

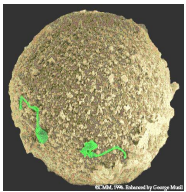
# Fertilization and Cleavage

Created: Tuesday, 17 May 2011 10:03 | Published: Tuesday, 17 May 2011 10:03 | Written by [Super User](#) | [Print](#)

## Functions of Fertilization

### What is Fertilization?

The development and liberation of the male and female gametes are steps preparatory to their union through the process of fertilization.

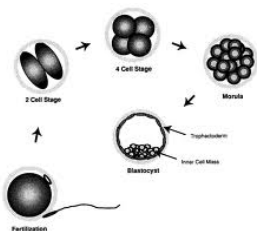


### Fertilization has three functions

1. Transmission of genes from both parents to offspring
2. Restoration of the diploid number of chromosomes reduced during meiosis
3. Initiation of development in offspring

## Steps in Fertilization

- Contact between sperm and egg
- Entry of sperm into the egg
- Fusion of egg and sperm nuclei
- Activation of development



# What is Cleavage?

The zygote directly subdivides into many smaller cells of conventional size, suitable as early building units for the future organism.

## Cleavage

- The first step in development of all multi celled organisms.
- Converts a single-celled zygote into a multi celled embryo by mitosis.
- Zygotic cytoplasm is divided among the newly formed cells.

## Blastula

- Produced by mitosis of the zygote
- A ball of cells surrounding a fluid-filled cavity
- RNA and information carrying molecules are distributed to various parts of the blastula.

# Gastrulation

Gastrulation involves a series of cell migrations to positions where they will form the three primary cell layers.

- [Ectoderm](#) forms the outer layer.
- [Endoderm](#) forms the inner layer.
- [Mesoderm](#) forms the middle layer.

## Ectoderm

- Forms tissues associated with outer layers: skin, hair, sweat glands, and epithelium.
- The brain and nervous system also develop from the ectoderm.

## Mesoderm

- Forms structures associated with movement and support: body muscles, cartilage, bone, blood, and all other connective tissues.

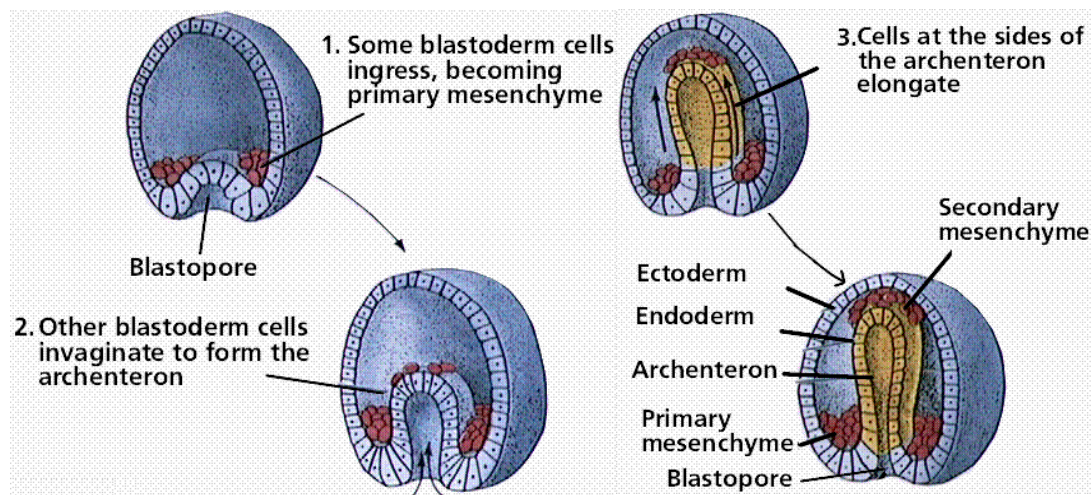
- Reproductive system organs and kidneys form from mesoderm.

## Endoderm

- Forms tissues and organs associated with the digestive and respiratory systems.
- Many endocrine structures, such as the thyroid and parathyroid glands, are formed by the endoderm.
- The liver, pancreas, and gall bladder arise from endoderm.

## Invagination

Immediately after gastrulation, the body axis of the embryo begins to appear.



Want to know more about “Fertilization details?” [Click here](#) to schedule live homework help from a certified tutor!

## About eAge Tutoring:

[eAgeTutor.com](#) is the premium online tutoring provider. Using materials developed by highly qualified educators and leading content developers, a team of top-notch software experts, and a group of passionate educators, eAgeTutor works to ensure the success and satisfaction of all of its students.

[Contact us](#) today to learn more about our guaranteed results and discuss how we can help make the dreams of the student in your life come true!

## Reference Links:

- [http://en.wikipedia.org/wiki/Talk%3AReproductive\\_system](http://en.wikipedia.org/wiki/Talk%3AReproductive_system)
- <http://www.becomehealthynow.com/article2/bodyembryo/789/>
- <http://www.cartage.org.lb/en/themes/sciences/lifescience/generalbiology/physiology/ReproductiveSystem/FertilizationCleavage/Fert>
- <http://www.youtube.com/watch?v=28GTvrNvRRE>

Category:ROOT

[Joomla SEF URLs by Artio](#)