

P011 Relationship between cerebral palsy induced spasticity and tendon collagen turnover.

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Tendon collagen turnover depends on adaptation to mechanical loading, and is determined by the dynamic balance between collagen synthesis and degradation. **Since tendons respond to mechanical loads by modifying some of their metabolic, morphological and biomechanical properties, we investigated the relationship between increased mechanical stress induced by spasticity in cerebral palsy (CP) and tendon collagen turnover.** Samples were divided into 3 experimental groups: normal (CT) (n=2), non-walking quadriplegic (n= 7) and walking diplegic subjects (n=3). The ipsilateral gracilis and semitendinosus muscle tendons were processed for each group. Gene expression for collagen type I (COL-I), matrix metalloproteinase 1 (MMP-1), long lysyl hydroxylase 2 (LH2b), Secreted Protein Acidic and Rich in Cysteine (SPARC) were analyzed by real-time PCR. **COL-I resulted highly up-regulated in CP tendons, compared to CT. MMP-1 was overexpressed in quadriplegic tendons, compared to diplegic and normal samples. LH2b mRNA levels tended to be higher in quadriplegic tendons. SPARC tended to be upregulated in CP samples, compared to CT, and at higher extent in semitendinosus compared to gracilis tendons.** Our results suggest that gene expression profiles are different among the three groups, and higher collagen turnover and extracellular matrix remodeling in CP tendons are possibly due to altered mechanical stimulations. Acknowledgements: The authors thank Ariel Foundation for the research financial support.