
Clinical Physiology Unit

Offer

- Cooperation with partners on development and optimization of new protocols for advanced metabolic phenotyping mainly in the fields of experimental diabetology, endocrinology and nutrition
- Using well established tests suited for customers' research needs (see „KNOW-HOW & TECHNOLOGIES“ section). Unit is equipped with qualified staff and all the equipment needed for providing advanced physiology studies
- Expertise in the area of human metabolism, diabetes, endocrinology and nutrition
- Clinical trials conduct, patients/volunteers recruitment
- Cooperation with research groups and companies in this field

Know-how & technologies

- Insulin sensitivity and secretion measures (clamp studies, fast sampling IVGTT, glycaemic index etc.)
- Functional endocrinology testing
- Tissue microdialysis
- Indirect calorimetry, ergometry, physical exercise testing
- Tissue biopsies and preparations
- Arterio-venous balance studies

Research area & excellence

- Clinical Physiology Unit (CPU) offers scientific solutions in basic research as well as clinical trials involving human subjects.
- We aim to develop and provide protocols for advanced metabolic phenotyping mainly in the fields of experimental diabetology, endocrinology and nutrition.

Key research equipment

- The unit operates on in-patient as well as out-patient basis.
- CPU is equipped with three monitored beds and all the equipment and staff needed for providing advanced physiology studies.
- The unit has been accredited by Joint Commission Int.
- CPU is equipped with indirect calorimeter and ergometer (Cosmed, Quark RMR), laminar flowbox, incubator and basic laboratory equipment.

Achievements

Apomorphin test, high MUFA diet, BCAA and whey secretion tests, methionine test, exercise physiology of functional electrical stimulation. Vegan vs omnivore experimental model.

Partnerships & collaborations

- Department for study on Diabetes and Obesity and Department of Hygiene, Third Faculty of Medicine, Charles University
- Department of Anaesthesia and Intensive Care Medicine
- Kralovske Vinohrady University Hospital
- Institute of Physiology of Academy of Science
- Institute of Clinical and Experimental Medicine

Important publications

- Altannavch TS, Roubalová K, Kucera P, Andel M.: *Effect of high glucose concentrations on expression of ELAM-1, VCAM-1 and ICAM-1 in HUVEC with and without cytokine activation.* Physiol. Res. 2004;53(1):77–82. . IF = 1.6. 58 times cited.

- Brunerova L, Smejkalova V, Potockova J, Andel M.: *A comparison of the influence of a high-fat diet enriched in monounsaturated fatty acids and conventional diet on weight loss and metabolic parameters in obese non-diabetic and Type 2 diabetic patients*. Diabet. Med. 2007;24(5):533– 540. 18 times cited. IF = 3.05.
- Horáček J, Kuzmiaková M, Höschl C, Anděl M, Bahbonh R.: *The relationship between central serotonergic activity and insulin sensitivity in healthy volunteers*. Psychoneuroendocrinology 1999;24(8):785–97. 40 times cited. IF = 4.94.
- Syrovatka P, Kraml P, Potockova J, Fialova L, Vejrazka M, Crkovska J, Andel M.: *Relationship between Increased Body Iron Stores, Oxidative Stress and Insulin Resistance in Healthy Men*. Ann. Nutr. Metab. 2009;54(4):268–274. 25 times cited. IF = 2.461.
- Gojda J, Jirka A, Strenkova J, Jarkovsky J, Tesinsky P.: *PP180-SUN 20 Years of Home Parenteral Nutrition Registry in the Czech Republic*. Clin. Nutr. 2013;32:S90.
- Tuma P, Gojda J.: *Rapid determination of branched chain amino acids in human blood plasma by pressure-assisted capillary electrophoresis with contactless conductivity detection*. Electrophoresis 2015;36(16). doi:10.1002/elps.201400585. IF = 3.028.
- Páv M, Hollý M, Cendelinová M, Gojda J, Polák J.: *SOMA Score, cardiovascular risk screening tool for psychiatric patients*. Eur. Psychiatry 2016;33:S284–S285.
- Jiroutková K, Krajčová A, Ziak J, Fric M, Waldauf P, Džupa V, Gojda J, Němcova-Fürstová V, Kovář J, Elkalaf M, Trnka J, Duška F.: *Mitochondrial function in skeletal muscle of patients with protracted critical illness and ICU-acquired weakness*. Crit. Care 2015;19(1). doi:10.1186/s13054-015-1160-x. IF = 7.44.
- Gojda J, Rossmeislová L, Straková R, Tůmová J, Elkalaf M, Jaček M, Tůma P, Potočková J, Krauzová E, Waldauf P, Trnka J, Štich V, Anděl M.: *Chronic dietary exposure to branched chain amino acids impairs glucose disposal in vegans but not in omnivores*. Eur. J. Clin. Nutr. 2017. doi:10.1038/ejcn.2016.274. IF = 2.935.
- Gojda J, Straková R, Plíhalová A, Tuma P, Potočková J, Polák J, Anděl M.: *Increased Incretin But Not Insulin Response after Oral versus Intravenous Branched Chain Amino Acids*. Ann. Nutr. Metab. 2017;70(4):293–302. IF = 2.461.

Are you interested in this expertise?

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