SCIENTIFIC PAPER

Stress Fractures of the Fibula Following an Intensive Physical Training Programme

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ABSTRACT

Objective: To identify factors contributing to stress fractures of the fibula in trainees undergoing intensive physical training.

Patients and Methods: A retrospective study was conducted to investigate stress fractures among trainees participating in intensive physical exercise and foot drills in an institute in Hong Kong. Stress fractures of the fibula occurred in 16 of 947 trainees. X-rays and other medical records of the 16 trainees with fractures were reviewed. A questionnaire on medical history and pre-training lifestyle of 173 trainees present during August 2003 was completed during a site visit.

Results: All fractures of the fibula occurred at the upper half of the fibula shaft. There was a significantly lower fracture rate in trainees with a history of active exercise before the training compared with those without such a history (p < 0.01). Discontinuing jumping exercises appeared to reduce the rate of new stress fractures.

Conclusions: Trainees undergoing intensive physical training may benefit from removal of jumping exercises from the training programme. Gradual adaptation to exercise through a gradual increase in the intensity of training may also serve to reduce the risk of stress fracture.

Key Words: Fibula, Physical exercise, Stress fracture

中文摘要

密集式運動和步操與造成應力性上半節腓骨骨折的關係

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骨折可以由多種不同的因素引起，過度劇烈的運動和不正確的姿勢有可能導致應力性骨折已是無容置疑，但原來一套經編排及一直沿用之體能鍛鍊亦可能是造成應力性骨折的原因。就體能鍛鍊和步操課程對骨折所造成的影響，我們向香港一個機構中的學員進行了一項研究調查，期間發現當中有16位年青學員患上應力性腓骨骨折，而應力性腓骨骨折情況均發生於上半節的腓骨上。調查結果顯示跳躍運動與應力性腓骨骨折存在著莫大的關係。另外，同一調查中亦發現步操姿勢會令上半節腓骨上的肌肉力量增加，令腓骨受壓；幸而，通過改良課程編排，經取消跳躍運動環節，改以循序漸進式的方法進行訓練，有助減低發生應力性腓骨骨折的機會。

INTRODUCTION

Stress fractures are overuse injuries caused by repeated muscular pull. Incorrect posture also contributes to the occurrence of stress fractures. Although stress fractures of the fibula are not as common as stress fractures of the distal tibia and metatarsals, they have been noted to occur in recruits, athletes (long-distance runners), and ballet dancers.1,2 In recruits, the