

Abstract

Title: Quantification of the axial system of humans by the TVS method

Objective: The aim of this thesis is to introduce the TVS method as an adequate method for determining the biomechanical properties of the human axial system (AS).

Method: This thesis presents data analysis from a series of case studies, which were obtained during the development of the TVS method. The data for the analysis were selected by the TVS measurements two times during the pregnancy of six women. On two sections of AS (Th2-Th9 and T11-L2), we examined the ability to soften vibrations of AS with regard to the stage of pregnancy. The results are quantified and provide information about the resonant frequencies, stiffness and damping of selected parts of AS.

Results: The TVS method seemed to be adequate to provide information about the change of mechanical properties in depending on the selected parameter and allows the quantification of the biomechanical properties of AS. The results showed the improvement of damping parameter in case of four respondents, whereas the deterioration in case of two respondents.

Keywords: IVD, Transfer Vibration through Spine, transmitting mechanical vibrations by the axial system, damping and throughput AS