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Implementation of the dart-throwing motion plane in hand therapy after distal radius fractures: preliminary results

Study Protocol

Each subject read and signed an informed consent form pretrial. Then, personal information, upper limb range of motion (ROM), pain levels and functional tests were recorded by a hand therapist. The Sagittal group activated the wrist mostly in the sagittal plane while the research group activated the wrist also in the dart throwing motion (DTM) plane, via the dart splint orthosis applied by a hand therapist.

All of the subjects in both groups received 12 therapy sessions, 30 minutes each one, 2-3 times a week, during 6-8 weeks following the removal of the cast. Certified hand therapists used conventional treatment techniques during the sessions. Both groups were instructed to exercise at home, 3 times a day, 10 minutes per exercise session. The dart splint orthosis was fitted to the subjects in the DTM group on their first evaluation session. They were instructed to use the dart splint orthosis at home. For each 10-minute exercise session, they were asked to perform 5 minutes of radial-extension under resistance and then 5 minutes ulnar-flexion under resistance. In addition, this group was required to fill in a chart at the end of each practice session, throughout the intervention period. The evaluator performed weekly phone calls to remind the DTM group to fill these out. The Sagittal group was instructed to perform at home active wrist motion similar to that practiced during the supervised therapy sessions. The prescribed instructions were similar to the exercises performed during the sessions. At the completion of the treatment, the subjects were reexamined by the same evaluator.