

## Obesity and metabolic disorders: Impact and relationship of menopausal transition and lifestyle modifications in a rat model

Renata Szabo<sup>1</sup>, Denise Borzsei<sup>1</sup>, Alexandra Hoffmann<sup>1,2</sup>, Berta Vargane Baglyas<sup>2</sup>, Aniko Magyarine Berko<sup>1</sup>, Krisztina Kupai<sup>1</sup>, Aniko Posa<sup>1</sup> and Csaba Varga<sup>1,2</sup>

<sup>1</sup>University of Szeged, Hungary

**Objective:** Menopause-related hormonal changes are associated with an increased prevalence of various cardio metabolic risk factors. The objective is to examine the influence of lifestyle (type of diet and exercise) in estrogen-depleted rat model.

**Method:** Female wistar rats were underwent surgical ovariectomy (OVX) or sham operation and then divided into subgroups based on the diet (standard chow, high-triglyceride diet/HT or Calorie Restriction/CR) and exercise (with or without running). The exercising animals were placed into cages fitted with a running-wheel and were allowed free access to the wheel for 24 hours per day. After 12 weeks, body weight gain, glucose sensitivity and levels of serum insulin, plasma triglyceride, leptin and Aspartate Aminotransferase (AST) and Alanine Aminotransferase (ALT) were determined.

**Results:** Our results verify that menopause by itself has a negative impact on metabolic parameters, which is exacerbated by the poor diet and the lack of physical exercise. OVX animals, especially in the HT groups, showed elevated triglyceride, leptin, AST and ALT levels, impaired glucose tolerance and the onset of insulin resistance. In our experiment, the metabolic parameters were improved in part, by 12-week voluntary exercise or CR, but most effectively by its combination.

**Conclusion:** Lifestyle modifications with a balanced diet and regular physical exercise are effective against metabolic disorders and consequently may improve the life expectancy of postmenopausal women.

### Biography

Renata Szabo was awarded the title of doctor by University of Szeged with summa cum laude in the field of Biological Sciences. She has published 17 papers in reputed journals.

szaborenata88@gmail.com

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