

Design and construction of a supportive-reinforcement belt

Poster Presentation

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Abstract

Background: low back pain (LBP) is common, increasingly prevalent, and the leading cause of lost productivity worldwide. Most LBP is generated by non-specific degenerative changes affecting the bone and soft tissue. Using different types of belts with special features can accelerate rehabilitation programs.

Purpose: The objective of the study was to design and construct a supportive - reinforcement belt.

Methodology: The advantages and disadvantages of belts available in the market were examined. All belts are supportive. In addition to support, this belt has another feature. This feature is the design of the strength system in it. The main body of this belt is made of neoprene fabric. This belt has two straps. These straps are passed over the shoulders wrapped around the waist and attached with an adhesive layer. Also, it has two sleeves that fasten on the arms. There are 5 rings on the sides of the belt. Also, 5 rings are sewn separately on the two sleeves. From each ring of the sleeves, a spring is connected to the ring on the sides. By moving the arms in different directions, the posterior muscles of the spine are strengthened.

Results: In this belt, by moving the arms around three sagittal, frontal, and horizontal axes, the surface and posterior muscles of the spine can be strengthened. In this way, 5 springs are placed on the right side and 5 springs are placed on the left side. According to the ability of the person, the number of springs can be added from 1 to 5 and the strength level can be increased up to 50 N (5kg). In the design of this belt, the amount of force increases with the addition of springs. Increasing the strength from low to high prevents inflammation in the spine joints and reduces pain by gradually increasing strength.

Conclusion: One of the important features of this belt is supporting the trunk during arm movements. While the arms move around the three axes, the back is fixed and the back muscles can be strengthened. As a result, back pain can be reduced with regular exercise.

Keywords

["; Keywords: "; Design "; Construction "; ,"; Supportive - Reinforcement Belt](#)