

Chapter 1 : 15 Quick Science Facts that Will Blow Your Mind

*Amazing Body Science (Info Adventure) [Rosalind Lowe, Nicole Carmichael] on blog.quintoapp.com *FREE* shipping on qualifying offers. Miscellaneous facts about human physiology, including some medical history, how the digestive system works.*

From DNA to the atoms inside us, the human body is a scientific marvel. Corbis The appendix gets a bad press. It is usually treated as a body part that lost its function millions of years ago. All it seems to do is occasionally get infected and cause appendicitis. Yet recently it has been discovered that the appendix is very useful to the bacteria that help your digestive system function. So treat your appendix with respect. These vary in size from simple pairs of atoms, like an oxygen molecule, to complex organic structures. But the biggest molecule in nature resides in your body. A normal human cell has 23 pairs of chromosomes in its nucleus, each a single, very long, molecule of DNA. It has been suggested that it may have been to help early humans sweat more easily, or to make life harder for parasites such as lice and ticks, or even because our ancestors were partly aquatic. But perhaps the most attractive idea is that early humans needed to co-operate more when they moved out of the trees into the savanna. When animals are bred for co-operation, as we once did with wolves to produce dogs, they become more like their infants. In a fascinating year experiment starting in the s, Russian foxes were bred for docility. Over the period, adult foxes become more and more like large cubs, spending more time playing, and developing drooping ears, floppy tails and patterned coats. Humans similarly have some characteristics of infantile apes – large heads, small mouths and, significantly here, finer body hair. Alamy Goosepimples are a remnant of our evolutionary predecessors. They occur when tiny muscles around the base of each hair tense, pulling the hair more erect. With a decent covering of fur, this would fluff up the coat, getting more air into it, making it a better insulator. Similarly we get the bristling feeling of our hair standing on end when we are scared or experience an emotive memory. Many mammals fluff up their fur when threatened, to look bigger and so more dangerous. Humans used to have a similar defensive fluffing up of their body hairs, but once again, the effect is now ruined. We still feel the sensation of hairs standing on end, but gain no visual bulk. Alamy If sci-fi movies were to be believed, terrible things would happen if your body were pushed from a spaceship without a suit. There would be some discomfort as the air inside the body expanded, but nothing like the exploding body parts Hollywood loves. Although liquids do boil in a vacuum, your blood is kept under pressure by your circulatory system and would be just fine. And although space is very cold, you would not lose heat particularly quickly. As Thermos flasks demonstrate, a vacuum is a great insulator. In practice, the thing that will kill you in space is simply the lack of air. The victim, who survived, remained conscious for around 14 seconds. The nucleus that makes up the vast bulk of the matter in an atom is so much smaller than the whole structure that it is comparable to the size of a fly in a cathedral. Neutron stars are made up of matter that has undergone exactly this kind of compression. In a single cubic centimetre of neutron star material there are around m tons of matter. An entire neutron star, heavier than our sun, occupies a sphere that is roughly the size across of the Isle of Wight. The closer they get, the more repulsion there is between the electrical charges on their component parts. This even applies when objects appear to be in contact. You float a tiny distance above, suspended by the repulsion between atoms. This electromagnetic force is vastly stronger than the force of gravity – around a billion billion billion billion times stronger. You can demonstrate the relative strength by holding a fridge magnet near a fridge and letting go. The electromagnetic force from the tiny magnet overwhelms the gravitational attraction of the whole Earth. Alamy Every atom in your body is billions of years old. Hydrogen, the most common element in the universe and a major feature of your body, was produced in the big bang. Heavier atoms such as carbon and oxygen were forged in stars between 7bn and 12bn years ago, and blasted across space when the stars exploded. This means that the components of your body are truly ancient: If you ask most people to draw a picture of one of the atoms in their bodies, they will produce something like a miniature solar system, with a nucleus as the sun and electrons whizzing round like planets. This was, indeed, an early model of the atom, but it was realised that such atoms would collapse in an instant. This is because electrons have an electrical charge and accelerating a

charged particle, which is necessary to keep it in orbit, would make it give off energy in the form of light, leaving the electron spiralling into the nucleus. In reality, electrons are confined to specific orbits, as if they ran on rails. Alamy When you see blood oozing from a cut in your finger, you might assume that it is red because of the iron in it, rather as rust has a reddish hue. But the presence of the iron is a coincidence. Just how red your haemoglobin is depends on whether there is oxygen bound to it. When there is oxygen present, it changes the shape of the porphyrin, giving the red blood cells a more vivid shade. Getty Surprisingly, not all the useful DNA in your chromosomes comes from your evolutionary ancestors – some of it was borrowed from elsewhere. Your DNA includes the genes from at least eight retroviruses. At some point in human history, these genes became incorporated into human DNA. These viral genes in DNA now perform important functions in human reproduction, yet they are entirely alien to our genetic ancestry. There are around 10¹² of your own cells, but 10 times more bacteria. In the 1950s, an American engineer investigated whether animals could live without bacteria, hoping that a bacteria-free world would be a healthier one. The result was clear. This is because bacteria in the gut help with digestion. You could exist with no bacteria, but without the help of the enzymes in your gut that bacteria produce, you would need to eat food that is more loaded with nutrients than a typical diet. These tiny creatures live on old skin cells and the natural oil sebum produced by human hair follicles. They are usually harmless, though they can cause an allergic reaction in a minority of people. Eyelash mites typically grow to a third of a millimetre and are near-transparent, so you are unlikely to see them with the naked eye. Put an eyelash hair or eyebrow hair under the microscope, though, and you may find them, as they spend most of their time right at the base of the hair where it meets the skin. Around half the population have them, a proportion that rises as we get older. Getty Your eyes are very sensitive, able to detect just a few photons of light. If you take a look on a very clear night at the constellation of Andromeda, a little fuzzy patch of light is just visible with the naked eye. If you can make out that tiny blob, you are seeing as far as is humanly possible without technology. Andromeda is the nearest large galaxy to our own Milky Way. But "near" is a relative term in intergalactic space – the Andromeda galaxy is 2.5 million light years away. When the photons of light that hit your eye began their journey, there were no human beings. We were yet to evolve. You are seeing an almost inconceivable distance and looking back in time through 2.5 million years. Put your hand a few centimetres away from a hot iron. None of your five senses can tell you the iron will burn you. This is thanks to an extra sense – the heat sensors in your skin. Similarly we can detect pain or tell if we are upside down. Close your eyes and touch your nose. This is the sense that detects where the parts of your body are with respect to each other. Without using your basic five senses, you can still guide a hand unerringly to touch your nose. Getty Just like a chicken, your life started off with an egg. Not a chunky thing in a shell, but an egg nonetheless. However, there is a significant difference between a human egg and a chicken egg that has a surprising effect on your age. Human eggs are tiny. They are, after all, just a single cell and are typically around 0.1 mm in diameter. Your egg was formed in your mother – but the surprising thing is that it was formed when she was an embryo. The formation of your egg, and the half of your DNA that came from your mother, could be considered as the very first moment of your existence. And it happened before your mother was born. Say your mother was 30 when she had you, then on your 18th birthday you were arguably over 48 years old. Some parts act to control "switches" that turn genes on and off, or program the production of other key compounds. For a long time it was a puzzle how around 20,000 genes far fewer than some breeds of rice were enough to specify exactly what we were like. Alamy If you are like most people, you will locate your conscious mind roughly behind your eyes, as if there were a little person sitting there, steering the much larger automaton that is your body. In reality, much of the control comes from your unconscious. Some tasks become automatic with practice, so that we no longer need to think about the basic actions. When this happens the process is handled by one of the most primitive parts of the brain, close to the brain stem. However even a clearly conscious action such as picking up an object seems to have some unconscious precursors, with the brain firing up before you make the decision to act. There is considerable argument over when the conscious mind plays its part, but there is no doubt that we owe a lot more to our unconscious than we often allow. Instead, the brain constructs a model of the world from the information provided by modules that measure light and shade, edges, curvature and so on. This makes it simple for the brain to paint out the blind spot, the area of your retina where the optic nerve

joins, which has no sensors.

Chapter 2 : blog.quintoapp.com: Customer reviews: Amazing Body Science (Info Adventure)

*Find helpful customer reviews and review ratings for Amazing Body Science (Info Adventure) at blog.quintoapp.com
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It would be nice to see some sources for the claims. Log in to post comments By Ian not verified on 14 Mar permalink Sorry, Mike, but looking up "ovum" on Wikipedia and then clicking through to its references a good idea with Wikipedia , every reference refers to the mature human ovum as the largest body cell singular. Where in the world did you read that it was cells? If you count the flagellum, a human sperm may be longer than many cells but its body is quite small, such that in terms of volume it may well be the smallest. Log in to post comments By idlemind not verified on 17 Mar permalink Hi Idlemind - This is a interesting discussion. I think I found the same article on Wikipedia and while there are references noted at the cells size which the article says is between to micrometers , there are non listed for the fact that it should be the biggest cell in the body. I looked up the size of oocytes in Medical Physiology p. The only link in the wikipedia article that lists the size as micrometers is Grays Anatomy fra , so I think its fair to say that the diameter is ca. I know this makes a grown oocyte one of the biggest cells in the body - but I really do doubt that its biggest in either diameter or volume. Some of the biggest motor neurons in the medulla spinalis have a diameter of up to micrometers p. As for sperm cells the flagellum is pretty essential, so I do think it should be counted. But if you leave it out, the head is about 5 micrometers and flat - but even then I would believe that thrombocytys are even smaller Wikipedia lists them as micrometers. I must apologize for the cell part - I was counting the entire follicle and the supporting cells around the oocyte, which is around near ovulation. By Mike Barnkob not verified on 17 Mar permalink hi my name is Sana. Log in to post comments By sana not verified on 23 Jul permalink Sorry, but the smallest and largest cell are nervous cells, not reproductive ones. The smallest being the granule cell cerebellum and the largest is the anterior horn cell spine. Log in to post comments By SmarterThanYou not verified on 11 Aug permalink Sorry, but the smallest and largest cell are nervous cells, not reproductive ones. Didn;t know much of them. Log in to post comments By Robert not verified on 08 Oct permalink guys in this page you are crazy because the fact says the brain itself cannot be hurt or feel pain but yours guys does. LOL,this is a good page for intellectuals not some optimists who are censorious and are proud to display their imbecile and barbarian habits My professor was tellingg me about how your brain processes light faster than sound so you are constantly altering your perception of the world to connect the visual and auditory inputs. Log in to post comments By Maddie not verified on 21 Jan permalink I am confused actually. Log in to post comments By Mamta not verified on 12 Apr permalink I am confused actually. Log in to post comments By Mamta not verified on 12 Apr permalink Sab bakwaaaaas hai, han! Log in to post comments By Parul not verified on 12 Apr permalink this is stupid i hate this i knew all this stuff before i read it and it said there will be different facts aout this Log in to post comments By lulu casey not verified on 25 Apr permalink Advertisement Donate Scienceblogs is part of Science 2. Please make a tax-deductible donation if you value independent science communication, collaboration, participation, and support open access.

Chapter 4 : Interesting Facts about the Human Body / Amazing Medical Facts of the Body | Medindia

Get this from a library! Amazing body science. [Rosalind Lowe; Nicole Carmichael] -- Miscellaneous facts about human physiology, including some medical history, how the digestive system works, what causes yawns and hiccups, and what bugs inhabit the human body.

Personally, I believe it has something to do with science communication and the way we teach science in our schools. However, this list is much too short; keep it growing by adding your own science facts in the comments section. DNA molecules of this size are 1. For example, bacteria produce chemicals that help us harness energy and nutrients from our food. Gut bacteria is also very important for maintaining immunity. It takes a photon up to 40, years to travel from the core of the sun to its surface, but only 8 minutes to travel the rest of the way to Earth A photon travels, on average, a particular distance before being briefly absorbed and released by an atom, which scatters it in a new random direction. The calculation is a little tricky, but the conclusion is that a photon takes many thousands and many millions of years to drunkenly wander to the surface of the Sun. In a way, some of the light that reaches us today is energy produced millions of years ago. At over 2, kilometers long, The Great Barrier Reef is the largest living structure on Earth Coral reefs consist of huge numbers of individual coral polyps soft-bodied, invertebrate animals that are linked together by tissue. The Great Barrier Reef is an interlinked system of about 3, reefs and coral islands divided by narrow passages, located just beneath the surface of the Coral Sea. Spanning more than 2, km and covering an area of some , sq km, it is the largest living structure on Earth and the only one visible from space. However, this fragile coral colony is beginning to crumble, battered by the effects of climate change, pollution, and manmade disasters. What Rainbows are and How They Form 6. There are actually over two dozen states of matter that we know of Everybody knows that there at least three states of matter: But beyond these common states of matter, scientists have discovered a myriad of exotic states of matter that occur under special conditions. Essentially, the atoms behave like one super atom, acting in unison. Another interesting exotic state of matter is represented by time crystals â€” regular, boringly ordered crystals with a twist: Technically, orcas are also whales because delphinids belong to the Cetacean order within the toothed whale Odontoceti suborder. However, the term whale is typically reserved for baleen whales of the Mysticeti suborder. The major physical feature that ensures orcas are dolphins is the presence of a melon â€” a fatty deposit that assists the animals in echolocation and only exists in dolphins. Orcas are highly intelligent, highly adaptable and able to communicate and coordinate hunting tactics. They are extremely fast swimmers and have been recorded at speeds of up to 54kph! A wild orca pod can cover over kilometers a day, foraging, and socializing. Grasshoppers have ears in their bellies Unlike humans, grasshoppers do not have ears on the side of their head. In adults, the tympanum is covered and protected by the wings, and allows the grasshopper to hear the songs of its fellow grasshoppers. The grasshopper tympanum is adapted to vibrate in response to signals that are important to the grasshopper. Male grasshoppers use sounds to call for mates and to claim territory. Females can hear the sound that males make and judge the relative size of the male from the pitch of the call large males make deeper sounds. Other males can hear the sounds and judge the size of a potential rival. Males use this information to avoid fights with larger male grasshoppers or to chase smaller rivals from their territory. During this process, some salivary constituents chemically interact with taste substances. For example, salivary buffers e. After this session, drink a glass of water and repeat. Did you feel a difference? This happens because atoms in the liquid will collide with one another and slow down. The reason is that Betelgeuse is a supergiant star â€” the largest type of star in the Universe. Betelgeuse has a luminosity about 10, times greater than that of the Sun and its radius is calculated to be about times that of the sun. If it were positioned at the center of our sun, its radius would extend out past the orbit of Mars. When the octopus swims, the organ heart stops beating, which explains why these creatures prefer to crawl rather than swim it exhausts them. An octopus also has nine brains â€” well, sort of. Our blood is red due to the fact that it contains iron-based hemoglobin to transport oxygen to cells. Octopuses, on the other hand, use the copper-based cyanoglobin, which performs the same function, albeit less efficiently â€” this makes octopuses have less stamina than you

might expect. An individual blood cell takes about 60 seconds to make a complete circuit of the body. You have about 5 liters of blood in your body at least, most people do, and the average heart pumps about 70 mL of blood out with each beat. A healthy heart also beats around 70 times a minute. So, if you multiply the amount of blood that the heart can pump by the number of beats in a minute, you actually get about 4. The known universe is made up of 50,000,000,000 galaxies. There are between 100,000,000 and 1,000,000,000 stars in a normal galaxy. In the Milky Way alone there might be as many billion Earth-like planets.

Chapter 5 : weird facts about the human body | ScienceBlogs

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Human Ears and Hearing Facts: Earwax production is necessary for good ear health. The inner ear is the main organ of balance. A human ear contains about 24, fibers in it. It only takes 7 pounds of pressure to rip your ear off. The human ear can distinguish between hundreds of thousands of different sounds. The human ears can hear in the frequency of 1, to 50, hertz. Your ears never stop hearing, even when you sleep. Your brain just ignores incoming sounds. Tiny hair cells in your inner ear are what translates sound waves to electricity to send to the brain. Your ears are responsible for the equilibrium and balance of the body - the inner ear has direct connection with the brain. The inner ear is no larger than a pencil eraser in circumference. The middle ear is composed of three small bones, and one among them, the stapes, is the smallest bone in the human body. The wax present inside the ear is made up of oil and sweat. Children have more sensitive ears than adults. The ears never stop growing through lifetime. Sound that is above decibels can cause pain to our ears. After eating too much, your hearing is less sharp.

Human Nose and Smelling Facts: Our nose is our personal air-conditioning system: Your nose can remember 50, different scents. The nerve cells present in the nose, allows us to smell and regenerates through out ones life. We breathe 13 pints of air every minute. Your eyes are always the same size from birth but your nose and ears never stop growing. Children have better sense of smell than adults. You breathe in about 7 quarts of air every minute. Women have better sense of smell than men. The human sense of smell has the ability to identify the chemical smell of an object in one part per trillion of air. If human sense of smell is affected, sense of taste is also affected as the brain interprets signals from the nose and tongue. Everyone has a completely unique smell except for twins.

Sleep and Dreaming Facts: You burn more calories while sleeping than you do when watching television. Sleeping less than 7 hours each night reduces your life expectancy. The three things pregnant women dream most of during their first trimester are frogs, worms and potted plants. Scientists say the higher your I. You can go without eating for weeks without succumbing, but eleven days is tops for going without sleep. In a year on an average person sleeps for days out of days. When we go to sleep and enter REM Rapid Eye Movement ,our bodies become completely paralyzed as areas of the brain that control movement are de-activated. An average person has over 1, dreams a year which is about 4 dreams every night. The average person falls asleep in seven minutes. The human body releases growth hormones during sleep. Your teeth start growing 6 months before you are born. The Romans used to clean and whiten their teeth with urine. Brushing your teeth regularly has been shown to prevent heart disease. The tooth is the only part of the human body that cannot heal and repair by its own. Enamel, found on our teeth, is the hardest substance in the human body. Human teeth are almost as hard as rocks. Plaque begins to form 6 hours after brushing our teeth. Tooth decay has led to 60 percent of adult Americans losing their upper right, middle molar. An average adult male brain weighs about grams. A neglected child brain can be substantially smaller than that of a healthy child. A condition called synesthesia can cause senses to overlap. In other words, some people can taste words or hear colors. The right side of the human brain is responsible for self-recognition. Any damage to brain cells cannot be repaired completely. The base of the spinal cord has a cluster of nerves, which are most sensitive. The brain continues to send out electric wave signals until approximately 37 hours after death. The brain is much more active at night than during the day. The brain itself cannot feel pain. The brain operates on the same amount of power as watt light bulb. As we get older, the brain loses almost one gram per year. Only four percent of the brains cells work and the remaining cells are kept in reserve. Our Brain has over billion nerve cells. Men listen with the left side of the brain and women use both sides of the brain. The average human brain weighs about 3 pounds. The human brain can read up to 1, words per minute. The human brain cell can hold 5 times as much information as the Encyclopedia Britannica. Or any other encyclopedia for that matter. The human brain is capable of creating more ideas equivalent to that of the atoms of the universe. The human brain is made up of more than 10 billion nerve cells and over 50 billion other cells and weighs less than three pounds. The Human brain stops growing

at the age of If you spread it out, your brain would be about the size of a pillowcase. When we touch something, we send a message to our brain at mph. Cold weather improves human memory and concentration. The width of an average human brain is mm. The total surface area of the human brain is about 25, square cms. The weight of human cerebellum is g. Information travels at different speeds within different types of neurons. It is estimated that there are over 1, ,,,, connections in the human brain. Nerve impulses to and from the brain travel as fast as miles per hour. Neurons continue to grow throughout human life. On an average the weight of an adult female brain is about grams. On an average, , to 1,, chemical reactions takes place in our brain. The average human head weighs about 10 pounds. The average length of the human brain is about mm and its average height is 93mm. The left side of human brain controls the right side of the body and the right side of the brain controls the left side of the body. The Nervous system transmits messages to the brain at the speed of miles per hour. When in love, the brain releases the same cocktail of neurotransmitters and hormones that are released by amphetamines, leading to increased heart rate, loss of appetite and sleep, and intense feelings of excitement. Labeled diagram of the human skeleton. Human Bones, Joints and Muscles Facts: Your bones, pound for pound, are 4 times stronger than concrete. A muscle called the diaphragm controls the human breathing process. Bone is stronger than some steel. At birth we have over bones. As we grow up, some of the bones begin to fuse together as a result an adult has only bones. The muscles of the eye move more than , times a day. If you remove the minerals from a bone by soaking it overnight in a six percent solution of hydrochloric acid, it will become so soft, you could tie it in a knot. There are 22 bones in the human skull. The hardest bone in the human body is the jawbone.

Chapter 6 : Density Lab 7/24/18 - Amazing Brains Science & Engineering Adventure!

A journey through the human body BodyQuest is a hands-on exploration of the human blog.quintoapp.com the amazing things going on inside your body every day, how your organs work together like a team, and how hard your body struggles to keep itself healthy.

Chapter 7 : 26 astounding facts about the human body

20 amazing facts about the human body 10 THE QUANTUM BODY. One of the mysteries of science is how something as apparently solid and straightforward as your body can be made of strangely.

Chapter 8 : 20 amazing facts about the human body | Science | The Guardian

Amazing Body Facts Did You Know Your fingernails grow four times as fast as your toenails? Babies are born with bones - adults have Eyelashes last about days The heart circulates your blood through your body about 1, times each day You make about half a quart (ml) of spit each day [].

Chapter 9 : Amazing Bucket List Adventure Ideas - Body And Mind Holidays

Our human body for kids information includes an awesome range of free games, fun experiments, science fair projects, interesting facts, amazing videos, challenging quizzes and more! Learn about health and growth, the human skeleton and all kinds of interesting human body topics.