EXAMINATION OF CORE REGION MUSCLE ACTIVATION IN ELITE SWIMMERS IN EXERCISES PERFORMED ON DIFFERENT SURFACE

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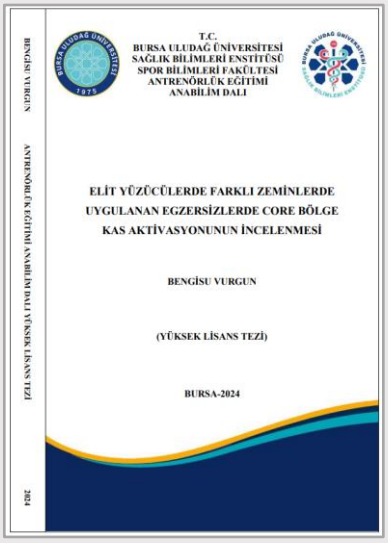

THESIS ABSTRACT

The aim of this study is to examine the activation of certain muscle groups with an electromyography device in elite swimmers during core exercises performed on a fixed floor, Bosu and Pilates ball. 16 male elite swimmers between the ages of 18-23 participated in the study voluntarily. In the study, participants performed the Prone Plank, Crunch, Pike Push Up exercises on a fixed floor, Bosu and Pilates ball, respectively, and the activations of the Rectus Abdominis (RA), External Oblique (EO) and Erector Spinae (ES) muscles were measured with a superficial EMG device while the exercises were performed. Study data were analyzed using One-Way ANOVA for Repeated Measures test in SPSS 26.0 program. Bonferroni test was used to compare the differences between groups. Data obtained in the Plank exercise, the fixed floor and Bosu RA and EO activation values were significantly lower than the Pilates ball RA and EO activation values, and the fixed floor ES activation value was significantly lower than the Pilates ball ES activation value ($p<0.01$, $p=0.016$). In the crunch exercise, the fixed floor and Bosu RA activation values were significantly lower than the Pilates ball ground RA activation value, and the Bosu EO activation value was significantly lower than the fixed ground EO activation value ($p<0.01$, $p=0.014$). A significant increase in activation was detected in the RA, EO and ES muscles along with an increase in instability in the Pike Push Up exercise ($p<0.01$). Additionally, a statistically significant difference was found in the activation rates of the muscles between the exercises performed on different floor variations ($p<0.05$). As a result, although there was an increase in activation in some muscles with the increase in instability, a decrease in the activation of some was observed. Activation differences occurred in the target muscle group in exercise types rather than on the surface. Therefore, it will be important for exercise practitioner to choose exercises and surfaces according to the muscle they aim to develop for optimal development.

APPLICATION AREAS OF THE THESIS RESULTS

For optimal development in swimmers, the trainer or exercise practitioner will be guided in choosing the appropriate exercise and ground according to the muscle they aim to develop in their Dry-land training plans.

ACADEMIC ACTIVITIES

Vurgun B., Vatansever Ş., Bölükbaş M.G., Şahin Ş., Aygün F.B (2021). Multiple Skleroz ve Egzersiz: Sistematik Derleme. International Eurasian Conference on Sport, Education, and Society. 9-11 Temmuz 2021, (Abstract Submission).