University of Gdańsk

Subject card

Subject name and code	The selected aspects of stress biology, PG_00149328						
Field of study	Medical Biology						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
Education level	undergraduate studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		1.0		
Learning profile	academic		Assessment form				
Conducting unit	Faculty of Biology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Ziemowit Ciepielewski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	15		2.0		8.0	25
Subject objectives	To learn about the role of the neurohormonal system in the mechanism of the stress response. To learn about the mechanisms regulating the course of the stress response. To understand the concept of non-specificity and specificity of the stress response at different levels of organisation (cellular, organismal,organismal). To learn about the influence of genotype and phenotype in terms of individual reactivity and sensitivity to stress. Understanding integrative aspects of the stress response - biological aspect, psychological aspect. To understand the concept of stress as a form of behaviour and an adaptation mechanism. To learn about pathologies and psychopathologies associated with and/or resulting from stress in the broadest sense.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMEDL3_K01] understands the need for lifelong learning and to update his/her knowledge of medical biology and related disciplines	understands the need to keep abreast of and update the latest knowledge on stress, stress research methodologies, and understands the role of stress in the clinic and psychology	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written
[BIOLMEDL3_U06] reads with understanding scientific texts in Polish and simple texts in English in the field of medical biology; independently searches and uses available sources of information, including electronic sources	is up to date with the latest literature on the biology and neurobiology of stress	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[BIOLMEDL3_W12] is oriented in the development and current state of knowledge and the latest trends in medical biology; indicates their relationship with other disciplines of natural or medical sciences	is familiar with the most current issues concerning the stress response in a broad sense, and is familiar with scientific trends relating to both the theory and methodology of stress research	[SW4] test/exam - oral or written
[BIOLMEDL3_W11] posiada zaawansowaną wiedzę dotyczącą metod oceny stanu zdrowia oraz objawów i przyczyn wybranych zaburzeń i zmian chorobowych oraz zna podstawy zdrowego trybu życia, potrafi je uzasadnić i promować	can identify the main biomedical effects of stress and link them to stress-induced diseases	[SW4] test/exam - oral or written

Subject contents

Definitions of a stress response. Concepts: homeostasis, rheostasis, allostasis and allostatic load. Anatomical and neuroanatomical components of the stress response. The sympathetic-adrenal system in the stress response. The hypothalamic-pituitary-adrenal-cortical axis. Genetic polymorphisms in the stress response. Modulation of the course of the stress response (vasopressin, oxytocin, growth hormone, prolactin, the opioid system, the endocannabionoid system). Diseases induced by the stress response - psychosomatic aspects.Basic concepts in psychosomatics. Central neuronal circuits for the stress response. Stress-induced immunomodulation. Types of stress: eustress, distress, physiological stress, metabolic stress. metabolic, neurogenic stress, psychological stress. Prenatal stress. Stress and trauma. PTSD as an example of a psychosomatic disorder. The brain as a target organ for steroid hormones. Stress and brain plasticity. Stress and memory processes. Learning and stress. Stress and the immune system - role in chronic diseases (viral diseases, cancer, civilisation diseases). Coping with stress (individual variability)

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	100.0%

Recommended reading

Basic literature	The lecture is an authoritative study of the neurobiology and physiology of stress based on many years of study of the primary literature. A. Literature required for final course credit (passing the exam): Fink G. (ed) Stress science: Neuroendocrinology, 2010, Academic Press, Elsevier. Soreq H., Friedman A., Kaufer D. Stress - From Molecules to Behavior: A Comprehensive Analysis of the Neurobiology of Stress Responses, 2010, Wiley-Blackwell
Supplementary literature	B. Reference literature Contrada RJ, Baum A. The Handbook of Stress Science: Biology, Psychology, and Health, 2012, Springer Pfaff D., Joels M. (eds) Hormones, Brain and Behavior, 3rd Edition, 2016, Academic Press, Elsevier. Materials (review papers in English and Polish) provided by the instructor or suggested by students
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

Document generated electronically. Does not require a seal or signature.