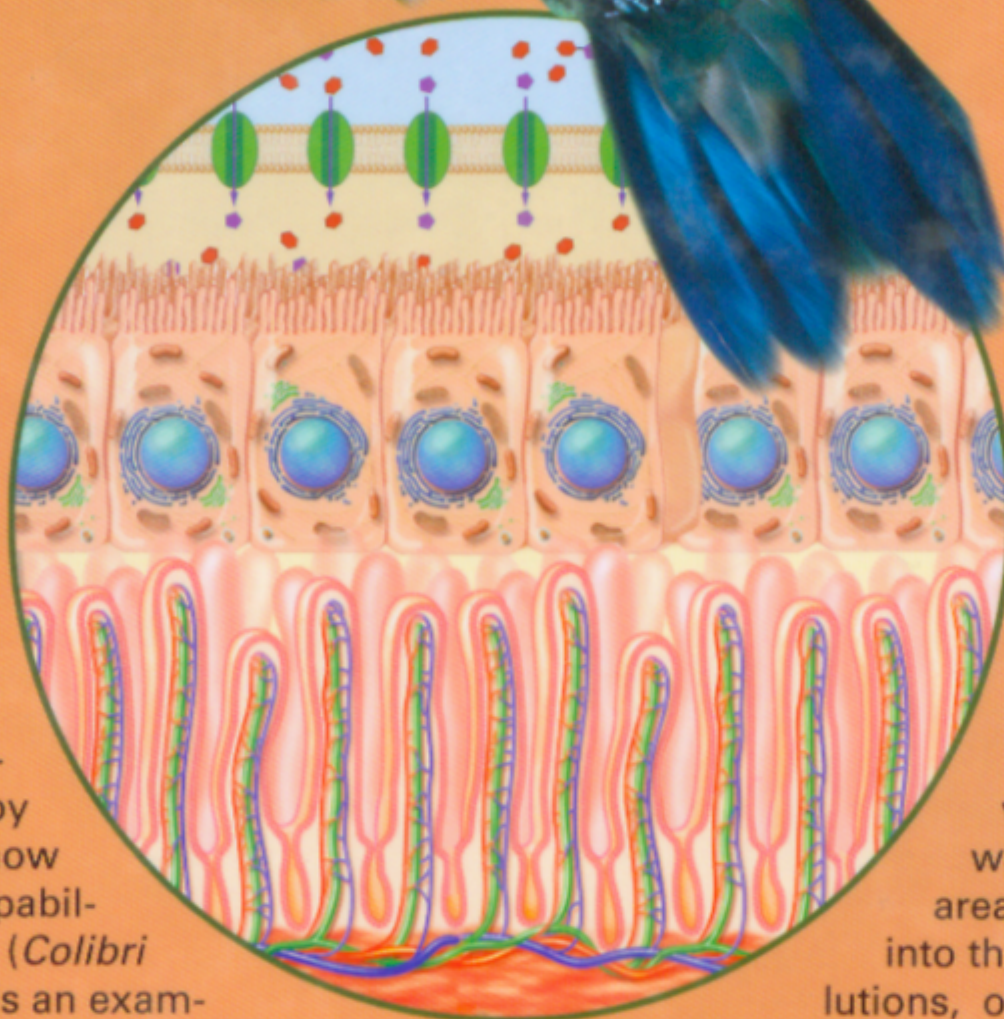




Animal physiologists deepen their knowledge by studying animals that show unusual or exemplary capabilities. The hummingbird (*Colibri coruscans*) on the cover is an example of an animal athlete.

As the bird darts from flower to flower to feed, several physiological processes occur simultaneously, as depicted in the multi-tiered microscopic image above. The digestive system converts the sucrose in the nectar into forms that can be used to support one of the highest metabolic rates in the animal kingdom. Within the gut, sucrose is broken down into the sugars that can be imported into the epithelial cells of the digestive tract. The cellular extensions,

known as microvilli, provide the epithelial cells with an abundant surface area for transport of nutrients into the cell. Finally, deep convolutions, or villi, give the digestive tract its tremendous absorptive capacity.

Physiology is the study of how animals live and reproduce, bringing together our understandings of how molecules, cells, tissues, and systems work together.

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