

# Difference Between Male and Female Gametes

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## Key Difference – Male vs Female Gametes

Sexual reproduction is a form of reproduction which forms a new individual from a union of two types of gametes. A gamete is a mature haploid male or female germ cell which is capable of fusing with another germ cell of the opposite sex to form a zygote. Gametes vary in structure (anisogamete) and motility and are produced by different parents. Some female and male gametes are similar in some characteristics such as size, and shape. In some species of fungi and algae, both gamete types are almost identical. In higher plants and animals, the male gamete is small and motile while the female gamete is large and nonmotile. When male and female gametes are fused with each other (fertilization), the resulting cell, i.e., diploid zygote, contains two sets of chromosomes. **Male gametes are known as sperms and they are produced by the male organism or male reproductive organ. Female gametes are known as egg cells and they are produced by the female organism or female reproductive organ.** This is the key difference between male and female gametes.

## What are Male Gametes?

Male haploid sex cells are known as male gametes. Male gametes are different in structure and motility among organisms. In higher plants, male gametes are known as pollen grains. They are produced inside the pollen sacs. Pollen sacs reside in the anthers of the male reproductive structures of flowers. Once the pollen grains are formed, they are released to the environment using several mechanisms. These pollen grains are deposited on the stigma of the female reproductive part (carpel) and male nuclei reach the ovary of the flower to fuse with the egg cell.

In humans, male gametes are known as sperms. Sperms develop in the testes of males. A sperm cell is a small and motile cell. It contains a flagellum, which helps the sperm cell to propel and move towards the female sex cell. The head region of the sperm cell has a cap-like covering known as acrosome which contains enzymes that aids in penetrating through the outer covering of the egg cell. Once the sperm cell reaches the egg cell nucleus, it fuses and produces a diploid cell.

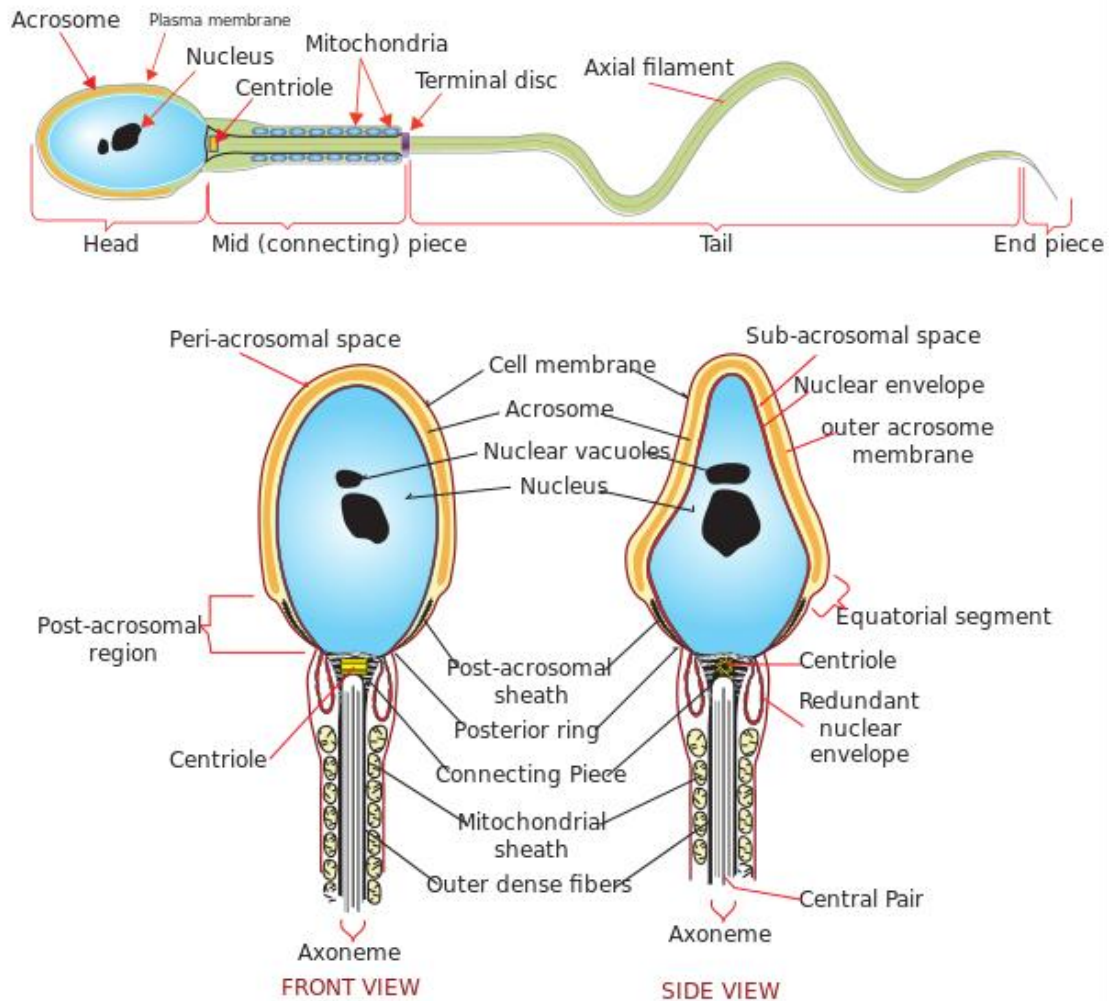


Figure 01: Human Sperm

Sperms are produced and released in large numbers at a time. They are able to travel through the female reproductive tract and fertilize the female gamete. In non-flowering plants, especially in [gymnosperms](#), male gametes are produced in pollen cones.

## What are Female Gametes?

Female gametes are the sex cells produced by a female organism for sexual reproduction. They are known as egg cells. Egg cells are mature haploid cells that contain one set of chromosomes ( $n$  cells). Generally, female gametes are larger than male gametes. They are also non-motile, unlike sperms. In flowering plants, egg cells are produced in the ovaries. Each carpel has an ovary containing ovules. Each ovule contains one egg cell which is the female gamete.

Female gametes are produced by meiosis and fertilized with the sperm within the female body of mammals.

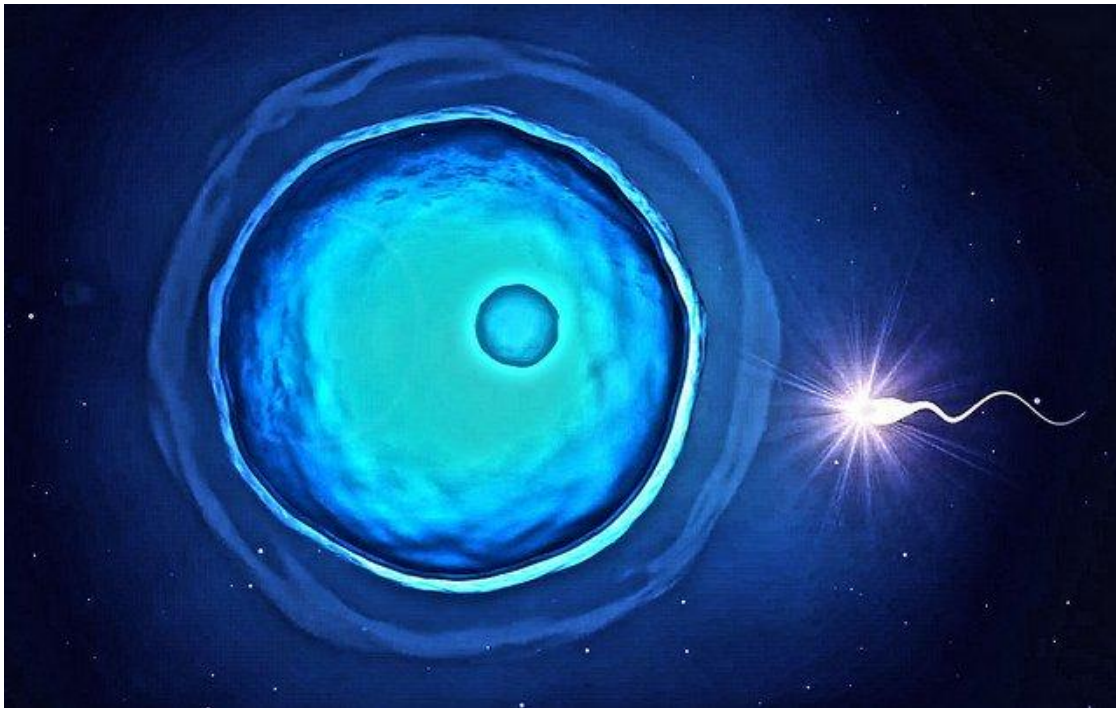


Figure 02: Human Egg Cell and Sperm

## What are the similarities between Male and Female Gametes?

- Male and female gametes contain one set of chromosomes.
- Both gametes are involved in sexual reproduction and they are sex cells.
- Both gametes are produced by meiosis.
- Both gametes are involved in the formation of a zygote.

## What is the difference between Male and Female Gametes?

Male vs Female Gametes	
Male gametes are the mature haploid sex cells produced by a male organism or a male reproductive organ.	Female gametes are the mature haploid sex cells produced by a female organism or a female reproductive organ.
Size	

Male gametes are generally smaller than female gametes.

Female gametes are larger than male gametes.

### Production in Plants

In higher plants, male gametes are produced inside pollen sacs of the anthers.

In higher plants, female gametes are produced inside the ovary.

### Number of Gametes Produced

Male gametes are produced in large numbers compared to female gametes.

Female gametes are produced in small numbers.

### Reaching Opposite Sex Cell

In higher plants, male gametes (pollen grains) are transferred to the stigma of another flower by external agents such as insects or the wind.

In higher plants, female gametes remain immobile inside the ovary of the flower.

## Summary – Male vs Female Gametes

Gametes are haploid sex cells produced for sexual reproduction. Male gametes are male sex cells and female gametes are female sex cells. Gametes are produced by meiosis. They contain only one set of chromosomes. Two opposite sex gametes fuse with each other and produce a diploid zygote which develops into a new organism. In different organisms, gametes vary in size, shape, motility, etc. Generally, male gametes are smaller than female gametes and motile. However, in certain species of fungi and algae, identical male and female gametes can be seen. In higher organisms, male and female gametes can be clearly distinguished. Male gametes are known as sperms while female gametes are known as egg cells. This is the difference between male and female gametes.

### References:

1. Nature News. Nature Publishing Group, n.d. Web. [Available here](#) 29 July 2017.
- 2."Gamete." Wikipedia. Wikimedia Foundation, 26 July 2017. Web. [Available here](#) 29 July 2017.
3. Bailey, Regina. "Gametes: The Building Blocks of Sexual Reproduction."ThoughtCo. N.p., n.d. Web. [Available here](#). 29 July 2017.

### **Image Courtesy:**

1. "Complete diagram of a human spermatozoa en" By Mariana Ruiz Villarreal spermatozoa – (Public Domain) via [Commons Wikimedia](#)
2. "Human gametes: ovum & spermatozoon" by Karl-Ludwig Poggemann ([CC BY 2.0](#)) via [Flickr](#)

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