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| --- | --- | --- | --- | --- |
| **Heart valve** **replacement option** | **Constructed from…?** | **Lifetime of valve?** | **Does the valve cause blood clotting? (Y/N)** | **Summary of advantages / disadvantages** |
|  |
| Mechanical valve | *Alloys, silicone, pyrolitic carbon, polyester* | *Designed to last a lifetime* | *Yes* | ***Pro:*** *These valves last much longer than prosthetic valve.****Con:*** *The valve can cause clotting meaning that the patient must take “anti-coagulant” medication. Backflow of blood can be an issue.* |
|  |
| Bioprosthetic /prosthetic valve | *Human or animal tissue* | *10-15 years* | *No* | ***Pro:*** *Using a natural material for the valve makes blood clotting unlikely.****Con:*** *Valve needs to be replaced every 10-15 years.* |
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Follow-up questions:

1. Would you recommend a mechanical or prosthetic heart valve replacement to a 45-year-old patient?

The 45-year-old should probably receive the mechanical heart valve, even though he/she will need to take anti-coagulant medication, because a prosthetic valve would need to be replaced multiple times during the rest of the patient’s life, assuming the patient lives to be 80 or 90-years-old.

1. What type of value would you recommend to a 93-year-old patient?

The 93-year-old patient should receive a prosthetic heart valve because the body more readily accepts natural tissue over artificial materials, meaning that the risk of blood clots is minimal and anti-coagulant medication is not needed. Furthermore, prosthetic valves typically prevent blood backflow better than mechanical valves.