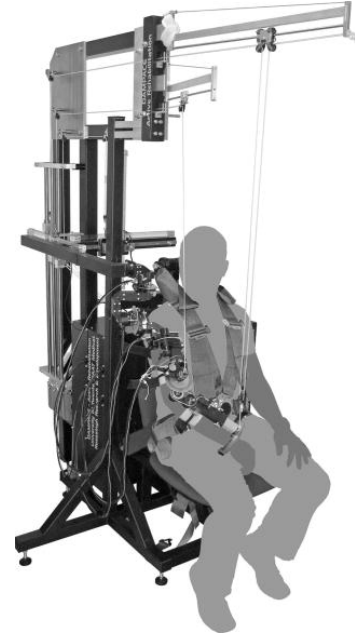


DEVELOPMENT OF A ROBOT PROTOTYPE TO BE USED IN THE UPPER EXTREMITY MOTOR REHABILITATION AFTER STROKE



For demonstration purposes only:

<http://www.gizmag.com/harmony-rehab-robot/37293/>

Dampace: Design of an Exoskeleton for Force-Coordination Training in Upper-Extremity Rehabilitation

The upper limb rehabilitation robot that will be developed in this project will be the world's first mobile support system within our knowledge (the patient can walk during rehabilitation). This robot aims to rehabilitate patients using the norms obtained by nine daily real-life activities determined by Hacettepe University School of Physical Therapy and Rehabilitation faculty. In addition to these activities, the robot will support interactive Kinect games. Such games are the end-effector based games. Thus, instead of anatomical location of all joints (end-effector) to be at the desired point, the location of the hands to be at the desired point is the success criteria. Therefore, it is not an effective method of rehabilitation. However, in this project, each activity in the games will be directed to the sturdy side before and norms required for these tasks will be gathered by protractor, IMU and Kinect and immediately after, the same task will be directed to the affected side as mirror-reflection and the accuracy of the movement will be checked according to these norms not only end-effector based but also anatomically. This method is protected by patent application. Furthermore, the games will be held to cover both sturdy and affected sides so that the effect of rehabilitation will be increased. Finally, patients will be undergone power and constraint test before the rehabilitation called as "Individual patient motion identification mode" and hereby, at that moment, the game will be updated automatically as each task is completed. Tactile stimulation will also be given to patients by haptic stimulations during the game.

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