**Musicotherapy for Parkinson’s disease tremor**

The aim of the study is to verify the effectiveness of standard physiotherapy treatment combined with a music-based rehabilitation intervention carried out through the use of a musical instrument and listening to specifically selected and modified music based on scientific evidence.

The patients were randomized into 4 groups:

* Group 1: patients were administered the standard treatment in combination with the experimental music intervention.
* Group 2: patients were given standard treatment in association with an “unspecific “music intervention
* Group 3: patients were given only standard treatment.
* Group 4: placebo. No physiotherapy treatment was administered.

All patients performed a lengthy clinical, functional and assessment protocol using specific validated tests and rating scales. The Axivity sensor was used to make an objective and precise assessment of the effectiveness of the intervention and so the change in upper limbs tremor.

For tremor detection, the sensor was attached via the Axivity strap to the wrist of the limb that had higher tremor severity.

Once the sensor was positioned, the patient performed 3 movements:

* Trial 1: the patient, placed in a standing position, was asked to flex the upper limbs to 90° with the palm of the hands facing downward and hold this position for 10 seconds;
* Test 2: the patient placed in a sitting position, with the back not resting on the backrest, was asked to flex the elbows to 90° by resting the ulnar side of the hands on the respective knees and hold this position for 10 seconds;
* Trial 3: the patient placed in a standing position was asked to keep e maintain the upper limbs relaxed along the body for 10 seconds.

This type of assessment was performed at:

* Time 0 : initial assessment of the patient
* Time 1 : intermediate evaluation of the patient after 14 days of treatment according to the assigned group

At the end of each evaluation, data were captured and saved on the Pc using OmGui software. From the graph, the 10 seconds related to each of the 3 trials were cut and saved. Each trial then was exported in .xlsx format.

The next step would be to be able to derive from these data the main characteristics of tremor (amplitude, rhythm, frequency) so that a comparison could later be made before and after the rehabilitation intervention administered.