

Al- Mustaqbal University College

First stage.
Department of Optometry(Optics)



جامعة المستقبل الاهلي
مرحلة الاولى
قسم التقنيات البصرية

Introduction of virus

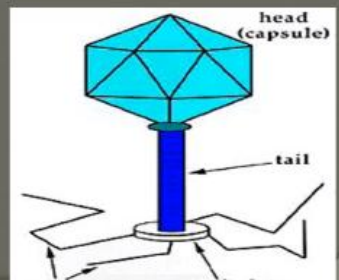
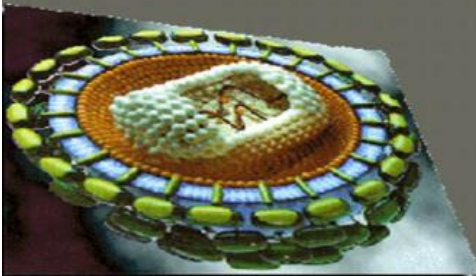
Dr: Zainab waddah Naser

Lecture :7

7/4/2022

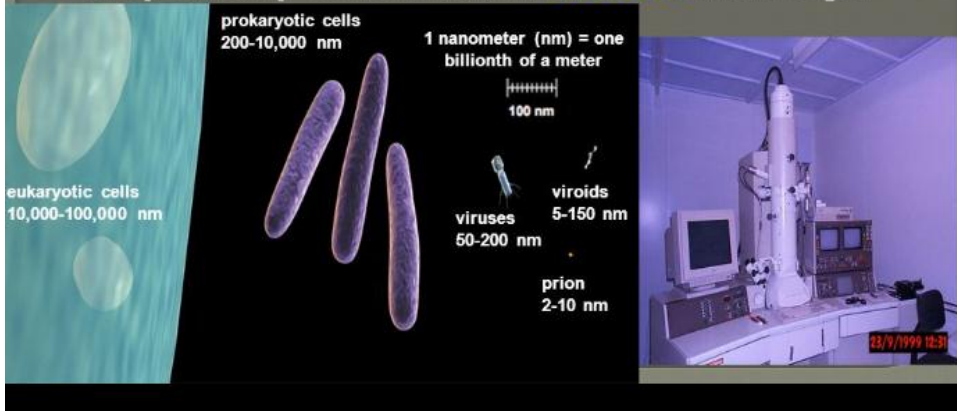
What is a Virus?

- A virus is a non-cellular particle made up of genetic material and protein that can invade living cells
- Structure
 - Core of nucleic acid surrounded by a protein coat called a capsid
 - Capsid can be DNA or RNA, but not both
 - Core can be several to several hundred genes



SO HOW BIG ARE VIRUSES?

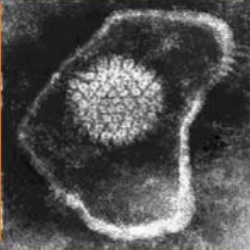
- Viruses are REALLY **small**.
 - Size – 20 to 400 nanometers (one nanometer is one billionth of a meter)
- They are much smaller than **bacteria**.
- They can only be seen with an **electron** microscope.



VIRUS SHAPES

Round

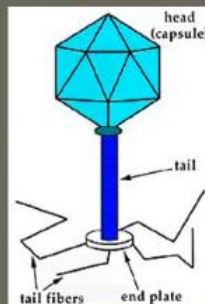
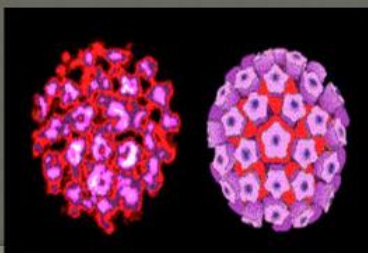
- Herpes virus
 - There are two types:
 - Genital
 - oral



Rod-shaped

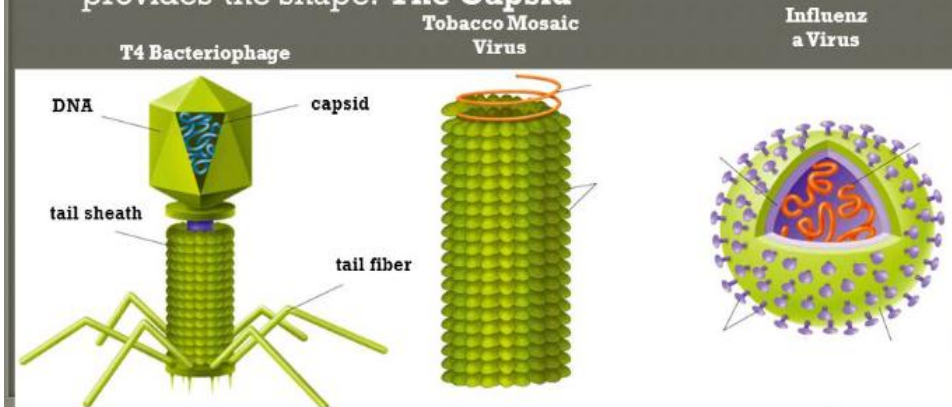
- Tobacco mosaic virus

Many sided (icosahedral)

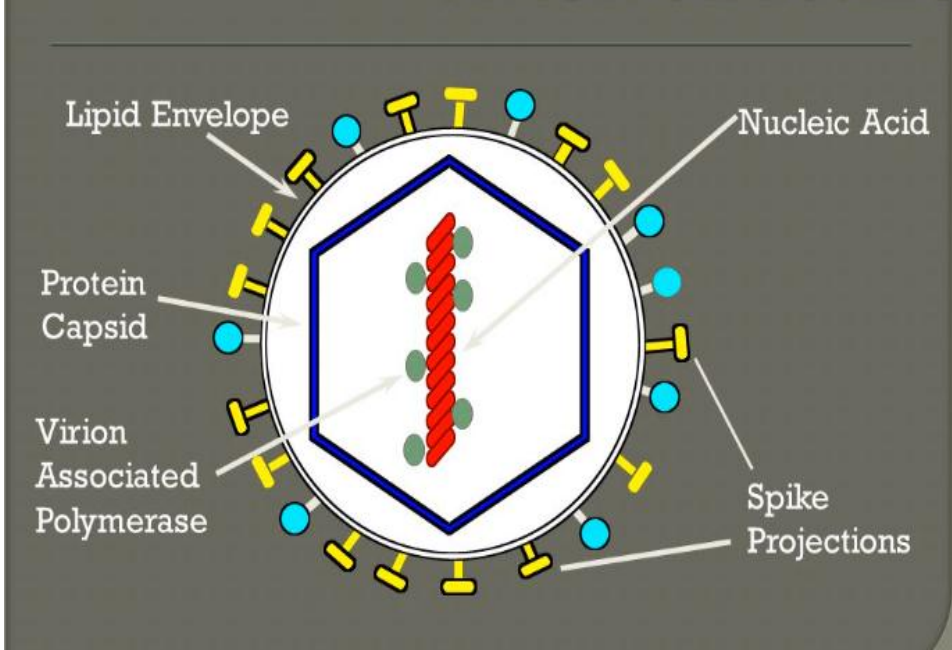


SHAPES MAY DIFFER BUT...

- All viruses have
- 1. Chromosome-like part that carries hereditary information – **The Core**
- 2. Protein coat: Protects hereditary information and provides the shape! **The Capsid**



Virion Structure

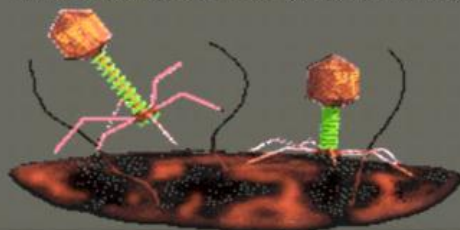


Viroid

- **A viroid is made only of single-stranded RNA.**
 - causes disease in plants
 - can stunt plant growth
 - passed through seeds or pollen

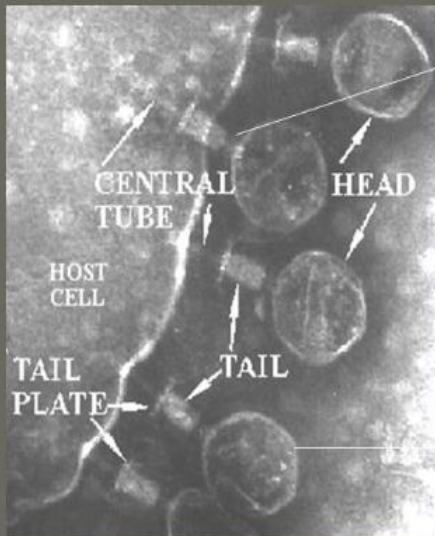
Bacteriophage

- Bacteriophages are viruses that infect bacteria
- Bacteriophage
 - Head – capsid and DNA
 - Tail – with fibers to attach to bacteria
 - T group
 - Most commonly studied are T group – T1, T2, T3, T4 etc...
 - T4 has a DNA core within a protein coat, and tail with tail fibers to attach to bacteria.



E coli bacteria

Viruses need living organisms in order to reproduce and form more viruses!

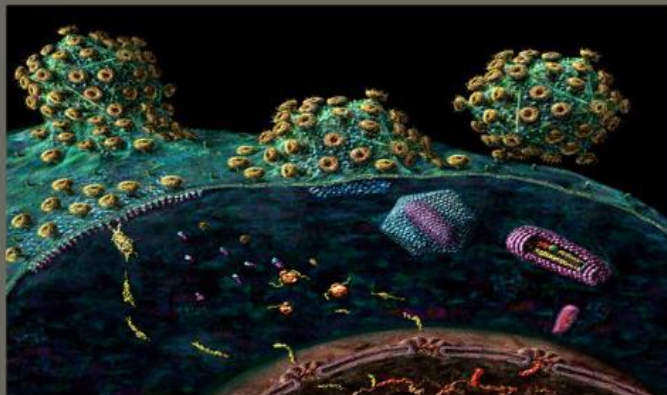


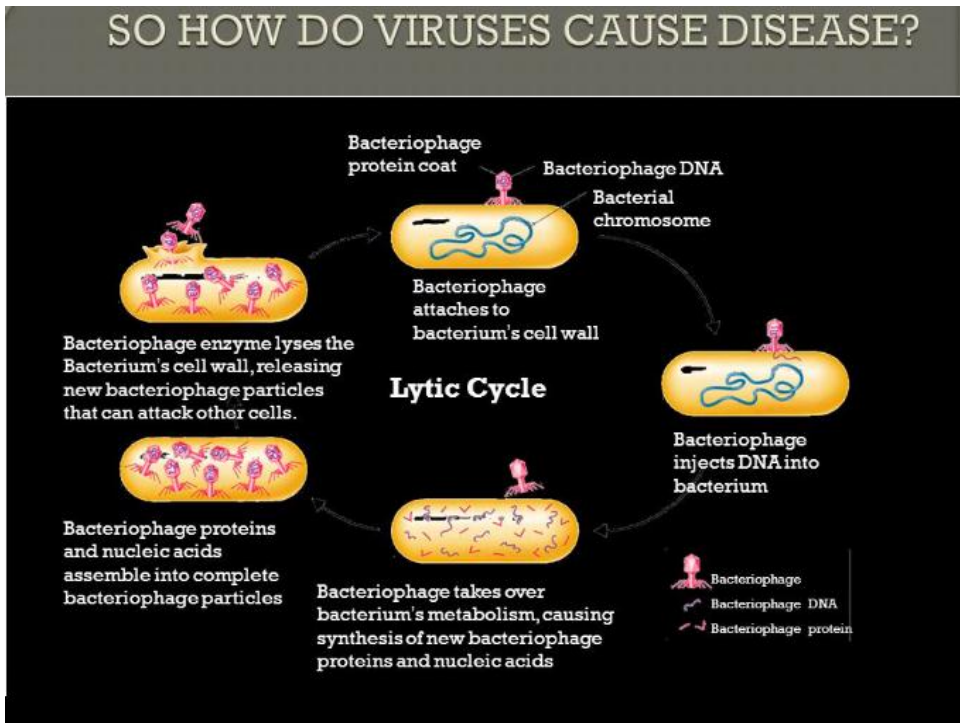
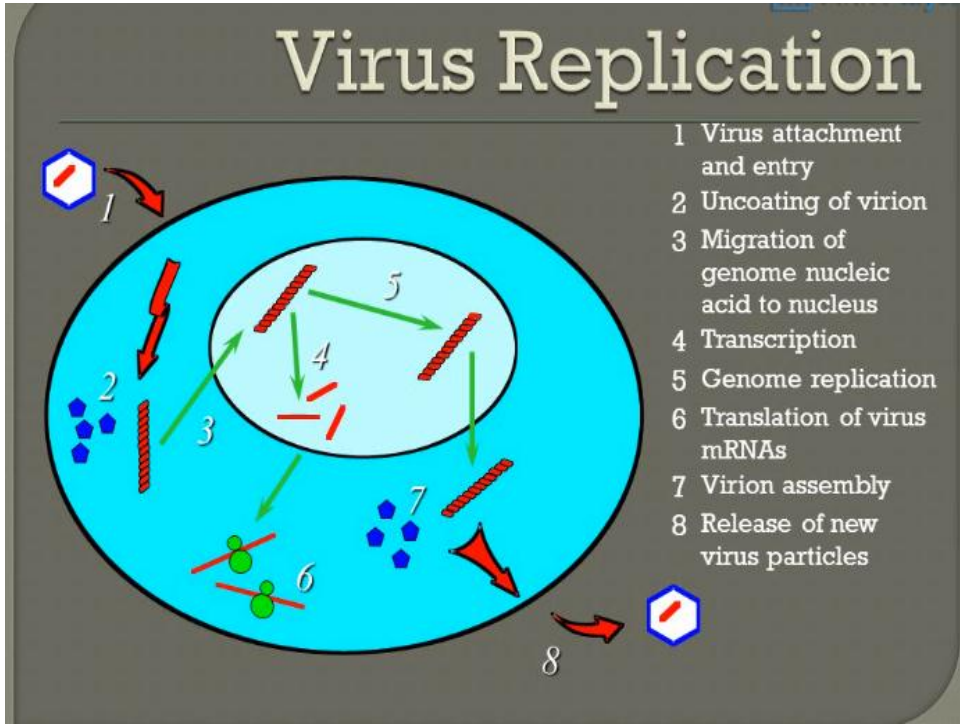
Injecting DNA

virus

viruses enter host cell in different ways:

- Bacteriophages pierce host cells
- Viruses of eukaryotes enter by endocytosis
- Viruses of eukaryotes also fuse with membrane





Herpes simplex eye infections

Herpes simplex eye infections are a potentially serious type of eye infection.

They're caused by a virus called herpes simplex – usually the herpes simplex virus type 1 (HSV-1), which also causes [cold sores](#).

It's important to get medical help if you think you may have the infection, as your vision could be at risk if it's not treated.

Symptoms of a herpes simplex eye infection

Symptoms of a herpes simplex eye infection can include:

- a [red eye](#)
- eye pain
- swelling around the eye
- sensitivity to bright light
- a [watering eye](#)
- blurred vision

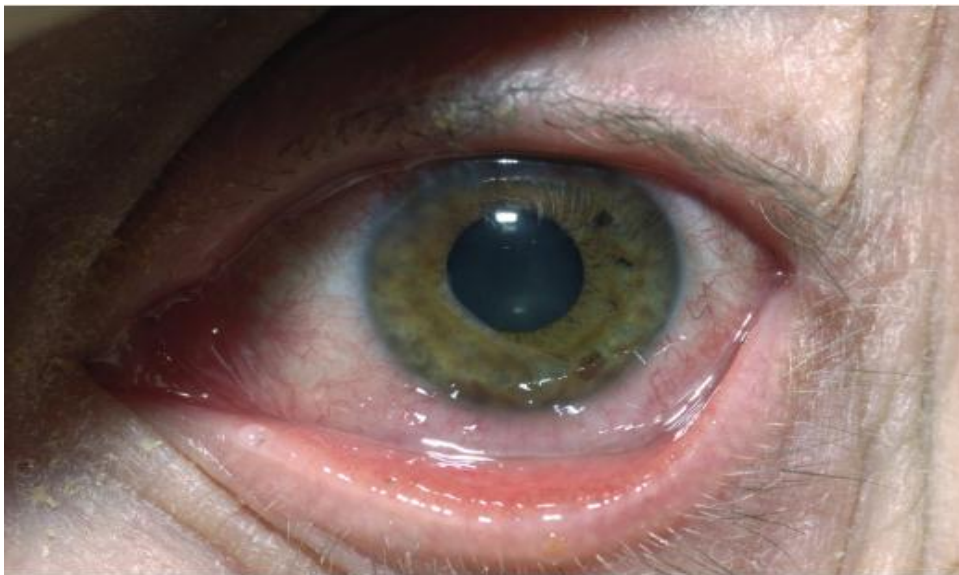
Usually only 1 eye is affected.

Treatments for herpes simplex eye infections

Most herpes simplex eye infections get better in 1 to 2 weeks, although they can last longer. Treatment is usually needed to reduce the risk of complications.

The main treatments are:

- antiviral eyedrops or ointment ; day for up to 2 weeks
- [steroid](#) eyedrops
- antiviral tablets



Symptoms of a herpes simplex eye infection can include a red eye and swelling around the eye

**Thank you for your
attention**

