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## Improving upper and lower body strength after swimming and cycling training in patients with osteoarthritis

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Osteoarthritis (OA) is the leading cause of disability in older adults and is associated with muscle weakness. Aerobic exercise is widely recommended for patients with OA, but OA and its associated joint pain act as a significant barrier for performing a variety of basic daily activity such as walking. Swimming can be an ideal form of exercise for patients with OA as it includes minimum weight-bearing stress. However, no study has investigated if swimming exercise improves muscle strength in patients with OA. We compared the effects of swimming exercise and cycling exercise on upper and lower body strength using a standard grip strength dynamometer and isokinetic knee flexor and extensor strengths at an angular velocity of 60 degrees/sec using a Biodex isokinetic dynamometer. Forty-eight patients with OA were randomly assigned to swimming (n=24, age=59 $\pm$ 8 yr) or cycling (n=24, age=61 $\pm$ 4 yr) training groups. Supervised exercise was performed for 45 min/day for 3 days/week at 60-70% heart rate reserve for 12 weeks. After 12-weeks of exercise training, average left and right arms body strength increased significantly after both swimming (20.4 $\pm$ 1 vs. 21.0 $\pm$ 1 kg) and cycling (22.3 $\pm$ 1 vs. 23.8 $\pm$ 1 kg) training (both p<0.05). Average isokinetic knee flexor strength increased significantly after swimming (42 $\pm$ 3 vs. 50 $\pm$ 3 Nm, p<0.05) and cycling training (41 $\pm$ 5 vs. 42 $\pm$ 4 Nm). Average isokinetic knee extensor strength increased significantly after swimming (60 $\pm$ 4 vs. 69 $\pm$ 4 Nm, p<0.05) and cycling training (60 $\pm$ 4 vs. 68 $\pm$ 4 Nm). In conclusion, both swimming and cycling exercise training interventions improved body strength in older adults with OA.

## Biography

Mohammed Alkatan has completed his PhD from University of Texas at Austin. He is an Assistant Professor at Public Authority for Applied Education & Training - Department of Physical Education & Sports. He has published more than 10 papers in reputed journals.

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