OF SOME BODILY APPENDAGES pdf

1: Properties and origin of filamentous appendages on spores of Bacillus cereus.

Appendage often describes body parts, either on humans or animals. If it's something that sticks out â€" like a finger, tail, or leg â€" chances are it can be called an appendage.

Overview[edit] The Darwin-tubercle left is a vestigial form of the ear tip right in the mammalian ancestors of humansâ€"here shown in a crab-eating macaque. Vestigial features may take various forms; for example they may be patterns of behavior, anatomical structures, or biochemical processes. Like most other physical features, however functional, vestigial features in a given species may successively appear, develop, and persist or disappear at various stages within the life cycle of the organism, ranging from early embryonic development to late adulthood. Vestigial hindlegs spurs in a boa constrictor Vestigiality, biologically speaking, refers to organisms retaining organs that have seemingly lost their original function. The issue is controversial and not without dispute; nonetheless, vestigial organs are common evolutionary knowledge. A classic example at the level of gross anatomy is the human vermiform appendix â€"though vestigial in the sense of retaining no significant digestive function, the appendix still has immunological roles and is useful in maintaining gut flora. Similar concepts apply at the molecular levelâ€"some nucleic acid sequences in eukaryotic genomes have no known biological function; some of them may be " junk DNA ", but it is a difficult matter to demonstrate that a particular sequence in a particular region of a given genome is truly nonfunctional. The simple fact that it is noncoding DNA does not establish that it is functionless. Furthermore, even if an extant DNA sequence is functionless, it does not follow that it has descended from an ancestral sequence of functional DNA. Logically such DNA would not be vestigial in the sense of being the vestige of a functional structure. In contrast pseudogenes have lost their protein-coding ability or are otherwise no longer expressed in the cell. Whether they have any extant function or not, they have lost their former function and in that sense they do fit the definition of vestigiality. Vestigial structures are often called vestigial organs, although many of them are not actually organs. Such vestigial structures typically are degenerate, atrophied, or rudimentary, [3] and tend to be much more variable than homologous non-vestigial parts. Although structures commonly regarded "vestigial" may have lost some or all of the functional roles that they had played in ancestral organisms, such structures may retain lesser functions or may have become adapted to new roles in extant populations. Both may occur together in the same example, depending on the relevant point of view. In exaptation a structure originally used for one purpose is modified for a new one. For example, the wings of penguins would be exaptational in the sense of serving a substantial new purpose underwater locomotion , but might still be regarded as vestigial in the sense of having lost the function of flight. In contrast Darwin argued that the wings of emus would be definitely vestigial, as they appear to have no major extant function; however, function is a matter of degree, so judgements on what is a "major" function are arbitrary; the emu does seem to use its wings as organs of balance in running. Similarly, the ostrich uses its wings in displays and temperature control, though they are undoubtedly vestigial as structures for flight. Vestigial characters range from detrimental through neutral to favorable in terms of selection. Some may be of some limited utility to an organism but still degenerate over time if they do not confer a significant enough advantage in terms of fitness to avoid the effects of genetic drift or competing selective pressures. Vestigiality in its various forms presents many examples of evidence for biological evolution. Vestigial structures have been noticed since ancient times, and the reason for their existence was long speculated upon before Darwinian evolution provided a widely accepted explanation. In the 4th century BC, Aristotle was one of the earliest writers to comment, in his History of Animals , on the vestigial eyes of moles, calling them "stunted in development" due to the fact that moles can scarcely see. He listed a number of them in The Descent of Man , including the muscles of the ear , wisdom teeth , the appendix , the tail bone , body hair , and the semilunar fold in the corner of the eye. Darwin also noted, in On the Origin of Species , that a vestigial structure could be useless for its primary function, but still retain secondary anatomical roles: The Structure of Man contained a list of 86 human organs that Wiedersheim described as, "Organs having become wholly or in part functionless, some appearing in the Embryo alone, others present during Life constantly or inconstantly. For the greater part Organs which may be rightly termed Vestigial. This is why the zoologist Horatio Newman said in a written statement read into evidence in the Scopes Trial that "There are, according to Wiedersheim, no less than vestigial structures in the human body, sufficient to make of a man a veritable walking museum of antiquities. Evidence of common descent Vestigial structures are often homologous to structures that are functioning normally in other species. Therefore, vestigial structures can be considered evidence for evolution , the process by which beneficial heritable traits arise in populations over an extended period of time. The existence of vestigial traits can be attributed to changes in the environment and behavior patterns of the organism in question. Through examination of these various traits, it is clear that evolution had a hard role in the development of organisms. Every anatomical structure or behavior response has origins in which they were, at one time, useful. As time progressed, the ancient common ancestor organisms did as well. Evolving with time, natural selection played a huge role. More advantageous structures were selected, while others were not. With this expansion, some traits were left to the wayside. As the function of the trait is no longer beneficial for survival, the likelihood that future offspring will inherit the "normal" form of it decreases. In some cases the structure becomes detrimental to the organism for example the eyes of a mole can become infected [9]. In many cases the structure is of no direct harm, yet all structures require extra energy in terms of development, maintenance, and weight, and are also a risk in terms of disease e. The toes of many animals such as horses , which stand on a single toe , are still evident in a vestigial form and may become evident, although rarely, from time to time in individuals. The vestigial versions of the structure can be compared to the original version of the structure in other species in order to determine the homology of a vestigial structure. Homologous structures indicate common ancestry with those organisms that have a functional version of the structure. This is because an adaptation is often defined as a trait that has been favored by natural selection. Adaptations, therefore, need not be adaptive, as long as they were at some point. Vestigial characters are present throughout the animal kingdom, and an almost endless list could be given. Darwin said that "it would be impossible to name one of the higher animals in which some part or other is not in a rudimentary condition. These spurs are sometimes used in copulation, but are not essential, as no colubroid snake the vast majority of species possesses these remnants. Furthermore, in most snakes the left lung is greatly reduced or absent. Amphisbaenians , which independently evolved limblessness, also retain vestiges of the pelvis as well as the pectoral girdle, and have lost their right lung. Accessory sclerites black are present in normal clamps but absent in simplified clamps. Lethacotyle right has no clamp at all. A case of vestigial organs was described in polyopisthocotylean Monogeneans parasitic flatworms. These parasites usually have a posterior attachment organ with several clamps , which are sclerotised organs attaching the worm to the gill of the host fish. These clamps are extremely important for the survival of the parasite. In the family Protomicrocotylidae , species have either normal clamps, simplified clamps, or no clamps at all in the genus Lethacotyle. After a comparative study of the relative surface of clamps in more than Monogeneans , this has been interpreted as an evolutionary sequence leading to the loss of clamps. Coincidentally, other attachment structures lateral flaps, transverse striations have evolved in protomicrocotylids. Therefore, clamps in protomicrocotylids were considered vestigial organs. However, there are many examples of vestigiality as the product of drastic mutation , and such vestigiality is usually harmful or counter-adaptive. One of the earliest documented examples was that of vestigial wings in Drosophila. Human vestigiality The muscles connected to the ears of a human do not develop enough to have the same mobility allowed to many animals. Human vestigiality is related to human evolution , and includes a variety of characters occurring in the human species. Many examples of these are vestigial in other primates and related animals, whereas other examples are still highly developed. The human caecum is vestigial, as often is the case in omnivores , being reduced to a single chamber receiving the content of the ileum into the colon. The ancestral caecum would have been a large, blind diverticulum in which resistant plant material such as cellulose would have been fermented in preparation for absorption in the colon. An alternative explanation would be the possibility that natural selection selects for larger appendices because smaller and thinner appendices would be more susceptible to inflammation and disease. Other organic structures such as the occipitofrontalis muscle have lost their original functions keep the head from falling but are still useful for other purposes facial expression. The arrector pili muscle, which is a band of smooth muscle that connects the hair follicle to connective tissue, contracts and creates the goose bumps on skin. One example of this is a gene that is functional in most other mammals and which produces L-gulonolactone oxidase , an enzyme that can make vitamin C. A documented mutation deactivated the gene in an ancestor of the modern infraorder of monkeys and apes , and it now remains in their genomes , including the human genome , as a vestigial sequence called a pseudogene.

2: What are some functions of appendages

flagellum - a lash-like appendage used for locomotion (e.g., in sperm cells and some bacteria and protozoa) hair - a filamentous projection or process on an organism cirrus - a slender flexible animal appendage as on barnacles or crinoids or many insects; often tactile.

Last week, I wrote about autotomy the process of voluntarily shedding a body part and how it is advantageous at first but can cause hardship afterwards. Certain animals alleviate these hardships by regenerating the lost body part. Praying mantis are capable of regenerating a lost antenna, mid-leg or hind-leg when young. However, regeneration can go awry and a leg may grow where an antenna was lost. Why some animals can regenerate body parts and others cannot is still uncertain. Slugs can even regenerate their head. Regeneration is found in 90 reptile species, 52 amphibian species, 43 Osteichthyes bony fish , 45 crustacean species, 45 echinoderms, 43 insect species and 39 arachnids. Stick insects order Phasmida typically regenerate smaller legs. While a regenerated body part may be better than no body part, the smaller limb or tail can impair foraging, reproduction and survivorship to varying degrees. An animal with a smaller limb will have to forage for smaller prey and trade-off the reduction in nutrients. Less complex animals, especially those without a spinal cord, can regenerate more body parts than a more complex animal like a human. Jellyfish, long-toed salamanders and fish are capable of regeneration If a flatworm planarian is split in half, it can regenerate both halvesâ€”even the head from the tail pieceâ€”if there are enough food reserves within the half. Earthworms can regenerate a new body only if the vital organs are intact in the one remaining piece. Crabs, lobsters and crayfish can regenerate limbs. At first the limb is small but during the next molt, the limb begins to approach the original size. Typically, insects only regenerate missing body parts when young, such as the praying mantis. Frogs are capable of regenerating limbs and tails only during the tadpole stage. Salamanders are able to regenerate limbs, tails and other tissues throughout their entire life. Regeneration does have trade-offs. Since nutrients have to be redirected to the growing appendage, the animal may grow slower especially if it is a juvenile or it may have fewer nutrients to direct towards reproduction. The process of regeneration has perplexed scientists for centuries. In , scientists thought small eggs existed underneath a lost limb and once the limb was removed the eggs would recreate the limb. Recently, scientists discovered that stem cells accumulate at the amputation site in a structure called the blastema to rebuild the appendage. For flatworms, a single stem cell can give rise to the entire appendage. For tadpole tails and salamander limbs, separate stem cells give rise to each type of tissue such as skin, muscle and bone. Determining the process of regeneration brought insight into how wounds heals, how blastema form, and cell differentiation and growth. While humans cannot regenerate an appendage, we are capable of some regeneration. Our skin constantly regenerates and if we cut our finger the wound heals.

3: Appendages & Glands of the Skin

The appendages of some animals will grow back after they've been removed; a salamander, for example, can regrow a finger, and the tiny sea squirt can regrow all its appendagesâ€”and even its brain. Examples of appendage in a Sentence.

Bacterial appendages A bacterial appendage protrudes outward from the surface of the microorganism. Some are highly anchored to the surface, whereas others, like the glycocalyx , are loosely associated with the surface. The entire surface of a bacterium can be covered with glycocalyx also known as the slime layer. The layer is made of chains of sugar. Protein can also be present. The exact chemical nature of a glycocalyx varies from one species of bacteria to another. A glycocalyx is easily identified in light microscopy by the application of India ink. The ink does not penetrate the glycocalyx, which then appears as a halo around each bacteria. A glycocalyx has a number of functions. It aids a bacterium in attaching to a surface. Surface contact triggers the production of a great deal of glycocalyx. The bacteria on the surface can become buried. This phenomenon has been well documented for Pseudomonas aeruginosa, which forms biofilms on surfaces in many environments, both within and outside of the body. The production of glycocalyx is a vital part of the biofilm formation. By virtue of its chemical make-up, a glycocalyx will retain water near the bacteria, which protects the bacteria from drying out. Protection is also conferred against viruses , antibiotics , antibacterial agents such as detergents, and from the engulfing of the bacteria by immune macrophage cells a process called phagocytosis. The mass of glycocalyxenclosed bacteria becomes too large for a macrophage to engulf. Unencapsulated strains, however, are completely non-lethal. As another example of the protection conferred by the glycocalyx, Pseudomonas aeruginosa in an intact biofilm resist for hours concentrations of antibiotics up to one thousand times greater than those which kill within minutes their bacterial counterparts without glycocalyx and bacteria freed from the glycocalyx cocoon of the biofilm. Glycocalyx material is easily removed from the bacterial surface. A glycocalyx that is more firmly anchored is known called as a capsule. Many disease causing bacteria tend to produce capsules when inside the human host, as a defense against phagocytosis. Another type of bacterial appendage is the flagella singular, flagellum. They appear as strings protruding outward from a bacterium. They are long, up to ten times the length of the bacterium. Each flagellum is composed of a spiral arrangement of a protein flagellin. The flagella are closed off at the end removed from the cell. The end closest to the bacterial surface hooks into the membrane s , where they are held by two structures termed basal bodies. The basal bodies act as bushings, allowing flagellar tube to turn clockwise and counterclockwise. By spinning around from this membrane anchor, flagella act as propellers to move a bacterium forward, or in a tumbling motion prior to a directed movement in the same or another forward path. These runs and tumbles enable a bacterium to move toward an attractant or away from a repellant. Generally termed taxis, these movements can be in response to nutrients chemotaxis , oxygen aerotaxis or light phototaxis. The tactic process is highly orchestrated, with sensory proteins detecting the signal molecule and conveying the signal into flagellar action. Flagella are very powerful. They can propel bacteria at ten times their length per second. In contrast, an Olympic sprinter can propel himself at just over five body lengths per second. Depending upon the type of bacteria, flagella are characteristically arranged singly at only one end of the cell monotrichous , singly at both ends of the cell amphitrichous , in a tuft at one or a few sites lophotrichous , or all over the bacterial surface peritrichous. The bacteria called spirochetes have a modified form of flagella, which is termed an endoflagella or an axial filament. In this case, the flagella is not an appendage, in that it is not external to the bacterium, but instead is found in the interior of the cell, running from one end of the cell to another. It is, however, similar in construction to flagella. Endoflagella attach to either end of a cell and provide the rigidity that aids a cell in turning like a corkscrew through its liquid environment. Two other types of appendages are essentially tubes that stick out from the bacterial surface. The first of these is known as spinae singular, spina. Spinae are cylinders that flare out at their base. They are a spiral arrangement of a single protein spinin that is attached only to the outer surface of the outer membrane. They have been detected in a marine pseudomonad and a freshwater bacterial species. Their formation is triggered by environmental change pH , temperature, and sodium concentration. Once formed, spinae are extremely resilient, surviving treatment with harsh acids and bases. They are designed for longevity. Their function is unknown. Suggested functions include buoyancy, promoters of bacterial aggregation, and as a conduit of genetic exchange. The appendages called pili are also tubes that protrude from the bacterial surface. They are smaller in diameter than spinae. Like spinae, pili are constructed of a protein pilin. Unlike spinae, the functions of pili are well known. Relatively short pili are important in the recognition of receptors on the surface of a host cell and the subsequent attachment to the receptor. These are also known as fimbriae. There can be hundreds of fimbriae scattered all over the bacterial surface. Their attachment function makes fimbriae an important disease factor. An example is Neiserria gonorrheae, the agent of gonorrhea. Strains of the bacteria that produce fimbriae are more virulent than strains that do not manufacture the appendage. Not unexpectedly, such pili are a target of vaccine development. The second type of pili is called conjugation pili, sex pili, or F-pili. These are relatively long and only a few are present on a bacterium. They serve to attach bacteria together and serve as a portal for the movement of genetic material specifically the circularly organized material called a plasmid from one bacterium to the other. The genetic spread of antibiotic resistance occurs using pili. See also Anti-adhesion methods; Bacteria and bacterial infection; Electron microscopic examination of microorganisms Cite this article Pick a style below, and copy the text for your bibliography.

4: Appendage | Definition of Appendage by Merriam-Webster

flagellum (a lash-like appendage used for locomotion (e.g., in sperm cells and some bacteria and protozoa)) pseudopod ; pseudopodium (temporary outgrowth used by some microorganisms as an organ of feeding or locomotion).

General features Size range and diversity of structure The largest crustaceans belong to the Decapoda , a large order about 10, species that includes the American lobster , which can reach a weight of 20 kilograms 44 pounds , and the giant Japanese spider crab , which has legs that can span up to 3. At the other end of the scale, some of the water fleas class Branchiopoda , such as Alonella, reach lengths of less than 0. The range of structure is reflected in the complex classification of the group. Some of the parasitic forms are so modified and specialized as adults that they can only be recognized as crustaceans by features of their life histories. Distribution and abundance Crustaceans are found mainly in water. Different species are found in freshwater, seawater, and even inland brines, which may have several times the salt concentration of seawater. Various species have occupied almost every conceivable niche within the aquatic environment. An enormous abundance of free-swimming planktonic species occupies the open waters of lakes and oceans. Other species live at the bottom of the sea, where they may crawl over the sediment or burrow into it. Different species are found in rocky, sandy, and muddy areas. Some species are so small that they live in the spaces between sand grains. Others tunnel in the fronds of seaweeds or into man-made wooden structures. Some members of the orders Isopoda and Amphipoda extend down to the greatest depths in the sea and have been found in oceanic trenches at depths of up to 10, metres. Crustaceans colonize lakes and rivers throughout the world, even high mountain lakes at altitudes of 5, metres. They range widely in latitude as well: A number of crabs are amphibious, being capable of leaving the water to scavenge on land. Some, like the ghost crabs Ocypode , can run at great speed across tropical beaches. One of the mangrove crabs, Aratus, can climb trees. Some crabs spend so much time away from the water that they are known as land crabs; however, these crustaceans must return to the water when their larvae are ready to hatch. The most terrestrial of the Crustacea are the wood lice order Isopoda, family Oniscoidea ; most live in damp places, although a few isopod species can survive in deserts. In addition to these well-adapted groups, occasional representatives of other groups have become at least semiterrestrial. Amphipods , members of the subclasses Copepoda and Ostracoda , and the order Anomopoda have been found among damp leaves on forest floors, particularly in the tropics. Importance to humans The crustaceans of most obvious importance to humans are the larger species, chiefly decapods. Fisheries in many parts of the world capture shrimps, prawns, spiny lobsters, and the king crab Paralithodes of the northern Pacific and its southern counterpart, the centolla, found off the coast of Chile. Many species of true crabsâ€”such as the blue crab , Dungeness crab , and the stone crab, all in North America , and the edible crab of Europeâ€”are valuable sources of food. The most highly prized decapod is probably the true lobster Homarus species , although overfishing since the early 20th century has greatly diminished the catches of both the North American and the European species. Freshwater crustaceans include crayfish and some river prawns and river crabs. Many species have only local market value. It is probable that no crustaceans are poisonous unless they have been feeding on the leaves or fruits of poisonous plants. Another crustacean, the large acorn shell Balanus psittacus , a barnacle order Cirripedia measuring up to 27 centimetres 11 inches in length, is regarded as a delicacy in South America , and a stalked barnacle Mitella pollicipes is eaten in parts of France and Spain. In Japan, barnacles are allowed to settle and grow on bamboo stakes, later to be scraped off and crushed for use as fertilizer. Copepods and krill are important components of most marine food webs. The water flea Daphnia magna and the brine shrimp Artemia salina are used as fish food in aquariums and fish ponds, and the larvae of the latter are widely used as food for the larvae of larger crustaceans reared in captivity. Ostracods, of which numerous fossil and subfossil species are known, are important to geologists and oil prospectors. Much damage may be done to rice paddies by burrowing crabs of various species and by the mud-eating, shrimplike Thalassina of Malaya. By undermining paddy embankments, they allow water to drain away, thus exposing the roots of the plants to the sun; if near the coast, salt water may thus be allowed to seep into the paddies. Tadpole shrimps Triops are often numerous in rice fields, where they stir up the fine silt in search of food, killing many of the plants. Land crabs and crayfish may damage tomato and cotton crops. Natural history Reproduction and life cycles The sexes are normally, but not always, separate in crustaceans. Most individual barnacles have both male and female reproductive organs simultaneous hermaphroditism , and in some groups the males, when present, are much smaller than the hermaphrodites. Some of the members of the order Notostraca tadpole shrimps are also hermaphrodites; their ovaries contain scattered sperm-producing lobes among the developing eggs. A change of sex during the life of an individual is a regular feature in some shrimps. In Pandalus montagui, of the order Decapoda, for example, some individuals begin life as males but change into functional females after about 13 months. Isopods of the genus Rhyscotoides show a similar change from male to female as they grow older. Characteristic differences in structure or behaviour between the sexes are widespread in the Crustacea and can be extreme; the males of some groups may be so small that they are difficult to find on the much larger female. This is especially true in some of the parasitic copepods. In Gonophysema gullmarensis the male is found in a small pouch in the female genital tract. In many of the more advanced decapods, such as crabs and lobsters, however, the males are larger than the females and may have much larger pincers. Another example of sexual dimorphism is the possession by the male of clasping organs, which are used to hold the female during mating. Almost any appendage can be found modified for this purpose. Male appendages also can be modified to aid directly in transferring sperm to the female. Frequently the sperm are enclosed in a case, or spermatophore. The first and second abdominal appendages of male decapods are used to transfer spermatophores, as are the highly modified fifth legs of male copepods of the order Calanoida. These copepods can accurately place spermatophores near the openings of the female ducts. The contents of the spermatophores are extruded by a swelling of special sperm, which force out the sperm that soon fertilize the eggs. Normal sexual reproduction involves the fusion of a sperm with an egg, but some crustaceans are parthenogenetic ; that is, they produce eggs that develop without being fertilized by a sperm. Many branchiopods can do this, as can some ostracods and some isopods. Females of some crustacean species release their eggs freely into the waterâ€”for example, certain copepods, such as Calanus, and some members of the malacostracan orders Bathynellacea, Anaspidacea, and Euphausiacea. Some euphausiids and Nebalia of the malacostracan order Leptostraca carry their eggs between the thoracic limbs. Most decapods carry their eggs attached to the abdominal appendages; special egg-containing setae secrete a cement that flows over the eggs and binds them to the setae. Most of the superorder Peracarida, some isopods, such as Sphaeroma, many branchiopods, the Notostraca, and the order Anostraca have a brood pouch on or behind the limbs that is often formed by the carapace. Those free-living copepods that do not cast their eggs freely into the water carry them in one or two thin-walled sacs suspended from the front of the abdomen. Some parasitic copepods produce up to six or eight egg sacs, while others produce the eggs in long strings, which may coil into a tangled mass. The most widespread and typical crustacean larva to emerge from the egg is called a nauplius. Nauplius larvae are found in the life cycles of cirripedes, ostracods, branchiopods, copepods, euphausiids, the decapod peneid prawns, and members of the subclass Thecostraca. Many of the other groups pass through embryonic stages like the nauplius, or they have larvae with some similarities to the nauplius. The most primitive type of development from a nauplius is found in the anostracan fairy shrimps, where the young animal gradually adds new segments and appendages as it undergoes a long series of molts. In the free-living copepods the nauplius goes through five molts and then changes into a copepodid, which resembles the adult except that it does not have a full complement of limbs. These limbs gradually develop over another five molts; once the adult form is reached, the copepod does not molt again. The cirripede barnacle nauplius molts several times and then metamorphoses into a cyprid , which has a two-part carapace enclosing six pairs of trunk limbs that are used for swimming. The cyprid eventually attaches to a solid object and then metamorphoses into an adult. Larval ostracods are basically nauplii with a bivalved carapace. The euphausiid nauplius is followed by a complex series of shrimplike larvae. The nauplius of the peneid prawns is followed by a sequence of larval forms characterized by their methods of locomotion: Most decapods omit the nauplius stage and hatch as zoeae, which may be heavily ornamented with spines. The crab zoea eventually changes into a megalops, which resembles a small crab with its tail extended behind it. Some crustaceans bypass the free-living larval stages, and the young emerging from the eggs resemble the adults. This occurs within the branchiopod order Anomopoda, as in Daphnia, in most isopods and amphipods, and in some decapods, including freshwater crabs and crayfish and some deep-sea and Arctic groups. Ecology Crustaceans play many roles in aquatic ecosystems. The planktonic formsâ€”such as the copepod Calanus and the krill Euphausiaâ€”graze on the microscopic plants floating in the sea and in turn are eaten by fishes, seabirds, and whales. Benthic bottom-dwelling crustaceans are a food source for fish, and some whales feed extensively on benthic amphipods. Crabs are important predators, and the continuing struggle between them and their prey prompts the evolution of newer adaptations: Crustaceans also can be parasites , and some copepod species in particular parasitize other aquatic animals ranging from whales to sea anemones. The larger crustaceans are often parasitized by smaller crustaceans; for example, there are parasitic isopods that dwell in the gill chambers of decapod prawns. Freshwater crustaceans can serve as intermediate hosts for the lung fluke , Paragonimus a flatworm , phylum Platyhelminthes. Form and function of external features General features Although crustaceans exhibit a great variety of forms, the basic crustacean body consists of a number of segments, or somite s. These somites sometimes are fused to form rigid areas and sometimes are free, linked to each other by flexible areas that allow some movement. Each somite has the potential for bearing a pair of appendages, although in various crustacean groups appendages are missing from certain somites. The appendages are also jointed with flexible articulations. Frank Vassen At the front, or anterior end, of the body there is an unsegmented, presegmental region called the acron. In most crustaceans at least four somites fuse with the acron to form the head. At the posterior end of the body there is another unsegmented region, the telson , that may bear two processes, or rami, which together form the furca. These two processes at the tail end of the body vary greatly in form; in many crustaceans they are short, but in some they may be as long as the rest of the body. The Crustacea as a whole shows great variation in the number of somites and the amount of fusion that has taken place. In the class Malacostraca , which includes the decapods, there is a consistent body plan: The reproductive ducts of male malacostracans typically open on the last thoracic somite, and the female reproductive ducts open on the sixth thoracic segment. The carapace is a widespread crustacean feature, arising during development as a fold from the last somite at the back of the head. It may form a broad fold extending toward the rear over the back, or dorsal surface, of the trunk, as in the notostracan tadpole shrimps, but it often encloses the entire trunk, including limbs and gills. In many decapods the carapace projects forward to form a rostrum, which is often sharply pointed and toothed.

5: Arthropod leg - Wikipedia

Appendages is a fancy word for your arms and legs.

Associated with the leg itself there are various sclerites around its base. Their functions are articular and have to do with how the leg attaches to the main exoskeleton of the insect. Such sclerites differ considerably between unrelated insects. It articulates with the pleuron and associated sclerites of its thoracic segment, and in some species it articulates with the edge of the sternite as well. The homologies of the various basal sclerites are open to debate. Some authorities suggest that they derive from an ancestral subcoxa. In many species the coxa has two lobes where it articulates with the pleuron. The posterior lobe is the meron which is usually the larger part of the coxa. A meron is well developed in Periplaneta, the Isoptera, Neuroptera and Lepidoptera. Trochanter[edit] The trochanter articulates with the coxa but usually is attached rigidly to the femur. In some insects its appearance may be confusing; for example it has two subsegments in the Odonata. In parasitic Hymenoptera the base of the femur has the appearance of a second trochanter. Femur[edit] Acanthacris ruficornis , legs saltatorial, femora with bipennate muscle attachments, spines on tibiae painfully effective in a defensive kick In most insects the femur is the largest region of the leg; it is especially conspicuous in many insects with saltatorial legs because the typical leaping mechanism is to straighten the joint between the femur and the tibia, and the femur contains the necessary massive bipennate musculature. Tibia[edit] The tibia is the fourth section of the typical insect leg. As a rule the tibia of an insect is slender in comparison to the femur, but it generally is at least as long and often longer. Near the distal end there is generally a tibial spur, often two or more. In the Apocrita the tibia of the foreleg bears a large apical spur that fits over a semicircular gap in the first segment of the tarsus. The gap is lined with comb-like bristles, and the insect cleans its antennae by drawing them through. Tarsus[edit] The ancestral tarsus was a single segment and in the extant Protura, Diplura and certain insect larvae the tarsus also is single-segmented. Most modern insects have tarsi divided into subsegments tarsomeres , usually about five. The actual number varies with the taxon , which may be useful for diagnostic purposes. For example, the Pterogeniidae characteristically have 5-segmented fore- and mid-tarsi, but 4-segmented hind tarsi, whereas the Cerylonidae have four tarsomeres on each tarsus. Robber fly Asilidae , showing tarsomeres and pretarsi with ungues, pulvilli and empodia. The distal segment of the typical insect leg is the pretarsus. In the Collembola, Protura and many insect larvae, the pretarsus is a single claw. On the pretarsus most insects have a pair of claws unguis, plural ungues. Between the ungues a median unguitractor plate supports the pretarsus. The plate is attached to the apodeme of the flexor muscle of the ungues. In the Neoptera the parempodia are a symmetrical pair of structures arising from the outside distal surface of the unguitractor plate between the claws. Under their pretarsi, members of the Diptera generally have paired lobes or pulvilli, meaning "little cushions". There is a single pulvillus below each unguis. The pulvilli often have an arolium between them or otherwise a median bristle or empodium, meaning the meeting place of the pulvilli. On the underside of the tarsal segments there frequently are pulvillus-like organs or plantulae. The arolium, plantulae and pulvilli are adhesive organs enabling their possessors to climb smooth or steep surfaces. They all are outgrowths of the exoskeleton and their cavities contain blood. Their structures are covered with tubular tenent hairs, the apices of which are moistened by a glandular secretion. The organs are adapted to apply the hairs closely to a smooth surface so that adhesion occurs through surface molecular forces. The legs of most cockroaches are good examples. However, there are many specialized adaptations, including: The forelegs of the Gryllotalpidae and some Scarabaeidae are adapted to burrowing in earth. The forelegs of the Mantispidae , Mantodea , and Phymatinae are adapted to seizing and holding prey in one way, while those of the Gyrinidae long and adapted for grasping food or prey in quite a different way. Bruchid with powerful femora used for escape from hard-shelled seed. The forelegs of some butterflies, such as many Nymphalidae , are reduced so greatly that only two pairs of functional walking legs remain. In most Orthoptera the hind legs are saltatorial ; they have heavily bipennately muscled femora and straight, long tibiae adapted to leaping and to some extent to defence by kicking. Flea beetles such as members of the subfamily Halticinae also have powerful hind femora that enable them to leap spectacularly. Other beetles with spectacularly muscular hind femora may not be saltatorial at all, but very clumsy; for example, particular species of Bruchinae use their swollen hind legs for forcing their way out of the hard-shelled seeds of plants such as Erythrina in which they grew to adulthood. The legs of the Odonata , the dragonflies and damselflies, are adapted for seizing prey that the insects feed on while flying or while sitting still on a plant; they are nearly incapable of using them for walking. Evolution and homology of arthropod legs[edit] Expression of Hox genes in the body segments of different groups of arthropod , as traced by evolutionary developmental biology. The Hox genes 7, 8, and 9 correspond in these groups but are shifted by heterochrony by up to three segments. Segments with maxillopeds have Hox gene 7. Fossil trilobites probably had three body regions, each with a unique combination of Hox genes. Insects[edit] Except in species in which legs have been lost or become vestigial through evolutionary adaptation, adult insects have six legs, one pair attached to each of the three segments of the thorax. They do also have paired appendages on some other segments, in particular, mouthparts , Antennae and cerci , all of which are suspected to be derived from paired legs on each segment of some common ancestor. Some larval insects do however have extra walking legs on their abdominal segments; these extra legs are called prolegs. They are found most frequently on the larvae of moths and sawflies. Prolegs do not have the same structure as modern adult insect legs, and there has been a great deal of debate as to whether they are homologous with them. As mentioned, some have prolegs as well as "true" thoracic legs. Some have no externally visible legs at all though they have internal rudiments that emerge as adult legs at the final ecdysis. Examples include the maggots of flies or grubs of weevils. In contrast, the larvae of other Coleoptera , such as the Scarabaeidae and Dytiscidae have thoracic legs, but no prolegs. Some insects that exhibit hypermetamorphosis begin their metamorphosis as planidia , specialised, active, legged larvae, but they end their larval stage as legless maggots, for example the Acroceridae. Among the Exopterygota the legs of larvae tend to resemble those of the adults in general, except in adaptations to their respective modes of life. For example, the legs of most immature Ephemeroptera are adapted to scuttling beneath underwater stones and the like, whereas the adults have more gracile legs that are less of a burden during flight. Again, the young of the Coccoidea are called "crawlers" and they crawl around looking for a good place to feed, where they settle down and stay for life. Their later instars have no functional legs in most species. Among the Apterygota the legs of immature specimens are in effect smaller versions of the adult legs. Canadian Journal of Zoology.

6: Bacterial Appendages | www.enganchecubano.com

The definition of an appendage, in relation to the body of a human or animal, is any part protruding from the torso or trunk. An example of an appendage is an arm or leg. An appendage is defined as an extra part that is attached to something.

Appendages and Glands of the Skin Appendages There are two types of structures associated with the skin that are called appendages: Glands found within the skin and various nerve receptors found within the skin will be examine below. Notice the small vellus hairs Hair It is estimated that over 5 million hairs are on the body, with about , on the scalp blonds have more, redheads less. Although we have as much as most other mammals, human hair is short and thin, providing very little protection from cold. It provides us with more of a physical protection from sun, dust, etc and for sensation. Two types of hair is found: Course, long, pigmented hair such as on our heads is called terminal hair. Covering our bodies, regardless of gender are thousands of small, thin hairs called vellus hair see image to the right Hair Structure Hair is made up of a shaft which protrudes above the skins surface and a root which is embedded in the dermis. Around the root is a complex structure called the hair follicle, made up of epithelial and connective tissues, which is really just a deep extension of the epidermis. The follicle rests on a dermal papillae, thus receiving nourishment from the blood vessels running through these. The epithelial cells become keratinocytes, producing high quantities of keratin, from which hair is composed. As the cells grow and divide, the older cells get pushed up and away from the blood supply they die. Their highly keratinized remains form the shaft of hair along with melanocytes who have also dies and "joined for the ride! Like skin color, hair color is genetically determined. Red hair, for instance is a combination of melanin and iron atoms. Dark hair is made of cells producing lots of melanin; blond hair from cells producing very little. Hair grows in stages dependent in part about the type of hair it is: Scalp hair grows for 3 years, then rests 1 or 2 years. Hair will grow at a rate of about 2 mm a week. When hair is lost falls out it normally means new hair is growing. Many other factors may cause hair loss including a protein deficient diet, disease, drug use including cancer treatments , old age after about age 40 , and genetic predisposition. Male pattern baldness on the top of the head is a genetic condition inwhich male hormones effect the hair follicle, causing to to slow produce less hair, until the hair is so short and thin it is virtually invisable. Rarely is it totally gone. Each follicle is attached to a strip of smooth muscle called an Arrector Pili muscle, which also attaches to the papillary layer of the dermis. Naturally hair lies close to the skin, but upon stimulation, these muscles pull on the follicle, causing the hair to stand on end. Goose bumps are also caused in this manner. This apears to be one of those "animal characteristics" that remain from our past ancestory. In hairy mammals, raising the hair allowed for pockets of air to form amongst the hair, creating an insulatory effect. With our scant amount of hair, it is likely that we get no benefit from this act. Nails Nails are produced by modified keratinocytes and offer assistance with grasping objects. Each nail has three parts: The loose edge, the body and the root. At the base of the nail body is a thickened, light colored region called the lunula. The base of the body, a portion of the lunula, and the nail root are covered by an area of strata corneum called the cuticle. Beneth the lunula is a patch of epidermis strata corneum that is the area for nail growth, the matrix. A nail grows about 1 mm a week about 5 cm per year total growth. Nails do not have a resting period. Toe nails grow at a slower rate. The cells of the matrix grow and keratinze, forming a plate-like structure known as the nail. Severe damage to the nail matrix can cause the nail to cease growing. Glands The glands of the skin allow for us to keep oour skin in good condition and also assist our bodies in temperature control. Two major types of glands are found in the skin: Sebaceous glands and Sweat glands. Sebaceous Glands These glands are the smallest of skin glands and are found associated with the upper portion of the hair follicle and produce a substance called sebum. Sebum is a white, oily substance with a high lipid content. Sebum helps lubricate the hair shaft, keeping them from becoming brittle and keep the scalp moist, yet waterproof. Reduction of sebum output can cause dry scaly skin. Sebum has a secondary action of protection form some bacteria. These glands are found all over the body, with the notable exception of the palms of the hand, sole of the feet, lips and genitals. After the onset of puberty, sex hormones can cause some glands to become overactive. Dust and grime can become intrapped within a hair follicle and can cause bacteria to thrive within a plugged follicle. This can lead to the production of a pimple. Sweat Glands Note the sweat pores of the finger prints enlarged Sweat glands exist in one of two types: Eecrine glands are the most numerous, as many as 3 million found on the body, and are most numerous on the neck, back and forehead, although they are also common on the palms and soles and absent on lips and genitals. Most sweat from physical exertion or on hot days comes from these glands. The secretions of eecrine glands is primarily water interspersed with some salts and other products. The salt residue that is left behind as the water evaporates as well as an enzyme, lysozyme, that is produce both have antibiotic properties reducing bacterial and fungal growth on the skin. As body temperature increases, a signal to the glands is produced that stimulates them to begin excreting sweat. Apocrine glands are found within the arm pit, around the gentialia and anus. Apocrine glands secrete an oily lipid-based substance upon which the skin bacteria in these regions can feed upon. Note the microscopic beads of sweat that are continously produced by sweat glands. Antiperspirants work on the premise of closing these glands. Stimulation by the sex hormones is responsible for activating these glands. The role of scent glands in animal behavior, in particular sexual behavior, is well documented. Whether scent has an unconcious effect on human interactions is one for open debate. Activity in women seems to be related to the menstraul cycle, and is is documented that women who spend ample time together have a tendency to synchronize their cycles. Is this related to scent????? Mammary Glands and other glands Mammary glands are specialized apocrine glands. When stimulated by the proper combination of hormones from the pituitary and ovary in females, these glands produce a special secretion, milk. In the male these glands remain underdeveloped and inactive Modified sweat glands within the ear canal produce ear wax. Glands on the inner surface of the eyelids and at the base of eyelashes produce a substance that prevents the lashes from sticking together. Infections in these glands produce what we call a sty. Nerve receptor in the skin will be addressed in the function portion of this site.

7: appendage - Dictionary Definition : www.enganchecubano.com

Bacterial appendages. A bacterial appendage protrudes outward from the surface of the microorganism. Some are highly anchored to the surface, whereas others, like the glycocalyx, are loosely associated with the surface.

8: Vestigiality - Wikipedia

Some are uniramous, meaning that the segments do not branch, while other are biramous, meaning that the appendage contains branches. The segments of an arthropod function as the bones do in a human or other similar creature.

9: Some animals capable of growing new appendages â€“ Naturally North Idaho

Histology of the Skin Appendages. The largest organ in the body is the www.enganchecubano.com forms the bulk of the integumentary www.enganchecubano.com skin is the site of numerous biochemical processes as it carries out a myriad of functions.

OF SOME BODILY APPENDAGES pdf

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