Hypersensitivity

Hypersensitivity is an antigenic response that isn't normal; allergies are an example

There are four types of hypersensitivity reactions: type 1 (anaphylactic), type 2 (cytotoxic), type 3 (immune complex), and type 4 (delayed cell-mediated, or delayed hypersensitivity)

Type 1 reactions - anaphylactic reactions

Anaphylactic reactions occur within 2 to 30 minutes of coming into contact with an antigen

IgE antibodies bind to mast cells or basophils; causes degranulation of mast cells or basophils, and causes the release of reactive substances like histamine

There are two types of anaphylactic reactions: **systemic anaphylaxis** and **localized anaphylaxis**

Type 1 reactions - anaphylactic reactions (cont)

Localized anaphylaxis is the result of someone ingesting (eating a food) inhaling (things like pollen) an antigen, and the symptoms depend on the way the antigen entered the body

Sensitivity to an antigen is shown by a rapid inflammation reaction that causes swelling, redness, and itching at the inoculation site. The inoculation site is called a **wheal**

Desensitization is one way to prevent anaphylactic reactions, and avoiding the antigens known to cause reactions is another way to prevent an anaphylactic reaction

Systemic anaphylaxis is the result of an individual, who is sensitized to a particular antigen, is exposed to the particular antigen again. An example is an allergic reaction to penicillin

Desensitization is one way to prevent anaphylactic reactions, and avoiding the antigens known to cause reactions is another way to prevent an anaphylactic reaction

Microbial diseases of the skin

Caused by bacteria, viruses, and fungi/parasites

Bacterial diseases of the skin

The bacteria that cause well known diseases are *Staphylococci*, *Streptococci*, *Micrococci*, *Propionibacterium acnes*, and *Pseudomonas aeruginosa*

Viral diseases of the skin

The viruses that cause well known diseases are *Morbillivirus*, the mumps virus, *Togavirus*, *Papillomas coxsackievirus*, Smallpox, and *Haemophilus influenzae*

Desensitization is one way to prevent anaphylactic reactions, and avoiding the antigens known to cause reactions is another way to prevent an anaphylactic reaction

Fungal and parasitic diseases of the skin

The fungi and parasites that cause well known diseases of the skin are ringworm, *Candida albicans*, and *Sarcoptes scabiei* mites

Helminths

Most parasitic animals belong to one of two phyla: **Platyhelminthes** (flatworms) and **Nematoda** (roundworms)

The Nematodes, aka the roundworms

The **roundworms** have cylindrical bodies and have a complete digestive system

The roundworms are dioecious

The males have **spicules**, which are used to take the sperm to the female's genital pore

There are free-living and parasitic nematodes

The Nematodes, aka the roundworms (cont)

Some nematodes have eggs that are infective for humans

The nematodes that have infective eggs are *Ascaris lumbricoides* (infects human intestines), *Trichuris trichiura* (whipworm transmitted by fecal-oral transmission or feces-contaminated food), and *Enterobius vermicularis* (pinworm that spends its life in a human host; adult pinworms are found in the host's large intestine)

Some nematc have larvae infect human

Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com

The Protozoa

The protozoa are unicellular eukaryotes that inhabit water and soil

The protozoans have complex life cycles and animal-like nutrition

They require a large supply of water

Protozoa's food is digested in **vacuoles** and wastes are eliminated through an **anal pore**

There are some medically important protozoa: the **Excavata**, **Amebae**, **Apicomplexa**, and the **Ciliates**

Amebae move by extending its *pseudopodia*

The Protozoa (cont)

The amebae *Acanthamoeba* infects the cornea and causes blindness

Some protozoa have pellicle, which is an outer protective covering

The protozoa that have pellicles require specialized structures to take in food

The amebae *Balamuthia* causes granulomatous amebic encephalitis

The apicomplexan paraside *Babesia* affects the red blood cells of its host. It causes fever and anemia

The apicomplexan parasite *Toxoplasma gondii* is transmitted by cats and causes fetal infections

The ameba *Entamoeba histolytica* causes amebic dysentery

Apicomplexa are nonmotile, obligate intracellular parasites that have complex life cycles

The apicomplexan parasite *Cryptosporidium* is transmitted by feces and causes illness

The apicomplexan *Plasmodium* is transmitted by the bite of infected female *Anopheles* mosquitoes and causes malaria, and it destroys red blood cells

The apicomplexan parasite *Toxoplasma gondii* is transmitted by cat feces and by eating undercooked meat

The apicomplexan *Cryptosporidium* is transmitted by feces and causes illness

The apicomplexan *Plasmodium* is transmitted by the bite of infected female *Anopheles* mosquitoes and causes malaria, and it destroys red blood cells

The apicomplexan parasite *Toxoplasma gondii* is transmitted by cat feces and by eating undercooked meat

The apicomplexan *Cryptosporidium* is transmitted by feces and causes illness

The ameba *Naegleria fowleri* is transmitted by the bite of infected female *Anopheles* mosquitoes and causes malaria, and it destroys red blood cells

The ameba *Naegleria fowleri* is transmitted by insect bites

The lung fluke (lung trematode) is known as *Paragonimus* species

The blood flukes (blood trematode) are members of the *Schistosoma* species

The trematodes absorb food through their nonliving outer covering, which is called the **cuticle**

Platyhelminths, aka the flatworms

The **platyhelminths**, or flatworms, are parasite **trematodes, flukes and tapeworms**

The trematodes usually have flat, leaf-shaped bodies with a ventral sucker and an oral sucker

The Asian liver fluke (Asian liver trematode) is known as *Clonorchis sinensis*

The trematodes are given common names according to the tissue of the definitive host that the adult trematodes live in

Cestodes are intestinal parasites

Platyhelminths, aka the flatworms (cont)

The head of cestodes is known as the **scolex**, and the body is made up of segments called **proglottids**

Cestodes don't have a digestive system, so to obtain nutrients from the host's small intestine, they absorb food through their cuticle

Phylum Platyhelminthes (flatworms)

The trematodes are also known as the flukes	The trematodes have a flat, leaf-shaped body. They also have an oral and ventral sucker
The *Paragonimus* species is known as the lung fluke	The *Schistosoma* species is known as the blood fluke
The cestodes are known as the tapeworms	The head is known as the **scolex**, and it has suckers for attachment

Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com

Phylum Platyhelminthes (flatworms) (cont)

The body segments of the cestodes are called **proglottids**; the proglottids have male and female reproductive organs	The cestode *Taenia solium* uses humans as a definitive host
The cestodes that use humans as a definitive host produce eggs in the human, the eggs hatch in to larvae, and the larvae bore into the intestinal wall	The cestodes produce cysticerci in pigs
When humans are the intermediate hosts for cestodes, humans ingest the eggs, and the eggs hatch in the intestine. The larvae migrate to the liver or the lungs of the host and form a hydatid cyst	The cestode species *Echinococcus granulosus* uses humans as an intermediate host

Characteristics of helminths

They might lack a digestive system	They have a reduced nervous system
Their means of moving (locomotion) are occasionally reduced or are completely lacking	The reproductive system is usually complex
Adult helminths life cycle can be **dioecious** or **monoecious, or hermaphroditic**	**Dioecious** adult helminths have male reproductive organs in one individual, and female reproductive organs in another individual
Monoecious adult helminths have male and female reproductive structures in the same individual	

Sponsored by **CrosswordCheats.com**
Learn to solve cryptic crosswords!
http://crosswordcheats.com