's fair to say, based on the research, that

income matters. And income that can cover costs of living plus that includes some buffer. And what do I mean by buffer? I mean buffer to the anxiety that circumstances might change is important. Now that's going to vary from person to person. Meaning some people will be perfectly happy making \$1 more than their absolute cost of living every month. Other people will require a more substantial buffer in order to protect them against the negative psychological effects of worrying about for instance, inflation. Or worrying that they might lose their job. And this is why I think most people recommend having, if possible, some buffer in their bank account that could cover two or three or maybe even six or maybe even 12 months of living expenses were they to lose their job or something catastrophic happened to them. So if we're going to talk about happiness, I think it's only fair, only accurate, and frankly, only respectful to talk about living requirements and cost of living requirements. That includes this sort of buffer. And that buffer to anxiety is going to vary depending on how anxious somebody gets about the possibility of catastrophic things happening to them, like losing their job or their rent going up or doubling. And here, I'm talking about hypotheticals. But I think we all know people and perhaps ourselves have experienced those kinds of circumstances. So when we talk about happiness we absolutely need to think about resources. And we also need to think about performance. I think we would be completely inaccurate if we simply said, oh, any work leading to any outcomes. Any effort, regardless of whether or not it gets you an A in school or an F in school isn't going to impact your happiness. I don't think anyone would agree with that. And yet if you look at the major takeaways, at least as they are communicated typically in the public sphere around the longitudinal and short term studies of happiness, the takeaway generally is more focused on social connection and how money is not important. I don't think anyone that's saying that actually means that income that can cover your expenses plus some buffer isn't important. But it's often not stated. So if we were to come up with a general model of happiness that includes various tools for how to increase our levels of happiness, I think it's only fair to include both natural and synthetic forms of happiness and to pursue both natural and synthetic happiness. Just to remind you, natural happiness is the kind of happiness that we associate with obtaining something, either by effort or because it was given to us. Although, I definitely want to highlight the fact that receiving things that don't require much reward in order to receive them over time can be detrimental to our dopamine system. That's an important aside. The other form of happiness is the form of happiness that we call synthetic happiness. Which is, for instance, focusing on social connection.

And we talked about ways to do that as a means to enhance your happiness. Again, the language, the name synthetic happiness implies something kind of artificial. But frankly, genuine social connection is genuine. There's nothing artificial about it or synthetic about it, is that you can synthesize it through action, through deliberate action. Likewise, being focused or encouraging yourself. Working on being focused on whatever activities you happen to be engaged in, positive or negative, is known to increase your levels of happiness. Again, this is a form of synthetic happiness. You're not obtaining anything new or additional as a consequence of this. It's entirely internal. There's no external reward. There isn't more money that arrives with this or a better grade. Although, I would make the argument that if you are present to the work you're doing in any context, physical or mental work, it's very likely that you are going to perform better at that work. So we have natural happiness and synthetic happiness. And both of them require our attention and effort. And in fact, if we were to draw a link between natural and synthetic happiness, it really is this concept of presence, of really being focused on what we're doing, that's most likely to lead to the outcomes that we want. Both externally, in terms of receiving monetary rewards or grades, or praise, or whatever it is that you happen to be pursuing out there, resources of some kind. And presence, and striving to be present when in the pursuit of so-called synthetic happiness in the form of social connection or in the form of really focusing on the choice that you've made and making the best of that choice, especially since you made that choice in a way that you deemed best at the time. Well, that also is known to increase your overall levels of happiness. So if an ability to focus and attend to things deeply is really what's most important, and really acts as the greatest lever for both natural and synthetic happiness, well then, tools like a 5 minute daily meditation or a 13 minute day meditation, as well as tools that allow us to get excellent sleep every night. Which, of course, sets the basis for attention during the day. If you've ever had a poor night's sleep then you are very familiar with how hard it is to focus the following day. At least for long periods of time. But building our capacity to focus through a focusing exercise, which again, is often called meditation, but is really simply just a focusing and perceptual exercise. That's going to create an outsized effect on all the aspects, all the behaviors that we know feed into creating natural and synthetic happiness. And so it's really fair to say that our ability

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to attend and focus really equates to happiness. So as is often typical of this podcast, today we've talked a lot about the various aspects of the science of happiness, including the different forms of happiness and tools to access those different forms of happiness. If you're learning from and/or enjoying this podcast, please subscribe to our YouTube channel. That's a terrific zero cost way to support us. In addition, please subscribe to the podcast on both Spotify and Apple. And on both Spotify and Apple, you have the opportunity to leave us up to a five star review. If you have questions or suggestions about topics and guests you'd like me to include on the Huberman Lab podcast, please put those in the comment section on YouTube. I do read all the comments. In addition, please check out the sponsors mentioned at the beginning of today's episode. That's the best way to support this podcast. The Huberman Lab also has a zero cost newsletter that you can access. It includes summaries of podcast episodes, as well as summaries of various protocols for mental health, physical health and performance. You can sign up for the newsletter by going to [Hubermanlab.com](https://hubermanlab.com), going to the menu, and look for the Neural Network newsletter sign up. You just provide your email, and I assure you, we do not share your email with anybody. And again, it's completely zero cost. Again, go to [Hubermanlab.com](https://hubermanlab.com) and sign up for the Neural Network newsletter. And if you're not already following us on social media, we are Huberman Lab on Instagram, Huberman Lab on Twitter and Huberman Lab on Facebook. And at all of those sites I provide science and science related tools for mental health, physical health and performance. Some of which overlap with information covered on the Huberman Lab podcast. But often, which is distinct from information covered on the Huberman Lab podcast. So again, that's Huberman Lab on Instagram, Twitter, and Facebook. Once again, thank you for joining me for today's discussion about the science of happiness and tools for increasing your happiness. And as always, thank you for your interest in science.

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