SMARTPHONE APPLICATION ACCURACY IN DETERMINING PROPRIOCEPTION DEFICIENCY IN ANTERIOR KNEE PAIN

[1]DINA M. ALI, [2]MOSTAFA A. ABED, [3]ENAS F. YOUSSEF, [4]NABIL A. ABDELLAH

Department of Physical Therapy for Musculoskeletal Disorders and its Surgery, Faculty of Physical Therapy, Cairo University, Egypt
E-mail: dinaali2008@hotmail.com

Abstract –

Background: Proprioception deficiency of the knee is considered one of the most important signs that can be detected in the assessment of individuals with patellofemoral pain syndrome.
Objective: To determine validity and reliability of smartphone application [android app clinometer - version 2.4 (16052510)] in assessment of knee joint position sense in individuals with patellofemoral pain syndrome.
Methods: Thirty-two patellofemoral pain syndrome participants (21 males and 11 females with unilateral symptoms with their age 28.15 ± 5.43 years were included in the study. Active joint position sense was measured by isokinetic dynamometer and by smartphone application at two different angles (30˚ and 60˚) of knee flexion and the results were compared to examine the concurrent validity of the smartphone application. Measurements taken by the smartphone were repeated on the same day by another experienced examiner to measure inter-rater reliability. After two days, measurements taken by smartphone were repeated by the main examiner to measure intra-rater reliability.
Results: Smartphone application was valid alternative for isokinetic dynamometer in measuring active knee joint position sense at target angle 60˚ but not at 30˚. There was a good intra-rater reliability of smartphone application at 60˚ and low intra-rater reliability at 30˚. There was moderate and good inter-rater reliability of smartphone application at 30˚ and 60˚ respectively.
Conclusion: Smartphone is valid and reliable alternative for isokinetic dynamometer in measuring active joint position sense in patellofemoral pain syndrome individuals at target angle 60˚ but not valid at 30˚, while having low intra-rater reliability at 30˚.

Keywords - Proprioception, Anterior Knee Pain, Smartphone Application