

## Physical exercise is associated with better fat mass distribution and lower insulin resistance in spinal cord injured individuals

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**Objectives:** The aim of the study was to compare total and regional body composition and their relationship with glucose homeostasis in physically active and non-active c-SCI individuals. **Methods:** Individuals with lesion level between C5-C7 were divided into two groups: Physically active (PA n=14; who practiced physical exercise for at least 3 months, 3 times/week or more, minimum of 150 minutes/week); and non-physically active (N-PA n=8). Total fat mass (t-FM) and regional fat mass (r-FM) were assessed by dual energy X-ray absorptiometry (DXA). Fasting plasma insulin (FPI) was determined by ELISA.

**Results:** PA group present lower ( $p<0.01$ ) total fat mass (t-FM), % and Kg, regional fat mass (r-FM), % and Kg, FPI levels and HOMA index, while they had higher ( $p<0.001$ ) total free fat mass (t-FFM), %, and regional free fat mass (r-FFM), %, compared to the N-PA group. In the N-PA group, FPI and HOMA index were negatively ( $p<0.05$ ) correlated with FFM% ( $r=-0.71$ ;  $r=-0.69$ , respectively) and positively correlated to trunk-FM ( $r=0.71$ ,  $r=0.69$ , respectively) and trunk-FM:t-FM (kg) ratio ( $r=0.83$ ,  $r=0.79$ , respectively).

**Conclusion:** Physical exercise is associated with lower t-FM, r-FM and insulin resistance, which could contribute to the decrease of the risk of cardiovascular and metabolic conditions in c-SCI individuals.

### Biography

Magna Cottini Fonseca Passos has completed her Masters at University Pierre & Marie Curie in Nutrition and Dietetics of adult (Paris, France) and her Ph.D. in Nuclear Biosciences at State University of Rio de Janeiro, in Brazil. She is Associate Professor at Department of Applied Nutrition of State University of Rio de Janeiro. She is Researcher at National Council for Scientific and Technological Development (CNPq), in Brazil. She has experience in Pathophysiology of Nutrition, mainly in the following topics: programming, malnutrition, lactation, thyroid function, obesity, metabolic syndrome and physical activity. She is a member of DOHaD (International Society for Developmental Origins of Health and Disease), having participated as Invited Speaker by the Scientific Committee of the 5<sup>th</sup> International Congress of Developmental Origins of Health and Disease, Australia. Participates search network, ResearchGate, since 2011.