

# The Viability Clock

How long organs and tissues remain usable when stored on ice:

Organ / Tissue	Approximate Viability on Ice	Why Time Matters
Heart	4–6 hours	The heart deteriorates quickly without oxygen-rich blood. Fastest transport required.
Lungs	6–8 hours	Lungs are delicate; swelling and tissue damage occur rapidly.
Liver	8–12 hours	More tolerant than heart/lungs but still time-critical.
Pancreas	12–24 hours	Longer viability, but ideally transplanted sooner for best outcomes.
Intestines	6–10 hours	Sensitive to bacteria and blood supply interruptions.
Kidneys	24–36 hours	Most resilient organ; can safely travel longer distances.
Corneas (Eyes)	5–7 days (refrigerated)	Not transported on ice; stored in specialised solution.
Bone / Musculoskeletal Tissue	Up to 5 years (frozen)	Tissue is processed and stored in tissue banks, not transported urgently.
Skin	Up to 5 years (frozen)	Used for burns; stored long-term in tissue banks.

## Teacher Notes

- Times vary slightly based on donor factors, storage solution, and clinical practice.
- Students should understand that hearts and lungs have the shortest clocks, which is why flights and logistics matter.
- This chart pairs perfectly with the lesson's discussion on Machine Perfusion, which extends viability.

