

Eccentric training for elbow hypermobility

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Background:

Patients with hypermobility suffer from joints problems and chronic pain is the most frequently reported symptom.

Objective:

Eccentric muscle strengthening could be very important to protect hypermobile joints.

Design:

Case report.

Patient:

A girl (16 y.o.) affected by an Ehler-Danlos syndrome presented pain in the right elbow (Fig. 1) and the right wrist (Fig. 2) after a season of tennis.



Fig. 1



Fig. 2

Interventions:

Her training (18 sessions, 3 times a week) consisted of wrist pronation-supination and flexion-extension muscle group reinforcement and proprioceptive training. To protect the wrist against excessive load, the eccentric strengthening exercises of pronator-supinator and flexor-extensor muscles of elbow and wrist were undertaken gradually, at increasing speeds within a limited range of motion in flexion and extension, on an isokinetic device after an evaluation (Fig. 3). She was also given an orthosis restricting the joint range of motion of the wrist.

Main outcome measurements:

The evaluation was made by isokinetic evaluation, visual analog scale and MOS-SF36 questionnaire before and after training.



Fig. 3

Results:

The patient rapidly noted a decrease in pain and an increase in the stability of her right arm even when playing tennis. Isokinetic evaluation objectified an improvement in maximal torque of 20 to 25% in flexion-extension muscles of the right elbow (Table 1). She was also given individualized home exercises.

Test procedures (concentric)	Peak torque (N.m)		
	Left elbow (control)	Right elbow (pathological) Pre-test	Right elbow (pathological) Post-test
Flexion 60°/s	30	22	28
Flexion 180°/s	25	16	19
Extension 60°/s	31	26	32
Extension 180°/s	25	22	26

Table 1

Conclusions:

The goal of this eccentric training is to avoid hypermobility by using the muscles as a protective brake in the control of joint positioning. Muscles can be reinforced in eccentric mode with starting position at the maximum length of these muscles when unstretched. The exercises can be carried out safely on an isokinetic device, at slow speed and limited range of joint motion to avoid risk of luxation. Thus, in this case report, the eccentric exercises using an isokinetic device were effective to safely reinforce the muscles as a protective brake for joint hypermobility and prevent pain during practicing tennis.

References:

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