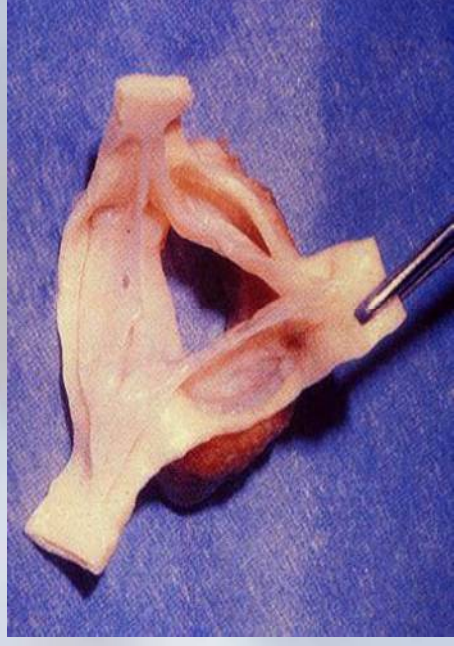


# Heart Valve

- Almost as soon as valve implanted cardiac function is restored to near normal.
- Bileaflet tilting disk heart valve used most widely.
- More than 45,000 replacement valves implanted every year in the United States.

# Bileaflet Heart Valves





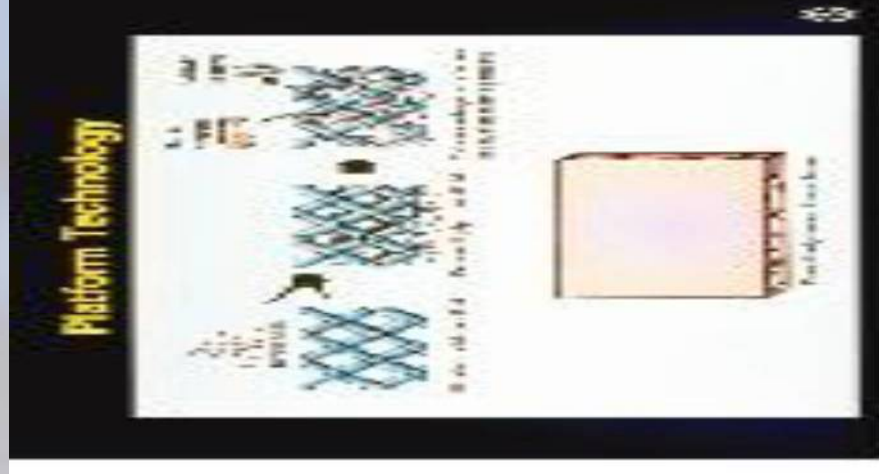
# Problems with Heart Valve's

- **Degeneration of Tissue.**
- **Mechanical Failure.**
- **Postoperative infection.**
- **Induction of blood clots.**



# Artificial Tissue

- Biodegradable
- Polymer Result of  
– Condensation of  
...Lactic Acid and  
Glycolic Acid



# Dental Implants

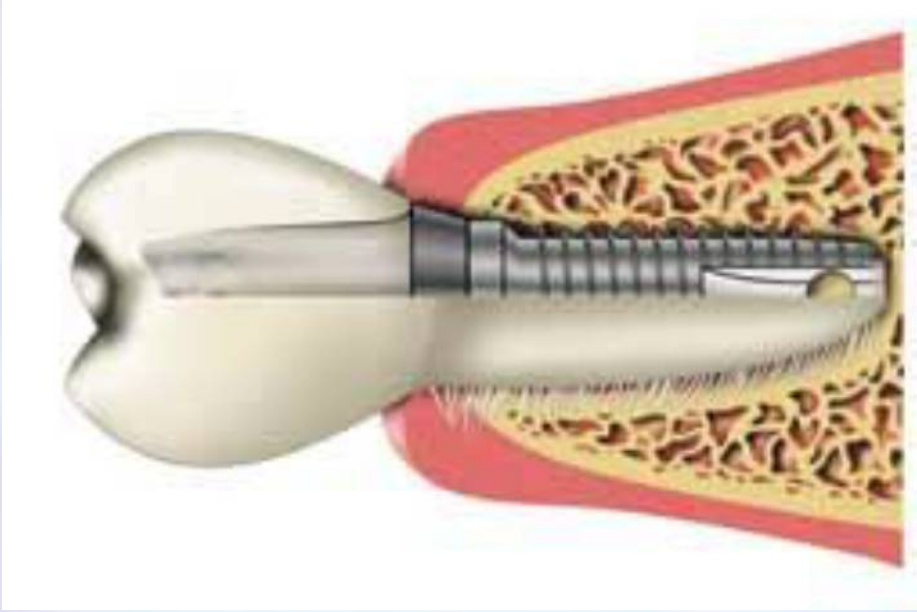
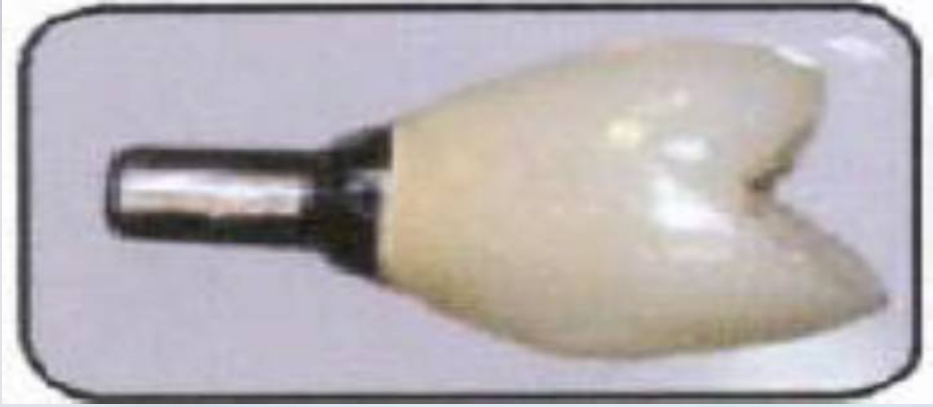
- Small titanium fixture that serves as the replacement for the root portion of a missing natural tooth.
- Implant is placed in the bone of the upper or lower jaw and allowed to bond with the bone.
- Most dental implants are: pure titanium screw-shaped cylinders that act as roots for crowns and bridges, or as supports for dentures.



# Dental Implants

- Capable of bonding to bone, a phenomenon known as "osseointegration".
- Bio-inert, there is no reaction in tissue and no rejection or allergic reactions.

# Dental Implants





# Intraocular Lenses

- Made of PMM, silicone elastomer, and other materials.
- By age 75 more than 50% of population suffers from cataracts.
- 1.4 million implantations in the United States yearly.
- Good vision is generally restored almost immediately after lens is inserted.



# Intraocular Lenses

- Implantation often performed on outpatient basis.



# Vascular Grafts

- Must Be Flexible.
- Designed With Open Porous Structure.
- Often Recognized By Body As Foreign.





# ipHip-Replacements

- Most Common Medical Practice Using Biomaterials.
- Corrosion Resistant high-strength Metal Alloys.
- Very High Molecular Weight Polymers.
- Thermoset Plastics.