Study program: Reproductive biology

Study level: Master's studies

Course title: REPRODUCTIVE PHYSIOLOGY

Course code: RB01

Teacher: prof. dr Silvana Andrić

Course status: obligatory

ECTS: 6

Requirements: Basic medical/animal physiology

Course objectives

The aim of this course is to study the fundamental mechanisms of the reproductive system functioning and the interconnectedness of different signaling pathways that control reproduction.

Learning outcomes

After successfully completing the course, students should acquire basic knowledge about the mechanisms of sex differentiation, reproductive signaling molecules, as well as to be able to describe the function of the reproductive system at different ages.

Syllabus

Theoretical instruction

Signaling processes and signaling molecules in reproductive physiology. Differentiation and determination of the sex. Physiological basics of puberty and maturation of the hypothalamic-pituitary-gonadal axis. Physiology of the testes. Physiology of the ovaries. Physiological effects of steroid hormones. Regulation of gonadal function in adults. Physiological basis of coitus, fertilization, implantation and the formation of the placenta. Physiological basis of pregnancy, childbirth, lactation and maternal behavior. Fetus and his preparation for the birth. Fertility. Reproductive function during aging.

Other forms of teaching (Practical laboratory)

Experimental animals and experimental models (hypogonadal-hypogonadism, androgenization, aging, psychophysical stress, blockade of different receptors (androgen, estrogen, adrenergic, glucocorticoid)). The experimental surgical procedures (castration, ovariectomy, pinealectomy). The reproductive organs of the female and male rats. Oestrus cycle of female rats. Isolation and purification of testicular Leydig cells and investigation of their's functionality. Analysis of transcriptional profiles of specific markers of spermatozoids and Leydig cells.

Literature

1. Jonson M.H. *Essential reproduction.* Blackwell, 2007.
2. Neill J.D. *Knobil and Neill's Physiology of Reproduction*. Lippincott Williams & Wilkins, 2005.
3. Jones R.E. *Human Reproductive Biology.* Elsevier, 2006.

Review papers from the field of Reproductive physiology.

Weekly teaching load

Lectures: 2	Teaching laboratory:	Other forms of teaching (practical laboratory): 4	Research activities	Other:

Teaching methods

Lectures, consultations, Other forms of teaching (laboratory exercises, participation in the planning and performing of the experiments, as well as in the analysis of results).

Evaluation of knowledge (maximum score 100)

Pre-exam obligation	Points	**Final exam**	Points
Student engagement in lectures		Written exam	up to 20
Seminar		Oral exam	up to 60
Tests			
Practical laboratory	up to 40		