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AB0495

BIOMECHANICAL STRESS IN THE CONTEXT OF COMPETITIVE SPORTS TRAINING TRIGGERS ENTHESITIS

D. Simon¹, A. Kleyer¹, S. Bayat¹, J. Knitza¹, L. Valor¹, M. Schweiger¹, G. Schett¹, K. Tascilar¹, A. Hueber². ¹Friedrich-Alexander University (FAU) Erlangen-Nürnberg and Universitätsklinikum Erlangen, Department of Internal Medicine 3 - Rheumatology and Immunology, Erlangen, Germany; ²Sozialstiftung Bamberg, Section Rheumatology, Erlangen, Germany

Background: Preclinical models have indicated that biomechanical stress can trigger enthesal inflammation (1). Furthermore, enthesitis is a hallmark of psoriatic arthritis (PsA) and spondyloarthritis (SpA), suggesting that mechanoinflammation is an important step in their pathogenesis (2). However, the relation between mechanical stress and enthesitis in humans is poorly investigated. Competitive badminton is a demanding stop-and-go sport that strains enthesal sites in particular and provides an opportunity to assess the impact of physical activity on the development of an instant inflammatory response in the entheses.

Objectives: To evaluate the influence of mechanical stress on the development of immediate enthesitis.

Methods: BEAT (Badminton Enthesitis Arthrosonography Study) is an interventional study that assessed entheses in competitive badminton players before and immediately after a 60-minute intensive training session by ultrasound. Power Doppler (PD) signal and Gray-Scale (GS) changes were evaluated at the insertions sites of both Achilles tendon, patellar tendons and lateral humeral epicondyles and quantified using a validated scoring system (3). Pre- and post-training scores were compared using linear mixed-effects models. We used interaction terms to assess possible differential effects on patellar, elbow and Achilles entheses.

Results: Thirty-two badminton players (22 men, 10 women) with an average age of 31.1±13.0 years were included (Table 1). On average, they had been playing badminton for 16.2±10.1 years. 192 enthesal sites were examined twice. The respective empirical total scores for PD examination were 0.1 (0.3) before and 0.5 (0.9) after training (Figure 1). Mean total GS scores were 2.9 (2.5) and 3.1 (2.5) before and after training, respectively. The mean total PD score difference of 0.4 between pre- and post-training was significant with a p value of 0.0014, whereas the p value for the mean total GS score difference of 0.2 was 0.63. Overall, seven participants (22%) showed an increased empirical total PD score. A mixed-effects model showed a significant increase of PD scores after training, with a mean increase per site of 0.06 (95%CI 0.01 to 0.12, p=0.017).

Table 1. Baseline characteristics

Demographic characteristics	
N, total	32
Females, N (%)	10 (31.3)
Age, years (mean ± SD)	36.1 ± 13.0
Height, cm (mean value ± SD)	178.6 ± 9.9
Body weight, kg (mean value ± SD)	74.7 ± 13.5
Smoking, N (%)	11 (34.4)
Alcohol, N (%)	24 (75.0)
Concomitant Diseases	
Inflammatory bowel disease, N (%)	0
Psoriasis, N (%)	0
Uveitis, N (%)	0
Diabetes mellitus, N (%)	0
Hypertension, N (%)	2 (6.3)
Sports history	
Years Badminton (mean ± SD)	16.2 ± 10.1

Figure 1. Ultrasound scores before and after trainingFigure 1. A Spaghetti plots depicting individual Gray-Scale and Power Doppler ultrasound scores before and after training

Conclusion: Mechanical stress leads to rapid inflammatory responses in the enthesal structures of humans. These data support the concept of mechanoinflammation in diseases associated with enthesitis. However, while such responses may be self-contained in healthy subjects, they may be prolonged and more pronounced in certain risk groups, such as patients with PsA or SpA.

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COMPARISON OF THE DISTRIBUTION BY DEPARTMENT OF THE PREVALENCE OF SPONDYLOARTHRITIS AND INFLAMMATORY BOWEL DISEASES IN METROPOLITAN FRANCE AND THEIR EVOLUTION BETWEEN 2008 AND 2018

O. Fakh¹, C. Prati^{1,2}, D. Wendling^{1,3}, F. Verhoeven^{1,2}. ¹Centre hospitalier régional universitaire de Besançon, Rhumatologie, Besançon, France; ²UFR Santé, Université de Franche-Comté, EA 4267 'PEPITE', Besançon, France; ³UFR Santé, Université de Franche-Comté, EA 4266 'EPILAB', Besançon, France

Background: Epidemiology of spondyloarthritis (SpA) has been rarely described in France. One study based on a phone survey found a prevalence of 0.30% in 2001 [1], and another study based on a national cohort showed an estimated prevalence of 0.43% in 2010 [2]. To our knowledge, there is no data regarding the geographical distribution of SpA in France. Furthermore, it is known that SpA occurs in up to 13% of patients with inflammatory bowel disease (IBD), and that there is a significant north-south gradient in IBD cases in France.

Objectives: To determine the prevalence of SpA and IBD in metropolitan France and compare the geographical distribution of SpA and IBD in 2008 and 2018.