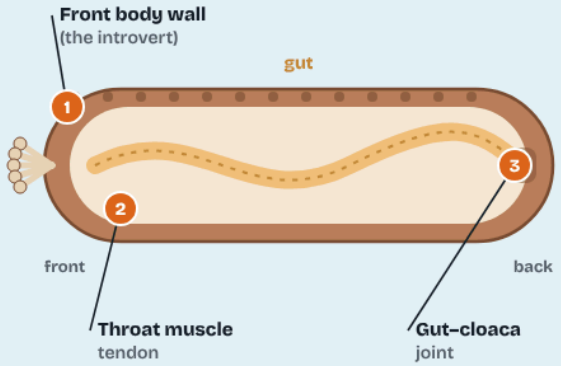
That is why

Why do sea cucumbers throw out their guts?

A nerve signal softens three breaking points, the gut spills out, and a new one grows back.

A Three breaking points



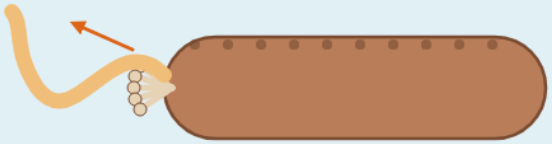
Collagen that softens on command

firm, cloudy gel → nerve signal → thin, see-through almost liquid

Unique to echinoderms. The spots are not weak to begin with: anesthetics that quiet the nerves block the change.

B Two exits, plus a sticky extra

Front exit (e.g. Eupentacta)



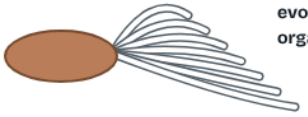
Gut, tentacles, throat, nerve ring and body fluid leave through the split wall.

Back exit (e.g. Holothuria)



The gut leaves through the anus.

Some fire Cuvierian tubules instead



Sticky white threads, evolved from breathing organs. They grow back.

C Growing a new gut

Holothuria glaberrima

1. **Thickening** on the mesentery edge
2. **It grows** cells dedifferentiate
3. **A tube forms** lining from esophagus, cloaca

New intestine: about 4 weeks

1 Sealed fast

After the gut leaves, muscles quickly close the wound.

Why? No one is sure: a predator decoy, a waste reset, flushing parasites or low-oxygen stress.

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Diagram: https://thatiswhy.com/diagrams/why-sea-cucumbers-throw-out-their-guts/ · Full guide: https://thatiswhy.com/why-do-sea-cucumbers-throw-out-their-guts/