

[Transcript] Huberman Lab / AMA #10: Benefits of Nature & "Grounding," Hearing Loss Research & Avoiding Altitude Sickness

Welcome to the Huberman Lab Podcast, where we discuss science and science-based tools for everyday life.

I'm Andrew Huberman, and I'm a professor of neurobiology and ophthalmology at Stanford School of Medicine.

Today is an Ask Me Anything episode, or AMA.

This is part of our premium subscriber channel.

Our premium subscriber channel was started in order to provide support for this standard Huberman Lab Podcast, which comes out every Monday and is available at zero cost to everybody on all standard feeds, YouTube, Apple, Spotify, and elsewhere.

We also started the premium channel as a way to generate support for exciting research being done at Stanford and elsewhere, research on human beings that leads to important discoveries that assist mental health, physical health, and performance.

I'm also pleased to inform you that for every dollar the Huberman Lab Premium Channel generates for research studies, the tiny foundation has agreed to match that amount, so now we are able to double the total amount of funding given to studies of mental health, physical health, and human performance.

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So without further ado, let's get to answering your questions.

The first question is about nature, in particular about the scientifically supported benefits of getting outdoors into nature.

The person asks about the role of sunlight, the role of calming sounds, the role of observing wildlife, of observing green colors, and quote, other stuff.

And in fact, I'm glad that they asked about other stuff, because I get the question about the scientifically supported benefits of nature a lot.

I often also get the question about grounding.

For those of you that aren't familiar with what grounding is, grounding is a practice of putting your feet on the earth directly with bare feet, oftentimes into soil or on a lawn.

And it's a question that I seem to get more and more.

In fact, every week for quite a long while now, on social media or elsewhere, somebody asks me about the scientific support for this practice of grounding.

So obviously there's a lot of interest in what the scientific research says about getting

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into nature and putting one's feet on the ground, aka grounding, and so on.

OK, so if I'm going to answer this question, I first have to be very direct with you.

There is excellent, meaning dozens, if not hundreds, of quality peer reviewed studies which support the value of getting sunlight in one's eyes, in particular early in the day to set their circadian rhythm.

This is something that I've talked about extensively on the Hubertman Lab podcast and as a guest on other podcasts.

It's one of the first and, frankly, most important items on the toolkit for sleep, which is a zero cost toolkit that you can access by going to hubertmanlab.com, going to the menu, going to newsletter.

You can see it as a PDF there.

You don't have to sign up for the newsletter.

You can just access that toolkit for sleep and you'll notice that very close to the top of that list, if not top of that list, is to get sunlight in your eyes early in the day.

You don't have to see the sun across the horizon if you can.

That's great.

But if you wake up after the sun has already risen, go outside, face the sun, blink as necessary to protect your eyes, but get some sunlight into your eyes every single day or as often as you possibly can, especially on overcast days.

That's an absolutely unequivocally science-supported tool that will increase daytime mood focus and alertness and will improve your nighttime sleep.

Viewing morning sunlight also has profoundly positive effects on metabolism.

Those effects on metabolism could be the direct effect of viewing sunlight or, more likely, they are the indirect consequence of getting better sleep at night.

Getting sunlight in your eyes early in the day and ideally in the evening or late afternoon before the sun sets is a very well-supported protocol that we know is beneficial for numerous aspects of mental health, physical health, and performance.

Of course, sunlight and getting sunlight in one's eyes does require that you get outside.

You simply will not derive the same benefits from viewing sunlight if you try and do it through a window or windshield, or if you look at a picture of a sun on a screen, forget it, you are not going to set your circadian rhythm, you are not going to derive all the positive effects of sunlight by trying to get it from screens or from looking at pictures of suns or something of that sort.

Now, if you are somebody that for whatever reason, seasonality, where you live on the planet, work schedule, etc., who cannot get sunlight in your eyes early in the day on a consistent basis, well, then you might consider purchasing a so-called sad lamp, which is for seasonal affective disorder, which is a very bright light that you can look at in the morning for usually about five to ten minutes, people will put it on their counter while they make their morning coffee, eat their breakfast, and that has also been shown to improve mood focus and alertness and set one circadian rhythm, but it is not nearly as effective as getting sunlight in your eyes.

Now, why am I talking about this practice that I've already talked about extensively on numerous podcasts before?

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Well, because the question is about nature and sunlight is a key feature of our natural environment.

The person is also asking about other features of nature, seeing green colors or blue colors or running streams for that matter.

Well, here too, we can ask what does the scientific data really say about things like going near a waterfall or a running stream or being near an ocean?

Actually, this is quite interesting.

There is actually a peer-reviewed literature on negative ionization, as it's called, which is a pattern of ionization that's present close to bodies of water and particular types of bodies of water, such as waterfalls, running streams, etc.

There's actually a laboratory at Columbia University School of Medicine that has published fairly extensively on the health benefits of negative ionization as it relates to setting circadian rhythm and some other aspects of mental and physical health.

I intend to host the head of that laboratory on the Huberman Lab podcast in the not too distant future.

For now, we can safely say this.

There does seem to be some positive health benefits to placing oneself near bodies of water, in particular, moving bodies of water.

And of course, as is always the case when there's a discovery about how the natural world can impact health, there have been some technologies developed to create negative patterns of ionization within a home environment.

But as with viewing sunlight exposure and comparing it to, say, sad lamps, the negative ionization machines that one can purchase and put in their home environment have been shown in a few studies to produce some positive health benefits.

But those positive effects in no way reach the level of positive effects that have been demonstrated in studies where people are actually spending a dedicated period of time outdoors near a moving body of water.

So in thinking about nature, natural environments, there's strong evidence for getting sunlight in one's eyes.

There is some evidence for being near moving bodies of water, perhaps again, I really want to highlight perhaps because of negative ionization created by those moving bodies of water. There is far less evidence for sunlight simulators or negative ionization machines used indoors. And then the asker of this question also, quite correctly, asked about things like calming sounds, watching wildlife, green colors, et cetera.

And herein lies a really important point for everyone to digest.

While, of course, answering a question about the natural world or about health requires that we first pose a hypothesis for those of you that aren't familiar with a hypothesis a hypothesis is a stated prediction.

So it's not a question.

A question would be something like, is getting out into nature good for our health?

A scientific hypothesis is where one actually takes a stance.

For instance, you could take the stance and make the hypothesis that getting out into nature for 30 minutes per day, three days per week improves mood and nighttime sleep.

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So that's a hypothesis that then one would go on to design an experiment to test and then evaluate the data from that experiment and compare it to the hypothesis, either validating or negating that hypothesis.

That's essentially how science is done.

There's a lot more to it, but that's essentially the scientific method.

And while, of course, the scientific method is a fabulously powerful tool, for some questions, it is a less potent tool.

And the question of, is getting out into nature helpful for enhancing our mental and physical health, is the sort of question that while ideally you could design a really well controlled study to address, it's actually quite difficult to design such a study.

And here's why.

In order to perform a study that's very well controlled, meaning where you can isolate individual variables like sunlight, like the sorts of color contrast that one sees in the natural scene outdoors in a forest or near a river.

In order to address whether or not the calming sounds or the presence of squirrels running through your environment are the relevant factors, it becomes incredibly difficult to try and isolate individual variables.

Meaning as soon as you bring people into the laboratory, yes, you have more control over which variables, as they're called, you present them, right, by bringing them into a room that essentially has no art on the walls and then having them look at a picture of a sun or looking at sunlight or listening to soothing sounds or looking at a picture of a forest. Of course, you're controlling the individual variables.

However, there is a sort of gestalt, meaning a collective picture of being in nature that brings together lots of different elements, right?

The element of surprise, for instance, the other day I was out for a Sunday hike and that morning I saw a squirrel running across my path and it was interesting because the squirrel had a pine cone in its mouth.

It had been chewed down to the cob and the squirrel is probably only about seven or eight inches long and the pine cone was probably about nine or 10 inches long.

The cob of the, of the pine cone that is.

The interesting thing is that the squirrel was carrying it long ways from the tip of the of the cob and so I delighted in the fact that this little squirrel was working so hard to carry this object through the woods and this object was literally longer than its own body length and it looks so dedicated and it's running across the path in order to do whatever it would with that pine cone cob.

So something like that obviously stuck in my memory.

It delighted me and at the very same time there were a number of other things happening besides the presence of that novel wildlife experience.

There was the sound of a stream.

There's the sunlight.

There's the color contrasts everywhere.

I'm breathing fresh air because I was far away from any cars or any civilization.

In fact, and so here's what we know.

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There are dozens, if not hundreds of studies that show that if people get out of doors into nature, this could be parks, this could be near a stream, this could be an ocean, any number of different natural environments.

And if they do that for anywhere from 10 to 30 minutes, three to seven days per week, indeed there are demonstrated significant reductions in things like blood pressure, resting heart rate, improvements in sleep, improvements in mood.

And so I think we can very reliably say that yes, or perhaps even absolutely yes, getting outside into nature can enhance various aspects of mental health, physical health, and thereby performance in different aspects of life.

However, when talking about the benefits of getting into nature, we are talking about hundreds, if not thousands of variables, some of which we are aware of, such as the presence of wildlife or sunlight or color contrast.

And then of course, there are going to be dozens, if not hundreds, maybe even thousands of other variables that we're not even aware of.

Perhaps it's negative ionization.

Most people aren't measuring the ionization of the air when they go out into nature, but perhaps it's also the presence of certain smells from the soils that are being broken down and then they're changing the oxygenation state of the air around you, the plants, et cetera.

Again, so many variables that frankly, to try and isolate any one of those variables in the laboratory seems not just artificial, but I think that it actually would just lead to a diminished sense of just how valuable nature is.

So while of course, the Huberman Lab podcast is a podcast where we always center on science and science related tools, meaning protocols that are grounded in quality pure reviewed studies that have been subjected to control conditions where some people are getting say the drug treatment or taking the supplement or doing a particular behavioral practice and other people are not or doing some variant of those and dose response curves, all of that stuff.

When it comes to the question of whether or not it's valuable to get out into nature, I think it's a very straightforward yes, absolutely yes, get out into nature as often as you can and safely can, of course.

I realize some of this is weather permitting, people live in different areas, some people are in cities, some people are in desert, some people are near the ocean, but getting out into nature has been shown over and over again to have numerous positive health effects.

And yet unless we're talking about sunlight exposure and isolating the variable of setting one's circadian rhythm by viewing sunlight early in the day, all of the other features of getting out into nature, things like forest bathing, this is a term

coined from some frankly, pretty nice studies that were done in Japan, which people placed themselves into forests like environments for a certain period of time.

There were control groups where people were not placed into those environments and the people that did this so-called forest bathing, experienced enhanced mental and physical health that brought on a practice of people who could not get out of doors into forests, bringing plants into their home environment, which I think all of us would agree look nice. They often will add pleasant odors to the air and perhaps they do actually shift our mental

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and physical health in significant ways. I suppose it depends on how much you like plants, how much you pay attention to them, and of course how many plants there are. But, and I think this is a really important but to emphasize, well, most all questions about tools and protocols for enhancing health immediately lead me to say, ah, this study or that study or yes, there's evidence or no, there isn't evidence. When it comes to questions about nature and grounding in particular, I take the stance that this is a unique instance where we know there are just so many benefits of getting out into nature that trying to isolate any one of those variables in a quality, rigorous way within the laboratory almost seems too artificial to really justify the conclusions that arrive. Now, I'm sure there are some of you out there who are aware, and if you're not, I'll tell you, there are studies that have explored this practice of so-called grounding. They've had people come into the laboratory and place their feet on soil that is contained within a box or there are other studies where they actually have people go out of doors and place their feet onto the grass or the ground. And there are a bunch of theories as to how grounding could improve one's mental and physical health that aren't just about getting outside. So the theories go that this has to do with the exchange of electrons with the earth and the earth's surface in particular. There's been the argument made that shoes and particular shoes that have rubber soles may block some of this electron exchange with the surface of the earth. There have been theories about the tactile, that is the touch sensation with the earth being important. Not a lot of science published in, let's just say, blue ribbon journals, which is not to diminish some of the journals that these have been published in, but just to say that, again, there are so many variables associated with a practice such as grounding that I'll simply say, yes, please do get out of doors into nature. I try every Sunday to do my zone two cardio by rucking or jogging or hiking, often with other people if I'm trying to be social with family or others. But the point is getting out of doors has myriad positive effects on mental health and physical health. And of course, when you're moving out of doors, you're also getting that zone two cardio or other forms of physical benefit by elevating your heart rate or perhaps you could even do your resistance training out of doors on other days. Now I also tried to get out of doors other days of the week, but oftentimes I'm by way of weather or by way of other commitments forced to be indoors on planes here at the podcast studio where certainly I'm indoors, but I try to get out of doors at least a few minutes each day for a morning stroll looking at sunlight, etc. So the long and short of this is, yes, there's some evidence for grounding. Is it super strong evidence? No, it's not. We don't really know what it is about placing one's feet onto the earth that is producing the positive effects that were observed in those studies. And those studies made some reasonable attempt to isolate the variables and figure out whether or not it was ion exchange with the earth or the tactile meaning the touch sensation of having one's feet on the ground. Frankly, I don't think there's enough quality science to really draw any firm conclusions about that. However, if you like the idea of grounding by all means do it. In fact, if it feels good to you, I recommend getting your morning sunlight out of doors with your bare feet on the ground. Or if you're like me, you know, you put on your shoes and you take a walk most days although I've tried this practice of grounding and it feels pretty good meaning it feels nice to have my feet on the earth provided I'm on clean soil or clean lawn. Definitely don't do this at the dog park. Hookworm is a real thing, by the way, folks. So pay attention to the sorts of surfaces

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that you're putting your feet onto. But the question about whether or not nature is valuable for our mental and physical health is an easy one. It's an absolute yes, but isolating the particular variables about nature that are most beneficial. Well, that's a much tougher question. And it's one that frankly, the scientific method is not. And to be honest, I don't think ever will be in a position to isolate and really nail down specifically because as soon as you get specific about that question, you start to diminish the value of the study itself. So the long and short of this is get out into nature as often as you safely can if you can exercise out of doors even better. If you want to make it social, great. If you don't want to make it social, fine. It's your life. It's up to you. But there certainly is value in getting out into nature. It's also just beautiful from a visual perspective, from an auditory perspective. And I myself try and take at least a few trips each year. None of these are particularly expensive trips where I try and get out hiking, camping, the weekly walks in nature are a, you know, an absolute must for me if I miss one because of weather conditions or travel. I make it a point to try and get into nature more during the following week or whenever I can. And frankly, I don't have a scientific explanation for why nature is oh, so beneficial except for the sunlight piece and perhaps this grounding piece and the negative ionization piece. And frankly, I don't worry so much about the lack of variable isolating quality peer reviewed studies that support the benefits of getting out into nature. I simply like getting out into nature and into different natural environments as much as I possibly can because for whatever reason, imagine those reasons have something to do with serotonin

dopamine hormones, oxytocin, probably a bunch of different things that are rooted in how our nervous system evolved in natural environments. Well, it just feels really good. Thank you for joining for the beginning of this Ask Me Anything episode to hear the full episode and to hear future episodes of these Ask Me Anything sessions, plus to receive transcripts of them and transcripts of the Huberman Lab podcast standard channel and premium tools not released anywhere else, please go to [hubermanlab.com slash premium](https://hubermanlab.com/premium). Just to remind you why we launched the Huberman Lab

podcast premium channel. It's really two fold. First of all, it's to raise support for the standard Huberman Lab podcast channel, which of course will still be continued to be released every Monday in full length. We are not going to change the format or anything about the standard Huberman Lab podcast and to fund research in particular research done on human beings. So not animal models, but on human beings, which I think we all agree is a species that we are most interested in. And we are going to specifically fund research that is aimed toward developing further protocols for mental health, physical health and performance. And those protocols will be distributed through all channels, not just the premium channel, but through all channels Huberman Lab podcast and other media channels. So the idea here is to give you information to your burning questions in depth and allow you the opportunity to support the kind of research that provides those kinds of answers in the first place. Now an especially exciting feature of the premium channel is that the tiny foundation has generously offered to do a dollar for dollar match on all funds raised for research through the premium channel. So this is a terrific way that they're going to amplify whatever funds come in through the premium channel to further support research for science and science related tools for mental health, physical health and performance. If you'd like to sign up for the Huberman Lab premium channel,

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again, there's a cost of \$10 per month or you can pay \$100 up front for the entire year. That will give you access to all the AMAs. You can ask questions and get answers to your questions and you'll of course get answers to all the questions that other people ask as well. There will also be some premium content such as transcripts of the AMAs and various transcripts and protocols of Huberman Lab podcast episodes and not found elsewhere. And again, you'll be supporting research for mental health, physical health and performance. You can sign up for the premium channel by going to Huberman Lab.com slash premium. Again, that's Huberman Lab.com slash premium. And as always, thank you for your interest in science.