

# Lifeline



THEME:

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Year 12  
Edition 4



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## PREFACE

Dear reader,

Every year, we let the members of Idun pick the theme of one of our editions via a poll on Facebook. You have spoken clearly, and with 65% of the votes, this edition's theme is F! Not surprising, letting you pick the theme couldn't have led to another outcome. This edition will be completely filled with F's, to the great joy of Devi and Jente, who wanted this theme for a long time. For those that don't know, the letter "F" is used to pay respects online and has become a huge meme. We send an "F" when something sad happens; when Jasper's flavoured condoms have expired, when someone gets friend-zoned, when you fail an exam, or simply when someone asks for some F's in the chat. The latter I'd like to do now, as this is the last Lifeline of the year and therefore the last time I get to address you while being editor-in-chief. I really enjoyed my time as chairwoman, and I'm proud of everyone, and the editions we made together. I hope this Lifeline will get you through another day of quarantine with a smile on your face. Enjoy reading!

Hugs and kisses,

*Nadia van Eekelen*

Lifeline editor in chief 2019-2020



Dear reader,

When I think of "F", the song of SpongeBob SquarePants pops into my mind. You remember the one about FUN. F is For Friends how you do stuFF together. U is For you and me. N is For anywhere and anytime at all. Down here in the deep blue sea. F could also stand For Food, which you know is my guilty pleasure and probably yours as well. Another important word that starts with an F is Friendship of course. Maintaining Friendships while isolated is harder than one might think, yet necessary when socially distanced. Although we are apart, we are still together. These times are basically a big F, but together we will get through them. To end this year like this is very unFortunate, but I hope to see every one of you in the Future, here in our Fine city of Groningen. I'd like to Finish with a biological Fact about the hypothalamus, which is important in the regulation of our basic biological drives. You can remember them by the Four F's; Fighting, Fleeing, Feeding and F'mating. Bye now, my hypothalamus is telling me to Find some Food.

On behalf of the Fourteenth board,

*Sami Balahsioui*

Chairman of GLV Idun 2019-2020

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# SCIENTIFIC NEWS



By Koen Freerks

## Facial expressions and anthropomorphism

As humans, we are able to see and feel how another human feels. When we try to do this with animals, it is not as easy. When we see an animal shows its teeth, we could register it as smiling of happiness. Alternatively, it could also be a sign of aggression. Attributing human emotions, traits, or intentions to animals is defined as anthropomorphism. Alarmingly, it could also pose to be dangerous attribution. In the spring of 2007, a gorilla called Bokito escaped his enclosure in Rotterdam and violently attacked a woman. Before the attack, the woman was a regular visitor of the gorilla. When visiting, the woman had a habit of smiling at the gorilla with eye contact. The caretakers of the gorilla warned her against doing this, since eye contact is likely to be interpreted as aggressive by the gorilla. But the woman claimed to have a friendship with the gorilla. She said in an interview in De Telegraaf: "When I smile at him, he smiles back".

If we were able to correctly sense how another animal feels, this tragedy might not have happened. Not only does our anthropomorphism play a role in zoos and in our home life with our pets. It also plays a role in research. Certain facial expressions and emotions in animals can be observed. But when we are attributing these expressions to human emotions, we lack objectivity. For humans, it hard to see how a mouse feels, but their feelings could be visible at all times for other mice.



Machine learning could be the solution to this problem. Using machine learning, researchers have documented mice's expressions of basic emotions. A study on how a specific facial expression is connected to emotion has been done by neuroscientist Nadine Gogolla and her colleagues of the Max Planck Institute of Neurobiology. The researchers gave mice experiences to trigger very specific emotions. Water containing a high amount of glucose triggered pleasure, a lithium chloride injection caused a feeling of unease and sickness, bitter quinine created a feeling of disgust, a pain stimulus caused pain, and a visitation of the place where the pain stimulus was given caused fear.

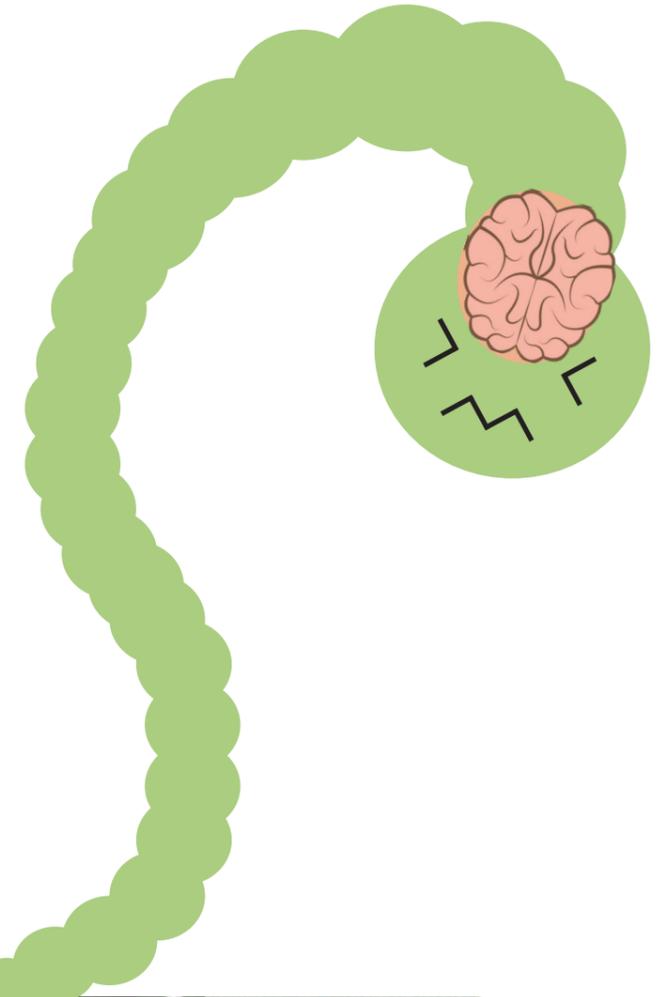
Researchers do see that there are facial expressions happening during these tests. But due to our anthropomorphizing tendencies, it is hard to attribute these facial expressions to emotions. That's why machine learning is a good way to record facial expressions. Due to machine learning, the subtle movements of the face had been attributed to its respective emotions. For example, the ears move forward when drinking the sweet water, which could presumably be attributed to happiness. On the other hand, the ears move backward when tasting bitter water, which could be disgust.

During the facial expressions, the activity in the brain was also recorded. Specific neurons in the insular cortex showed activity during specific expressions. This part of the brain is also an area of activity in humans in relation to emotions. When scientists activated these circuits by themselves, the mice showed the corresponding facial expressions.

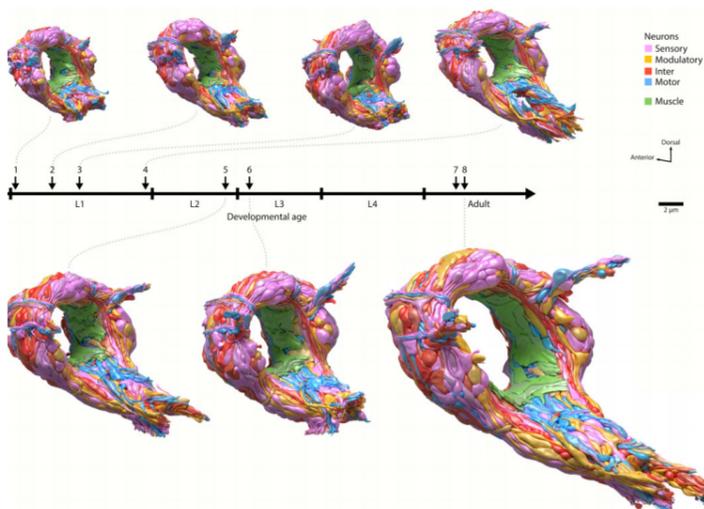
This method of machine learning could provide new insights on the basis of emotions in vertebrates. The discovery of these connections could also lead to new knowledge about how emotional dysregulation disorders are being caused, which could make way to treatment.

## Worm brain in focus

Model organisms are of great importance to research. For example, the fruit fly has been used as a model organism since the early 20th century. The species has contributed a lot to our knowledge of genetics and other branches of biology. Let's focus on another model organism, the nematode worm (*Caenorhabditis elegans*). The worm has been used as a model organism since the early 1960s. It has been used primarily for expanding our knowledge of neural development. The worm is either male or hermaphrodite. The hermaphrodite's nervous system consists of only 302 neurons. The nervous system has been mapped extensively by many researchers, along with the complete genome. Due to the simplicity of the organism, researchers have been able to create a virtual worm using modelling. The program is called OpenWorm and the software is open source. Recently, researchers at Harvard University in Cambridge created digital reconstruction that shows every nerve and muscle fibre in the brain of *C. elegans*. The images were made using software to combine many individual images captured using an electron microscope. Each cell type in the image has been given a different colour. Sensory neurons are shown in pink, modulatory neurons in yellow, interneurons in red, motor neurons in blue and muscle in green. The images were used to study the development of different parts of the worm's brain during different stages of maturation. These new images will provide a new perspective on how the brain develops. Understanding the simple brain of the worm will be the key in understanding the human brain.



GLV Idun



# THE POWER OF FRIENDSHIP



By Renate Klootra

For my first ever article in the Lifeline, I decided I wanted to write about something that I am particularly passionate about. And one thing that I am very passionate about is friendship. Especially in weird times like these, it's good to have close friends that make you happy and laugh at you when you fall down in the bus because you dropped your bus card and the bus driver decided to hit the brakes right when you were bending over to grab your bus card (this totally did not happen to me). Friendship is important. Everybody knows that. Having friends feels great, and having no friends makes you feel like a sad, lonely potato. But why is friendship so important? And what are all the benefits that come with having friends?

## Definition of the term "Friendship"

Let's start with defining the word "friendship". Friendship is a non-reproductive, nonaggressive bond between people who do stuff together with such frequency and consistency so as to differentiate them from non-friends. So for example, a male and a female who are "friends with benefits" are not considered friends (because they could create a child together), but a male and a female who don't have sex, but do like each other are considered friends. This means that when 2 women or 2 men are dating, they are apparently "just friends". 1-0 for the homophobes.

So now that we've defined the word "friendship" let's look at the reasons why friendships actually exist.

## Friendships in animals

Friendships are important otherwise, they wouldn't be here. So evolution has apparently favoured friendships, which means that they are beneficial to us. Because of this, I would like to discuss friendships in the animal kingdom (all animals except humans). In quite a lot of animal species, friendship is found within a family. This is not however, a requirement. In, for example, horses and hyenas, friendship is also found amongst several unrelated women. Research has proven that female baboons who have many friends, also produce more successful offspring. The offspring of a "popular" female baboon has a much bigger chance to survive than the offspring of baboons with fewer friends. The same actually also goes for macaques, horses, and marmots.



## Friendships in humans

But we're not macaques, and we do want to know what is in it for us. So what is the effect on humans? Research has shown that humans with very few social contacts show greater risk at cardiovascular diseases, infectious diseases, and elevated blood pressure. Recently a meta-analysis has been done in which it was concluded that there is a 50% increased likelihood of survival in people who are very social.

Fun fact about human friendships: unrelated friends actually have a bigger chance of being genetically similar than unrelated strangers.

The conclusion that we can draw from all of this is that it is good to have friends. It makes you quite a bit healthier, and it makes you feel happy and good to have someone to talk to about your good day, your problems, or that new, really sexy photo of Emma Watson.

# FASHION AND THE WAY YOU THINK

## DO THE CLOTHES MAKE THE MAN?



By Nadia van Eekelen

A while ago, I was standing in front of the Albert Heijn Korenbeurs waiting for a friend. A guy came up to me and asked about my clothes. He was interested in what people wanted to express with the way they dress. I was wearing a black T-shirt tucked in light-blue jeans and white sneakers. Probably the most casual outfit in existence, but you can't go wrong with casual. After all, who dresses up to go grocery shopping anyway? Confused by the random approach and question, I didn't have an answer, but it got me thinking and gave me the idea for this article.



We know that our clothes have an impact on the way others perceive us, and the way we think about ourselves. Even when we don't intend to, we make snap judgments about people based on the clothes they wear. If we see someone wearing a well-tailored suit, we think of that person as successful and confident. If we see someone wearing huge sunglasses and white capri pants, we think of that person as a Karen. And if we see someone wearing a straw hat, we think of that person as old-fashioned and traditional. That our clothes shape the way people see us makes sense, but did you know that the way you dress also influences your way of thinking?

This was the result of a study done by psychological scientists from Colombia University and California State University. They tested how a very formal outfit influences how our brain processes information. More specifically, the research focused on whether dressing formally encourages abstract processing, as opposed to concrete processing. Abstract processing makes a person think more broadly and comprehensively, making it possible to be creative and to think about objects that are not physically present. Whereas concrete processing makes a person think narrower and focus on facts and physical objects. A famous example of this is the Statue of Liberty. A concrete thinker will only see a lady with a torch, but an abstract thinker will see it as a symbol of freedom.

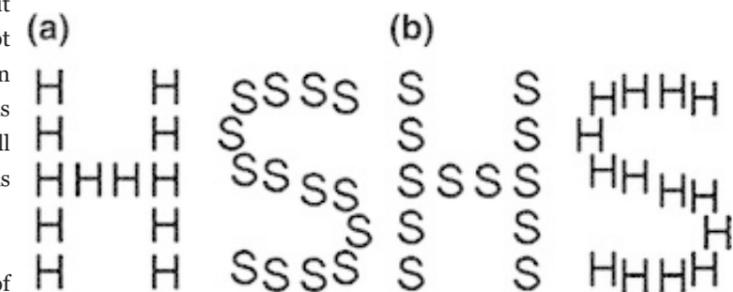
The study analysed such thought processes of a group of students. They were asked to bring two outfits: a formal outfit

that you would wear to a job interview and a casual outfit that you would wear to class. The students were randomly assigned to change into either their formal or their casual set of clothing and then had to perform a task to determine their cognitive processing. This task consisted of 32 trials presenting a large letter composed of small letters. The participants had to identify each stimulus as the large letter (abstractive processing) or the series of small letters (concrete processing). As predicted, they found that the students wearing their formal outfits identified the large letter more often than the students wearing their casual outfits. Therefore, dressing formally indeed encourages abstract processing and gives people a broader perspective.

This has more impact on you than you might think because these different processing styles influence decision-making. Abstract thinking helps you to pursue long-term goals instead of short-term gains. Wearing a tie might actually stop you from buying yet another pair of shoes, or your 29th house plant, and save money for the future. People who think abstractly are also often good at solving complex problems, taking intelligence tests, coming up with new ideas, and creating art of all possible types. A lot more research is needed in this field, but during this time of social distancing, you can try for yourself. Get out of those comfy sweatpants, hard as it may be, and change into something nice. Chances are you'll get more work done and even do it better!



Now I still don't know what I wanted to express with the casual outfit I was wearing to the supermarket. But I remember that that day I bought a bunch of snacks I definitely did not need because it was almost time for dinner. Maybe due to my casual clothes, I was thinking concretely, focusing on the physically present bags of Doritos instead of the food I was planning to make at home.



# THE FOCUS ON FUN



By Marit Bonne

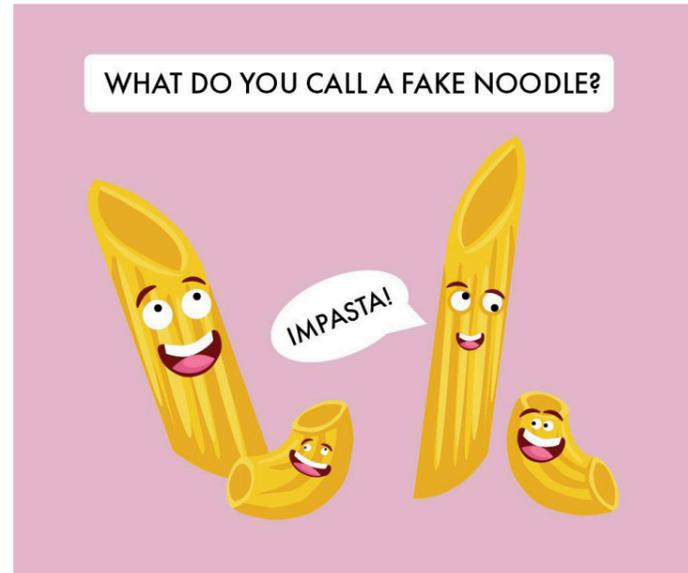
“Two hunters are out in the woods when one of them collapses. He doesn’t seem to be breathing and his eyes are glazed. The other guy whips out his phone and calls the emergency services. He gasps, ‘My friend is dead! What can I do?’ The operator says ‘Calm down. I can help. First, let’s make sure he is dead.’ There is silence, then a shot is heard. Back on the phone, the guy says ‘OK, now what?’”

Did you burst into laughter or did you roll your eyes? Whatever the answer may be, the joke you have just read was voted ‘the funniest joke in the world’ in a survey by the LaughLab. Although the result is quite biased, the outcome of this joke being the funniest is not as surprising as you might think.

The concept of something being funny strikes curiosity for a long time, but even nowadays it is not quite understood. Aristotle and Plato took the first step by introducing the superiority theory. They suggested that humor was derived from competition and the misfortune of others. In other words: we find something funny when we feel superior to someone/something. This theory works for dumb blonde jokes, teasing comments and videos of people falling of swings.

Unfortunately, the superiority theory does not work on the full spectrum of humor: a pun has often nothing to do with feeling superior. Therefore, Sigmund Freud proposed his theory of relief. He and other relief theorists thought of the perception of humor as a release of psychological and physical tension. Freud associated our fascination of taboo with the build up of this tension, which could explain why we laugh at (most) dirty and political jokes.

The mystery of humor remained unsolved, so another possibility was introduced: the incongruity theory or the surprise theory. When jokes contain an element of surprise and there is an inconsistency between the outcome and expectations of people, jokes are more likely to be funny.



But then Peter McGraw, author of the book ‘The Humor Code’ (fun fact: the book launched on April Fools), developed the so-called benign violation theory. In order for something to be funny, it has to violate the way we think the world should work and in such a way that it is harmless and perceived that way.

The benign part in this theory is therefore crucial. Accidentally killing your neighbour’s rooster that wakes you up at 4am shows superiority, releases frustration (or tension) and contains an element of surprise, but your neighbour will most likely not even crack a smile.

So, when we look back: our funniest joke in the world contains elements from all the previous theories. The man that shoots the other man is relatively superior, the joke addresses murder (taboo) and the punchline is surprising. In addition, it also contains a benign violation: the man shoots the other man but because he misunderstood the operator, he is not ‘really’ harmful.

Explaining a joke never works in my expectation, so maybe we shouldn’t be looking in all those theories to unravel the concept of humor. As a researcher wisely said: ‘Dissecting humor is like dissecting a frog: only a few are interested, and the frog dies.’

## What’s the best thing about Switzerland?

I don’t know, but the flag is a big plus.

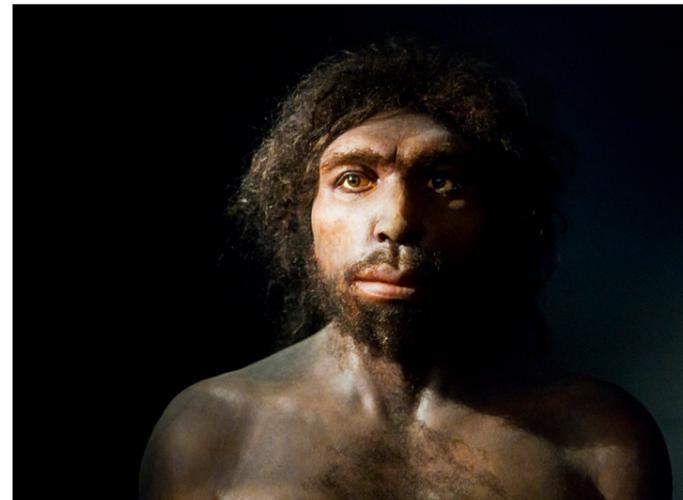
# FAMILY FOSSILS



By Dana Frank

How do we know who we are? What our ancestors looked like? From whom we descended? And since the heritable recipe book, which usually answers our biological problems, so quickly degrades with time, how do we begin to answer any of these questions? So far, the answers have come from fossil records, where they were found, how deeply they were buried, their physical structure. But that line of inquiry is limited and provides an incomplete track of evolutionary progress.

Luckily, Danish researchers have just figured out something unique about the proteins found in 800,000-year old teeth, which once belonged to our supposed ancestor, *Homo antecessor*. The researchers used a particularly sharp technique, whereby the ancient proteins found in the tooth enamel were sequenced using mass spectrometry. The amino acid sequence that emerged was compared to those of other hominins, including Neanderthals and *Homo sapiens*.



What has surfaced as a result is evidence for a much closer relationship between *Homo antecessor*, us, and Neanderthals than we previously assumed. Based on the shape of our family fossils, we initially were led to believe that *Homo antecessor* was the last common ancestor of our quaint human partnership, *Homo sapiens* and *Homo neanderthalensis*. For years, anthropologists have spent painstaking time putting together our family tree in this way.

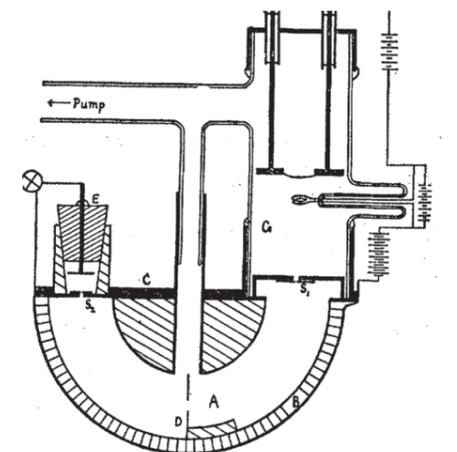
But unfortunately for them, it looks like we aren’t the modern alpha-humans we liked to believe. By analyzing the protein data, together with the structural facial features of us and our family taxa, it seems our traits are much more deeply rooted among our extinct relatives; modern humans may not be modern at all.

Furthermore, those humans, whose elimination we are conceivably responsible for, possess traits unlike us and our forebearers. That is to say, Neanderthals, occupying derived, unique characteristics relative to *Homo sapiens*, may have represented the most modern lineage in the Hominid clan. At least before they were wiped off the face of the planet.



It’s somewhat humbling, isn’t it? We, as the last remaining human species, often find it difficult to put our existence in perspective. It is easy to be arrogant as a human today, and the speciesist view that we are superior to other animals on earth remains commonplace.

But imagine a world where it wasn’t us who remained. Marvel for a minute at the possibilities that could have been had we not claimed the supreme throne of earth’s biosphere. There is no basis to the idea that we are the most evolved being, or at least once were. It could have just as easily been another human to colonize the world. And perhaps, in a not difficult way to perceive, life on earth would have been luckier for it.

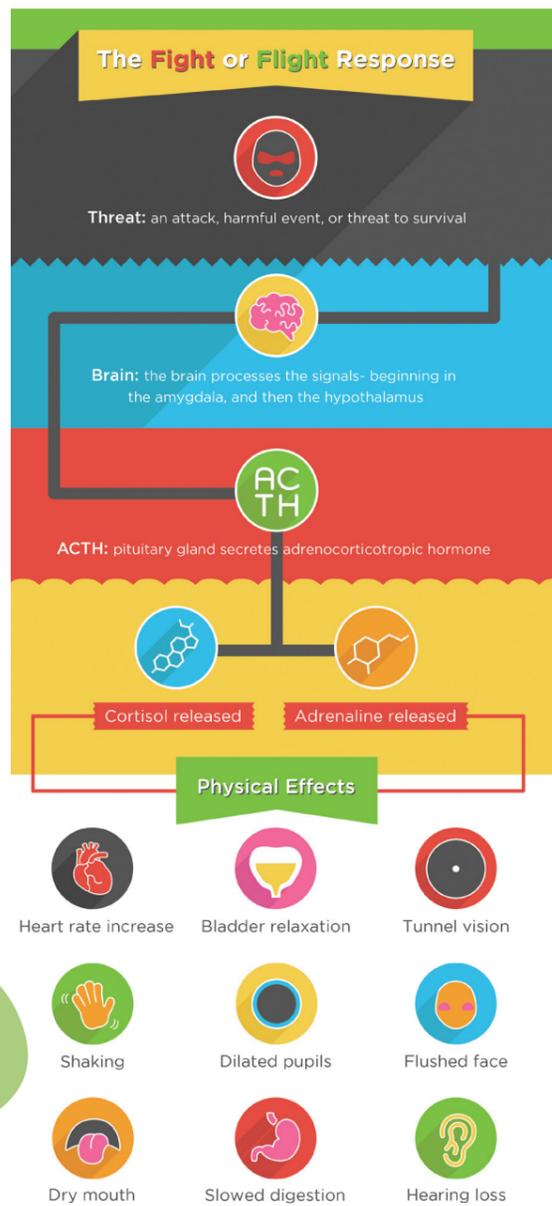


# FEAR OF FAILURE



By Meiske Pieters

When you experience a stressful situation, such as being in a zoo when a lion escapes, your fight-flight instinct kicks in. Your sympathetic nervous system starts working and thanks to the sympathoadrenal response your adrenal medulla will start producing adrenaline. Other hormones, like cortisol and nor-adrenaline, will then also be released through the cascade that follows. The hormones in turn raise your blood pressure and heart rate and suppress your immune system. Now, imagine this happening every time you have a test, have to present in front of other people or even when you meet new people. If you experience this, and the fear is persistent and irrational, you have atychiphobia; fear of failure; or fear of negative evaluation. Most people experience some mild fears related to their performance during their lives. This fear would occur when you try something new or just when doing something that is challenging for you, but you are still able to persevere and continue. In case the fear is more extreme it can lead to avoidance of such situations, or even sabotaging your own efforts. This so-called self-handicapping, means someone would not try at all, because it's better for your self-esteem to fail because you didn't try, than failing while you put a lot of effort into it right?



The fear of negative evaluation is associated with social anxiety and perfectionism, but it is not specified as a separate disorder in the holy book of mental disorders. According to the Diagnostic and Statistical Manual of Mental Disorders it is just part of a general anxiety disorder, or a social anxiety. If you suspect you suffer from fear of failure and you want to self-diagnose\* there is some literature about the Fear of Negative Evaluation Scale, made by Watson and Friend in 1969. There is also a brief version with 12 statements, and you can indicate whether you identify with the statements or not. In case you want to look it up, the brief version of the Fear of Negative Evaluation Scale was written by Leary in 1983.

**johnnyjoestarrelatable**

you weren't a "well behaved" child you had anxiety and were terrified of conflict

**johnnyjoestarrelatable**

"a pleasure to teach" on the report card meant obedient to a fault, a constant need to be perfect to keep "a pleasure to teach" on the report card, realizing you weren't as perfect a student as you thought when school got tough, and your perfectionism and paralyzing fear of "getting in trouble" is so deeply ingrained in you that you procrastinate everything because if it isn't perfect, you shouldn't try at all

\*If you need help, go to your GP or to the Student Service Centre from the RUG, where they can provide psychological support.

# MUSIC SECTION

## FENDER MUSICAL INSTRUMENTS



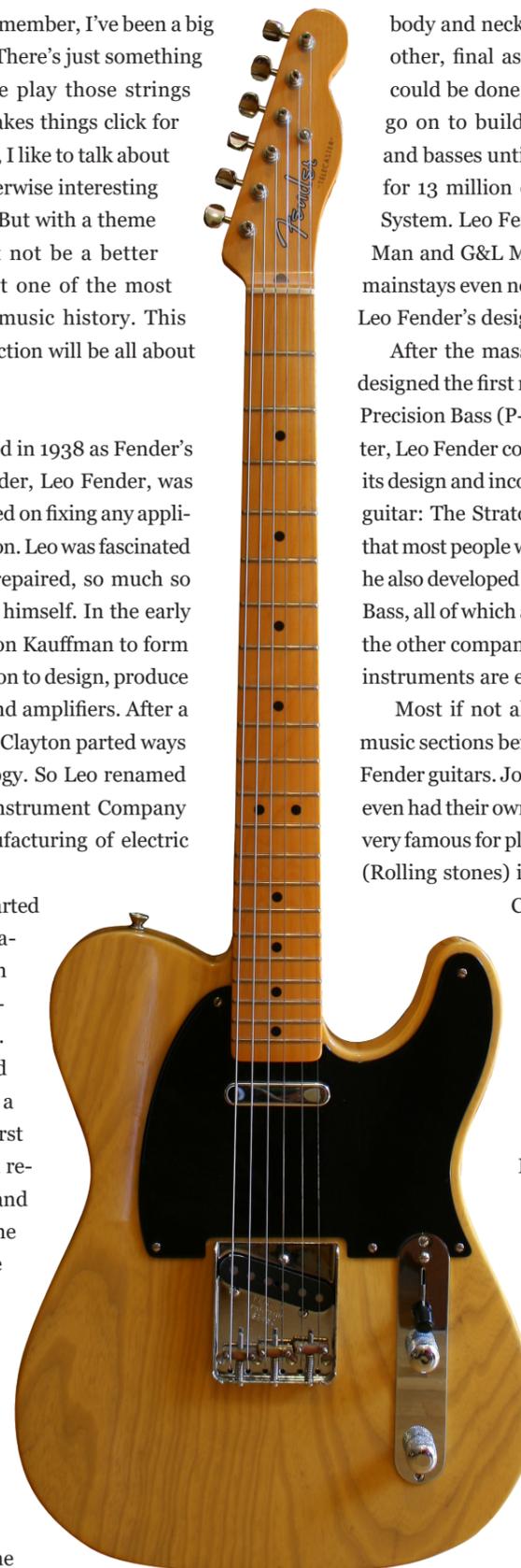
By Devi Seijkens



For as long as I can remember, I've been a big fan of guitars in music. There's just something about hearing someone play those strings in a nice melody that makes things click for me. Instantly. Now usually, I like to talk about some of my favorite or otherwise interesting musicians in this section. But with a theme like this, there might not be a better moment to talk about one of the most important brands in music history. This edition of the music section will be all about Fender guitars.

Fender was founded in 1938 as Fender's Radio Service. The founder, Leo Fender, was an electronics technician and focused on fixing any appliance using vacuum tube amplification. Leo was fascinated by the flaws of the amplifiers he repaired, so much so that he wanted to build amplifiers himself. In the early 1940's he partnered up with Clayton Kauffman to form the K & F Manufacturing Corporation to design, produce and market electric instruments and amplifiers. After a couple of years of success, Leo and Clayton parted ways over differences in business ideology. So Leo renamed the company to Fender Electric Instrument Company and started focusing on the manufacturing of electric instruments and amplifiers.

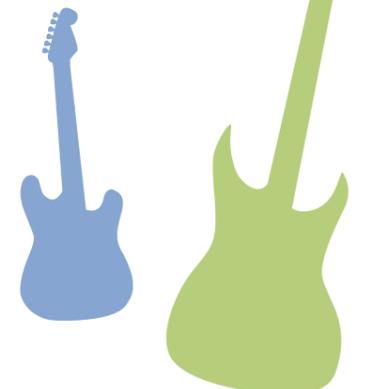
In the late 1940s, Fender had started producing the broadcaster. It featured a solid alder or ash body with a symmetrical single cutaway and either one or two single coil pick-ups. This was the first mass-produced electric guitar. Although this was a revolutionary breakthrough, the first broadcasters were met with mixed reviews, as changes in temperature and humidity could cause problems to the instrument. Most commonly, the one-piece maple neck would bow in humid weather. To solve this, Fender reluctantly added a metal truss-rod to the neck, to allow for additional fine-tuning of the instrument. By 1950, the design of what would now be called the Telecaster was finished, and mass production could start. Because the

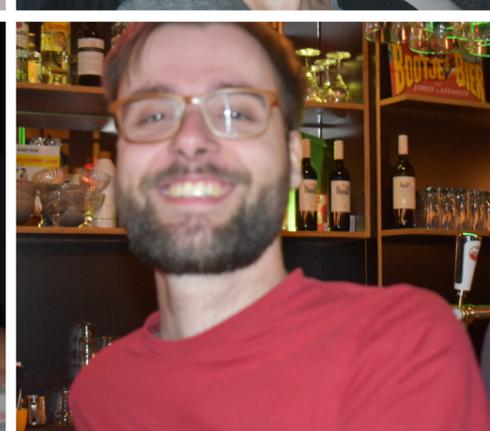
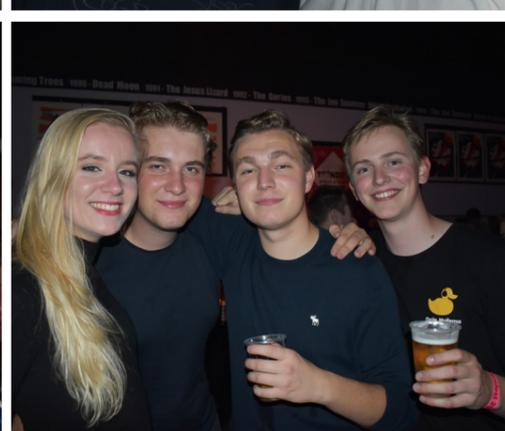
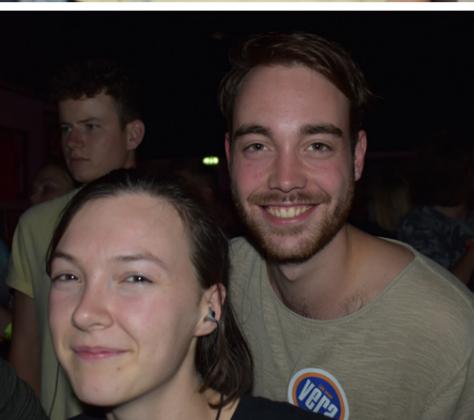
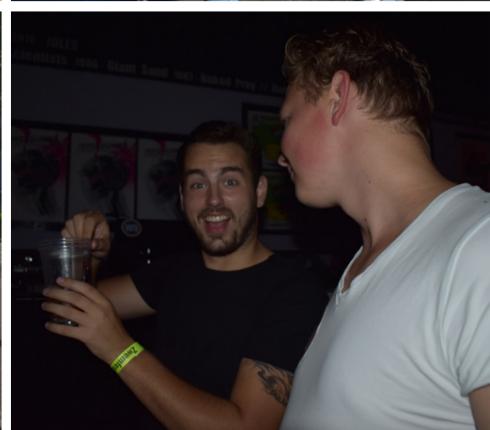


body and neck could be made separate from each other, final assembly could be done quickly and could be done by less skilled workers. Fender would go on to build many more newly designed guitars and basses until the company was sold by Leo Fender for 13 million dollars to the Columbia Broadcasting System. Leo Fender would go on to found both Music Man and G&L Musical instruments, both of which are mainstays even now in the world of electric guitars using Leo Fender's designs.

After the massive success of the Telecaster, Fender designed the first mass-produced electric bass guitar: the Precision Bass (P-Bass). After the success of the Telecaster, Leo Fender could work with musicians to improve on its design and incorporate their ideas into his next electric guitar: The Stratocaster. The Stratocaster is the design that most people will associate with the electric guitar. But he also developed the Jazzmaster, the Jaguar and the Jazz Bass, all of which are still being made by both Fender and the other companies Leo Fender founded. And Fender's instruments are embedded throughout music history.

Most if not all of the artists I've mentioned in the music sections before this one have been associated with Fender guitars. John Mayer and Stevie Ray Vaughan have even had their own signature Fender models, as they were very famous for playing their Stratocaster. Keith Richards (Rolling stones) is known for playing a Tele, while Eric Clapton's 'Blackie' guitar was a modded Fender Strat. Whenever you would like to consider the history of rock, you'd have to consider the instruments that were used. It might be hard to believe, but we might not have had all of those amazing Jimi Hendrix songs if it weren't for Leo Fender developing the Stratocaster.





# FUN FACTS



By Hennie Heida

## 1. Fluorescence & Fighting

Fluorescence is widely used in research, and there's no doubt that you already have used it at least once. One of the most famous examples is the use of GFP, but did you know that fluorescence is also being used in the clinical setting? One example is the use of fluorescence during operations. These days, fluorescence can directly help fight cancer, as surgeons use it as a guide to distinguish the tumor from normal tissue. In brain tumor surgeries, this can help to remove the entire tumor from the brain.

## 2. Fluorescence & Flirting

Whereas us humans, and most other mammals, don't necessarily need fluorescence, for some animals it is a crucial part of their lives. One example is the jumping spider, or *Cosmophasis umbratica*. Without fluorescence, the females simply get no action. Researchers who studied these spiders, found UV markings on the females and fluorescent markings on the males. This way, the spiders can communicate visually by using UV-reflectance and UV-induced fluorescence. For their experiment, the researchers blocked the UV wavelengths with a filter to observe the change in courtship behavior. When the males were unable to reflect UV, and/or the females could not fluoresce, no courtship took place.



## 3. Fluorescence & Finding

Did you get excited by reading about this interesting spider species? Then you should definitely take a dive into the ocean, because here you can find even more fluorescent animals! Even though us humans know how we can use fluorescent proteins, there is still speculation on how animals do so, and why. One of the reasons found so far is that it is a way to attract prey, since it can form a very strong stimulus to certain organisms. Bonus fun fact: UV light is not only used to see animals fluoresce, it is also used to highlight and identify fossils. The UV light can cause the minerals in the fossils to fluoresce, even highlighting soft tissue to some extent.

## 4. Fluorescence & Flying

We already know that flying squirrels are *very* cool. But did you also know their fur fluoresces pink under UV light? The purpose of this is still unsure, but it could have something to

do with night-time perception and communication, or help the squirrels to navigate snowy environments. Another possibility is that it is used for camouflage or mimicry; it could be for example that the pattern mimics the plumage of owls, which for some also secretly fluoresces pink, to confuse predators.

## 5. Flora and Fauna & Fighting

Plants might not be able to fight the way we do and hand out some blows, but they do have brilliant defense mechanisms. For instance, the horse nettle plant, *Solanum carolinense*, is equipped with numerous spines that can impale the caterpillars that nibble on it. Scientists even found that these spines actually increase in number after caterpillars started to devour the plant its leaves. For the smaller caterpillars, who can easily maneuver past these spines, the plant also has a trick; when these nibble on the leaves, the plant releases a sticky substance that makes the caterpillars stuck to the leaves, so that they get immobilized and can thus no longer do harm to the plant.



## 6. Flora and fauna & flirting

Whereas men would buy flowers or give chocolate to a woman they like, male gentoo penguins have a whole other technique to win over a female penguin's heart; by getting them the finest, smoothest pebble they can find. If, after presenting the pebble, the female penguin approves, she puts the stone in her nest and the first step to being a penguin couple has been taken.

## 7. Flora and fauna & finding

You may think it would not be hard to find an elephant on the savannah, but even these big animals can't be spotted if they are standing (or, more likely, eating) in a field of their favorite grass. *Pennisetum purpureum*, or elephant grass, is a species of tropical grass that can grow to around three to even seven meters in height.

## 8. Flora and fauna & flying

Hummingbirds are fascinating birds and ridiculously small. The smallest hummingbird is the bee hummingbird. This hummingbird is approximately 5.7 cm long and weighs less than 2 grams, making it the smallest bird on earth. Their nests are smaller than a golf ball, and their eggs no bigger than a coffee bean!

# THE UNCONTROLLABLE F'S



By Diana Nacy

Have you even been so tired of everything that you're constantly saying what the fudge, FUDGE, f this and f that under your breath? Until you one day just burst and say it out loud at work, while your boss is a couple of meters away and they go: "girl, you really gotta calm down". Been there, done that. I guess that is really normal if you're under a lot of stress at work or school, and you make sure you don't shout FUDGE thousand times a day especially when your boss is around. Though, for some people cursing is neither voluntarily nor controllable. This is reality for people with Tourette's syndrome and I think it's heartbreaking.



The uncontrollable uttering of curses and swear words is known as Coprolalia. Coprolalia is the involuntary utterance of obscenities, profanities and derogatory remarks. As you might have guessed it, people with Coprolalia have difficulties socializing and finding a job is nearly impossible. Imagine constantly telling your boss to fudge off, and while I like the audacity, I don't think most of those people do actually mean to tell their bosses to fudge off. Now you understand why I find it heartbreaking.

Luckily, only 10 percent of people with Tourette's have Coprolalia. The majority of people with Tourette's have milder tics like rapid blinking, throat clearing, whistling and shoulder shrugging. Those vocal or motor tics are the symptoms of Tourette's syndrome. You can tell that even the mildest symptoms can be quite awkward for people with Tourette's and people who are sitting with them.

Tourette's syndrome falls among other syndromes which are known as Tic disorders. According to the fifth edition of the diagnostic statistical manual, Tic disorders consist of three major types: Tourette's syndrome, persistent motor or vocal tic disorder and provisional tic disorder. Tics are quick non-rhythmic movements

or vocalizations that happen over and over. It's important to note that these tics are not caused by other disorders like Huntington disease or substance abuse. Those tics appear usually between the age of 4 and 6. They are most severe before puberty and severity can decline after the age of 18. They're triggered during periods of anxiety, excitement or exhaustion. Those tics can be simple and short in duration or complex and longer in duration and can consist of combination of simple tics.

Motor tics can include repeated movement of others or obscene gestures. Verbal tics include repeating last words or phrases from others, repeating own words or phrases or the previously mentioned coprolalia.

There is no "real" therapy for tic disorders. However, because they're triggered by anxiety and depression, mental and psychological help can alleviate the symptoms. Cognitive behavioral therapy to learn identify triggering events and feeling are also effective. Medications, like antipsychotics and epilepsy medication, are only used in severe cases.

I really hope this article will motivate you, future neuroscientists, to do more research on this disorder. I mean, it's already difficult to quit swearing. But if you have a disorder, do you just learn to live with it? Oh yeah, I almost forgot. After uttering the f word at work in the presence of my boss, she thought it was really funny seeing me swearing. However, I was so embarrassed, I decided to quit swearing right then right there. It took a while, but now I manage to keep it all in until I get in the car.





# FREAKS OF NATURE

## THE MANTIS SHRIMP



By Nadia van Eekelen



This little marine crustacean is described as a crazy party animal with some possible anger issues... and let me tell you why. Mantis shrimp are beautifully weird creatures, with their vibrant colours and large appendages on the front of their body. But don't be fooled by their small size and pretty colouration, as this animal is deadly and able to whack prey with the force of a bullet. Their limbs can move so quickly, the water around them boils and creates bubbles. When these bubbles burst, they produce tiny bursts of light and an underwater shockwave that can

dismember and kill prey instantly, even when the shrimp misses its target. So think again when you want to keep this animal in your aquarium. They easily crack the glass and tend to slaughter every other creature in your tank.

Another thing that makes these animals so fascinating is their visual system. They are thought to have the most complex eyes in the animal kingdom, as they have 12-16 (!) different colour photoreceptors in their retinas. Remember that a human only has 3. However, they don't use these receptors to see some sort of psychedelic rainbow we can't even imagine; they use it to communicate. Unfortunately, it's not yet known how exactly this works. One of the most striking discoveries is that the mantis shrimp can detect cancer lesions and the activity of neurons, because they can detect polarised light that reflects differently from cancerous and healthy tissue. This ability inspired a group of researchers to build a camera sensor for detecting cancer!

I had never heard of this aggressive little animal before and I'm glad I found him. There are many more interesting facts about this shrimp if you're curious, and I hope soon we will learn more about the secret language they share together.

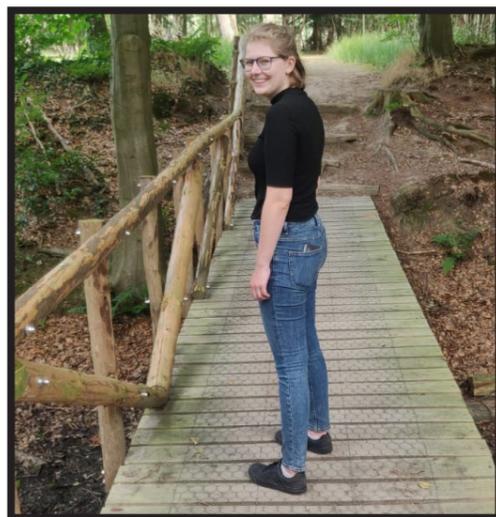
## BREAKING NEWS

# INTRODUCING RENATE KLOOSTRA

### NEW LIFELINE MEMBER

Hi everyone!

I hope everyone reading this is having a wonderful day. Since I am the newest member of the Lifeline I would very much like to introduce myself. My name is Renate, I am 19 years old and live here in Groningen. I am currently in my first year and I am majoring in molecular life sciences, but besides molecules I also really love animals. My favourite animals are reptiles and my favourite animal in particular is the bluetongue skink. It's a really cool lizard; you should google it after you've read this edition of the Lifeline. Here are some other facts: my favourite colour is yellow (not just because I am a hufflepuff), my favourite video game is assassin's creed, my favourite drink is (iced) tea and my hobbies are acting, baking and sleeping. My spirit animal is probably a golden retriever because I am always very, very excited and happy! My friend once said that if Jochem Myjer and Freek Vonk had a child, it would have been me. I also have a hamster called Ollie and an XXL unicorn pillow pet called professor Cupcake. I guess that was about it! I am looking forward to writing tons of articles and make you all smile :)



Love, Renate

# PLEASE, DO TRY THIS AT HOME



By Prof. MD

## Exploding Fruits

EXPERIMENTS TO TRY AT HOME!  
BETTER SAFE THAN SORRY, WEAR PROTECTIVE GEAR!

Now in time of corona we all get bored easily because we have a lot of time on our hands. Due to all the time leftover, I, professor MD, decided to do an experiment you can all try at home. This time things will get messy because what better way to pass the time than to let something explode! In this case I am talking about exploding fruits. Especially, what better way to press F than to let a fruit explode with rubber bands.

### So, what do you need to get?

- A big fruit, like melon but a big mango or pineapple (ananas if you prefer) is also fine.
- Something to hold you fruit since most fruits are round and roll away. To tackle this problem I used duct tape to hold my fruit.
- Rubber bands.
- Gloves and glasses if you are weak minded.



When I started this experiment I thought this wasn't going to take long. Mostly because my watermelon was the size of my head, so I thought, well that is going to explode within 30 minutes. Boy, was I wrong. I started with one pack of rubber bands of the 3 I had bought. Within no time I didn't have any rubber bands left, thus I needed to go back to the store to get new ones. So you might think you don't need many, but you do.

Furthermore, half way through my second pack of rubber bands my pinkies felt a bit sore. Apparently if you don't use the right technique of placing the rubber bands on your fruit, you will get blisters. Technique is very important to prevent injuries. If you are considering yourself baby level with rubber bands, than you can use gloves.

Also, sometimes a rubber band does not stay in the place you put it, but decides to attack you. I have been shot at multiple times by my own rubber bands. I was really offended by their treason. Thus I put them back and let them stay there for eternity.

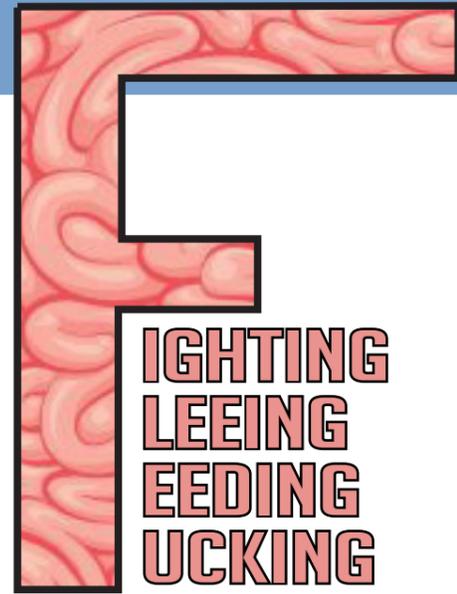
But the big pay-off with this experiment is when it explodes. It is so satisfying and totally worth all the rubber bands. Now as I already mentioned I used a lot of rubber bands. Therefore, I would like to start a small competition. Guess how many rubber bands I used to let my watermelon explode. You can send your guess to [redactie@idun.nl](mailto:redactie@idun.nl). The one who is closest to the real number of rubber bands will win an amazing prize. Like a really amazing prize!



### How to do it:

1. Place your fruit somewhere where it can get messy. I did this experiment outside so my dog (a half Labrador/half white shepherd) could clean up afterwards. But by all means, if you want to get messy in your bed, get messy in your bed. I am not the one who will hold you back if you like to get things messy in your bed, if you know what I mean.
2. Grab a rubber band and try to place the first one in the middle. This rubber band can be used as a guideline to place your other rubber bands.
3. Now add one rubber band at a time around the first one.
4. Repeat step 3 until your fruit will explode because of the force of all the rubber bands.
5. Tip. You can use a marker or pen to draw a face on your fruit.

# THE FOUR F's



## THE HYPOTHALAMUS GIVES A F\*\*\*

By Juultje Eenink



fight or run away from. At least not in the literal sense of the words. Persistent stress that is not or cannot be dealt with is also known as distress. Distress can lead to withdrawal or depression symptoms and anxiety, not coincidentally the two most common mental health issues in students.

### FEEDING

If you are reading this article with an empty stomach you might have thought about eating the hypothalamus every time I referred to its almond-like features. In a way this was caused by the little almond itself, because the hypothalamus also regulates hunger. In the hypothalamus there are receptors for the hunger hormone ghrelin, coming from the stomach, but the hypothalamus can also cause hunger itself, by producing MCH and orexin. Luckily there's also a stop on this system (even though it may not seem like it on some days) the hypothalamus also produces leptin, which suppresses the secretion of the hunger hormones.

In some people the leptin receptors are deficient. These people can never feel satisfied and are always genuinely hungry. This causes them to often become obese from a young age.



the mouse on the left is leptine deficient

### FUCKING

Finally, everyone's favourite F-word: fucking. This is also the favourite activity of most, all thanks to the hypothalamus. We want to have sex and can enjoy sex, all due to the endorphins the hypothalamus produces. Those endorphins are released when you are aroused and when you are having an orgasm, but also when you are in pain, in love or eating spicy food or chocolate.

The hypothalamus also releases the hormone oxytocin, which is famous for being the "hugging hormone". Oxytocin is also produced when a female has an orgasm. The more pleasurable the orgasm is, the more oxytocin is released. The female orgasm therefore is to be attributed to two little knobs, being the clitoris and our dear friend the hypothalamus.

If you study biology you have heard of them, the four F's. Fighting, fleeing, feeding and, our favourite, fucking. All taken together those are your four most basic and primal instincts. And all of them are controlled by the endocrine system of the hypothalamus. The hypothalamus is a region all vertebrae have and in humans it is about the size of an almond. Though small, this almond has a lot of influence on you.

### FIGHTING

Does the thought of fighting scare you? Good. That's exactly what you need to feel in order to fight. Thanks to the hypothalamus you feel the stress of potentially being hurt physically or, more common nowadays, mentally. (Words hurt too, you know!) The little almond drives the adrenal glands near the kidney to produce adrenaline to make sure you are ready to fight.

If fighting is not your style, the hormones also help you:

### FLEEING

To flee, you need to run and in order to do that the same bodily adjustments come in handy as when you're planning on fighting. Your heart pumps harder, the muscles in your lungs relax so you can take deeper breaths, and more sugar is available in your blood to provide the working muscles with some extra fuel. The fact that these two processes of fighting and fleeing are one and the same also comes in handy when you need to switch between the two. When you can't outrun the threat you can still try fighting, or when you're not as tough as you thought you can switch from fighting to fleeing.

Another hormone that's released when facing danger is cortisol, yes, THE "stress hormone". All of these hormones used to be useful for either fighting or fleeing, but nowadays the things that cause us to feel fear or stress aren't always things you can

# FEAR OF FARTS

Alright, who farted?



By Roos Slijfer

Once upon a time, there was a woman. At first, she looked like an ordinary woman with an ordinary house and ordinary kids. But while we are looking at this woman, something unusual happens. She was walking to the market when suddenly her face changed from a smile to excruciating fear. She started running. What happened?! There was no one else around, she was walking by herself through a quiet little street...Well, this woman is suffering from Flatulophobia: the fear of farting. So, she probably started running because she let out a fart. Flatulophobia or flatuphobia (from flatus, Latin for "blowing") is the fear of farting, whether farting oneself or somebody farting. The common fear trigger is being blamed, or the unpleasant smell that comes from farting, or even the sound of farting. If the sufferer smells the flatulence, or even hears someone fart, they may panic and flee from the people who farted. Mild sufferers would stay away from people who fart often, while severe sufferers would stay away from anybody. This often results in the feeling of depression, due to lack of personal contact, but they can still contact people via their phone or social network. Sufferers would try to avoid farting themselves. Flatulophobia is often treated using hypnotherapy, psychotherapy and exposure therapy, as well as by talking about flatulence facts.



The cause of anxiety disorders is thought to be a combination of genetic and environmental factors. Anxiety disorders often occur with other mental disorders, particularly major depressive disorder, personality disorder, and substance use disorder. To be diagnosed, symptoms typically need to be present for at least 6 months, be more than what would be expected for the situation and decrease a person's ability to function in their daily life. About 12% of people are affected by an anxiety disorder in a given year and between 5% and 30% are affected over a lifetime. They occur about twice as often in females as in males and generally begin before the age of 25. The most common are specific phobias, which affect nearly 12% of the population?, and social anxiety disorder, which affects 10%. Phobias mainly affect people between the ages of 15 and 35 and become less common after age 55.

So, the next time you see someone frightened for no reason, it could be that the person next to them farted. Just fart loudly to make sure.

Phobias are a real deal. It is a type of anxiety disorder defined by a persistent and excessive fear of an object or situation. The affected person goes to great lengths to avoid the object or situation, even though there is no actual danger. Phobias can be divided into three types: specific phobias, social phobia, and agoraphobia.

Types of specific phobias include those to certain animals, natural environment situations, blood or injury, and specific situations. The most common are fear of spiders, fear of snakes, and fear of heights. Occasionally, they are triggered by a negative experience with the object or situation. Specific phobias are often treated with exposure therapy. This means that when someone is suffering from a fear of spiders, the way to resolve this is to confront them with spiders. Maybe even let the spiders crawl over that person. Doctors recommend this method, because medication is not useful in this type of phobia.

Social phobia is when a situation is feared, as the person is worried about others judging them. This person would go to great lengths avoiding specific situations. Which may even result in affecting their professional life. Agoraphobia is when fear of a situation occurs because it is felt that escape would not be possible. It is often associated with panic attacks. These types of phobias are often treated with some combination of counseling and medication. Medication used includes antidepressants, benzodiazepines, or beta-blockers.



When you think you suffer from a phobia or anxiety disorder, do not be afraid to talk about it. As you can see, a lot of people suffer from these. You can always talk to a student advisor or your general practitioner.



By Devi Seijkens

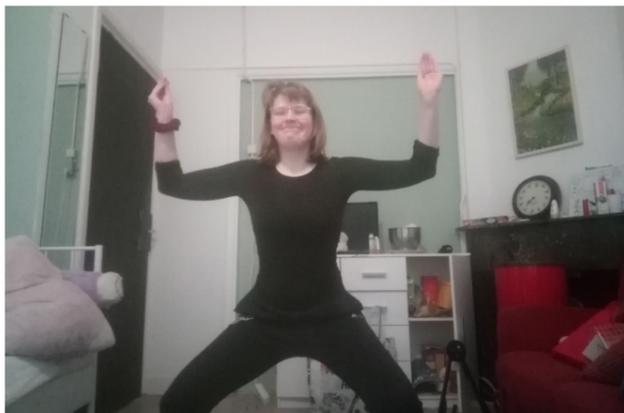
As quarantine prohibits us from meeting in person, we as a committee had to stretch to the full potential of our creativity. Where others might've elected to each buy products individually, or maybe just not review anything at all, we decided to review something that's very important during quarantine. In these times where we stay at home a lot, our bodies might lose some flexibility. So leave it up to Lifeline to find out which stretchy Yoga Poses you can do to keep yourself relaxed, flexible and yes, maybe even sexy.

We selected 5 yoga poses and decided to score them on 3 separate qualities: Stretchiness, comfort and of course sex-appeal. The five poses we will review below are the Goddess pose, the Downward dog, the Sphinx pose, the Plow pose and last but potentially not least the Corpse pose.



### Goddess pose

First up we have the Goddess pose. If you would like to try it at home, you can look at our lovely Renate and Meiske standing in this majestic pose. Overall, the Goddess pose was not received very positively by our panel. Scoring only a passing grade for stretchiness and a 5.1 overall, we would only recommend this pose for stretching. One panel member did enjoy this pose, as confirmed by her comment on it: 'I'm a fucking goddess.'



### Downward Dog

Next up we find the Downward Dog pose. Although most of you might already know this one, you can find help figuring it out yourself by looking at Jente performing the pose. The Downward Dog was one of the panel's favorite poses, as it got high grades for both stretchiness and sex-appeal. Unfortunately it was found not to be very comfortable, but hey, maybe being a dog just isn't as comfortable as we would like to believe. One of our panel members, who graded the pose a 9 on sex-appeal: '9, because your ass is in the air.'



### Sphinx pose

Third on our list we have the Sphinx pose. Again, a pose you might already know of, but you can otherwise look at Roos to help you find your own Sphinx. The Sphinx pose was the pose that averaged out the best, as it received decent scores all around, while it wasn't highest on any of the individual categories. One of our panel members commented: 'Feels really good in your back, mine cracked 3 times. I feel better now. Will do this more often.'

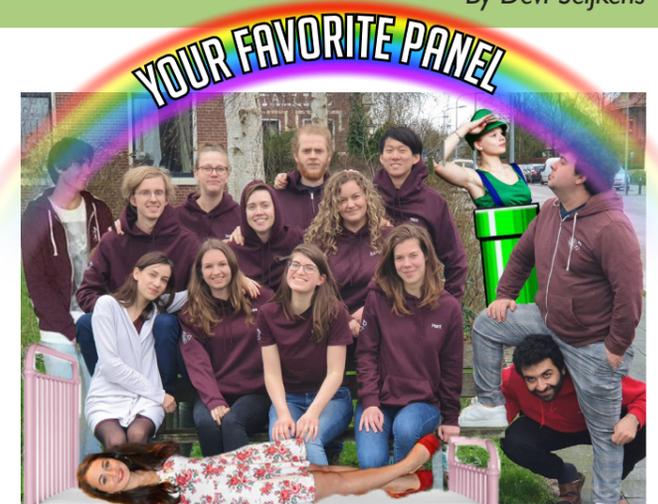
### Plow pose

On to our fourth pose, the Plow pose. If the name alone has intrigued you, look no further, Hennie will provide you with the looks of the pose. Now, as the name is already suggestive, one might think that this pose would do well in one of our more suggestive categories. But surprisingly it came in third in sex-appeal. It did much worse in the comfort category however, as it finished dead last in this category. Comment by the panel: 'Hurts your neck. My back felt good after the sphinx pose but now hurts and I have a headache. Pro-tip: do this pose only when you have a yoga mat.'



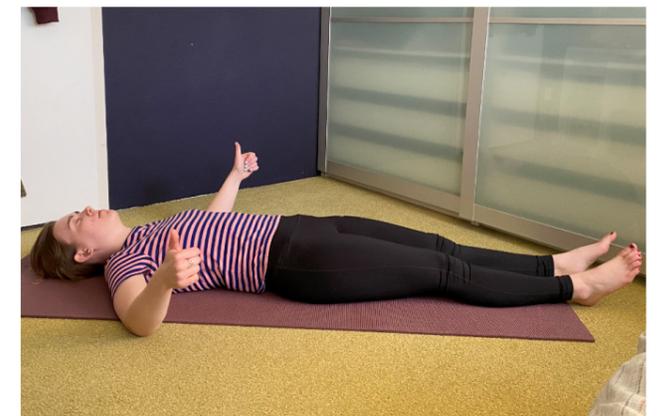
### Corpse pose

Last but not least, we have my personal favorite, the Corpse pose. Although the name might suggest staying away from this pose for as long as you can, you can find out how to do it by looking at the picture of Meiske alongside. Surprisingly, the Corpse pose won most comfortable by a landslide. In fact, only one of our panel members scored it below 10 in this category. In the other categories it did not score very well. Our panel: '10 on sex-appeal, sea-starring all the way! 10/10 recommend. Easy to do for 8-10 hours. In your bed. Under a blanket.'



### Conclusion

So, there you have it folks. Our panel has tested these poses for you, so you don't have to anymore. Looking to stay flexible during these trying times? Try Downward Dog, Plow pose or Goddess pose. Looking for comfort? Look no further, the Corpse pose has got your back. Looking to seduce that nice looking person? Sphinx pose and Downward Dog are great options to seduce someone from an appropriate distance. Biggest conclusion? Lifeline members look good doing Yoga.



### Overall average panel scores

	Stretchiness	Comfort	Sex-appeal	Average score:
Goddess pose	7.3	4.2	3.8	5.1
Downward dog	8.2	4.3	7.5	6.7
Sphinx pose	6.3	8.3	7.0	7.2
Plow pose	7.5	3.6	6.2	5.7
Corpse pose	3.0	9.9	5.6	6.2

# BAS EN Z'N BEESTJES

Beasts by Bas



By Bas van Boekholt

In order to introduce you to the extraordinary skills of the next animal, I want you to imagine the following: you are standing in Paris, the sun is setting behind you, and in front of you is the magnificent Eiffel tower. Now you close your eyes and make a jump, not a regular jump but a super jump. This jump will take you over the Eiffel tower and you will land safely on the other side. However, this is not nearly enough for you, as you immediately flex your ginormous calves and jump back to land at your original spot. But even after your second jump this will not be enough, as you keep jumping up and down, over the Eiffel tower, for 4 hours straight! You, as just a simple human, might think this is an extreme situation, but for this animal, it is nothing more than a normal day's work. This Lifeline, Bas en zijn beestjes will introduce you to the magnificent life of the flea.



*Dasyptillus gallinulae*

500 µm

Fleas are part of the order of Siphonaptera, which consists of over 2500 species of flightless insects that survive as external parasites to birds or mammals. In order to survive, fleas need either hairs or feathers to hold on. Reptiles and amphibians are therefore immune to the pesky presence of the flea. The average flea is between 2 and 3 millimetres long with the largest being the beaver flea at 11 millimetres. Adult fleas feed on the blood of their hosts and go through a full metamorphosis from egg through pupae, larvae, and imago, before becoming adults. All the younger previous stages do not suck blood but feed on the blood-rich excreta of their parents. Therefore, fleas do show some parenting skills. While commonly thought, fleas do not stay their whole life, which can take between 14 days and up to 12 months, on one host. Almost all eggs, larvae and pupae don't live on hosts but in beds, carpets, rugs and sofas, where they hide themselves as deep as they can because they do not like the light.

One of the best-known facts about fleas is their ability to jump, in which they are only exceeded by another group of insects, called froghoppers. A flea can jump over 150 times its own body

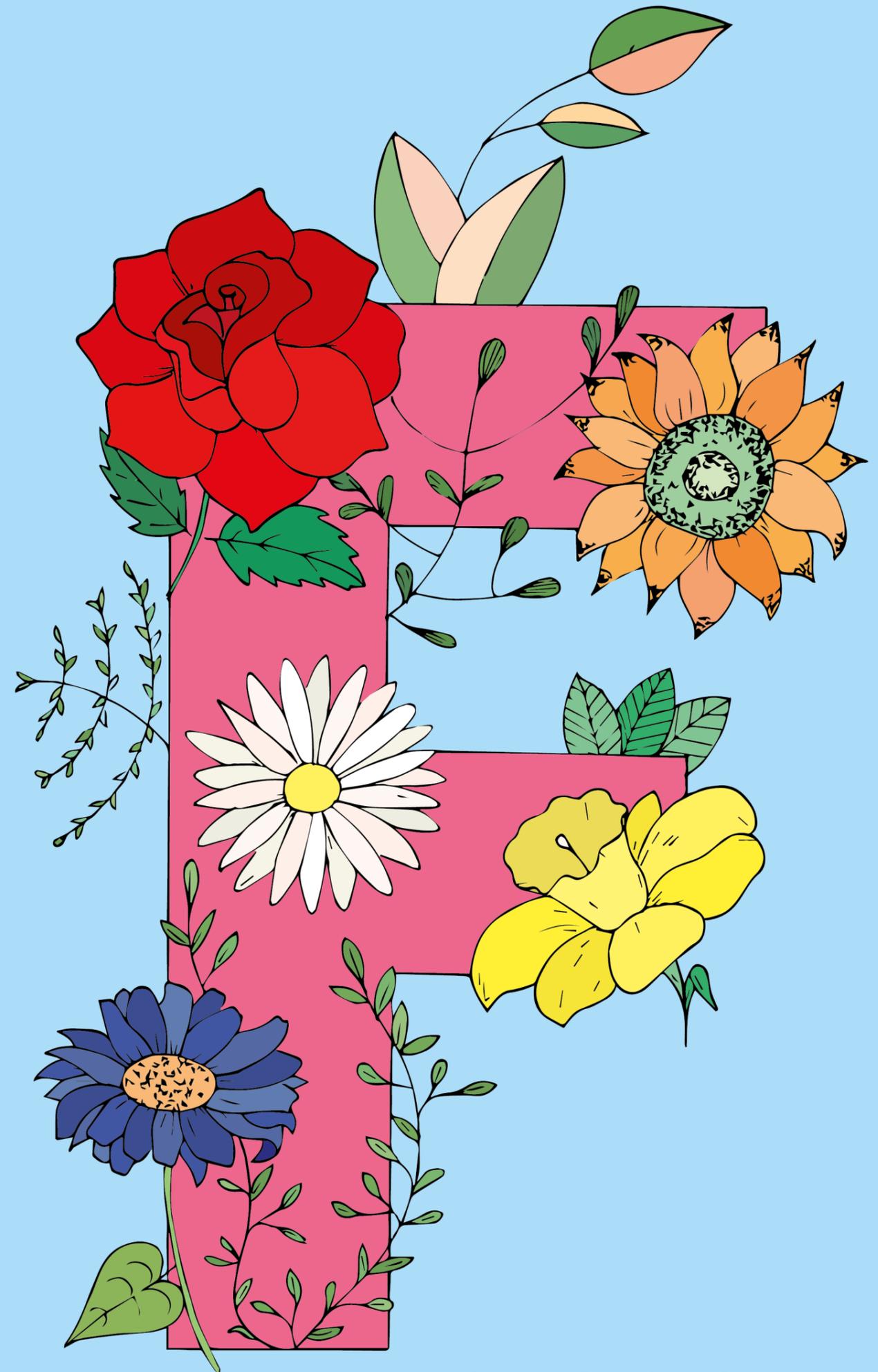
size, thereby accelerating at about 50 times faster than a space shuttle. They can then repeat this trick for up to 30.000 times without stopping. In addition, they are able to reverse direction after any jump. This is even more impressive when you realise that fleas are deaf and practically blind, giving the expression: "a leap of faith" a whole new meaning. Even some extra weight will not weigh a flea down as they are able to pull 160.000 times their own weight, outlasting the strong ant by a factor of 30. The human equivalent to this would be equal to you pulling more than 4 Olympic-sized swimming pools, filled with water. Good luck with that.

Fleas and humans have a shared history of both happy and sad times. The oriental rat flea (*Xenopsylla cheopsis*) is the carrier of the bacteria which causes the bubonic plague. These bacteria managed to kill almost a third of the whole human European population during the pandemic called the black death. In total, this flea-carried disease has roughly caused 200 million human deaths by now. But fleas also share a more fun history with humans. For example, the flea circuses where fleas pulled little carts or were able to shoot balls through a hoop. Flea brides and grooms (dressed, but dead) were popular collector's items in the 1920s. And one of Britain's oldest games called "tiddlywinks" can trace its origin to the jumps of the flea.

Fleas are extraordinary animals that show that you do not always have to look at large animals to do the big things. Sometimes the smallest animals showcase the biggest surprise. They rightfully can claim their spot in the hall of fame alongside the giants that are already there. Let me end this piece with some advice: if you ever feel lonely in these hectic and unsure times, just take a closer look at your own carpet and who knows, maybe you've got a friend in need. Let us all join the flea in spirit and soar through the sky without knowing what is ahead. Take that leap of faith, not once, not twice, but 30.000 times, and just see where it takes you.



*Xenopsylla cheopsis*



# IDUZZLE...



By Juultje



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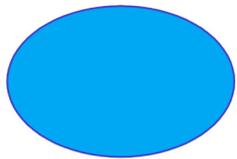
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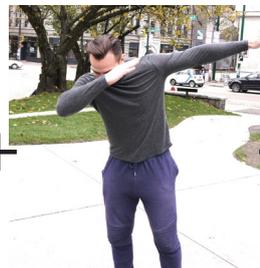


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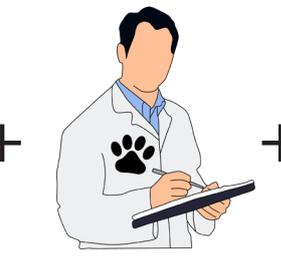
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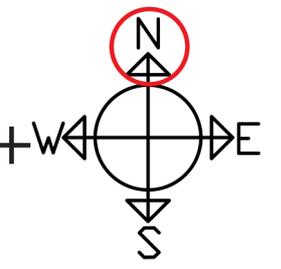
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The previous Iduzzle was won by **Levi Schilder**. Congratulations! He has won a marvelous prize, which he is very happy with! Would you like to be mentioned here in the next Life-line? Please submit your answer to the Iduzzle to [redactie@idun.nl](mailto:redactie@idun.nl) before September 30<sup>th</sup>.