Chronic ankle instability in the Swiss orienteering national team

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Introduction

Orienteering is an endurance sport in which athletes deal with tough terrain while performing highly cognitive orientation work. Orienteering is one of the most popular sports in Scandinavia [15,20]. Athletes suffer among other sport-specific injuries typically and frequently from acute ankle sprains (AAS) [15,20]. Despite the efficacy of non-operative treatment and physical rehabilitation management of ankle sprains [25], 10% to 30% of AAS patients may experience chronic ankle instability (CAI) [16]. Pathomechanically, CAI can be caused by mechanical ankle instability (MAI), functional ankle instability (FAI) [3,4,9], or a combination of both, MAI and FAI [23]. MAI is a ligament insufficiency mostly based on the ligamentous elongation or discontinuity. The most common MAI is the lateral ankle instability with disruption of the anterior fibulotalar ligament [7,13]; followed by a lesion of the fibulocalcaneal ligament. Less often, an insufficiency of the medial hindfoot ligaments may lead to medial ankle instability [12]. In combination, lateral and medial ankle instability represent a rotational ankle instability [12]. Although for diagnostics of MAI clinical physical examination (anterior drawer test, talar tilt tests) [6], stress radiography [5], instrumented arthrometry [19], or diagnostic arthroscopy [11] have been described, only clinically physical examination and intraoperative diagnostic arthroscopy have been established for daily use.

Functional instability is described as an impairment of the neuromuscular joint stability control, which consists of three parts the afferent (e.g. proprioception, nerve-conduction velocity [25]), the central (e.g. spinal integration processes, pain inhibitors), and the efferent part (e.g. nerve-conduction velocity, strength) [9]. Often, the terms sensorimotor and postural are used synonymously to neuromuscular. Measuring all sub-factors of FAI, reported data have been very inconsistent and objective assessment of overall FAI remained difficult. Differentiation of MAI and FAI is important to direct adequate treat-