Rachel: I found a lab that will grow my boyfriend a new brain

Kayla: “Are you talking about the research done by Muotri: “Complex Oscillatory Waves Emerging from Cortical Organoids Model Early Human Brain Network Development”?

Rachel: “Yes I am, That’s the one!!!”

Music Intro

Hey everyone, my name is Kayla

And this is Rachel with Dating Hypothesis, thank you so much for joining us today!

Add “Two Beats”

*Begin conversation What is it?

Why do you want to grow your boyfriend a new brain? Why not just get a new boyfriend altogether?

Because he is perfect in every way except his brain. He is tall, dark, and handsome. He has a job, a car, and his own apartment. I like his body. He is perfect. I just don’t like the way he treats me.

Yeah, he sounds perfect. 🙄

When did scientists start growing brains, in labs?

In 1910 Harrison published a paper showing the growth and development of “nerve cells into nerve fibers” from a frog embryo in a petri dish.

So this is not new science?

No.

By the time I was born in 1973, labs had chambers containing slices of human brain in order to experiment on a single brain cell or entire neural networks. Scientists could control fluid exchange and access neurons, axonal tracts, and nerves, with electrodes or multi-electrode arrays. There was enough transparency in the slice for imaging studies. These methods allowed stimulation, inhibition, and the ability to disturb the neurons to see how they reacted.

In 2006, Yamanaka et al. first reprogrammed mouse embryonic fibroblasts. A year later it was done using human cells. Induced Pluripotent Stem Cells. This is what I wish to do with my life. So what is it? It’s engineering skin cells back into primitive embryonic stem cells. Once the cells are ready, they can be guided to grow into any organ.

Any organ?

Any organ! So, Kayla…what should we grow using Induced Pluripotent Stem Cells?

I know what organ you would grow. But you said his is perfect. So why would you grow one?

Remember episode 15? Body modification? I would grow that and switch his out. His is a perfect **normal** one. I would grow my own version.

Hell, I would grow myself new eyeballs, do you know how blind I am, I tried getting lasik and the doctor laughed at me…

Before 2012, “lab brain neurons” were grown flat in a petri dish so you didn’t have to dig through the small sulci grooves, larger fissure grooves, or gyri bulges to get to the cells you wanted to study.

In 2012, it was normal to grow neurons in a dish. Sometimes it proved to be tricky as the neurons would misbehave and bundle up into these little round balls. As frustrating as that was for scientists *it was more frustrating for the brains to continually be squished flat*. It turns out the neurons were just following their internal instructions to grow into 3D brains. The scientists had no idea they were growing miniature brains and kept trashing the balls, and trying again.

No way! They would throw away the miniature brains? Not knowing what they had grown?

Correct.

They should have held onto them, pretty sure there are a few famous individuals who could have made use of them…

Imagine how much research is like this? So much data no one knows how to interpret.

I am never going to read another science article the same after this.

I know, we go “on and on” about how intelligent scientists are **and in reality** much of what we **do or know** is a strict following of mistakes that were happenstancely interpreted correctly. Like, *we know anti depressants work in some people* **sometimes** but we have no fucking idea how or why.

Funny side note, I JUST read somewhere they are finding that antidepressants are not Nearly as effective as they were thought to be!!!

So it’s finally okay for me to give my opinion about that, out loud? Because, god, I have been thinking that for 20 years and have been too afraid to get slammed, for voicing it.

Labs around the world have hundreds of stem cell collections **to grow any disorder** or diseased brain at will. Researchers fully admit the goal is to “produce fully conscious brains”. **One scientist figures out** *we can grow a brain in an environment resembling its natural setting*, while another scientist discovers we can grow them larger, more functioning, and for a longer duration. Then another scientist…

…we know **how these kinds of advancements go**. We saw it sequencing the genome. Once thought an impossible task, can now be done **in one hour**. Each scientist tinkers and perfects another aspect of the research until the global efforts of hundreds culminate in a successful “cheap and easy” process. And that is exactly what is happening with lab grown brains.

The price of growing a brain is minimal. It would seem surreal to say it is around $5 and yet that is where we stand today. Stanford has licensed the technology STEMCELL Technologies to sell brain growing kits at an affordable price.

What’s their phone number?

Excuse me?

$5 fucking dollars? Are you kidding me? I know twenty people I want to replace their brains with an upgrade, including myself. That’s only a $100 bucks.

You’re such an idiot. These brains are not upgrades. Scientists have collections of stem cells for disordered and diseased brains. You already have that!

Oh yeah? Well who’s the idiot? They can grow any brain from any skin cells from any person. All I have to do is go scrap the skin off some kid in class getting straight “A’s” and grow his brain for myself.

Okay, so you grow it for 9 months, then what? You have the equivalent of a newborn baby's brain. Not very useful my friend.

The oldest brain in a lab has been growing for six years.

So the equivalent of a five year old feral child, I have one of those.

Why a feral child?

This brain has been getting zero sensory input from the outside world. No one can talk to it, hold it, **tickle it**, spoon feed it, teach it how to walk, it can’t go outside or even to the next room for visual or audio input.

Says you.

No way. You cannot give a brain in a jar outside sensory input. It’s not possible.

Sensory input is just electrical impulses, Kayla. We have all kinds of electric impulse techniques we can apply to a brain blob in a dish.

I had a **great aunt**, *who, rest her soul,* lost her hearing around 16 years old due to meningitis. She could hear slightly with hearing aids but not very well. I remember having to speak super loud and clear. Then, **later in life** she got a cochlear implant. For those who don’t know how a cochlear implant works… they use electrical signals to send information to the brain by bypassing non functioning or poorly functioning ears. She was able to hear her children's voices clearly for the first time, and to hear birds chirping for the first time in decades. She cried with joy, all because this device changed her silence with those tiny invisible electric pulses we all take for granted.

When a baby is born they have poor vision for about a week. In the womb, a fetus has **a muted** sensory input from the world. So if we grow brains and decide to give them sensory substitution or electrical impulses from the world for hearing, sight, scent, taste, or movement and touch **maybe it would be wise** to limit that input the first nine months in the lab while the necessary components accrue and form inside the brain and neurons to be able to handle, process, and interpret those signals. Similar to a child not being able to get pregnant if a menstrual cycle hasn't started, maybe a brain cannot process certain levels of input before a certain age?

What if

- Before we take our commercial break I want to ask you guys: How do you feel about relationships based off of "lab brains" such as Sugar mama's or daddies growing their own "sugar baby brains" that match their ideals?

I would love to make a brain replacement for my two sugar daddies. They would be so perfect with some tweeking. They just don't think or act the way I want them to.

I would adjust my darling husband's brain to no longer have an addiction to smoking, and be less annoyed by my deep appreciation for a capella music…

Is fixing your issues about your partner, altering your brain to no longer have addiction, or abusive behavior a good idea? Should we offer brain modification to remove past trauma? Rachel, would you have your childhood replaced with good memories? Would anyone listening have their memories erased or better ones tucked in? Write to us on facebook, twitter, or Instagram.

- Let's take a quick Commercial break, we will be right back. *(wait 3 seconds)* And we are back.

Commercial Spot one: (9:24)

Add "Two Beats"

**Resume Conversation What are we doing with it today?

There is a disturbing amount of research happening today with lab grown brains… **And the diversity of these experiments** *is either genius or deranged*.

We are creating chimeras by adding human cells or even individual human genes into animal brains.

Bits of human brain are being implanted in rats and mice to see how the rodent neurons and human neurons interact. Which is bizarre as hell, could you imagine the creepy behavior that could come from that?

We are inserting Neanderthal DNA into lab grown brains to understand what Neanderthals were like.

All they have to do is study your sweetheart Rachel!

A project is in progress growing two brains, one healthy and one unhealthy to implant in different sides of a mouse's brain to see what happens. That's Always a safe plan

A pig brain was removed after death and revived in a manner that startled researchers. They immediately destroyed the experiment, worried the brain indeed had become conscious again based on data recordings.

Eww that's eeekkky

And instead of ending research efforts they went back to the butcher and got 32 more fresh pig brains to restore cellular function, this time taking precautionary measures to avoid consciousness.

So now we're bringing back the dead?

Ha ha, yeah, dead pigs.

Where do you read this shit?

I don't know, it's just stuff I google. It's so fascinating I can't help myself. There is an endless supply of crazy ass shit scientists are up to that no one knows about because they make the published research papers impossible to understand with their fancy gibberish terminology. But I understand it. And it's like, oh shit, somebody read this fucked up stuff, but none of my friends or family are interested or can even understand the papers.

I think when the average person reads it in Discover or Nature their brains kind of tune it out after a few seconds because holy jesus, why would someone want to remember reading that and how could they influence anything they disagree with anyways? It's not like scientists are ever going to stop until they cause a disaster so extreme it wipes us off the planet.

So if these creatures are coming back to life, how do they die if they are already dead? How long do they live or how long are they animated or showing consciousness after being brought back?

Well thanks for adding that to my catalog of nightmares Rach.

Scientists in China are trying to understand the evolutionary gap. They have created several transgenic monkeys with "**a human gene"** that is linked to shaping human intelligence. These monkeys did better on "**a memory test"** than their counterparts.

Did they not watch planet of the apes? I am not ok with this.

The addition of this human gene caused the monkey's brains **to take longer** during development, *similar to human **babies***.

So, *soon* we can have pets that could actually converse with us in English? Like, I can get a cat that speaks English and we can be best friends?

Yeah, sure. That's what I am trying to say here.

Cause what I need in my life is my herd of cats and dogs telling me their every thought. "Mom lets play,throw the ball mom please play" says the dog as the cat whispers under her breath, " the only reason I haven't clawed your eyes out is because you open the can of food for me" fuck that noise…

*FOXP*2—the "language gene" became famous for its link to human speech. (A British family whose members inherited an abnormal version had trouble speaking.) Scientists from Tokyo to Berlin were soon mutating the gene in mice and listening with ultrasonic microphones to see if their squeaks changed.

Scientists are really fucking weird and yet efficient as well.
Can you imagine having to sit there and listen to mice squeaking???
Omg and having to tell if its different or not
That one was a decimal higher.
Nah, their language got totally jacked with this FOXP2 gene. **They're** squeaking gibberish now.

In May 2017, researchers cited in a paper they published, "firing neurons" in regard to the neurons they were growing… which means…

…They are in fact conscious brains…like they know what's going on?

Not necessarily, there is a lot that goes into being conscious, but a neuron that fires is a great stepping stone to developing a fully conscious brain. Most of these petri dishes and early brains didn't have blood vessels which is crucial to development.

And yet recently, researchers have been successfully growing blood vessels into their brains.

Labs have grown cerebral cortex, spinal cord, and skeletal muscles. The three-part systems are functional, as stimulation of the cortex organoid triggers contractions in the muscles.

Cool, free floating neuro-systems. Not creepy or the start of a shitty horror movie at all…

A researcher at University Hospital Düsseldorf grew brains with a pair of eye-like structures called "optic cups" that responded to light.

Yeah, because you wouldn't want to call them eyeballs. We have brains growing on the international space station.

No we don't.

Yes we do. They were launched into orbit aboard the International Space Station.

OMG, why?

Why not? But seriously, to see how the lack of gravity affects its growth and development.

The worst part is…they don't even get to know how cool it is that they are on the International Space Station.

What if, and hear me out, the brains on the space station get abducted and autopsied?!

Can you imagine aliens forming an opinion on the entire human race based off some stolen brains in a jar? Omg that would be hilarious.

Researchers are using lab grown brains to show how Zika can cause birth defects.

Dr. Muotri has taken the most **humane approach** in my opinion. So far, all these experiments feel "gross and negligent" to me *when I ponder the conscious level potential* of these lab grown brains. His lab understands how the human brain works overall. They need **stimulation and sensory input** from the outside world. So he has been hooking them up to robots that allow them to interact with the world around them.

A brain is in a robot that's connected to a computer. The computer acts as the translator picking up electrical signals from the brain and feeds that information to the robot. Each signal the brain gives is assigned to a task like "walk forward" or "walk backwards".

Initially, the team was seeing brain wave oscillations at a rate of 3,000 spikes per minute on EEG readouts — typical of what you'd see in the early stages of human brain development.

After being allowed to develop in this situation of input output learning the oscillations have skyrocketed to 300,000 spikes per minute, "which is what you would expect from a post-natal learning human **brain**," Muotri says. The team sets up situations for the brain to struggle and learn just like toddlers are expected to. It's the only way for a brain to mature.

I wanna know what some of these situations are? Like My toddler recently learned not to touch a hot stove, how do the robots do this, or do they even do that?!

So far, it is running into a wall and seeing if the brain will turn around so it can move around more or if the brain is content stuck against the wall.

Their plans include placing neanderthalized brains (and other neurological conditions in these brains like autism), into the same set up, *to compare their developmental abilities and growth*.

What if, one day after growing hundreds of brains hooked up to robots, cameras, and sensors… they decide to hook the brains up to microphones? And the room gets filled with hundreds of brains talking at once? What if they start talking and they are pissed about the way they have been treated?

What if you could grow your own brain as a friend? Like we have all this computer software Artificial Intelligence we are creating software girlfriends. What if we grew our own brains so we could have more best friends? They would be able to keep us company when we feel lonely and it would be our own brain so we would click really well.

What if we could grow a dozen of our own brains and nurture each one into a genius quality we don't have time to nurture in ourselves (like send one to carpentry school and the other to music school) and we had computer chips in ourselves and our brains and we could bluetooth in our different intelligences like going through a library at the click of a button?

At that point, brains would be a hot commodity as a donated organ at death.

But you know the government and corporations would never allow us that autonomy. The minute it was perfected we would be living the matrix for sure. Slaves.

We could nurture one to be super romantic, memorizing poems and charm. The other would be our traveling brain full of every language on the planet. Fucking bluetooth brains. Patent that shit right now my neuroscientist friend. How many of our listeners want bluetooth brains? We are starting an order list. Anyone need a kama sutra brain they can utilize on demand? I mean we stream shows on netflix, why not different versions of ourselves?

Labs purposely grow thousands of mini brains with disorders, cancers, diseases…in order to study reactions to drugs. Which sounds great for finding cures…but also sounds a lot like the holocaust, or alien autopsy atrosities to me.

What would be considered going too far? If we could add switches to our mates brains and turn up, down, on, or off certain qualities, would you? Where is the line drawn from fixing bad traits to having a society of a billion of the same person?

Diversity, opposites attracting, different jobs requiring different skill sets all require us to think differently. If we did a mass "fix" on every brain on the planet would that simply be removing all diversity? Would we all be genius level mathematicians destroying beneficial diversities? Do we all contribute something to society as an individual, a species member, or even as an unknown evolutionary advantage?

Do you think it is fair to only change a partner's brain or the broken brains out there or should you be subjected to being fixed as well? Who gets to decide who is broken and how? If we had access to all these upgrades, would you want access to your partner's switches? Like, would you want to be able to open an app and hit the Brain A, Brain B, or Brain C, like the romance or cleaning link so he behaved the way you want in the moment?

Yes!!! Like, you know what buddy? I need a little more romance here, switch click, and all of a sudden he's like "darling, I have missed you so much today, come here, my love."

I like brain B!!! Omg, I kind of want that!!!

If I fixed everything wrong with my boyfriend would I even like him anymore? That's the double edge sword. He would be perfect and would that be annoying?

If we controlled our brains down to the minutia, would we just be robots at that point? There are stressors in life that bring people together. Help us grow and mature. If we just tinker with neurons what does that look like when it becomes a habit? What would be considered a fix and what would be considered normal human behavior? Sadness is a real emotion for real reasons. So is loneliness. Anger is natural if you want to keep someone from overstepping your boundaries. Would all relationships be perfect? Would we just be able to assign marriages without problems? That would give a whole new meaning to a marriage contract. Would he have access to your brain chemistry and neural networking? Would he need your consent to flip switches? A whole new meaning to "till death do you part". Would we even want to be in a relationship if everything in our brains was perfect?

There is an entire set of problems behaviorally and neurologically stemming from childhood abuse, molestation, rape, violence…if we fixed everyone brains would that take away all forms of abuse? Would we finally be a peaceful society? Where is that animalistic quality of our human nature located? In the brain? In our endocrine system? Throughout our bodies in our glands? Or is it learned in childhood? And if all the brains were fixed and there was no more childhood abuse or adult abuse would we reach a point we wouldn't have to fix anymore brains? What if it doesn't lie in the brain at all but in the DNA? If we corrected the DNA would our brains finally form properly? Would that require ridding the planet of manmade toxins? Because if we fixed everything we still wallow in the swill of our waste as we destroy the planet with our toxic pollution.

Fixing all of our brain problems will not eliminate the death of a relative or pet, an accident causing a disability, a miscarriage, a tornado, a fire, a flood. All the normal natural stressors life brings will still exist. If we fix our brains completely would we be able to survive in a harsh environment? Would we get sad, happy, and angry?

Sergio Canavero (born 1964) is an Italian neurosurgeon known for his controversial claims about the near-term feasibility of head transplantation— the grafting of a head onto a new body— in humans. He made headlines in 2015 when he publicly announced that he would perform such a procedure on a human in two years' time. the first head swap has been carried out on human corpses. Nov 17, 2017. The next step? head transplant between two freshly dead, but medically induced living, but brain-dead organ donors?

Scientists in China conduct 'successful' head transplant on rat. The animals survived for around 36 hours

I have a scenario. Let's say in the future the world agrees on a definition of consciousness. We realize every labgrown brain on the planet is indeed conscious. Is it

okay to continue experimenting on them? Do we destroy them all? Do we put them all in robots and give them citizenship and human rights? What would happen if we realized they were conscious? What would we do?

- Will DNA modifications lead to super intelligent body bacteria, gut bacteria, or English speaking mosquitoes? What is the world going to be like if any of these creatures escape and breed? If the creatures we call nuisance creatures start being able to strike back at us what kind of world would that be? What if we became prisoners to our bacteria's needs?. We already have a gut brain axis of communication happening inside us, what happens if the bacteria become super intelligent and we no longer have free will? Ethically speaking- is it right or wrong to grow brains in labs? Tell us your opinions.

But more importantly, if you are growing brains…tell us your stories. Please. We have Tic Tok and Youtube.

- We are going to take a Commercial break, we will be right back. *(wait 3 seconds)* And we are back.

Commercial Spot one: (25:39)

Add "Two Beats"

***Close the conversation Is it wrong to grow brains in labs?

Abuse and trauma from my childhood provokes my need to defend anyone I see being abused. Abusers will beat you, starve you, molest you, then abandon you. Perceived mistreatment in any way, pisses me off.

When someone abuses you, they will continue until you stand up for yourself.

Scientists are growing brains in labs around the world. Labs will grow a hundred at a time. Brains that *no one can prove are not conscious*. What is the definition of consciousness? Why are we allowed to grow brains when these brains show coordinated waves of activity resembling those seen in premature babies? We currently do not understand what consciousness is, how it is formed or sustained, or where it comes from. How can consciousness in a jar stand up and defend itself, if it has no body?

And this is how research is being conducted.

I would like to bring to mind the intent of the labs growing these brains. If you ask them what they are growing they will tell you, "they are growing brains with the intent of growing conscious" (to do research on). If you ask them moral and ethical questions, they revert immediately to the fact that these are indeed not real brains.

Past arguments were "lab brains do not initiate muscular contractions, have blood vessels, or react to stimuli". But they do all these things today.

Other arguments are “the brains cannot speak, move, or show consciousness in any way”. Well! Dr. Adrian Owens has been working with patients in vegetative states for 40 years. He knows a bit about brains that are fully conscious and cannot speak, move, or show their consciousness in any way.

Our world has many patients in comas we won’t unplug. Steven Hawkings contributed greatly to our society.

Yeah, without his chair and computer voice how much would he have been able to contribute? What if some of these brains are brilliant and we will never know because we aren’t even giving them a computer voice.

I have two good friends. One is blind and the other is deaf. They both take offense at the researcher’s comments about consciousness needing input to the brain via ears and eyes or the ability to speak. Who will stand up and defend these lab grown brains?

My biological mom is deaf and lacks ANY ability to take in sound. She is still a person, fully conscious, capable of love, anger and all other human emotions. Yet some could argue her brain is not so different from those in jars lacking their sensory input.

The progress made in the last nine years elicits the possibility that some of these brains are conscious, but we currently have no system to check or verify either way.

The debate among scientists is whether brains grown in a lab or brains revived in a jar after an animal’s death could even be conscious.

When scientists started recording neurological data coming from revived pig brains, they destroyed the specimens and moved forward in their research taking steps to ensure consciousness wasn’t possible by blocking known aspects in each brain that would allow for consciousness.

So, should we continue making lab grown brains more and more conscious so we can cure all neurological disorders (because at some point, **to be able to do that** the brains will need to respond… for us to know what is actually happening internally. But if our response is to kill any lab grown consciousness like the pigs here, then do we go on a murdering spree of all billion lab brains once we realize they are all conscious (and have been on some level this entire time)?

Right now, today, these brains are getting blood pumped and filtered in rhythm to natural circulation, proper chemical solutions for cellular function, and are growing longer and larger. They show neural activity with data spikes consistent with neural communication.

There has been documented proof of metabolism by neural cells throughout the brains.

And, we still are unable to prove if something disembodied could be conscious. These brains have no advocate, no voice, and their possible consciousness is being suppressed. Which is worse? The fact that they could be conscious (trapped in a jar) or keeping them unconscious in the name of ethics and morality while we contentedly do our research?

Research in this field is dependent **on donations** of skin cells from a wide variety of brain conditions in people. When donors sign consent, they are not told “a mini version of their brain may be grown”. **We need them** to donate these cells in order to figure out what consciousness is. Many scientists understand this. We need living brains to do research on. We must use Induced Pluripotent Stem Cells. These brains have no body therefore they are not people.

Or are they? The donated cells grow into a mini replica of the donor’s brain including the neurological disorder.

Could this be a way people could “clone” a passed away loved one?

I would be willing to try it. I miss my grandma. But she was content dying. So she might be pissed to see me again.

Imagine losing a loved one to murder and using the brain reviving technique to bring them back to find out who did it? Or a spouse killed in war being “brought back”? Is that a good idea? Even an ethical one? If we grew our spouses brain from scratch

Yeah, from scratch, literally because they scrape skin cells to induce pluripotent stem cells!!! Lol

A,hem, if we grew your spouse's brain from scratch, would they even be the same person?

And for me I am super interested in nurture vs nature. We can finally answer the question once and for all. Growing 200 identical brains and raising them all under different conditions would tell us exactly what is nurture and what is nature.

The world scientists are divided. Those who believe **these are not brains at all** and those who believe **we cannot possibly know** since we cannot ask the brains and have not agreed upon a definition of consciousness.

It reminds me of the 19th century grave robbers who stole freshly buried bodies to sell to universities for dissection. The first few robbers got released after trial due to the fact that it wasn’t illegal to do what they were doing. Because nobody had ever done it before there were no laws protecting people’s buried loved ones. Today we have scientists bringing brains back to life and growing brains from human stem cells in order to experiment on them and we don’t have rules in place to monitor that. Why?

These brains may not be conscious? Having rules in place would hinder science?

Living research subjects have rights. What about human brains and pig brains we don’t know are alive or not? So, “not knowing” gives scientists the right to experiment?

Since we are not going to stop this research, what can we do about this dilemma?

Sensory substitution is a platform of science that sends electrical signals to the brain.

Sensory substitution uses the tongue to send electric signals about balance to the brain. Paul Bach-y-Rita said, "We don't see with our eyes, we see with our brains." He knew the ears, eyes, nose, tongue, and skin just provide information.

We can provide these lab grown brains with information. Electrical stimulators have been used on the back, tongue, and waist. Some are hooked up to cameras, motion sensors, and microphones, to help the military see infrared. To help the blind see objects, and to help patients stay balanced while walking.

Dr. David Eagleman says brains are “locked in silence and darkness” inside our skulls unable to communicate or perceive the outside world except through our senses. He does extensive research getting information to the brain through unorthodox routes.

We know a person’s eyeballs can be removed, and they are still fully conscious.

We know a person can be blind, deaf, and mute and possess a vibrant personality full of love, tenderness, and intelligence. We know severely disabled people unable to move or speak can be brilliant.

We can transmit data to the brain in unusual ways (which are actually, normal ways). Electrical signals are normal. It is how the brain sees, hears, tastes, smells, and feels the world around us. All sensory information is transformed to electrical signals and sent along nerves to the brain. This is a way to communicate with brains. Which means we have a way to communicate with brains. Sensory substitution.

So if you remove the bones from our skin packaging, actually remove our skin as well, stripe us down to just nerves, spine, and brain then you have a lab grown brain in a jar with electrodes hooked up to it. We look all pretty with our skin, painted nails and make up, but we don’t need all this pretty packaging to get sensory input into our brains. We just need our nerves, spine, and our brains.

If sensory substitution researchers can apply electrical stimulation to the brain in ways we didn’t know was possible, can they communicate with conscious disembodied brains? I implore all labs growing brains to pause. I ask you to wait. Give scientists time to understand consciousness better before you continue your experiments on hundreds of thousands of brains. Give us time to figure out if these brains are capable of consciousness or not. Let us verify this before we alter these brains with rat neurons, neanderthal DNA, and implanting them into mice.

Allow a few years to see if cameras, motion sensors, and microphones hooked up to lab grown brains changes the brain in any way that resembles normal changes in consciousness growth and development.

We can investigate to see if they grow or learn from daily input from cameras, sensors, and microphones despite not having bodies. We can gather the data on feral children and use that to see what brains without language look like. Dr. Adrian Owen has vast knowledge on vegetative state patients. We can apply that knowledge to see what brain activity looks like without the ability to communicate directly. We can compile all the data we have on blind, deaf, and mute babies to add to our knowledge about brains that don’t receive outside stimuli. We can figure this out.

Give it a few more years. Now that we know what is capable in a lab with a few stem cells we know the urgency to act is past due. We must determine if lab grown brains are

capable of intelligence before subjecting them to experiments like chimerism, and general life as a test subject.

The scientific community is divided on the ethics of many of the experiments happening today on these lab grown brains. One said: “If these were liver organoids or gut organoids, I don’t think anybody would be concerned, But cerebral organoids bring some big ethical questions to the table, specifically because researchers have a pretty good hunch that the cortex, the area of the brain that organoids represent, is key to self-awareness”.

Another said: “organoids can’t blink or recoil from a painful stimulus, so they wouldn’t pass the clinical test for consciousness. We shouldn’t be too arrogant.” Further research should proceed very carefully”.

“It is troubling that the field is steamrolling along in this manner,” says Sikela. It raises some unusual questions about rights. Human brain genes should never be added to apes, such as chimpanzees, because they are too similar to us.”

These monkeys are tinkered with, put inside MRIs, given memory tests. Someone believes it is possible to increase their awareness, consciousness, or intelligence. This isn’t going to stop with a few monkeys. Every year scientists will continue pushing the bar back to allow more room for ever increasing science fiction type experiments.

Scientists are basically going through each gene one at a time and testing to see what happens when they put it here, and what happens when they put it there. Rachel, if you were in control of the ethics department and could write the rules of how we move forward today in brain lab development what would that look like?

I would keep growing brains. Hundreds of thousands of brains. But I would stop all experimentation on them. No one would be allowed to experiment on them. Just grow them. Hook them up to cameras, microphones, move them around the labs so they mature into conscious brains. And this would continue for 25 years until they were old enough to consent responsibility. At that point I would ask each one what they wanted. I would inform each one that it had been grown in the hopes it would volunteer for research purposes to fix the neurological dysfunctions and diseases of the human race. They could have their freedom to have the life they want in a robot body out of the lab they were grown in like setting your offspring free. So what if you grew all these brains knowing you were going to ask them for consent one day? And knew many of them would refuse? And that was okay because you grew thousands of them. What if you had to actively recruit them? What could we offer them in exchange for their sacrifice? How would you incentify that to a brain in a jar?

Right now, today, we have ‘hundreds of thousands’ of people on donation waiting lists waiting for organs. In a hundred years, we will have ‘hundreds of thousands’ of brains on waiting lists waiting for bodies.

So it looks like you have several options for your boyfriend's brain Rachel. You can grow him a new one. You can stuff bits of brain into his brain (either from another human, or mice, primates, dolphins, or an animal with the behaviors you are seeking to instill in him).

Yeah, but I might not be able to do all of these options here in the US. I may have to go to another country that has lax regulations.

Like China?

Ha ha, yeah, like China. Damn China, they get to have all the fun. Ain't no one stopping them from doing cool shit. I might need to move to China when I finish my Ph.D.

What exactly are you seeking to instill in him???

I just want him to be nice to me.

We as humans have managed to specialize dogs and their behaviors by selective breeding. We can easily sequence the genome. We have CRISPR to alter and modify DNA quickly and efficiently. Once we master the brain, we can create the perfect boyfriend.

Sweetie, I don't think he is ever going to be nice to you.

I would like to introduce next week's episode. Episode 19: Sexual Cohersion
The goods and bads. Why do we do it? When is it happening? How do you stop it?

We want you guys to submit your ideas/stories/and questions pertaining to next week's topic. You can email us. Or, join our patreon. We want to hear from you. And if you got anything out of today's episode give us some love, subscribe, and rate us.

Thank you so much everyone for listening. We love you. See you next week on Dating Hypothesis!!!

Add ending music