

# Animals With “Superpowers”

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Entertainment

Midnight Facts for Insomniacs

Podcast Transcript

(Note: transcript consists of episode outline)

This one is going to be kind of nostalgic for us, a throwback to our older random-animal-facts episodes. Those were always fun, so I’m looking forward to this. And speaking of older episodes, at some point in the distant past we recorded an episode about *humans with superpowers*. was kind of a hot mess, but intermittently fun...you were pretty drunk by the end, if I recall.

Regardless, the word *Superpowers* should have been in air-quotes, because many of the so-called powers turned out to be more like extremely unique disabilities. Like stretchy skin or particularly dense bones. There were a few benefits to these conditions—or what could be framed as benefits—but most people would not choose to be blessed with any of those so-called powers. It’s like how blindness might result in a heightening of some other senses, right? I mean I guess that’s cool but gaining a couple of enhanced attributes that are able to partially

compensate for the loss of your most important attribute isn't worth the loss of that attribute in the first place. It's like "I crashed my car but now my skateboard is 5% faster." Not a great trade.

So we determined that there aren't any individual humans with truly superhuman abilities, but if you look at humans as a collective and compare us to other species, all humans kind of *do* have superpowers; these are the powers we've developed to make us the dominant organism on earth: opposable thumbs, intelligence, self awareness...to varying degrees. Evolution has given us some amazing gifts in the brain department—our ability to brain is unparalleled—but when it comes to physical adaptations, we simply can't compete with the wonders of the animal kingdom. Corkscrew penises.

Super strength, the ability to fly...many of the stereotypical powers from comic books are commonplace in the animal kingdom. And some critters might even be better compared to gods than superheroes. For instance, when you think of the Roman god of love, Cupid, what image comes to mind? How do you envision the figure of cupid and his love arrows?

Well, the real-life Cupid is a slug. And also a ninja. The ninja slug, *Ibycus rachelae*, is native to the Asian island of Borneo, and has a unique mating ritual: it shoots what are referred to as "love darts" made of calcium

carbonate into the slimy body of a prospective mate. These harpoon-like darts are full of hormones that increase the likelihood of a coupling. I see why this would be necessary; I feel like even if I had been born a slug myself, you would have to drug me to make me fuck a slug. The ninja slug is particularly unique looking. It is green and kind of spiny, and when it sleeps it curls its long tail around its body like a cat, so its discoverers were initially going to name it *Ibycus Felis*, like feline, but when they found out that it was a drug-slinging date-rapist gastropod they instead named it after the girlfriend of one of the discoverers; her name was Rachel, so *Ibycus rachelae*. No word as to Rachel's reaction, but I'm assuming she is now his ex gf.

Next superpowered critter.

The mythological figure Lazarus rose from the dead, so did Jesus, and so too does the common wood frog. Every year in North America thousands of wood frogs are frozen during the winter months, their tiny bodies locked in ice for weeks on end, and yet due to a unique adaptation in their cells, they are resurrected in spring just like our lord and savior. I guess not JUST like our lord; If you think about it, Jesus was only dead for three days, and wood frogs can endure subzero freezes for up to 8 months. Advantage wood frog. No offense to our Christian listeners, we don't judge anyone for their spiritual

beliefs; all religions as far as we're concerned are equal and equally perplexing. I mean I understand the instinct to worship a miracle; I *probably* wouldn't join a wood-frog-based cult, but I'd be intrigued. it's not completely off the table.

The mechanism behind the frog's resurrection is interesting: as the season becomes colder, in anticipation of being frozen, the wood frog's cells react by producing urea and glucose in large quantities, and this combination of sugar and waste-product insulates the cells from bursting. So the frog's superpower is sweetpee, but not like the term of affection or the legume; we're taking about delicious, life-saving urine.

From a National Geographic article: "Once the first ice crystals reach a wood frog...its skin freezes. The frog becomes hard and crunchy." Says Professor of biochemistry Kenneth Storey, of Carleton University in Ottawa, "When you drop it, it goes 'clink.'" Canadians, you might want to reevaluate some of your research funding...if you're an alumnus of Carleton, maybe ask how much of your tuition went to crunchy frog-dropping. I'm trying to picture how you frame this area of study. "After many hours of rigorous experimentation, we have determined that the technical term for the sound of a solidified frog hitting the floor is a clink; this effectively debunks the early 'thwack' and 'plop' theories advanced by many of our so-called peers in the field of amphibian cryogenics."

Next critter.

I know you're familiar with the x-men character mystique. Well, there are exactly zero humanoid creatures we know of with the power of shape shifting, but there are hundreds of animals that utilize some version of mimicry to protect themselves.

Walking stick insects, caterpillars that impersonate snakes, chameleons that change color. But no critter embodies the power of a shapeshifter better than the wonderpus photogenicus. If you're a mollusk enthusiast, you might have assumed that I was referring to the mimic octopus, but the wonderpus is basically the same animal with a much better name. I mean, come on. wonderpus photogenicus, this animal's superpower is its awesome name.

The wonderpus was discovered fairly recently in the 1980s in Indonesia and wasn't officially classified and described until 2006. Here's an explanation of how this class of octopus—including the wonderpus and the mimic—function:

"Mimic octopuses have...been seen to copy the appearances and behaviors of lionfish, flatfish, jellyfish, stingrays, mantis shrimp, and sea anemones; it's claimed that they've been seen impersonating at least 15 different species." The octopus intelligently chooses an animal from its repertoire to mimic based on the specific predator it is facing. "For example, a mimic octopus has been observed under attack by a damselfish. It

proceeded to bury itself and six tentacles in the sand, leaving the other two pointed in opposite directions – and thereby mimicking the movement of a sea snake.”

The wonderpus and mimic octopus’s shapeshifting ability made possible by special cells called chromatophores, which are shared by a number of aquatic creatures such as fish and amphibians. But in the case of octopi, aka cephalopods, these chromatophores are unique; they are neuromuscular organs capable of reacting in real-time to conscious neural commands from the animal.

“The chromatophores react to stimuli and facilitate interaction with their environment. Each organ contains an elastic sac containing pigment which is attached to the radial muscle of the octopus. When the octopus becomes aroused, the radial muscles contract which expands the chromatophores. In contrast, when the octopus is in a relaxed state, the chromatophores will retract into the elastic sac.” That sounded incredible sexual with all the talk of arousal and contraction and elastic sacs, but the bottom line is that the octopus can select at will any pattern of coloration it deems advantageous.

When it’s not pretending to be an entirely different creature, the wonderpus is very cool-looking on its own, it has mottled white spots over a reddish-brown background, and the body patterns shift and change as the octopus ages, becoming more complex. The underside of each

tentacle features cream-colored suckers. Like other octopi, the wonderpus has another x-men caliber superpower: the ability to regenerate limbs and heal super-fast. Octopi are also extremely smart. Basically, they're extraterrestrial supervillains and they're going to take over the world.

So, visual mimicry is useful when it comes to repelling predators, but there's another form of mimicry that is equally useful and has the ability to not only repel but also attract...or confuse, or delight, or creep people the fuck out.

I'm going to severely date us here, as usual, but remember that guy from the Police Academy movies, he was famous for being able to reproduce noises...car alarms, police sirens, etc. Well, the Australian lyrebird is like that guy on steroids. It's the mimic octopus of auditory avians.

Lyrebirds can live up to 30 years, and are passerine birds, meaning they perch; their feet feature three toes oriented forward and one facing back for gripping tree limbs. They're large birds; males can be 35 inches long, and the male also has an impressive, almost peacock-caliber tail that fans out in a hashmark pattern, you kind of have to see it; it's really cool. During mating season the males sing up to four hours a day, and their song incorporates the cry of other birds as well as elements of their surroundings. They'll imitate koalas, dingoes, possums, etc. If there are humans in

the area they will add everything from chainsaws to crying babies to car engines to camera shutters.

(Play audio)

Next critter.

We mentioned the mimic octopus's ability to regenerate limbs, but there's another creature that takes regeneration to the extreme: the adorable, Instagram-friendly aquatic salamanders known as Axolotls can respawn tails, spinal cords, even parts of their brain and hearts and eyes. You can picture these critters, right?

They're usually depicted as being bright white with three pink fuzzy tentacles on each side of their heads where you'd think their ears would be. They're popular in online memes because of their unique appearance and because the mouths of some of these axolotls—specifically the white ones (which rarely exist in the wild but are often kept as pets)—have upturned corners that make them look like the Axolotl is constantly happy and smiling. These salamanders are like the opposite of grumpy cat, they always look deliriously happy. Which is kind of terrifying... anything with an eternal smile freaks me out, especially if they mostly only look that way in captivity. That little guy is planning something; he knows things you don't. It's easy to figure out why the white ones wouldn't last five minutes out in nature; they're incredibly easy for predators to spot. I would recommend Googling the wild version if you want

to get the true axolotl experience, because those are quite a bit less cute, though much more diverse: they can be green, copper, black, brown etc, even a color combo called dirty leucistic, which gives you an idea of the cuteness deficit. Most of them sort of resemble a trout with tentacles and feet. It's not a great look. Kind of like a mutated, aquatic lizard-fish.

Axolotls are native to Mexico and were a staple of the ancient Aztec diet; there's not a ton of meat on those bones (which are mostly cartilage) but I guess these slimy little nine-inch-long amphibians were good for a quick snack, or maybe a full meal if you had a basket of axolotls. *Now at KFC, basket of axolotls. Mmm.* However, the species was still thriving at the height of the Aztec Empire, but didn't fare as well once the conquistadors arrived. Which is a statement that would apply to most of Mexico. During their conquest, the conquistadors drained the lakebeds that were the axolotl's habitat. Rude. And then their descendants went and built a giant polluted city on top of those lakebeds, and Mexico City is not super hospitable if you are a small salamander. Or a human, honestly. It's not the best place, in my opinion, I've been there. But probably worse for an amphibian. Even the superhuman ability (I guess not super human, super-lizard?) ability to regenerate isn't going to save you if you are living in a polluted puddle. Axolotls can regenerate limbs; they can't regenerate a habitat. They are now

listed as critically endangered, and it is estimated that there are as few as 50-1000 of them left in the wild. Oof.

Axolotls have been studied extensively by scientists because their remarkable ability to regenerate could potentially lead to massive medical breakthroughs. In fact, not only are they able to regrow limbs and vital organs, they accomplish all of this without any scarring whatsoever. The applications for plastic surgery alone are mindblowing. Imagine giant silicone titties with no visible underboob-scarring whatsoever. This would be a milestone in porn and stripper history. We truly live in miraculous times. Sidenote, completely unrelated: during their mating ritual, male axolotl's perform what's called a "hula dance" by swinging their little lizard-fish hips. So that's pretty much the best thing ever. If you only retain one piece of information from this episode, it should be the mental image of an axolotl performing a hula dance.

Next critter:

Able to leap skyscrapers in a single bound? Maybe not, but a flea can jump more than 100 times its own body length. Imagine a basketball player jumping farther than four basketball courts and as high as 25 basketball hoops stacked vertically. And fleas are incredibly fast jumpers: they can launch in as little as a single millisecond. I spent like ten minutes

straight watching fleas take off in slow motion, it's very entertaining. It looks like the power comes from their legs but scientists claim that they actually store energy by bending the pleural arch, which is a part of the exoskeleton that might be likened to a rib cage, and when their exoskeleton snaps back into place rubberband-style the flea unleashes its long legs and rockets forward, covering insane distances in relation to their size. The only animal that can beat a flea at jumping is the Frog Hopper. Which is not a frog that hops but rather a bug that hops over frogs. They are also known as spittlebugs in their nymph phase and you've probably seen their handiwork: if you've ever noticed a patch of white foam on a plant, that is the result of the baby frog hopper's strange feeding method: they tap into the sap of a plant and sort of whip it into a protective foam. Seems cozy in there. In their adult form they leap from plant to plant, "...some species can jump up to 70 cm vertically: a more impressive performance relative to body weight than fleas. The froghopper can accelerate at 4,000 m/s<sup>2</sup>....(experiencing over 400 gs of acceleration).

If you're not impressed by tiny creatures that can hop the distance of basically a single human stride, which is fair, here's a more upscaled version. Red Kangaroos can cover up to 25 feet in one hop. They have a top speed of 35 miles per hour. Another sidenote: a group of ten or more kangaroos is

called a mob, which is...intimidating. I would definitely pay protection money to a mob of kangaroos. Don't hurt me, deer on steroids, here's some...hay? Bugs? What do kangaroos eat? No, they're herbivores. But kangaroos are vegetarian badasses; google "buff kangaroos" and prepare to be humbled. The gains!

One of the most coveted superpowers is immortality. Have you heard of *Turritopsis dohrnii*? Also known as the immortal jellyfish, it is one the few creatures gifted (or maybe cursed?) with what is known as "biological immortality." This tiny jellyfish—and I do mean tiny—it's smaller than a fingernail—CAN be killed, it can die via violence, but if it doesn't expire as the result of foul play, it is the only animal on earth that is able to reverse its aging process, reset its entire lifecycle and continue existing in perpetuity. It's a very cool-looking little critter: it's a perfectly translucent bell-shaped little jellyfish with a bright red stomach in its center and it is fringed with up to 90 wispy, hairlike tentacles. To understand its superpower it's helpful to know how jellyfish work: they begin as larvae that settle on the sea floor and become polyps, and then detach and mature into adults known as medusas. So when the adult immortal jellyfish is damaged or starving, it undergoes a borderline magical process known as transdifferentiation: from the Natural History Museum website, "When the medusa of this

species is physically damaged or experiences stresses such as starvation, instead of dying it shrinks in on itself, reabsorbing its tentacles and losing the ability to swim. It then settles on the seafloor as a blob-like cyst. Over the next 24-36 hours, this blob develops into a new polyp - the jellyfish's previous life stage - and after maturing, medusae bud off. This phenomenon has been likened to that of a butterfly which, instead of dying, would be able to transform back into a caterpillar and then metamorphose into an adult butterfly once again." It's like if Benjamin Button regressed all the way to a fetus and then regrew into an extremely handsome jellyfish.

Next critter.

Duncan, I'll name a few characters, and you tell me what they have in common: Storm, Shazam, Miles Morales, Magneto, Thor. They all have the power to control and wield electricity as a weapon. As does the infamous and fearsome creature *Electrophorus Electricus*...aka the electric eel. Scientists got a little redundant with the taxonomy there. *This is the shock-shocker shockerus.* *This is the lobster known as pinchy pincherson.*

The electric eel is not an eel at all; it is a fish closely related to the knifefish, which is maybe the only animal that sounds scarier than an electric eel. I don't know if I'd prefer to be shocked or shanked by a fish. The shock is pretty extreme, though: the electric

not-eel can stun its prey with shocks up to 860 volts.

The Electrophorus Electricus is nocturnal and has notoriously poor vision but can navigate by electrolocation: sensing the distortion of electric fields. They are pretty creepy, more-so than I expected. They're basically like water-snakes that continue to grow as long as they're alive, adding additional vertebrae each year during the entirety of their up-to 20-year lifespans, reaching up to 6 and a half feet in length. This is an ugly bastard, I'm not going to lie. They look like long, shriveled electrical penises. Danger penises.

The electric organs of this not-eel have developed from specialized muscle cells known as electrocytes, capable of storing and discharging electricity like a battery, and there are three total electrified organs in an electric not-eel, capable of generating both low-voltage and high-voltage shocks. The organs are individually named: there is the Main Organ, which delivers the strong offensive and defensive shocks, and then the two lower-voltage organs most likely used for electrolocation: the Hunter's Organ, and the Sach's Organ. S-A-C-H-S, capitalized, so I assume it's named after a scientist. What an honor. I mean, I don't have any fish organs named after me, so I can't talk. This is just jealousy. I mean sure it's not like being Hubble and somehow managing to get a famous telescope named after your sketchy not-

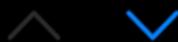
deserving ass, but it's not too shabby. An electric not-eel primarily has a diet of not-electric fish, and will sometimes wrap around its prey to maximize the shock value, so to speak, by applying a shock to more than one area of the body. They have even been known to leap out of the water and deliver a shock in self-defense, driving away animals as large as horses. I don't know if it was the electrical shock or the shock of a leaping snake-fish, either would probably drive away most animals, to be honest. But still, a scary and powerful critter. And our final critter, as well...that was a fun one. Nice little throwback, we need to do more of these animal-facts episodes.

We have new maniacs! The highest tier in our patreon. Meet Anne B, I'm not going to give her last name because it seems real, I usually maintain some semblance of anonymity.

9:48



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Also a patron we both know very well, and I won't give his lady name either but this is Steve, and a very close friend of the podcast.



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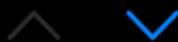
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We have a couple new five-star reviews to shout out!

## Reviews

**LISTEN to this podcast, you will not regret it.**

★★★★★

My new favourite podcast! Came across it by accident late at night & haven't looked back. The quality is so consistent even in the first episodes, I had no idea Shane & Duncan were new to this, the podcast sounds like it's been around for years! The banter between Shane & Duncan is hilarious & makes the dark topics seem light hearted somehow. This podcast is perfect for anyone if your just starting to get into podcasts or you're searching for your next podcast to binge on your drive to work. Shane & Duncan love being interactive with their listeners, listeners get to help pick topics covered. They have an Instagram, discord & 3 level Patreon to interact with their listeners, all details are in the show notes. Thank you guys, keep up the awesome work! You'll find me eagerly waiting for your new releases.

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**Fave podcast!**

★★★★★

These guys are awesome! The topics are always interesting and in depth. Shane puts so much effort into the research and Duncan brings the perfect amount of comedy! Well done boys keep up the great work!

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