

Effect of Isometric Strength Training on Blood Pressure: Systematic Review of Literature with Specific Emphasis on Indians

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Abstract

Aim: To systematically review and report the articles on isometric exercise on blood pressure. **Method:** Study was done on February 2016 in Google Scholar using search terms 'Isometrics' and 'Blood pressure' AND 'India'. 420 articles were initially identified and after inclusion, exclusion criteria 3 articles are used for this review. **Results:** Studies were at least 5 weeks duration with 30% MVIC (maximum voluntary isometric contraction) of intensity for 3 min duration. Total of 110 subjects participated with median of 30 subjects. Garg et al. (2014) found mean difference (MD) of -9.87 mmHg in SBP and -5.26 mmHg in DBP. Sandhu et al. (2014) found MD of -7.04 mmHg in SBP and -6.56 mmHg in DBP. Gandhi (2016) found MD of -3.24 mmHg in SBP and -4.03 mmHg in DBP. Overall there was a mean reduction of 6.72 mmHg in SBP and 5.28 mmHg in DBP. **Conclusion:** After isometric exercise in Indians BP reduction is as of Western counterparts.

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Introduction

High blood pressure (BP) is ranked as the third most important risk factor for burden of disease in south Asia (Lim et al., 2012). Overall prevalence for hypertension in India was 29.8%. Significant differences in hypertension prevalence were noted between rural and urban parts [27.6% and 33.8%]. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urban Indian hypertensive population have their BP under control (Anchala et al., 2014). Studies reported on the risk factors associated with HTN in Indians include age, alcohol, smoking and chewing tobacco, BMI, central obesity (defined as waist circumference >90 cm in men and >80 cm in women), consumption of low vegetables/fruits, high consumption of dietary fat and salt, and physical inactivity (Laxmaiah et al., 2015; Anchala et al., 2014). Antihypertensive therapy alone has failed to reduce blood pressure to greater extent. Hence, life style modification is the first line treatment of choice in high normal or stage I hypertensive patients. Promoting physical activity, quitting the smoking, alcohol reduction, salt reduction in diet, stress reduction are some of the life style modifications that proven to reduce blood pressure (Vandana et al., 2016). Exercises are better than pharmacological