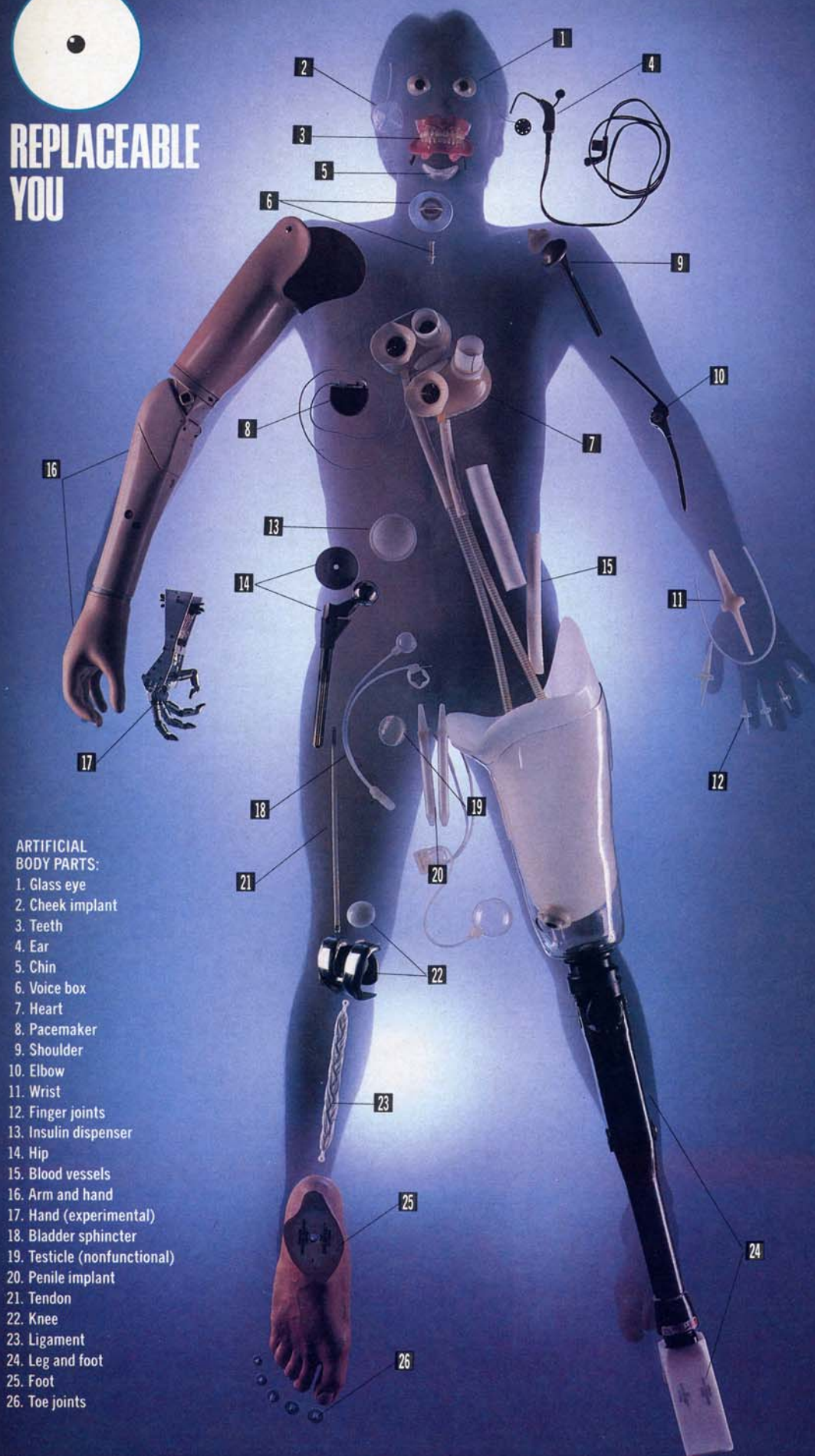




# REPLACEABLE YOU

## ARTIFICIAL BODY PARTS:

1. Glass eye
2. Cheek implant
3. Teeth
4. Ear
5. Chin
6. Voice box
7. Heart
8. Pacemaker
9. Shoulder
10. Elbow
11. Wrist
12. Finger joints
13. Insulin dispenser
14. Hip
15. Blood vessels
16. Arm and hand
17. Hand (experimental)
18. Bladder sphincter
19. Testicle (nonfunctional)
20. Penile implant
21. Tendon
22. Knee
23. Ligament
24. Leg and foot
25. Foot
26. Toe joints



If we think of the human body as a kind of machine, doctors of the future will be like mechanics, simply replacing those parts that can't be fixed.

The components available today (left) are rudimentary. Succeeding generations of artificial devices will perform as well as their natural counterparts and may prove more reliable. For instance, gains in microelectronics will lead to a bionic heart with an internal power pack, as opposed to the current model, which must be linked by clunky tubes to an external air compressor. The circuits controlling man-made limbs and hands will be packed with more computing power, making the prosthetics increasingly dexterous.

Advances in tissue research will allow burn victims to be covered with a mesh seeded with their own cells, so that skin will regenerate. Facial surgeons will reconstruct jawbones, cheekbones and even noses with molded cow collagen, a substance that doesn't provoke an immune response (an attack by guardian cells on foreign tissue) and that the body will, over time, replace with bone. A more complex "biohybrid" system is an artificial pancreas for diabetics. Doctors will harvest insulin-producing cells from human or animal donors and enclose them in a plastic membrane prior to implantation; the membrane will allow the insulin to be secreted while protecting the foreign cells from the immune system.

Medical wizardry even aims at alleviating one of man's cruellest afflictions: Tiny TV cameras mounted on eyeglass frames will transmit electronic images directly to the visual cortex of the brain, bringing limited vision to the sightless.

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