

SURVEY INVESTIGATES POOL AND DRY LAND TRAINING PROGRAMS FOR COMPETITIVE YOUTH, HIGH SCHOOL, COLLEGE AND MASTERS SWIMMERS ACROSS THE UNITED STATES

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Background/Purpose: The reported prevalence of shoulder pain in youth (Y), high school (HS), college (C) and Masters (M) competitive swimmers is 56%, 81%, 69% and 61% respectively. Factors associated with shoulder pain include increased swimming yardage, lack of cross training, postural alterations such as reduced pectoral length, and decreased shoulder strength and core endurance. Because current training methods have not been previously reported, our purpose was to identify current pool and dry land practices to determine if methods are being implemented to potentially reduce shoulder injury.

Design and Setting: Cross sectional descriptive study across the US. Participants: 196 M swimmers and 156 coaches of Y, HS, and C swim teams.

Methods: A web based survey identified training practices in 5 areas: (1) quantification of swimming and dry land training, (2) pool training techniques such as kicking drills, (3) stretching, (4) shoulder and core strengthening, and (5) cross training.

Results: Mean daily yardages are 4421, 6470, 9999, and 2867 meters for Y, HS, C, and M swimmers respectively. Streamline kicking drills are used by 69% of Y, 82% of HS, 71% of C, and 49% of M swimmers. Less than 20% do chin tucks and perform appropriate pectoral stretches. Up to 50% do shoulder hyperflexion stretches on a wall and less than 27% perform scapular stabilization exercises. 29% Y, 18% HS, 41% C and 5% M swimmers select resistance for strength training based on repetition max weight and 33% HS and 54% C swimmers perform repeated overhead progressive resistive exercises (PREs). 71% of respondents do planks/core work and running, yoga, cross fit and cycling are the most utilized forms of cross training.

Conclusions: The mean yardage of C and HS swimmers exceeds 35km/wk which was shown to increase supraspinatus tendinopathy. Sustained and repetitive loaded shoulder elevation above 60° is associated with shoulder pain yet streamline kicking in sustained shoulder hyperabduction and overhead PREs are commonly performed. Despite American College of Sports Medicine's recommendation for repetition max weight selection for strengthening, few respondents use this method and many coaches allow swimmers to choose their own resistance. Postural abnormalities including tight pectorals and weak scapular muscles may contribute to shoulder impingement but few swimmers utilize specific exercises that studies have found to favorably alter posture, while they commonly do stretches that may adversely affect an already lax inferior shoulder capsule. Prospective research is needed to determine the efficacy of core and cross training on shoulder injury prevention.

Clinical Relevance: Current pool and dry land training varies, but competitive swimmers may be exposed to training practices that are not optimal for reducing shoulder pain. Further research is needed to determine favorable training methods and if alterations in training reduce the incidence of shoulder pain.

