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World's biggest testes

A species of bush cricket is in possession of nature’s most ridiculously over-sized testicles – these balls are 14% of the bug’s body mass. The crickets need all that extra sperm storage just to ensure they’ll have offspring. The tuberous bush-cricket is the new record-holder for the world’s largest testicles relative to body size. At 14%, it easily beats the old champion, a species of fruit fly with testes that took up 10.6% of its total size. To put that in some perspective, my quick calculations suggest human testicles account for only about .05% of the average male’s body size. If humans possessed testicles of similar relative size, they would be nearly the size of a couple of basketballs. Chief researcher Dr. Karim Vehad explains why the insects need such ridiculously large testicles: “We couldn’t believe the size of these organs, they seemed to fill the entire abdomen. We are also interested in the reason why they are so large. An almost universal evolutionary rule appears to be that such variation in relative testes size is linked to female mating behaviour; testes tend to be larger in species where females are more promiscuous, as has been demonstrated in various species in fish, birds, insects and mammals. But at least two hypotheses could account for this pattern – sperm competition on the one hand and male mating rate on the other. Yet our study appears to be the first study to show that, in the case of the Tuberous Bushcricket, bigger testes don’t necessarily produce more sperm per ejaculate.” It appears that the testicles are there to allow the male bush-crickets to mate with lots of different partners. In this type of species, multiple males are competing for a female’s unfertilized eggs, so one might expect the bush-crickets to use their large sperm resources to provide a lot of genetic material for one particular female and drive away the competition. But that doesn’t appear to be the strategy the bush-crickets use. Dr. Vehad and his colleague Dr. James Gilbert explain what the bush-crickets are actually doing, making it quite clear in the process that, yes, they’re enjoying discussing this as well: Dr. Gilbert: Traditionally it has been pretty safe to assume that when females are promiscuous, males use monstrously-sized testicles to deliver huge numbers of sperm to swamp the competition – even in primates. Our study shows that we have to rethink this assumption. It looks as though the testes may be that big simply to allow males to mate repeatedly without their sperm reserves being exhausted.” Dr Vahed: “This strongly suggests that extra large testes in bushcrickets allow males to transfer relatively small ejaculates to a greater number of females. Males don’t put all their eggs (or rather sperm!) in one basket.” The researchers suggest that large testicles are an evolutionary benefit for species where everyone is expected to take on multiple partners. That means males can’t risk running out of sperm – and when adulthood only lasts for a couple of months, that means they need to carry as much of it with them as they can. [Biology Letters] Wesley Warren struggled with a medical condition called scrotal lymphedema In the United States, it's caused by blockages in the lymphatic vessels A patient's enlarged scrotum can keep growing if left untreated, doctor says Imagine carrying a bowling ball between your legs that weighs close to 200 pounds. If that image is too much to stomach, continue reading with caution. Wesley Warren, 49, spent more than four years with this extra burden before having surgery to repair the damage from a rare medical condition called scrotal lymphedema. When doctors placed the swollen mass they had cut from Warren’s scrotum on the scale, it weighed 132 pounds. That’s not counting the fluid or smaller pieces of tissue the surgeons had also removed from the Las Vegas man. “There are a lot of people that will look and laugh and stare in shock and awe and amazement,” Warren says as he walks down the street in a preview for TLC’s upcoming show “The Man with the 132-Pound Scrotum.” The one-hour special airs Monday at 9 p.m. ET/PT. “It’s tough to deal with it, you know, because essentially, this is a sort of living and breathing freak show.” It began in 2008, Warren told TLC, when he awoke to a shooting pain in his testicles. The tissue around his penis soon began to swell, eventually growing at an estimated rate of 3 pounds per month. One doctor told Warren that it might be necessary to castrate him to fix the problem; others told him that he would probably die on the operating table. And the cost of the surgery alone would be in the hundreds of thousands of dollars. After Warren appeared on the Howard Stern radio show, appealing for help, a fellow scrotal lymphedema sufferer referred him to Dr. Joel Gelman, who offered to do the surgery for free. Gelman, director of the Center for Reconstructive Urology at the University of California, Irvine, specializes in urethral and penile reconstruction surgery. Although the headline of TLC’s special is catchy, scrotal lymphedema is a very real condition, Gelman said. He hopes media attention surrounding the show will encourage other men with the problem to seek treatment. Here are some more answers about this condition: What is scrotal lymphedema? Scrotal lymphedema, also known as scrotal elephantiasis, is a “massive enlargement” of the scrotum due to thickening of tissue and accumulation of fluid, Gelman said. What causes it? Outside North America, scrotal lymphedema is often caused by a parasitic infection called lymphatic filariasis that’s spread by mosquitoes. “Thread-like worms” lodge themselves in the lymphatic system, according to the World Health Organization, where they can interfere with a person’s immune system. But lymphatic filariasis is virtually unheard-of in the United States, Gelman said. Most cases of scrotal lymphedema here are caused by blockages in the lymphatic vessels that prevent fluid from draining from the area. Doctors are unsure what causes this blockage; in Warren’s case, Gelman believes it was an injury or trauma to his scrotum. What are the symptoms? The most obvious symptom is a large scrotum; this can range in size from a grapefruit to a basketball. But the mass doesn’t “max out” at any particular size, Gelman said. It will keep growing until the patient seeks treatment. Warren’s scrotum was the largest Gelman had ever seen. “(Warren) didn’t report that he was always in pain, but I think the biggest problem is that the sheer size of the mass made it very uncomfortable for him,” the surgeon said. “It’s like lifting weights to take a step.” Warren’s penis was “buried” about a foot under his skin, Gelman said, but fully functional. A tunnel of sorts had formed from the tip to the top layer of his swollen skin, allowing Warren to urinate without assistance. How common is scrotal lymphedema? It’s rare, especially in the United States. Definite numbers are difficult to come by, and the condition may be underdiagnosed due to physicians’ lack of awareness, Gelman said. Many patients with the condition are also obese and are simply instructed by their doctors to lose weight. How do you treat it? Surgery is usually the best option to remove the swollen tissue, Gelman said. A surgeon who specializes in this type of procedure will cut a T-shape in the mass, identify the penis and testicles to make sure they aren’t harmed and then excise the excess tissue. The surgeon will then use undamaged tissue to cover the penis and scrotum. How is Warren doing now? Warren is walking again and enjoying life, Gelman said. He’ll need a follow-up surgery to remove some additional skin that was damaged by his condition. Gelman will perform a skin graft to cover the penis and scrotum. Um, what if I think I have it? If you are experiencing the symptoms noted above, see a doctor as soon as possible. Ask for a referral to a specialist if your primary care physician is unfamiliar with these types of conditions. An unusually large scrotum can have a variety of causes, Gelman said. One of the most common is a hernia, in which a small part of the intestines enters the scrotum. Another cause is fluid buildup on one side of a man’s body between the testicle and the skin; this is called hydrocele. All are treatable and usually not life-threatening unless left too long. By DAILY MAIL REPORTER Updated: 11:01 BST, 10 November 2010 It may only be half the size of a human finger, but this cricket is hiding a big secret: it has the largest testicles in relation to its body weight in the world.Scientists have discovered that the male Tuberous Bushcricket has testes which are 14 per cent of its whole body mass.To put this into perspective, a man with the same proportions would have to carry testicles weighing as much as five bags of sugar each.This beats a species of fruit fly (Drosophila bifurca), thought to be the previous record holder for the biggest testes as a percentage of male body mass, at 10.6 per cent. Dr Karim Vahed holding a male Tuberous bushcricket together with its testicles But despite this, the bushcricket does not necessarily produce the largest amount of sperm - contrary to traditional thinking - according to the study.The research, led by biologists at the University of Derby, is published today in Royal Society Journal Biology Letters. Lead researcher Dr Karim Vahed, Reader in Behavioural Ecology at the university, said: 'We couldn't believe the size of these organs; they seemed to fill the entire abdomen.'We are also interested in the reason why they are so large.'An almost universal evolutionary rule appears to be that such variation in relative testes size is linked to female mating behaviour.'Testes tend to be larger in species where females are more promiscuous, as has been demonstrated in various species in fish, birds, insects and mammals.'But at least two hypotheses could account for this pattern - sperm competition on the one hand and male mating rate on the other.'Yet our study appears to be the first study to show that, in the case of the Tuberous Bushcricket, bigger testes don't necessarily produce more sperm per ejaculate.'In the study Dr Vahed, Derby biology graduate Darren Parker, and Dr James Gilbert from the University of Cambridge compared relative testes size across 21 species of bushcricket. The tuberous bushcricket (Platycleis affinis) has testes that amount to 14 percent of its body mass They found testes were proportionately larger in species where females mated with more males - female Tuberous bushcrickets mate with up to 23 different males in their two-month adult life.But they also found the bushcricket did not produce more sperm - in fact they produced less ejaculate.They said a traditional assumption was that larger testes produce more sperm per ejaculate, giving males an advantage in sperm competition.That competition is most intense when a female of a species mates with many males, so the male who produces the most sperm is often assumed to have an advantage, leading to development of larger testes in such species.But more promiscuous females also increase the number of mating opportunities available for the male.So it is possible larger testes have evolved in species that mate with more than one partner, allowing more ejaculate to be produced so they can have more successive matings, the scientists said.'Traditionally it has been pretty safe to assume that when females are promiscuous, males use monstrously sized testicles to deliver huge numbers of sperm to swamp the competition - even in primates,' Dr Gilbert said.'Our study shows that we have to rethink this assumption.'It looks as though the testes may be that big simply to allow males to mate repeatedly without their sperm reserves being exhausted.'Dr Vahed added: 'This strongly suggests that extra large testes in bushcrickets allow males to transfer relatively small ejaculates to a greater number of females.'Males don't put all their eggs (or rather sperm!) in one basket.'The scientists said their findings could give insight into links between endowment, promiscuity and reproduction within insects in the biological world. In whales, the testes are usually internal, and so only visible in dead specimens whose abdominal cavity has been cut open. The largest testes of any animal species are those of the right whale (genus Eubalaena), each of which may weigh as much as 500 kg (1100 lb) and produce as much as 4.5 litres (1.2 US gallons) of sperm. Female right whales have been observed to engage in simultaneous copulations with males. This, along with the size of the male's testes, have led scientists to speculate that sperm competition is a factor in the whales' mating strategy. Researches have discovered that a species of grasshopper has the largest testicles of any living creature, relative to body weight. In a comparison of 21 species of bushcricket published in Biology Letters, scientists found that the tuberous bushcricket (Platycleis affinis) have testes making up 13.8% of their bodyweight, AFP reports. However, the researchers also discovered that the grasshoppers did not produce more sperm per ejaculate than others. Karim Vahed, a behavioural ecologist at the University of Derby, said: "We couldn't believe the size of these organs. They seemed to fill the entire abdomen. "Extra large testes in bushcrickets allow males to transfer relatively small ejaculates to a greater number of females. Males don't put all their eggs - or rather sperm - in one basket." James Gilbert, a researcher at Cambridge University, added: "Traditionally it has been pretty safe to assume that when females are promiscuous, males use monstrously-sized testicles to deliver huge amounts of sperm to swamp the competition. "Our study shows that we have to rethink this assumption. It looks as though the testes may be that big simply to allow males to mate repeatedly without their sperm reserves being exhausted." The sperm-producing organs account for 14 percent of the body mass of males of this bushcricket species. The previous record holder's testicles—belonging to the fruit fly Drosophila bifurca—tipped the scales at about 11 percent of its body mass."I was amazed by the size of the testes—they seemed to take up the entire abdomen," said study leader Karim Vahed, a behavioral ecologist at the University of Derby in the U.K.But the new heavyweight champion doesn't pack much of a punch. The team was surprised to discover that tuberous bushcrickets have smaller ejaculations than bushcricket species with smaller testicles.For the testicle study, Vahed and colleagues dissected specimens from 21 bushcricket species, collected around Europe.The insects are ideal for studying reproductive evolution because of their efficient mating process, Vahed noted.For one thing, the male bushcricket transfers his sperm to the female in a "neat packet" that's easily retrievable by researchers—"whereas in mammals, you'd have to provide some sort of condom to measure the ejaculate," he said.Likewise the female stores each male's sperm packet in a separate pouch, enabling scientists to count how many times a female has mated in her lifetime. (See insect-egg pictures in National Geographic magazine.)Predictably, the team found that the species whose females mate the most has the males with the biggest testicles, according to the study, published November 10 in the journal Biology Letters.(See "Bigger Testes Can Offer a Competitive Edge.")But among the 21 bushcricket species, the study showed that, as testicle size increases, ejaculation volume decreases.The discovery runs counter to previous findings in other species—especially mammals. Usually the male with the biggest testicles has more sperm in each ejaculation, thus earning him more tickets in the lottery of fertilizing females, Vahed explained.Bigger Testicles, More Sperm Supply?A possible explanation, he said, is that, in societies with promiscuous females, large testicles give males a more plentiful sperm reservoir for multiple matings. Female tuberous bushcrickets mate an average of 11 times in their two-month life spans.This alternative explanation for large testicles may even make scientists revisit some of their studies on vertebrates, he added. It's usually the other way around."It's clear that insects are one of the major types of organisms on the planet Earth, [but] the tendency is to draw conclusions from studies of vertebrates and generalize them as if they apply to everything," he said.Indeed the take-home message for scientists is that mating rate needs to be taken into account when investigating testicle size, according to David Hosken, chair in evolutionary biology at the U.K.'s University of Exeter.Overall the findings are not that surprising, he added via email."Higher mating rate selects for larger testes, but across other species, sperm competition risk seems to have a greater effect than mating rate."Bushcricket Titillator MysteryNext, Vahed plans to shift his focus to "titillators," the hard, penis-like part of male bushcricket genitalia that's inserted into the female. These poorly studied—and often spiny—parts may stimulate the female, allow the male to hang on, or both. Published: 09:07 BST, 18 July 2017 | Updated: 12:08 BST, 18 July 2017 A man with a mystery medical condition that caused him to have the world's biggest testicles has had reconstructive surgery - thanks to a Facebook post. Forence Owiti Opiyo, 21, from Kibigori, Kenya, saw his genitals swell to ten times the average size - but doctors are baffled as to why. Said to have been triggered by a cyst when he was 10, the bizarre condition made it impossible for him to wear clothes, walk easily and forced him to live like a recluse.Surgery was made possible after a neighbour shared a picture of Forence's testicles, which appears to have engulfed his penis, on their Facebook page.The kind-hearted plea triggered an outcry of people wanting to help him, finally allowing for him to have surgery to re-shape his genitals and craft him a penis. After being examined, surgeons scheduled two operations; the first to debulk the penis and get rid of the excess testicle mass. The second was to reconstruct his penis and fashion it into a more usual shape and size, local reports suggest. The team behind the procedure believe he will now live normally, and will be able to have sex and even children at some point.Scroll down for video Forence Owiti Opiyo, 21, from Kibigori, Kenya, genitals swelled to ten times the average size - but doctors are baffled as to whyForence said: 'This thing started very small, like a boil. Then it was the size of my fist. It just continued to grow bigger and bigger.'I would really love to have children one day, that is what I desire. I would like to give thanks to God for healing me.'When did it begin? Forence Owiti Opiyo first noticed a cyst on his genitals in 2006.An initial procedure removed the growth in 2007 but the problem re-emerged years later. However, due to the post-election violence in his country he was forced to stay at home and was given a course of medication.But the drugs didn't work and over the past eleven years the cyst grew so big that he struggled to walk. Forced to drop out of school Forence, whose parents died when he was five, eventually had to drop out of school because his testicles grew so big. Classmates teased him and, unable to afford surgery, he began spending more time at the home he shared with his brother Eliza and elderly grandmother.Surgery was made possible after Forence's neighbour shared a picture of his testicles, which appears to have engulfed his penis, on their Facebook pageHe began to mend shoes in an attempt to save money but his goal of being able to pay for surgery was still a long way out of reach. Desperate plea Neighbour Duncan Otieno took some shocking photographs of Forence's deformed member and posted them on Facebook with a plea for help.He said: 'I took his photos and posted it on my Facebook and shared it all over the internet.'After three days, we got a call from Our Lady of Mercy Ranguma and an ambulance picked him up from the village.'Forence is a polite man. He is a man of few words, he doesn't talk much or disturb anyone. I believed he could be healed.' Successful surgery Thankfully for Forence, the surgery at Jaramogi Oginga Odinga Teaching and Referral Hospital was a success. Dr James Obondi, consultant surgeon, said: 'We spared the nerves, we spared the circulation and we brought the shaft to its rightful size.Forence Owiti Opiyo first noticed a cyst on his genitals in 2006. An initial procedure removed the growth in 2007 but the problem re-emerged years later Forence said: 'I would really love to have children one day, that is what I desire. I would like to give thanks to God for healing me' Forence, whose parents died when he was five, eventually had to drop out of school because his testicles grew so big (pictured in Jaramogi Oginga Odinga Teaching and Referral Hospital) Forence's case comes after three years after the death of a man made famous by his 132-pound scrotum.Wesley Warren Jr, 49, from Las Vegas, shot to infamy after a TLC special explained his condition - called scrotal lymphedema.He died after suffering two heart attacks while in hospital for treatment, DailyMail.com reported at the time.His ordeal began in 2008 with a shooting pain in his groin which grew steadily worse as his scrotum became bigger over the following nine months.Mr Warren was left barely able to walk and was often subjected to ridicule and abuse when he appeared in public. Scrotal lymphedema is often caused by a parasitic infection which can lodge in the lymphatic system and interfere with the immune system. 'I believe Forence is going to enjoy his life like any other normal human being.'In three months he will be just normal in his functions and be able to do everything he wants to do.' 'A very jovial boy' Jane Tombe, a surgical nurse that assisted during the operation and healing process was struck by Forence's optimism and positivity throughout his whole ordeal.She said: 'I haven't seen anything like that before. But Forence is outgoing. A very jovial boy who is very positive in life.'His daily life must have been so challenging before his operation but there was so much hope in him. He is going to progress well.'You know when you see a patient progress very well in my profession; I get very happy and am happy for Forence. I think God loves him so much and he will do well in life.' 'It's not easy' Forence is now being looked after by Eliza. His brother said: 'I am the one taking care of things now. It is not easy, it is very hard.'Sometimes I do farming or cut sugarcane and sometimes I grow tomatoes. Forence’s life is not good because he doesn’t have friends who come to visit him.' In terms of size alone, this accolade of the animal with the biggest testicles goes to the right whale, whose testes weigh a massive 1,000kg. Proportionately, however, it’s the tuberous bush cricket, whose testes amount to an impressive 14 per cent of its body mass. Imagine if a human's were 14 per cent of its body mass... Testes tend to be proportionately larger in species in which the females are very promiscuous (female tuberous bush crickets mate with up to 23 partners), and there are two possible explanations. First, they may allow a male to produce more sperm per mating in order to outcompete that of rivals; second, they may allow him to transfer a relatively small amount of sperm to a greater number of females. Research at the University of Derby supports the latter.