

The Role of Movement Quality after Osgood-Schlatter Disease in an Amateur Football Player: A Case Study

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Abstract : This case aims to identify the role of movement quality during the final stage of return to sport (RTS) in a male amateur football player 13 years old after passing the acute phase of the bilateral Osgood-Schlatter disease (OSD). The patient, after a year from passing the acute phase of OSD with the abstention of physical activity, reports bilateral anterior knee pain at the beginning of the football sport activity. Interventions: After the orthopedist check, who recommended physiotherapy sessions for the correction of motor patterns and the isometric reinforcement of the muscles of the quadriceps, the rehabilitation intervention was developed in 7 weeks through 14 sessions of neuro-motor training (NMT) with a frequency of two weekly sessions and six sessions of muscle-strengthening with a frequency of one weekly session. The sessions of NMT were carried out through free body exercises (or with overloads) with visual bio-feedback with the help of two cameras (one with anterior vision and one with lateral vision of the subject) and a big touch screen. The aim of these sessions of NMT was to modify the dysfunctional motor patterns evaluated by the 2D motion analysis test. The test was carried out at the beginning and at the end of the rehabilitation course and included five movements: single-leg squat (SLS), drop jump (DJ), single-leg hop (SLH), lateral shuffle (LS), and change of direction (COD). Each of these movements was evaluated through the video analysis of dynamic valgus knee, pelvic tilt, trunk control, shock absorption, and motor strategy. A free image analysis software (Kinovea) was then used to calculate scores. Results: Baseline assessment of the subject showed a total score of 59% on the right limb and 64% on the left limb (considering an optimal score above 85%) with large deficits in shock absorption capabilities, the presence of dynamic valgus knee, and dysfunctional motor strategies defined "quadriceps dominant." After six weeks of training, the subject achieved a total score of 80% on the right limb and 86% on the left limb, with significant improvements in shock absorption capabilities, the presence of dynamic knee valgus, and the employment of more hip-oriented motor strategies on both lower limbs. The improvements shown in dynamic knee valgus, greater hip-oriented motor strategies, and improved shock absorption identified through six weeks of the NMT program can help a teenager amateur football player to manage the anterior knee pain during sports activity. In conclusion, NMT was a good choice to help a 13 years old male amateur football player to return to performance without pain after OSD and can also be used with all this type of athletes of the other teams' sports.

Keywords : movement analysis, neuro-motor training, knee pain, movement strategies

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