ABSTRACT

This bachelor thesis summarises the topic of gametogenesis and fertilization in humans. A search in available literature was performed. The thesis concisely describes the cell cycle and cell division. The main focus is on meiosis, a reductional division that takes the lead part in sexual reproduction. The process of this division is described in detail, and also the mechanism that creates variability of protected cells is described. The product of meiosis is gametes, also known as germ cells. Production of these cells is a key moment in sexual reproduction. This thesis approaches this topic in the context of evolutionary biology and explains its importance in the survival of species on Earth.

The main topic of the thesis is the production and maturing of human germ cells. This process is called gametogenesis. This thesis provides a cohesive description of the reproduction system of both sexes and describes the gradual maturing of the germ cells in gonads. The structure of both gametes, egg, and sperm is described with emphasis on the parts of these cells that take part in the process of fertilization. Female reproductive cycles are depicted, and their connection is explained. In contrast to this periodicity, the male continual maturing is also explained. This thesis compares the main differences in spermatogenesis and oogenesis.

The next key topic is a fusion of the mature human sex cells, the fertilization itself. What is described is the paradox in human reproduction, explaining some of the possible causes of why germ cell fusion cannot happen in certain situations and describing the mechanism of gender creation. The last chapter summarises the whole topic of human sexual reproduction.

KEY WORDS

gametogenesis, fertilization, egg, sperm, sexual reproduction, spermatogenesis, oogenesis, meiosis