

Body wall of Ascaris

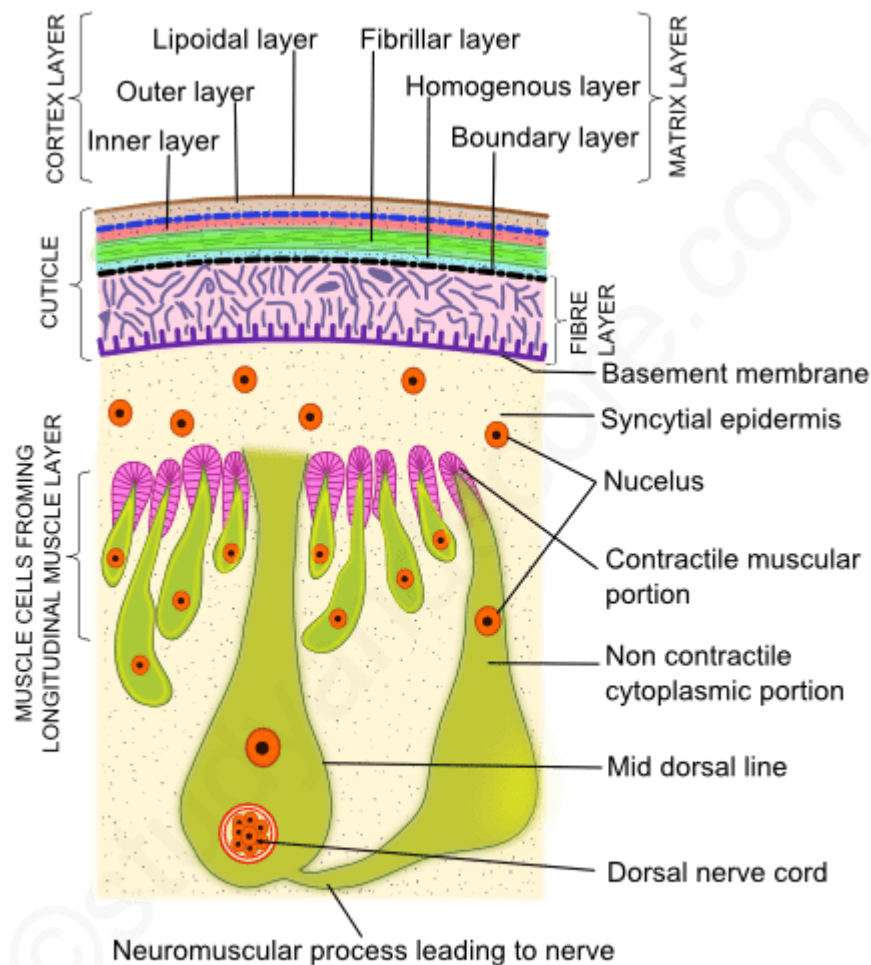
The body wall of Ascaris comprises of three layers namely the outer cuticle, middle epidermis and inner longitudinal muscles.

Cuticle

The cuticle of these roundworms is thick, tough, transparent and glossy. This layer is secreted by the underlying epidermal cells. This is in continuation with the lining of the pharynx and rectum. In the young worms, the cuticle is shed off to permit the moulting and growth process. The cuticle is permeable to salts, water and the products of metabolism. Also the enzymes present in the cuticle of Ascaris have the capability to control the passage of various metabolites. The cuticle also secretes anti-enzymes which have the neutralizing effect on the digestive juices of the host.

The cuticle in turn is divided into the following five layers:

- **Lipoid layer**– It is a thin osmophillic membrane
- **Cortex layer**– It consists of dense material, which is resistant to the digestive juices of the host. Cortex layer includes inner and outer cortical layers
- **Matrix layer**– This layer is made up of sulphur-rich matricin. It consists of outer fibrillar layer traversed by branching canals, homogenous layer which shows radial striations and a boundary layer resembling the cortical layer.
- **Fibre layer**– This layer is comprised of collagen fibres crossing each other. This layer has three strata.
- **Basement membrane**– This is a thin layer forming the inner limit of the cuticle.



ASCARIS - TRANSVERSE SECTION OF BODY WALL

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Epidermis

Epidermis is the syncytial layer present below the cuticle. The epidermis is thick along entire length of the body, at median dorsal, median ventral and two lateral positions where it forms the respective lateral lines. Epidermis is composed of relatively fewer cell. This layer has abundant reserves of fat and glycogen.

Longitudinal muscles

Circular muscles are absent in the round worms. The longitudinal muscles form single layer of spindle-shaped cells below the epidermis. The longitudinal muscles are interrupted at four places by longitudinal epidermal chord. The muscle layer is divided into four longitudinal columns and two ventro-lateral columns.

Each muscle cell has a fibrillar, contractile muscular portion and a granular non-contractile protoplasmic portion projecting into body cavity.

The contractile muscular portion contains longitudinal contractile fibres arranged at intervals.

It also consists of the fibres for attachment to the cuticle. The non-contractile protoplasmic portion contains non-contractile supporting fibres, nucleus. The muscle tails of all the cells of the dorso-lateral columns are connected with the dorsal nerve cord whereas the muscle tails of all the cells of the ventro-lateral columns are connected with the ventral nerve cord.