

POLYSPERMY

It is the phenomenon of entry of more than one sperm to egg for fertilization. In nature monospermy, entry of single sperm is the normal condition. As a general rule, one sperm enters an egg but in large yolky egg like birds and reptiles more than one sperm may enter the egg. Polyspermy may be of two types-

- a) **Physiological polyspermy-** In this type of polyspermy although more than one sperm nuclei and centrioles enter the egg but only one sperm take part in fertilization.
- b) **Pathological polyspermy-** In this type of polyspermy more than one sperm nuclei and centrioles not only enters egg but they take part in fertilization process, leading to a pathological polyspermy. Fusion of more than one sperm nucleus with one female pronucleus results a condition called polyandry, which is a lethal condition.

Blocks to Polyspermy or exclusion of surplus spermatozoa-

Different exclusion techniques are found in different group of organisms to eliminate the excess sperms from the egg surface-

- i) **Formation of fertilization membrane-** In the eggs of many animals like annelids, sea urchin and in vertebrates a fertilization membrane forms after the entry of one sperm. The membrane originates at the point of entry of sperm and then gradually encircle the entire egg with a 800Å thick membrane prevent the entry of a second sperm.
- ii) **Protection through micropyle-** It is observed that in sturgeon and teleost egg micropylar canal is so narrow that only one sperm can enter at a time. Immediately after the entry of one sperm the micropylar canal is blocked by gelatinous substance in order to prevent supplementary sperm.
- iii) **Alteration in Zona Pellucida-** Through a process called zona reaction, the zona pellucid in mammalian egg immediately after the entry of one sperm turn impermeable to the supplementary spermatozoa.

You are to able to answer the following-

Q1. Describe fertilization with special reference to the cortical reactions.	10
Q2. What is the significances of fertilizin - antifertilizin reaction?	2
Q3. What is polyspermy? How it is blocked by the organisms?	3
Q4. What is the significances of formation of polar body in Oogenesis?	2