

# Common Misconceptions About Animals

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Midnight Facts for  
Insomniacs

Podcast Transcript

Question: Do bears  
hibernate?

Wouldn't it be great if all this  
episode did was confirm  
everything we already know  
about animals. "Contrary to  
popular belief: dogs, very  
furry. Cats are actually kind  
of assholes."

Anyway, apparently Bears  
don't hibernate. Instead they  
experience a similar state  
called torpor. True  
hibernation is typically  
limited to small animals like  
chipmunks, woodchucks,  
and ground squirrels, which I

have to admit I thought were all the same thing. I couldn't pick a ground squirrel out of a chipmunk lineup. I don't know a lot about animals. If a crime were committed by a woodchuck, I would be a terrible witness. I'd be like "it was definitely a squirrel, or possibly a Buffalo. Or a raccoon. I'm not good at this. I'm not fucking crocodile Dundee. Steve Irwin." Unlike torpor, hibernation is, according to all the sources I found, voluntary. Which is kind of a weird thing to claim. Like, how do you know that a chipmunk decides when to hibernate? So much of what animals do is instinctual. How are you determining the level of hibernation consent? Does a woodchuck put on a little Santa-style sleeping cap and pajamas and scientists are like ok, this is deliberate. He's getting ready for bed.

Torpor on the other hand is

supposed to be involuntary, so I guess it's like narcolepsy. Bears are just dropping left and right. But the thing is that bears enter this torpor state in caves and dens, and that seems pretty deliberate and voluntary to me. They're not collapsing into a stream.

So Torpor is kind of what I always *thought* of as hibernation, a drop of body temperature and metabolism intended to conserve energy during lean periods.

Hibernation, though, is longer, and usually involves multiple stretches of torpor. "Body temperature drops far below that of an animal in torpor and the animal's metabolic rate is only 1-2% of that of the active animal" Not all sources agree, however, that bears don't hibernate.

From the official website of the national park [service.gov](https://www.nps.gov). "For many years

some people did not consider bears to be true hibernators. Mammals considered true, or deep hibernators, such as chipmunks and ground squirrels, experience a drastic decrease in body temperature during hibernation. Body temperature for hibernating bears remains above 88°F (31°C) which is within 12°F (11°C) of their normal body temperature of 100°–101°F (37.7°–38.3°C) (Bagget 1984). This allows bears to react to danger quicker than hibernators whose body temperature may be less than 40° F (4° C) and who have to warm up before they can move quickly (Bagget 1984). Many scientists now consider bears to be super hibernators."

So either bears do not qualify as hibernators, or they're the most hibernating of hibernators to ever hibernate. One or the other.

So we really didn't settle anything. This one was a total waste of time. The next ones will be better.

You know that saying "Blind as a bat."? We're using it wrong. I'll give you an example of the correct usage. So like if someone noticed an obstacle in their path and moved to avoid it, that person, who obviously benefited from functional vision, is blind as a bat. In other words, not blind at all. Did I make that clear? Bats don't have amazing vision, but they can absolutely see. BTW I got some of the info for this segment from ["learnaboutbats.com,"](http://learnaboutbats.com) which is a site that provides financial advice for real estate investors. No, it's all about bats. That would be false advertising. Like naming a podcast after a sleep disorder when the

podcast has nothing to do with that sleep disorder.

Who would do that?

Obviously most bats are nocturnal, they fly around at night, so while they CAN see and their vision is actually best in dim light, they do rely heavily on echolocation to navigate and to hunt their prey. They emit high-pitched squeaks which bounce off of surrounding objects, and they build a mental image of the terrain based on how quickly those echoes return to them. Navigation via squeak. I really wish it was called Squeakolocation. Bat Squeaks can detect objects as small as 2 millimeters, which is useful if your diet consists of tiny bugs. It's funny how the animals we fear and despise most are often the most helpful to humans. Bats are out there eating mosquitos, which are the number one enemy of humanity, and they also eat moths, which are the

number one enemy of sweaters, yet we cast bats as vampires and villains. Same with spiders. If there's a spiderweb in the corner of my room I'm like, "Thanks, bro. Get those flies and mosquitos. Good lookin out."

Also, bats are unique in a number of cool ways...first, they're the only mammals that can fly. They're our closest flying relative. Not a *close* relative, obviously, but closer than creepy ass dinosaur-birds. Birds are aliens. Just look at those beady eyes. Many bats, on the other hand, are freaking adorable. They're sky puppies, in fact fruitbats are also known as "flying foxes," and you should pause this episode and Google them immediately. They're huge, for bats, they can weigh up to 4 pounds, and they are among the only species other than humans known to regularly engage in oral sex.

So bats are freaky, but not in a horror movie way, more like brown chicken brown cow. Fruit bats also help spread and disperse fruit-tree seeds, so they're doing the lord's work, killing bugs and creating food and generally making the world a better place. Bats can also be super tiny; hog-nosed bats are the size of bumblebees, and possibly the smallest mammals on earth. They're not quite as cute as flying foxes, you could probably tell that based on the name, they look like the stereotypical evil bat, which is great, because they're the size of a silver dollar. I love tiny evil things. They're like "bow to me, pathetic human, or I shall nibble on your earlobe." We need to collectively get over our dumbass fear of bats, and also stop blaming them for Covid. Even if Covid WAS the result of people caging and eating bats, the

bats aren't to blame. I'm pretty sure they weren't volunteering to be snacked on. Leave them alone.

Dogs and cats can see colors. They have more rods in their eyes than we do, which gives them superior night vision, but they have fewer cones, and while it's not as simple as that makes it sound, the upshot of dog and cat optical anatomy is that they can see a limited color spectrum. Also, Cats apparently experience common colors very differently than we do. From a Business Insider article, "For cats, there's a debate as to whether blues and grays are the norm, or whether it's the same yellow-based spectrum dogs see, just with less saturation and richness of color. Reds and pinks may appear more green to cats,

while purple may look like another shade of blue." The article continues, "Or maybe not. We don't fucking know." I love how these sketchy ass scientists are like, "for cats, the color red may look like plaid jello. That's our highly technical opinion.

We *may* have received a public grant for this research. Your tax dollars at work."

Speaking of animal color misconceptions, bulls don't get angry when they see the color red. Humans have cones in our eyes that allow us to view red blue and green, and the melding of those colors in different quantities allow us to see all of the colors of the rainbow. But Bulls, and in fact all ungulates—animals with hooves—have dichromatic eyes, they have cones that can perceive green and blue but they lack the ones that

would allow them to see red. So the bull isn't charging because a guy is waving a *red* cape, it's more because the guy is antagonizing the bull and also stabbing him with swords. It turns out that Bulls don't like being mocked and stabbed. My extensive research has revealed that no one enjoys being viciously poked. Bullfighters also choose those specific bulls for their aggressiveness. Well the promoters of the bullfights do. The bullfighters probably would have different criteria. Let's send in that 40 year old bull with a limp. Are there any bulls with gout?

Owls can't spin their heads all the way around. But they CAN turn their heads up to 270 degrees. Not a full Linda Blair, but more than half a Blair. 3-quarters LB. that sounds like three quarters of

a pound. When humans twist our heads, we constrict the blood vessels in our necks which can cut off blood flow to the brain; quick rotations of the head can cause the vessels to tear or rupture, resulting in embolisms.

According to neuroradiologist Dr Phillip Gailloud, "Until now, brain imaging specialists like me who deal with human injuries caused by trauma to arteries in the head and neck have always been puzzled as to why rapid, twisting head movements did not leave thousands of owls lying dead on the forest floor from stroke." Some morbid imagery from Dr Phillip. I feel like Dr Phillip has a freezer full of dead birds, or at least questionable bedside manner. "Congratulations on surviving your first heart attack, we don't know why you're not dead on the floor right now. I'm surprised the

forest isn't littered with my patients."

To solve this mystery, researchers injected dye into a bunch of dead owl necks and then "manually turned the bird's heads" to trace the blood flow. (Sounds like a job for dr Phillip.) Owls have reservoirs at the base of their necks that expand when their heads turn and fill with blood, and meanwhile they have tiny holes in the bones of the vertebrae with air pockets that cushion the artery so that it doesn't become constricted. Mystery solved. Again, another million dollar grant well-spent. What did you do today? I twisted inky owl-necks.

Conventional wisdom has always held that penguins—especially Gentoo penguins—are monogamous. For instance, there was long term penguin-couple Coco

and Gossamer, two lovebirds  
Who are not actually  
lovebirds, they are a couple  
of gentoo life partners, and  
among the star attractions at  
the Loveland Living-Planet  
aquarium. Kind of sounds  
like that south Korean porn  
park. Loveland? But in 2018,  
fans of avian romance were  
horrified when genetic  
testing revealed that two of  
gossamer's chicks had  
actually been fathered by  
Roto, the male half of  
another supposedly  
monogamous penguin duo.  
I'm going to show restraint  
and avoid any jokes about  
Roto Rooter. You should be  
proud of me. So it turns out  
that penguins creep. They're  
down with OPP. Other  
peoples penguins. Or other  
penguin's property. Yeah,  
you know me. And they're  
super sneaky about it,  
because we wouldn't have  
known if not for this DNA  
test, Maury Povich-style  
moment. Coco, you are not

the father!

I was led to believe that makers of vanilla-flavored foods often use extract of beaver-butt rather than actual vanilla bean. Have you heard this? You'll be relieved to learn that the rumor regarding extract from the anal glands of beavers is wrong on many levels. First, the substance in question, Castoreum, is not extruded from anal glands. It doesn't come from glands at all, though a beaver's so-called castor sacs are located \*near\* the animal's anus. And while Castoreum was used for many years as a flavoring, 1. It isn't actually a substitute for vanilla or strawberry, it is a flavor enhancer with a musky, leathery aroma that was used extensively in cigarettes and as the bass note in perfumes. And 2. There's pretty much zero chance you're eating beaver

booty even if you wanted to. It's super expensive.

According to snopes, "Depending upon as scarce a substance as castoreum to flavor the ice cream and candy found on store shelves would create nationwide shortages of those items and drive up their prices beyond the reach of all but the wealthiest consumers." Now that's not to say that manufactures \*couldn't\* use it. The FDA has determined that it's safe for human consumption and technically it could be included as one of the generic "natural ingredients" without being specified. So while beaver butt is currently too fancy to be included in your ice cream, there might be other butts that are more cost effective. They don't have to tell you. So that's comforting.

But regardless, you can stop

worrying about consuming extract of furry beaver buttholes. Snopes again: "A major ingredients supplier told us this about some of their vanilla flavorings: "[Castoreum] is not a common raw material that is used and we don't use it, so I can safely say that our natural vanilla flavors do not contain any animal juices." Animal juices. I mean I guess that's what milk is but Jesus. More from this anonymous supplier: "All vanilla extracts are free of [castoreum]... wherever you go." The supplier continued, "You can trust us. We are anonymous representatives from a giant corporation. When have we ever led you astray."

We've probably all heard someone described as looking like "the cat that got the cream," referring to a

person who is very satisfied with their situation. Which totally makes sense, if you're satisfied with situations that involves explosive diarrhea. Feeding your cat milk is a terrible idea. Kittens love milk and even adult cats are attracted to milk because of the fat content, but kittens typically lose the ability to easily digest lactose as they age. Most adult cats are lactose intolerant, and even the ones who aren't won't particularly benefit from drinking cow milk. There's even some debate as to whether *humans* should be drinking cow milk. Or goat milk, etc. Just because an animal has nipples doesn't mean we need to drink whatever comes out of it. I have nipples, Greg. Could you milk me? I drink almond milk, which is probably also not great, but doesn't involve nipples. There will be even more talk of nipples soon.

This one is controversial, but after looking into this topic, I'm just going to say it: Koko the gorilla—and non-human primates in general—have never learned sign language. There is no compelling evidence that animals can be taught actual language, even those most closely connected to us on the evolutionary tree. They can, however, learn to perform actions via operant conditioning, as can almost any animal. If you put a mouse in a cage with three buttons, and the mouse figures out that every time it hits all the buttons in sequence it is rewarded with some cheese, the mouse will compulsively push the buttons. Not necessarily because mice like cheese—that's another misconception that we've actually covered—but because mice like food,

because they like to be alive. Most animals prefer to survive, if given the option. "Cake or death. Cheese or death." But even though the mouse is performing a deliberate action, that mouse hasn't learned anything other than buttons=cheese. You could write on those three buttons, I and then Want and then Cheese, and get super excited because the mouse keeps making a coherent statement by pushing the buttons. But the mouse hasn't learned language. Same with Koko. She learned that when she made a certain motion, she received a banana. So she made that motion when she wanted a banana. You could say she learned to "ask for a banana," but you could also say that she simply learned to push the banana button. I make gesture, I get banana, I will continue to make gesture.

There's a great podcast—well at least some of the episodes are really great—called “You’re Wrong About,” and they did a full episode on Koko. It was pretty fascinating. They point out that much of the evidence of Koko’s supposedly complex communication is controversial and open to interpretation. The available videos are heavily edited; Penny Patterson, the woman who is most associated with training Koko—never released the raw footage from these sessions. And even in the short videos that we can watch, we run into the same problem that we experience with other signing primates like Washoe the chimp: you’ll have a short video in which Washoe sees a swan and signs “water” and “bird,” and everyone gets super excited because she’s creating compound words. She’s building her own language:

WATERBIRD. But it's just as likely that she might have been pointing out random objects that she saw: water, and bird. Same with Koko. If you watch videos like the one of Koko and Mr. Rogers, Penny keeps trying to get Koko to talk about love, but the gorilla is just grabbing Mr. Rogers arm and completely ignoring everything else. At one point Penny says that Koko made the sign for flower, and Penny claims that she's referring to Mr. Rogers cufflink, which doesn't look anything like a flower. And finally Penny gets Koko's attention and makes the sign for love, and Koko sees it, and mimics the sign, and Penny is like, "Koko is saying she loves you." No, Koko is rambling about foliage and imitating your gestures. And that happens all the time in these videos. First, the trainer almost always initiates the interaction--

which is another problem, the animals are typically never doing more than reacting--and then the trainer interprets the meaning of the supposed conversation that follows. So Koko will be signing "fish," and "hula hoop," and "nipple," and a bunch of other nonsense and then she makes one gesture that can somehow can be interpreted as relevant to the situation and suddenly it's declared a conversation. We'll get to the nipple thing in a minute, btw. From the BBC News: "Although the apes can use two or three signs in a sequence, close inspection of filmed data has repeatedly shown trainers prompting them, and then questionably interpreting separate responses as signed sentences." And all of this becomes super clear when deaf people and/or people who are actually fluent in sign

language have watched these videos or tried to communicate with the primates . many of them have been horrified at the idea that anyone is actually pretending that these primates can communicate meaningfully via sign language. They'll tell you that what is happening is not a sign-language conversation, but rather a bunch of random gestures that can in no way be considered a coherent back and forth. Many of the gestures aren't even identifiable as signs...like, the animal would put a finger in its mouth and the handlers would say, oh, the animal is signing drink, even if it wasn't clearly a sign at all. And then the animal would put its finger in its mouth in a totally different context and they would ignore it, or they would interpret it differently. And even when the signing

seemed consistent, it rarely made sense. So any time Koko randomly put together gestures that seemed to make a coherent statement, her handlers would declare victory, using those moments as evidence that she was speaking, while once again completely ignoring the 99% of gibberish that she was spouting before and after the supposed moment of clarity. And this is actually another version of operant conditioning: when the handlers would get excited about Koko making a certain gesture or series of gestures, Koko would be more likely to repeat those gestures, because she wanted to please the people with the food. Because again, survival.

Some of the claims about Koko were batshit ridiculous, and this is where it all really breaks down. Koko was

introduced to Robin Williams in 2001 and spent a few minutes with him, supposedly the two had an intense connection, they had a grand old time not communicating because Koko couldn't actually communicate and Robin Williams didn't know sign language. But regardless, apparently they became best buds. From [Koko.org](http://Koko.org): "When Koko heard of Robin's passing in 2014 she became very said." They have a typo on the website, that's how meticulous these researchers were. Obviously they meant sad. And I love that they say, "when koko heard of Robin's passing." They don't say "When we told Koko about Robin's passing." Like she just overheard it from some buddies down at the bar. So supposedly she was sad. Whatever that means. And now we have to address the logistical AND ethical

questions here. Let's say Koko—a celebrity gorilla who met hundreds and hundreds of people in those intervening 13 years—actually remembered this one dude she spent a few minutes with more than a decade ago, and let's also assume that Koko somehow actually understood the concept of death—if all of that is true, which it isn't but let's say it is, what do you gain from telling Koko that this guy she bonded with is dead? Koko supposedly had the mental capacity of a 3 or 4 year old. If you're a serious researcher, you need to explain how there is potential scientific benefit to traumatizing a creature that has the emotional maturity of a toddler. None of that makes sense. I'll take -cough- bullshit -cough- for 500, Alex. And the fact that the researchers tried to sell us this crazy story with Inception levels of bullshit

makes it impossible for me to trust any of their claims. Another great example of nonsense was Koko's supposed use of rhyme. She named her kitten "All Ball," which they said was on purpose. But those words only rhyme in spoken language, and Koko didn't *speak* English, she only supposedly signed it. That makes no sense. Sure, she could *hear* English, but why would she care about using the signs for things that were only connected by noises that she couldn't herself create.

So the nipple thing. Koko was obsessed with nipples. She had a full-on nipple fetish, and we don't kink shame as long as it's all consensual, but this...wasn't. Koko was a certified freak. She was always demanding to see people's nipples, and the handlers wanted to keep her happy, so they went out of their way to let this weird

ape get her jollies. "In 2005, three female staff members at The Gorilla Foundation, where Koko resided, filed lawsuits against the organization, alleging that they were pressured to reveal their nipples to Koko by the organization's executive director, among other violations of labor law. The lawsuits were settled out of court. Gorilla expert Kristen Lukas has said that other gorillas are not known to have had a similar nipple fixation."

So Koko was a kinky ass gorilla who did not not actually know sign language, but she lived to be 46 nipple-loving years old, she lived a long life full of bananas and titties, she saw a ton of nipples and died in her sleep. A happy ending.

[Koko Remembers Robin Williams \(a tribute\) – The Gorilla Foundation](#)  
[Koko: Gorilla death coverage](#)

[rekindles language debate - BBC News](#)

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