

Postgraduate Student: **Nikolaos Papatheodorou**

Thesis Title:

Motor skills evaluation of upper limbs in patients with multiple sclerosis using the IDEA (Input Device Evaluation Application) system

Abstract:

The use and function of the upper limbs of human body is an integral part of everyday interaction with the environment right from the very first minutes of life.

The subject of this thesis is the experimental application of IDEA (Input Device Evaluation Application) system in patients with multiple sclerosis at an early stage without clinically overt motor deficits, in order to assess the motor skills of the upper limbs.

The objectives of this study was to test the sensitivity and reliability of the IDEA system regarding the evaluation of multiple kinetic parameters of the upper limbs and to compare the results gained with the well known 9 Hole Peg Test to investigate possible correlations between them.

The experimental procedure was performed in 29 patients who were hospitalized in Demyelinating Diseases Section of the Neurological Clinic of Eginition Hospital of Athens and in 26 healthy participants. The data derived from the application of the two experiments also includes several questionnaires as well as demographics. The extraction of data from the experimental procedure of the IDEA system, was performed using Matlab v2009b whereas the statistical analysis of the results was performed using IBM SPSS Statistics v20.

The derived results do not reveal any significant correlations between the two experiments. It is worth noting that a small reduction in the performance of patients in the 9 Hole Peg Test compared to healthy participants was observed.

The application of the same test to people affected by the disease with apparently existing clinical motor deficits may lead to more clear and complete results and at the same time can help to better and effectively understand the patients' responding after the application of a particular medication.

SUBJECT AREA: Motor skills

KEYWORDS: Multiple Sclerosis, Upper limb function, Input Device Evaluation Application, 9 Hole Peg Test, Biostatistics Analysis

