

The Science of Powerbag Training



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Introduction

The use of non-traditional resistance training programs and implements such as Powerbags, is becoming an increasingly popular means of increasing athletic performance amongst strength and conditioning coaches and athletic trainers worldwide [1,2]. Powerbags exercises, contain total body movements that can be performed in multiple planes, which may allow closer replication of many different sporting movements and increase core muscle activation [2]. Therefore, an important advantage of non-traditional resistance training is the significant level of core and hip muscle engagement. Research from McGill et al. [3] supports this notion, in their study, these researchers observed very large levels of core and hip muscle activation in response to common strong man exercises, including the farmers walk and suitcase carry. Strongman exercises such as these, are also well suited to the Powerbag. Non-traditional resistance training implements such as Powerbags also provide the opportunity to incorporate dynamic resistances into traditional exercises such as squats, deadlifts and power cleans, rather than constant resistance, that occurs when these exercises are performed with barbell or dumbbell training [2]. Dynamic resistance may also more closely replicate the types of resistance common in many contact sports. Taken together, these data suggest incorporating non-traditional resistance training implements and training programs may be beneficial for core and hip muscle strengthening and provide a means of specific strength training for many different contact sports.

To date, only a small amount of research has investigated the specific benefits of Powerbag training [4-6]. In an earlier study, Researchers from the Chinese University of Hong Kong investigated the effects of a 6-week strength training program that utilised sandbags on body composition and bone mineral content in a group of obese children. At the completion of the 6-week training program the researchers observed significant improvements in lean body mass and bone mineral content. More recently, researchers from the University of Valencia [5] used surface EMG to compare the muscle activity of a clean and jerk lift

performed with either a barbell, sandbag and waterbag in a group of healthy, male university students. At the completion of the study, the researchers reported water bags provided greater core muscle activation than traditional barbell version or the sandbag version. Importantly, the researchers in this study did not report what type of sandbag was utilised to perform the clean and jerks, therefore the lack of a notable difference in core muscle activity in the sandbag group could be attributed to the type of sandbag utilised. In addition, the researchers also observed very similar shoulder, core and gluteal muscle activation between the barbell and sandbag clean and jerk groups, which suggests sandbag training can derive similar muscle activation patterns as barbell training. This has important implications for athletes or clients who need to train or maintain strength/power and core muscle capabilities whilst away from their usual gymnasium environment. In another sandbag study, researchers from Helwan University [6] investigated the effects of sandbag exercises on power and shot speed in a group of female handball players. Participants completed 8-weeks of sandbag complex training. After completing the training, the handball players had significant improvements in shot speed and power, grip strength and standing long jump distance. These results demonstrate that sandbag training which incorporates both power and strength exercises can be used to improve both general (strength/jumping performance) and specific (shot speed/power) sporting performance. Taken together, this emerging research suggests sandbag training can effectively train the core and hip musculature, increase lean muscle mass and bone mineral content in children and in the absence of barbell or dumbbells may effectively train and improve important markers of physical performance.

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