

Biomedical implants

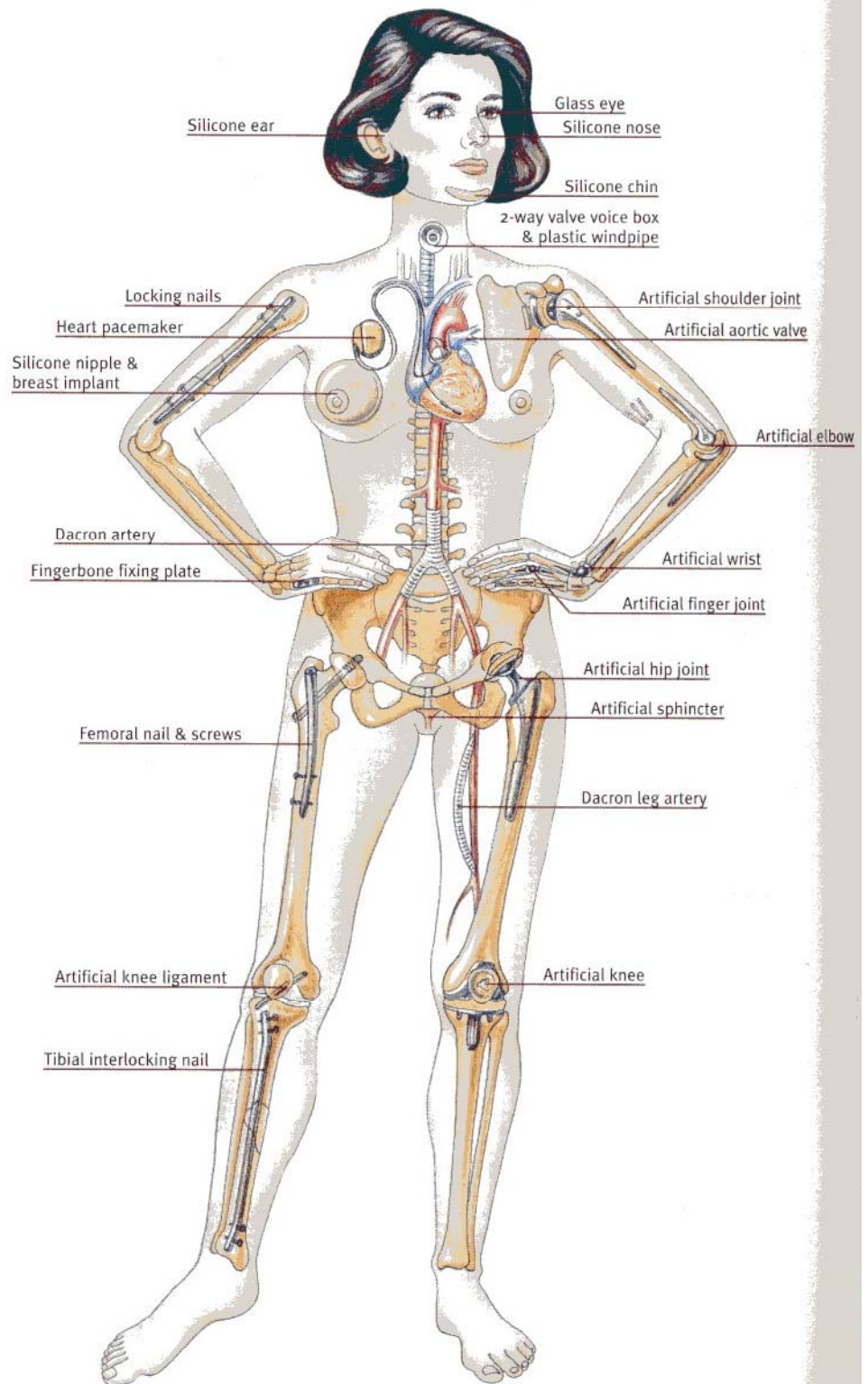
1970



- Only joint replacements
- 1,000 operations per year
- Implants
 - Metal
 - Polymer
- Non-reactive materials
- Artificial joint life – 10 years

Today

- Soft and hard tissue replacement
- External and internal systems
- 250,000 operations/year
- Artificial bone materials
- Joints perform longer and better
- Corneal lenses – hydrogels
- Skull – polymer/ceramic composites
- Heart valves – polymers
- Stents – shape memory alloys
- Plates and screws – biodegradable polymers
- Hips – ceramic coated metal
- Knees – metal & polymer



UK successes in biomedical materials

- Development of first successful joint replacements in 1960's
- Ceramic coatings exported around the world
- UK development of novel polymers and degradable materials
- Artificial organ research-UK led