ABSTRACT

Title: Posterior chain muscle endurance and arm paddling peak power in amateur female surfers

Objectives: Thesis is dedicated to female surfing, particularly paddling, as this is an undiscovered area of research. Very few studies have been carried out, which would focus on muscle activity in surfing. None of the studies focused on posterior chain or muscle activity of female surfers while paddling. Not only that the level of competitive surfing is increasing rapidly, as it will be part of Olympic Games in Tokyo in 2020, but the recreational surfers are also becoming more literate about surf science and willing to improve their surfing performance by dry land surf specific trainings. Surfing industry represents a worldwide business, where big companies offer sponsorship, which is reasonable motivation for young athletes (M. Mendez-Villanueva & Bishop, 2005). As the number of recreational and competitive female surfers is raising as well, the level of competitive female surfing is increasing (Booth, 2001) and professional female surfers are becoming equal in regards to getting the same amount of prize money in competitions, more research should be dedicated to female surfing. The aim of this thesis was to study association between posterior chain endurance and other variables such as frequency of surfing.
sessions, surfing load and arm paddling peak power in recreational female surfers. This thesis also deals with chronic surfing injuries that may be caused prolonged isometric back extension in long period of arm paddling.

**Methods:** Fourteen recreational female surfers were assessed for weight, posterior chain endurance and paddling peak power. Pearson correlation analysis was used for determination the significant correlations between variables. Posterior chain endurance was correlated with basal peak power, peak power after posterior-chain-fatiguing exercise, procentual difference between basal and post-fatiguing-exercise peak power, relative basal peak power, surfing experience in years, frequency of surfing in summer and winter and frequency of surfing and upper body strength training in summer and winter.

**Results:** Very weak correlation was found between posterior chain endurance and paddling peak power. However, strong correlation was found between frequency of surfing and posterior chain endurance. There was association between frequency and load of surfing between paddling peak power.

**Practical applications:** This study can be used by sport coaches to design training program for surfers. It can be also used as foundation for further
research in surfing injuries and EMG activity of the muscles of posterior chain in arm paddling.

**Keywords:** surfing, arm paddling, posterior chain, muscle endurance, peak power, injury prevention, back pain, surf specific training