INTRODUCTION

A significant incidence of low back pain has been reported amongst the rowing population. A number of factors have been proposed to contribute to this incidence and these include the flexed posture that the rowers adopt, the significant loads transferred to the spine during the rowing stroke, the repetitive nature of the activity, fatigue of the muscles that support the spine and a lack of flexibility in muscles acting on the pelvis. It has been demonstrated that knee extension and/or hip flexion range of motion can be increased following hamstring stretching regimes. Theoretically this change might allow increased pelvic motion to occur during the rowing stroke with a subsequent decrease in the amount of lumbar flexion required. Decreasing lumbar flexion will reduce the stresses on lumbar spine structures. However, no studies have examined this proposition. Thus the objective of this study was to investigate the influence of a hamstring-stretching programme on lumbar and pelvic angles during the rowing stroke.

METHODS

A randomised controlled trial with repeated measures was undertaken with 43 schoolboy rowers as participants. Hamstring extensibility was assessed by a passive knee extension test using a Kincom isokinetic dynamometer. Measurements of the lumbar and pelvic motion during rowing were recorded using the Fastrack 3D motion analysis system. The intervention group participated in a 6-week hamstring-stretching programme. Three stretches of thirty second duration were performed once a day, for five days of each week. The control group did not stretch over the six-week intervention period. Measurements of hamstring extensibility, together with lumbar and pelvic motion during rowing were repeated at the end of the six-week intervention.

RESULTS AND DISCUSSION

Following the intervention period there was a significant (p<0.05) increase in knee extension range of motion (mean: 10 degrees) in the experimental group. No significant difference (p>0.05) was observed in the control group. During rowing, no significant differences (p>0.05) were found in lumbar or pelvic angles of the experimental group. No significant differences (p>0.05) were observed in the control group’s findings during rowing.

The findings of this study are consistent with other literature that show periodic stretching programmes over a six week time period can produce significant changes in the extensibility of the hamstring muscles. The hamstring-stretching programme did not influence the position of the pelvis or lumbar spine during the rowing stroke. It may be that specific coaching is needed to allow the rower to alter the pattern of motion in the lumbar spine and utilise the range of motion gained through stretching.