Background

Verbal encouragement and visual feedback, both components of Biofeedback technique, have been shown to increase concentric peak torque by increasing the amount of exertion demonstrated by the subjects (Campenella et al., 2000). Visual feedback has been found to increase peak torque output at low velocities, but to have no effect at faster velocities (Hald & Bottjen, 1987; Figoni & Morris, 1994). Verbal encouragement has been found to produce much more varied results, as some studies have shown that encouragement can increase peak torque up to 5 percent, while others have found no significant change in peak torque (Campenella et al., 2000; Johansson, Kent, & Sheppard, 1983). Moreover, little research has been published on the relationship between the effect of combined verbal encouragement and visual feedback on isokinetic performance (O’Sullivan & O’Sullivan, 2008).

Introduction

This study was designed to examine the effects of feedback on concentric peak torque. Special focus was applied to the potential differences in response between males and females with respect to verbal encouragement, visual feedback and muscular performance. Males and females were assessed under the same guidelines to determine whether gender and previous training and coaching may make a difference in response to external stimuli.

Purpose

The purpose of this study was to investigate the effect that visual feedback and verbal encouragement have on peak torque.

Results

Materials and Methods

Subjects

14 apparently healthy college-age athletes (7 male and 7 female) with no previous knee injuries

Testing Protocol

A Cybex NORM isokinetic dynamometer was used to collect data (Figure 1).

Warm up

-5 minute warmup on a cycle ergometer
-2 minutes of lower extremity stretching
-4 sub-maximal contractions at 60, 180 and 300 º/s

Testing

-2 familiarization sessions:
10 max contractions at 60, 180, 300 º/s with 1 min rest
-4 experimental sessions:
10 max contractions at 60, 180, 300 º/s with 1 min rest

Subjects were randomly assigned visual feedback, positive verbal encouragement, both visual and verbal feedback, or no feedback.

Data Analysis

A 3 x 4 repeated measures ANOVA was used to analyze the data ($\alpha < 0.05$)

Conclusion

Feedback had no significant effect on peak torque at any of the three velocities in this population of college athletes.

References


