

原著

他動および自動STRAIGHT LEG RAISE運動時の 血圧変動

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Blood Pressure Response to Passive and Active STRAIGHT LEG RAISE Exercise

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Abstract

The purpose of this study was to investigate changes in blood pressure during passive and active Straight Leg Raise (SLR) exercises. Twelve healthy subjects, 19-23 years of age, performed four kinds of SLR tests with their left legs. In the first test, the leg was raised as high as possible without pain (Test 1). In the second test, the leg was raised until subjects complained of pain (Test 2). In the third and the fourth test, subjects voluntarily raised their legs until hips flexed to 30 degrees with a weight of 3 (Test 3) and 5 kg (Test 4) and continued to hold their position for five seconds. During the tests, systolic (SBP) and diastolic blood pressure (DBP) were measured continuously at the right radial artery using a non-invasive blood pressure measuring apparatus. Significant differences were found in maximal and minimal SBP, and

maximal DBP values during all tests when compared with those during the resting period (maximal SBP and DBP values, Test 1<2<3<4, minimal SBP values, Test 2>1>3>4). Minimal DBP values during Test 3 and 4 were significantly lower than those during the resting period (Test2>1>3>4). In addition, significant differences were found in all values during passive SLR exercises when compared with those during active SLR exercises. These results indicate that physical therapists should take account of the cardiovascular risk when they asked their patients to practice SLR exercise.

要約

理学療法でよく行われるSTRAIGHT LEG RAISE運動(以下SLR運動;ハムストリングスの伸張や大腿四頭筋の筋力・筋持久力増大運動)時の血圧変動を調査し,他動運動時と自動運動時の比較を行った。血圧に問題のない健常者12名(男性8名,女性4名;平均年齢21歳)を対象とし,ベッド上で背臥位をとらせ以下の4種類のSLR運動中の血圧を測定した。(1)痛みのない範囲での伸張運動(他動)を20秒。(2)中等度の痛みを感じる角度での伸張運動(他動)を20秒。(3)足関節部に3kgの重りを着用し,SLR30度位で5秒間保持する運動(自動)を5秒の休憩を挟んで5回。(4)足関節部に5kgの重りを着用し,(3)と同等の運動(自動)。各運動とも安静時と比較して収縮期血圧(以下SBP),拡張期血圧(以下DBP)とも最大値は有意に増加し,SBPの最小値が有意に減少した。自動運動群ではDBPの最小値も有意に減少させ,各運動で比較すると,SBP,DBPとも最大値は(1)<(2)<(3)<(4)の順でそれぞれ有意に増加した。最小値は(2)>(1)>(3)>(4)の順で減少がみられ,他動運動群と自動運動群の間にもそれぞれ有意差があった。他動的な伸張運動でも収縮期・拡張期血圧が有意に増加し,痛みが加われればさらに増加することがわかった。また自動運動では負荷が大きいほど収縮期・拡張期血圧の最大値と最小値が大きくなり,他動運動よりも高血圧,低血圧患者にとってリスクが高いことが示唆された。
