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The healing effects of nanomized Chinese herbal medicine on overuse-induced Achilles tendinopathy

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Tendinopathy is a common clinical problem causing pain, disability and mental stress. Abnormal loading on the tendon with either overuse or underuse is believed to be a major causative factor of tendinopathy. Chinese herbal medicine has long been applied in management of soft tissue injuries. It was hypothesized in the current study that externally applied nanomized herbal medication would have higher penetration power and increased bio-viability at the tendons leading to better treatment efficacy than non-nanomized medication. Achilles tendinopathy was induced in SD rats (n=24) using the forced upper body suspended downhill running model for 8 weeks. The exercised rats were divided into 3 equal groups of exercise control, nanomized or normal herbal extract treatment groups in which the herbs comprised Dipsaci Radix, Rhizoma Notoginseng, Flos Carthami and Rhizoma Rhei (ratio=1:1:1:1). Both treatment groups received topical application of the herbs on both Achilles tendons for 6 weeks after the training. Results of biomechanical testing demonstrated that Achilles tendons of the exercise control group exhibited higher load relaxation, lower stiffness and lower ultimate tensile strength (UTS) as compared to the other 2 groups. However, both nano-herb and normal herb treated tendons showed comparable results to non-exercise control group (n=8), except the nano-herb group tended to exhibit higher UTS than normal-herb group. The results suggested, the present formula improved the healing potential for degenerative Achilles tendon and nanomization of the herbal extract have a tendency to further enhance the healing effect in terms of biomechanical properties.

Biography

Gabriel Y F Ng publishes extensively in scientific and professional journals and has received research awards from Australia and the United States as well as the President's Teaching Award from the Hong Kong Polytechnic University. His research interests cover Sports Physiotherapy, Knee Joint Rehabilitation and the basic science of Soft Tissue Injury/Repair. He is currently the Vice President of the Hong Kong Association of Sports Medicine and Sports Science, and is on editorial boards of several international journals.

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