Hello everyone.

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Today I'm going to start with the next unit that is unit 3 phylum Cnidaria. The name of my module is Phylum Cnidaria- General characters (part I) and the module number is 10. The outline of this module is Introduction, level of organization, habitat, body wall, coelom and tentacles.

At the end of this module, students will be able to describe the unique characteristics of phylum Cnidaria, to explain organization and structural characteristics of cnidarians and to identify and sketch nematocysts. Before beginning with the characteristics, let's see the introduction of cnidarians.

The name Cnidaria comes from the Greek word "Cnidos". Cnidaria means "a stinging thread". Earlier it was known as Coelenterata, but as this name included the Ctenophores which are comb jellies, it has been abandoned.

Let's see some of the examples of cnidarians. In this slide you can see two pictures. The first one is Aurelia, also known as jellyfish. These organisms are free floating organisms. In the second picture you can see Metridium also known as sea anemone, which are sessile animals.

Now in the next slide you can see the first picture as Hydra, and as you all know, these hydras are solitary organisms. Second picture is of corals and these corals are colonial organisms. Here you can see the next example as an Obelia. And the second picture is of Physalia, which is also known as Portuguese Man of war.

Let's begin with the characteristics of phylum Cnidaria. Cnidarians are metazoans and multicellular animals. They show the tissue grade of organization. In the previous phylum i.e. phylum Porifera, you had seen the cellular grade of organization. And here it is developed to tissue grade of organization. Cnidarians are exclusively aquatic organisms. They are mostly marine, except for a few freshwater forms like Hydra. As you can see in the picture, this is the Hydra.

Cnidarians are sedentary or sessile organisms. The examples of these are Hydra and sea anemone or they are free-swimming organisms like Jellyfish. They are also solitary or colonial animals. The solitary animals are like Hydra and the colonial organisms are corals. The sedentary means remaining attached to any substrate and they are stationary organisms. As you can see in this picture, this is a sea anemone which is attached to the substrate.

The next point is symmetry. In these organisms, you are going to see radial symmetry or biradial symmetry. The radial symmetry means when an organism is divided into similar halves by a plane at any angle along a central axis it is known as radial symmetry, but when the planes are two in number, it is known as biradial symmetry.

In these organisms you are going to see a gastrovascular cavity which communicates to the exterior by the mouth. In this picture also you can see the gastrovascular cavity in Hydra.

Cnidarians are diploblastic animals. In these organisms, two body layers are present. One is the outer layer which is known as an ectoderm. And next one is the inner layer which is known as endoderm. And these two layers are cemented together by an intermediate layer of noncellular gelatinous mesoglea. The first picture is of Diploblastic and the second picture is of triploblastic. Diplo means two and triplo means three. In the diploblast picture, you can see there are endoderm and ectoderm and in between these two layers there is a one more layer known as non-living layer, but in the second picture there is endoderm and ectoderm. But there is one more additional layer which is known as mesoderm and that's why the three layers are there and it is known as triploblastic. But cnidarians are diploblastic.

Let's move towards the next point i.e. coelom. These are accelomate animals. In these organisms the second body cavity which is known as coelom is absent. In this picture the first one is accelomate and the second one is coelomate. In accelomate you are going to see only the digestive cavity. And in the coelomate two cavities are seen. One is a digestive cavity and the second one is a coelom.

Next is tentacles. In cnidarians the tentacles are short and slender and encircling the mouth in one or more whorls. This is a picture of a sea anemone with tentacles and they serve for food capture, ingestion and for defense. Tentacles are provided with cnidocytes. This cnidocytes are specialized stinging cells located in the outer epidermis and possess cnidocil and stinging structure or capsule which is known as nematocysts.

Undischarged nematocysts composed of a long coiled thread which is everted when triggered to release by touch or chemosensation. Here in this picture the nematocyst is everted. The function of the nematocyst is to entangle the prey, whereas in some organisms even it harpoons the prey and injects a paralyzing toxin.

These are the references for this module.