

### **P3.07.**

#### **Central melanocortin responsiveness in spontaneously hypertensive rats (SHR).**

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Hypothalamic melanocortins (MCs) are important catabolic mediators in energy balance regulation: they suppress food intake (FI), increase metabolic rate (MR) and reduce body weight (BW). Activation of the central MC system has also been shown to increase sympathetic activity and arterial blood pressure. In the spontaneously hypertensive rat (SHR) strain increased sensitivity of the central MC system was detected that may contribute to the higher blood pressure. Other studies also showed attenuated body weight development in these rats. The question arises, whether the catabolic activity of the more sensitive MC system also results in dysregulated energy balance in SHR rats. Parameters of energy balance [FI, BW, core temperature (Tc), heart rate (HR, indicator of the MR)] of 6-month old male SHR rats were recorded in a biotelemetric system (MiniMitter) during a 7-day (1 µg/µl/h) intracerebroventricular infusion of the MC agonist alpha-melanocyte stimulating hormone (αMSH). In SHR rats the extent of FI and BW reduction induced by exogenous αMSH was similar to those of controls, but the observed effects were of shorter duration. Elevations in HR and Tc were smaller and appeared during the active (night) instead of the inactive (day) phase. The high MC sensitivity resulting in hypertension may play a role in the development of a catabolic shift in the energy balance as well. This higher intrinsic activity could not be further stimulated by administration of exogenous MC agonists.