Effects of a Four-Week Stand Up Paddleboard Program on Static Balance in College Students

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The Effects of a Four-Week Stand Up Paddleboarding Program on Balance

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ABSTRACT

Stand Up Paddleboarding (SUP) is a relatively new water sport that requires balancing on a 8-14 board while paddling. SUP requires excellent balance to stay upright and in the proper paddling position. Previous research has suggested that SUP may enhance balance, but a training study has not yet been conducted. Therefore, the purpose of this study was to examine the training effects of SUP on static and dynamic balance in college-age individuals. Twenty-four college students had their balance measured using a standard force plate system. Then there were two experimental groups, a 3x/week group and a control group. The experimental group met 3x/week for 4 weeks to paddleboard in the Dow Center pool. The training consisted of 15-25 minutes of different paddleboarding activities. The control group maintained their habitual activity. Both groups abstained from extraneous balance training. Our hypothesis was that the experimental group would improve in balance as a result of the paddleboarding training. Significant results would allow SUP to be recommended as an effective mode for improving balance in this population.

BACKGROUND

• SUP is rapidly increasing in popularity all across the United States (Addison, 2013). A water sport, it requires an 8-14’ surfboard that is stood on by riders and propelled through the water with a long paddle.

• The bodies of water that are paddled on are rarely calm and glassy and the wind is seldom calm; therefore a great deal of balance is required to remain in an upright position on the board (Addison, 2013). In comparison to standing on a solid surface, stand up paddleboards are naturally unstable when placed in the water and loaded with the weight of a body. This instability results in the body’s center of gravity being moved away from its natural base of support (Jacobson, 1997).

• It is understood that increased balance may increase quality of life, enhance motor skills, and potentially increase athletic performance (Hrysomallis, 2011). Adapting an exercise activity that increases balance may be beneficial to any individual—whether a competitive athlete or a middle-aged individual trying to increase quality of life.

• The novel nature of SUP has resulted in a very limited amount of research on its effect on balance. However, the few previous studies that have been completed demonstrate that results such as increased balance (Jacobson, 2013) are not uncommon.

• The results suggest that SUP may enhance balance, but a training study has not yet been conducted. Therefore, the purpose of this study was to examine the training effects of SUP on static and dynamic balance in college-age individuals. Twenty-four college students had their balance measured using a standard force plate system. Then there were two experimental groups, a 3x/week group and a control group. The experimental group met 3x/week for 4 weeks to paddleboard in the Dow Center pool. The training consisted of 15-25 minutes of different paddleboarding activities. The control group maintained their habitual activity. Both groups abstained from extraneous balance training. Our hypothesis was that the experimental group would improve in balance as a result of the paddleboarding training. Significant results would allow SUP to be recommended as an effective mode for improving balance in this population.

METHODS

Participant Selection:
• 24 total subjects
• 12-person experimental group
• 12-person control group
• Convenience sample based on availability for designated training session schedule
• Groups were matched for gender and height

Testing Measures:
• Force Plate Eyes Open (FPOE)
• 30 seconds. Unilateral (dominant leg), 45° hip flexion and 90° knee flexion in raised leg, hands on hips, and eyes open. Static balance measure.
• Force Plate Eyes Closed (FPEC)
• 10 seconds. Unilateral (dominant leg), 45° hip flexion and 90° knee flexion in raised leg, hands on hips, and eyes closed. Static balance measure.
• Force Plate Bosu (FPBosu)
• 30 seconds. Bilateral. Participants stood on a Bosu ball with the correct side centered on the force plate. Hands on hips and eyes open. Dynamic balance measure.

RESULTS

• The results suggest that SUP does not increase balance in college-age participants after four weeks of 3x/week training.
• Of the three balance tests administered (FPOE, FPEC, and FPBosu), there were no significant differences over time between the control and experimental groups, which is not what we hypothesized.

• FPOE. AUC95, FPBosu Area95, and FPBosu Path Length did differ significantly irrespective of group; however, the significance was in the opposite direction from what we expected. The participant’s balance actually decreased during the pre-test and post-test.
• The overall trends of the data lead us to suspect that there may have been error in our testing protocol.

CONCLUSIONS

• The experimental training was performed in the Dow pool where the water conditions were nearly always the same, which was beneficial for the consistency of the study. However, the confined space and close proximity to the other participants may have made it difficult for the participants to observe each other and tune in to each other’s performance.

• The training effects of SUP on balance were not observed in participants after four weeks of 3x/week training.

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LIMITATIONS

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REFERENCES


Figures (left). A typical training session in the Dow Center pool.

Figures (above). Graphical and tabular representations of the data from the pre- and post-tests.