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Title:

LOW BACK PAIN IN *CYCLING*: DOES IT MATTER HOW YOU SIT?

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Topic:

Motor control

Introduction

Although LBP is a common problem among cyclists, studies investigating the causes of LBP during cycling are scarce and are mainly focused on geometric bike-related variables. Until now no cycling field studies have investigated the relationship between maladaptive lumbar kinematics and LBP during cycling.

Aims

To examine lower lumbar kinematics in cyclists with and without non-specific chronic low back pain (NSCLBP) during a cross-sectional cycling field study.

Material and Methods

Eight cyclists with NSCLBP classified as having a 'Flexion Pattern' (FP) disorder and nine age- and gender-matched asymptomatic cyclists were tested. Subjects performed a two hour outdoor cycling task on their personal race bike. Lower lumbar kinematics was measured with the BodyGuard™ monitoring system. Pain intensity during and after cycling was measured using a numerical pain rating scale.

Results

The NSCLBP (FP) subjects were significantly more flexed at the lower lumbar spine during cycling compared to healthy controls ($p=0.018$), and reported a significant increase in pain over the two hours of cycling ($p<0.001$). One-way repeated measures ANOVA revealed a significant main effect for group ($p=0.035$) which remained just significant when adding saddle angle as a covariate ($p=0.05$). The difference in posture between groups did not change over time.

Conclusions

The findings of this first field study suggest that a well selected subgroup of cyclists with NS-CLBP (FP) adopted and sustained increased lower lumbar flexion during cycling. This appears to reflect an inherent maladaptive motor control pattern at the lower lumbar spine during cycling. This posture is maintained and associated with a significant increase of LBP.

Implications

Since these findings suggest that LBP during cycling is related to maladaptive lower lumbar kinematics, trying to regain control over the lower lumbar region during cycling could be relevant in the rehabilitation/prevention of LBP in this subgroup.