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腰背核心肌群在等速旋转运动中力矩和表面肌电的特征 [点此下载全文](#)

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摘要:

**摘要目的:** 收集腰背核心肌群在等速旋转运动中的肌力矩和表面肌电图肌电信号, 加以处理分析, 研究受试者背阔肌、腹外斜肌、腹内斜肌在脊柱等速旋转运动中的改变, 揭示其变化的规律及临床意义。**方法:** 健康男性受试者24名, 分别收集其在30°/s、60°/s、120°/s速度下脊柱旋转运动中的旋转力矩, 以及双侧背阔肌、腹外斜肌、腹内斜肌的肌电信号。**结果:** 等速旋转运动中, 左右侧等速旋转力矩均随着速度的增大略微减小, 但无显著性意义, 各速度下左旋/右旋力矩差异无显著性意义; 左右侧等速旋转过程中背阔肌、腹外斜肌、腹内斜肌肌电振幅的均方根值(RMS)亦随速度的增大而减少, 30°/s与120°/s间差异有显著性意义(P<0.01); 各肌肉间比较差异有显著性意义(P值均<0.05); 其中以腹外斜肌激活最为明显; 速度与肌肉间存在交互效应, 差异有显著性意义(P<0.05)。**结论:** 等速旋转运动中, 正常人负责产生旋转动作的肌肉主要是对侧腹外斜肌、同侧背阔肌和腹内斜肌, 尤以腹外斜肌为主; 左旋/右旋时峰值力矩及背阔肌、腹外斜肌、腹内斜肌的RMS均随速度的增大而减少。

**关键词:** [表面肌电图](#) [等速](#) [轴性旋转](#) [核心肌](#) [脊柱](#)

Isokinetic torque and surface electromyogram of lumbodorsal core muscles during isokinetic axial rotation [Download Fulltext](#)

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Abstract:

**Abstract Objective:** To collect the torques and surface myoelectric signals of lumbodorsal core muscles and to study the presentation and changes of bilateral latissimus dorsi, external oblique, internal oblique of normal subjects during isokinetic axial rotation, and to clarify the variability and clinical significance.  
**Method:** Twenty-four males were involved. The rotation torques and surface electromyogram (sEMG) signals of bilateral latissimus dorsi, external oblique, internal oblique of normal subjects were collected in 30°/s, 60°/s, 120°/s during isokinetic axial rotation.  
**Result:** In isokinetic axial rotation, the bilateral peak torques of isokinetic rotation decreased with increasing of velocity, but there was no significant difference (P>0.05). At each kind of velocity, there was no significant difference between muscles of left and right sides. The root mean square (RMS) of amplitude of myoelectric signals of bilateral latissimus dorsi, external oblique, internal oblique of normal subjects during isokinetic axial rotation with increasing of velocity. The difference was statistically significant (P<0.01), between 30°/s and 120°/s; and there were significant differences among all muscles (P<0.05). The external oblique muscle was activated most obviously. The interaction effects among different velocity and different muscles were statistically significant (P<0.05).  
**Conclusion:** In normal subjects, the muscles for generating rotation movement are mainly contralateral external oblique and ipsilateral latissimus dorsi and internal oblique muscles, especially the external oblique, during isokinetic axial rotation. The peak torques and the RMS values of bilateral latissimus dorsi, external oblique, internal oblique of normal subjects decreased during isokinetic axial rotation with increasing of velocity.

**Keywords:** [surface electromyogram](#) [isokinetic](#) [axial rotation](#) [core muscle](#) [spine](#)

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