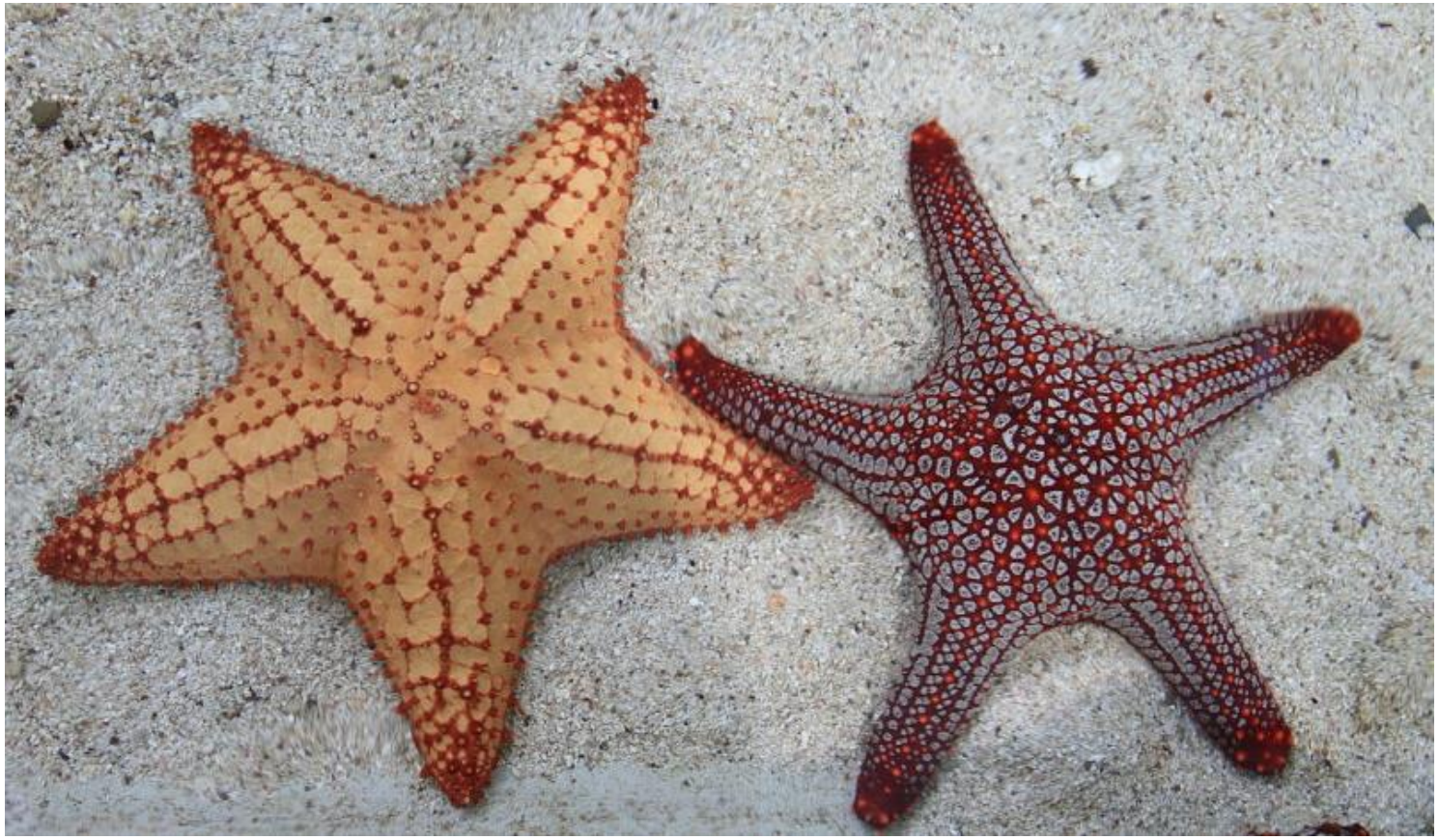


Ostnokožce

Phylum Echinodermata

Echinodermata

https://www.youtube.com/watch?v=HG17TsgV_qI

General characteristics

- *echino* = spiny, *dermis* = skin
- marine members
- very ancient group
- radial symetry
- **endoskeleton** – internal skeleton made of plates of $CaCO_3$
- **water vascular system** with tube feet

Classes of Echinodermata

Holothuroidea (holotúrie)

- sea cucumber
- radial symetry
- detritus feeder
- live on ocean floor

Crinoidea (ľaliovky)

- sea lilies, feather stars
- sessile
- long feathery arms
- filter feeder
- rare today but lot of fossils

Classes of Echinodermata

Echinoidea (ježovky)

- sea urchins, sand dollars
- some with protective spines
- grazer (eat algae)

Asteroidea (Hviezdovky)

- star fish
- often pentaradial
- predatory
- creep along with tube feet

Star fish functional systems

Digestive system

Starfish open prey (ex. bivalves) with their tube feet, then flip stomach inside out into the prey and secrete enzyms to digest the tissues. Then they suck their stomach back in.

Star fish

Respiratory system

- tube feet for O_2 /CO_2 exchange

Circulatory and excretory system

- no separate system
- nutrients are transported by digestive glands
- no blood

Star fish

Nervous system

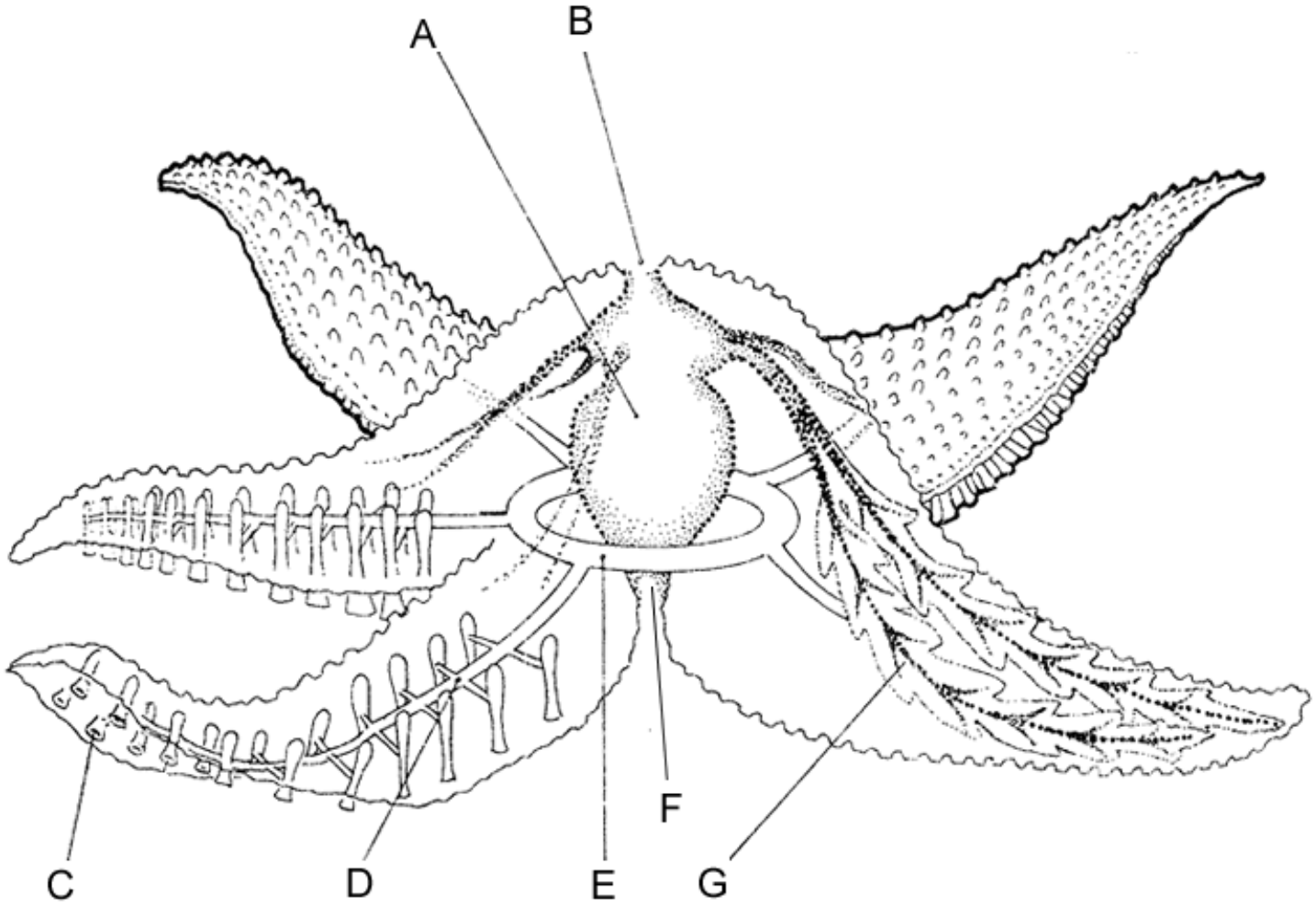
- primitive
- no head
- nerve ring surrounds mouth, radial nerves in arms
- **eyespot** – at the tip of each arm
- **statocyst** – to tell wich side is up

Star fish

Muscoskeletal system

- instead of muscles sea stars have unique **water vascular system** (ambulakrálny systém)
    - **ring canal** - circle around digestive system
    - **radial canals** – extend into each arm
    - **tube feet** – suction-cuplike structures
    - **madreporite** – opening used to filter water into the water vascular system

Star fish



Star fish

1. The anus is found on the top of a starfish, this is where wastes are removed. __B___
2. The mouth is on the opposite side of the anus, food is taken in here: __F___
3. Large and centrally located between the mouth and anus is the stomach, where food is digested: __A__
4. The ring canal surrounding the stomach, part of the starfish's water vascular system: __E__
5. The radial canal extends from the ring canal and into the starfish's arms, also part of the vascular system: __D__
6. Attached to the radial canal are the tiny tube feet with suckers: __C__
7. Digestive glands are located within the arms of the starfish, chemicals help break down food: __G___

Star fish

Reproductive system

- separate sexes
- sexual – broadcast method
- asexual – regeneration of lost parts

Ecology of star fish

- important predators – control many populations
- drug research
- embryological research
- delicacies

Deadly crown-of-thorns starfish

https://www.youtube.com/watch?v=-ardrFZuFkU