Role of exercise on formation of myotube at regeneration of muscle

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	キーワード (Ja):
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	作成者: Haida, Nobuhide
	メールアドレス:
	所属:
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1997 Fiscal Year Final Research Report Summary

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Muscle

Research Project

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08457385
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Allocation Type
Single-year Grants
Section
一般
Research Field
Orthopaedic surgery
Research Institution
Kanazawa University
Principal Investigator
HAIDA Nobuhide Kanazawa University School of Medicine Professor, 医学部, 教授 (00135089)
Co-Investigator(Kenkyū-buntansha)
YAMAZAKI Toshiaki Kanazawa University School of Medicine Instructors, 医学部, 助手 (00220319)
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skeletal muscle / regeneration / aging / exercise / myotube / satellite cell / tenotomy

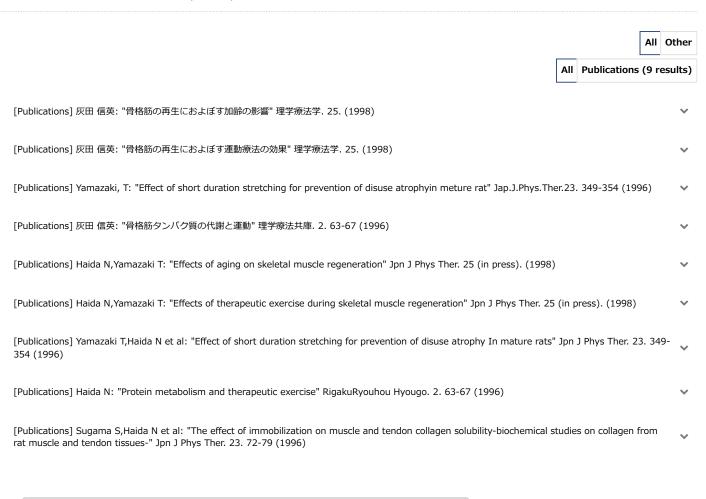
Research Abstract

The following experiments were done to study the regenerative ability though how to modified by aging, continuos tension, and exercise to rat

- 1. Change by aging. Bupivacaine was injected into the anterior tibial muscles of 2-year-old rats. The induced degeneration-regeneration was slow, taking 3 weeks to completion (1 week in young rats). The reconstituted muscle showed small fiber size, an increased number of internal nuclei.
- 2. Influence of synergistic tenotomy. Bupivacaine was injected into the extensor digitorum longus muscle after tonotomy of anterior tibial muscle. Tenotomized muscle gained maturation for 5-6 weeks. The regenerating process was slower in the tenotomized muscle than in the control muscle.
- 3. Effect of exercise on regeneration. The effect of exercise during regeneration process on satellite cell activation was studied. It was found that satellite cells in these muscles were synthesizing DNA 30 h after bupivacaine treatment. Respectively, this was 18 h earlier than found on nonexercising muscle. Satellite cells are activated earlier and muscle fibers mature more rapidly.

It was confirmed that the constant contraction and relaxation of the exercising muscles was effective in the restoration and the promotion of maturity on regenerating muscle.

Research Products (9 results)



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