1st INTERNATIONAL SYMPOSIUM of DOHaD and Pandemic: LESSONS FROM COVID-19
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1º SIMPÓSIO INTERNACIONAL de DOHaD e Pandemia: LIÇÕES DO COVID-19
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EFFECTS OF SWIMMING TRAINING IN OBESITY INSTALLATION IN ADULTS OFFSPRING BORN WITHIN A SMALL LITTER

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The excessive supply of energy during pregnancy and breastfeeding period, favors the high accumulation of white adipose tissue (WAT) throughout life, commonly associated with insulin resistance (IR), dyslipidemia and cardiovascular disease in adulthood. Chronic aerobic exercises reduce accumulation of WAT, preventing the development of metabolic diseases. On the 2nd postnatal day, litter size was set to: normal (NL) with 9 pups per mother and small (SL) with 3 pups per mother, was used just male rats. After weaning (21 days), NL and SL rats, were divided into sedentary (Sed) and exercised (Exe), forming 4 experimental subgroups; NL_{Sed}, NL_{Exe}, SL_{Sed} and SL_{Exe}. From 22–90 days of life exercised groups performed swimming training 3 times for week during 30 minutes. Litter handling influenced body weight, retroperitoneal and mesenteric-WAT ($p<0.0001$) in adulthood. SL_{Sed} animals showed an increase in these parameters when compared to NL_{Sed} and NL_{Exe} animals ($P<0.0001$). Swimming training reduced body weight and WAT deposits in NL and SL groups ($P<0.0001$). SL_{Sed} and SL_{Exe} animals showed elevated glucose values at 2h post-glucose load when compared to NL animals. Kitt was also altered by litter reduction ($P<0.0001$), with SL_{Sed} animals had higher Kitt values compared to NL_{Sed} and NL_{Exe} rats. This response was normalized in SL_{Exe} group.We conclude that lactational hypernutrition causes obesity associated with disruption of glucose homeostasis and swimming training normalizes insulin sensitivity but is insufficient to restore glucose homeostasis during glucose tolerance test.

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