

Biology
Microbes / Classification
2012 - 2013
#6

- I. Disease causing bacteria
 - A. meningitis = brain infection
 - B. pneumonia = infection of the lungs
 - C. tetanus = attacks the nerves
 - D. cholera = infection of the digestive tract
 - E. botulism = toxins act to paralyze muscles

- II. Food poisoning bacteria
 - A. Action = cause illness by metabolizing host or by producing toxins
 - 1. 9,000 deaths per year
 - 2. grow best at temperatures of 60 F - 90F
 - 3. do not change the taste, smell or appearance of the food
 - B. Prevention
 - 1. Cleanliness
 - 2. heat food to at least 162 F

- III. Body's Response (bacterial or viral)
 - A. anatomic barriers
 - 1. skin
 - 2. mucous membranes
 - B. Immune Response
 - 1. Macrophages devour a virus and display part of virus (antigen)
 - 2. Basophils react to antigen and release histamines (swelling and redness)

3. Killer T-lymphocytes assemble and B-lymphocytes produce antibodies
4. T-lymphocytes puncture infected cells
5. Antibodies attack the viruses
6. Macrophages engulf the viruses
7. Monocytes clean up the dead cells from site

IV. Food spoilage bacteria

A. Action

1. grow best at lower temperatures
2. change the taste, smell and appearance of the food

B. Prevention

1. freezing / chilling = best method
2. pasteurization = heating
 - will not kill all the bacteria
3. drying = use salt or sugar
4. acidification = use vinegar to preserve food (pickling)
5. chemical preservatives = benzoic acid, sodium nitrite

V. Good bacteria

A. Food production

1. cheese = use a “starter culture” to make the curd
2. yogurt = add “live cultures”

B. Environmental

1. cyanobacteria = produce oxygen
2. nitrogen fixing bacteria = provide nitrogen to plants

