

Study of appropriate momentum to prevent disuse muscle atrophy

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1995 Fiscal Year Final Research Report Summary

Study of appropriate momentum to prevent disuse muscle atrophy

Research Project

Project/Area Number

06671448

Research Category

Grant-in-Aid for General Scientific Research (C)

Allocation Type

Single-year Grants

Research Field

Orthopaedic surgery

Research Institution

Kanazawa University

Principal Investigator

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Project Period (FY)

1994 – 1995

Keywords

Muscle atrophy / Physical exercise / Cross sectional area / Ca⁺⁺-activated neutral protease / Lysosomal enzyme / Neuro muscular junction

Research Abstract

This study was undertaken to determine the ameliorative effect of physical exercise program on histological and biochemical alterations of rat soleus muscle by hind limb suspension. Weight bearing, isotonic and isometric contraction were carried out for the purpose of preventing the muscle atrophy on the hind limb suspended rats. Cross sectional area of muscle fiber in weight bearing during suspended period was most decreased. but no atrophy was showed in the muscle of isometric contraction. Frequency of macrophage was appeared extently in muscle of weight bearing and isometric contraction, however that was remarkably much in isotonic contraction. Also even regressive changes of the neuro muscular junctions are trifling in isometric contraction. Therefore it is thought that isometric contraction is optimum as a method of the prevention of atrophy.

Research Products (5 results)

All Other

All Publications (5 results)

[Publications] 灰田信英: "マウスヒラメ筋の後肢懸垂と運動負荷にともなう運動終板の超微形態学的変化" 理学療法学. 22. 103-107 (1995) ▼

[Publications] 灰田信英: "荷重日内頻度がラットヒラメ筋の廃用性萎縮予防に及ぼす影響" 理学療法ジャーナル. 30. 53-57 (1996) ▼

[Publications] 灰田信英: "ラ-ド後肢筋の老年性萎縮に対する運動負荷効果に関する研究" 総合リハビリテーション. 22. 849-853 (1994) ▼

[Publications] Haida N et al: "Alteration in the fine structure of the motor end plate following hind-limb suspension and exercise training on mouse soleus muscle" Japanese Journal of Physical Therapy. 22. 103-107 (1995) ▼

[Publications] Haida N et al: "Effect of exercise on age-related muscle atrophy in rat hind limb muscle" Sogo Rehabilitation. 22. 849-853 (1994) ▼

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