

spermatogenesis:

Spermatogenesis Is the Process of Formation of Spermatocytes from Spermatogonia. It is initiated at puberty, continues throughout the remainder of a man's life, and takes place in the walls of the seminiferous tubules. The walls of the tubules are composed of two compartments separated by tight junctions between the Sertoli cells:

- The basal layer, which consists of the Leydig cells and the spermatogonia
- The adluminal layer, which is made up of Sertoli cells and spermatocytes

The initial step in the process is transformation of type A spermatogonia, which are epithelioid in nature, to type B spermatogonia, a process involving four divisions. The type B cells embed in the Sertoli cells. In association with the Sertoli cells, the type B cells are transformed to primary spermatocytes and then, in a step involving the first meiotic division, to secondary spermatocytes. The secondary spermatocytes undergo a second meiotic division, yielding spermatids, each of which has 23 unpaired chromosomes. The steps described are stimulated by testosterone and follicle-stimulating hormone (FSH).

Spermiogenesis Is the Process of Transformation of the Spermatids, Which Are Still Epithelioid, to Sperm Cells. The process takes place with the cells embedded in the Sertoli cells; it requires estrogen and FSH. Once the sperm cells are formed, they are extruded into the lumen of the tubule in a process stimulated by luteinizing hormone (LH). The first division of the type A spermatogonia to extrusion of the sperm cells requires a period of approximately 64 days. The newly formed sperm cells are not functional and require a maturation process, which takes place in the epididymis over a period of 12 days. Maturation requires both testosterone and estrogen. The mature sperm are stored in the vas deferens.