EFFECTS OF LOW BIRTH WEIGHT ON THE MECHANICAL PROPERTIES OF THE PLANTAR FLEXOR MUSCLES IN EUTROPHIC 9-YEARS OLD CHILDREN.

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SUMMARY The aim of the present study was to quantify the force production capacities and musculotendinous stiffness of the triceps surae in prepubertal children born with low birth weight - a model of early malnutrition – but nowadays eutrophic. Results indicate that children born with low birth weight, but nowadays eutrophic, did not show any significant evolution of the mechanical properties of the triceps sural. These results underline the assumption that the actual nutritional status is responsible for differences in muscle mechanical properties.

RESULTS AND DISCUSSION None of the measured parameters showed any significant difference between children of the NBW and the LBW group. More precisely, MVC and Pt changed by 1.7% or 6.5% (P>0.05), respectively. SI<sub>MT</sub> and EMD showed no significant differences between the NBW and the LBW children (-11.3% and 1.7%, respectively). The results that none of the tested mechanical parameters showed any significant differences is opposite to the results obtained in stunted children [1], where MVC and Pt showed body mass related decreases. Moreover, stunted children presented a similar evolution in SI<sub>MT</sub> and EMD indicating that MT stiffness evolution is opposite when obtained from voluntary or induced contractions [1].

CONCLUSION The preliminary results of the present study seem to indicate that LBW has no effect on the maturation of the mechanical properties of the plantar flexor muscles in 9-years old LBW children and that LBW has different effects when compared to stunting. Further experiments should underline these results.

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REFERENCES