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Caring for the Future Generation: A Holistic Approach Leading towards Health and Active Living

第六屆亞洲太平洋運動科學大會

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Abstract Form

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The role of short-term salmon calcitonin and submaximal intensity of physical exercise treatment on the thickness of epiphyseal growth plate

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Abstract

Background/Purpose: The function of the epiphyseal growth plate is related to the differentiation and maturation of the chondrocytes, especially of the hypertrophic zone. Salmon calcitonin exerts a positive effect on chondrocytes of the epiphyseal growth plate.The previous study,the effect of long-term daily salmon calcitonin treatment up on epiphyseal plate function has been and proven that could enhanced the number of chondrocytes of the upper tibial epiphyseal growthnplate, increased the thickness of epiphyseal growth plate and accelerated the longitudinal growth of long bones. Physical exercise increased the growth hormone which induces the IGF-1 whose controlled the differentiation and maturation of the chondrocytes. Number of chondrocytes increased the hypertrophic zone of the epiphyseal growth plate and increased the thickness of epiphyseal growth plate. **Methods:** In this present study, using the post test only control group designed, the effect of the short-term daily salmon calcitonin and submaximal intensity of physical exercise treatment examined in 28 male Wistar rats aged 6-8 weeks at the beginning of the experiment. The objects devided into 4 groups, which are group 1 is control group, group 2 is salmon calcitonin group, group 3 is submaximal intensity of physical exercise, and group 4 is combination between the salmon calcitonin and physical

exercise. Salmon calcitonin daily dosage given is 20 IU each kilogram rat body weight, subcutaneus, in eight weeks and the submaximal intensity of physical exercise given each morning, in the same time, three times a week. DurationAfter The treatment duration is eight weeks. Epiphyseal growth plate was imaged by using microscop, and then measurements the thickness of epiphyseal growth plate was done by motic images plus program. **Results:** All the datas are collected and counted using the analysis of variances and post hoc test with LSD. The Anova showed that p of the thickness of epiphyseal growth plate is 0,046 and it is indicated that there are significant different between the groups. Post hoc test with LSD is used to find out the different in the groups, the result showed there are significant different in the group 2 and the group 4 incompared with control group. **Conclusion:** Combination of a daily dose of 20 IU per kilogram body weight of salmon calcitonin and submaximal intensity of physical exercise treatment increased the thickness of the epiphyseal growth plate higher than the short-term of salmon calcitonin or submaximal intensity of physical exercise only.

Keywords: salmon calcitonin, physical exercise, epiphyseal growth plate

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