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Research Review

Girevoy... not circus strongmen?

Title: Effects of Weightlifting Vs. Kettlebell Training on Vertical Jump, Strength and Body Composition

Author: Otto, WH and colleagues (Exercise Physiology Laboratory and Center, California State University, USA)

Source: *Journal of Strength and Conditioning Research* (published online ahead of print) 2012.

Introduction: In days gone by, when the circus came to town you'd fight your way past the elephants and bearded lady to watch the 'strongman' who would be demonstrating great feats of strength by lifting old fashion barbells and what are referred to today as kettlebells.

Contrary to popular belief, kettlebells are not new, and are believed to have been around since the 1700s. Believed to have originated in Russia, kettlebells were initially used as farm implements. Before long, however, they were adopted by the military for training. Over the years their popularity increased until, in the mid 1900s, they actually became a Russian national sport called 'Girevoy'.

Girevoy consisted of three lifts:

Snatch – in which the competitor must swing a single kettlebell overhead in one movement

Clean and Jerk – in which the competitor swings two kettlebells initially to their chest, and then overhead as many times as possible

One-arm push press – in which the competitor completes as many push presses as possible within a specified period of time.

What's the record you may ask? Recently a Russian set a new (but unconfirmed) World Record in the clean and jerk by, allegedly, completing 175 reps in 10 minutes!

Most commercial gyms and athletic training facilities now feature kettlebells among their training equipment. Traditionally, they are available in weights ranging from 4kg to 64kg, generally in 4kg increments.

I have been interested in the effectiveness of kettlebell training for quite some time, so I was pleased to see William Otto and his colleagues recent research publication in which they compared kettlebell training to weightlifting.

Methodology: Thirty healthy males who were experienced with resistance training, but inexperienced with weightlifting or kettlebell training, volunteered to participate in the study. Subjects were randomly allocated to either the 'weightlifting' group or 'kettlebell lifting' group. Subjects in the weightlifting group completed high pulls, power cleans and back squats at 80 per cent of their 1RM. Subjects in the kettlebell training group used 16kg kettlebells to complete kettlebell swings



(three sets of six reps), accelerated swings (four sets of four reps) and goblet squats (four sets of six reps). The volume was then increased in weeks four to six. Subjects in both groups trained twice per week in their allocated group for six weeks.

Initial testing consisted of a vertical jump (the best of three attempts recorded) and also a 1RM on a back squat and power clean.

Results: Post-test results found that both groups had small, non-significant increases in body mass with no change in their percentage body fat. Both groups demonstrated improvement in vertical jump, 1RM squat and power clean, with the weightlifting group having the greatest improvements.

Pros: Good, applicable study given the popularity of kettlebell training. I would hope the researchers would complete further work in this area, particularly using kettlebell training combined with traditional training with athletes. Kettlebell studies are also being presented at this year's American College of Sports Medicine national convention. Although this information is, at present, only available in abstract form, it is a good supplement to this Research Review.

Briefly, Martin and colleagues from California State University (Sacramento) found that kettlebell training was effective in improving the resting blood pressures (systolic and diastolic)

in pre-hypertensive and hypertensive individuals, and the improvements were clinically significant. And Hutchison and colleagues from Southeastern Louisiana University reported significant increases in heart rate, systolic blood pressure and oxygen consumption. Furthermore, two circuits of four exercises resulted in a total caloric expenditure (exercise and recovery) of ~468 kilojoules.

All of the upcoming ACSM abstracts are available by clicking on the 'online program planner' at www.acsmannualmeeting.org.

Cons: In my opinion there are a couple of limitations to this study. Firstly, the majority of the tests would have been significantly biased towards the weightlifting group. It is interesting

though to see the carry over benefits of kettlebell training on leg strength and leg power. It would have also been beneficial to see the tests better balanced with regard to specificity to both groups. Also, the minimum duration should have been eight to 10 weeks. [1](#)



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Dr Mike is with the Faculty of Health Sciences and Medicine at Bond University, QLD. He is recognised as one of Australia's leading accredited exercise physiologists working with patients suffering from a wide array of chronic diseases and disorders. For more information on this, or any recent Research Reviews, email michael_climstein@bond.edu.au.



Joe Walsh, MSc

Joe is a highly experienced sport and exercise scientist, currently working as a principle investigator on a series of observational studies investigating the demographics of various cohorts of master athletes. Joe's research interests include mathematical modelling, in particular use of Monte Carlo Methods and Markov Chains for modelling sports performance. He and Dr Mike have authored many scientific publications with findings presented at international conferences in Europe, Asia and North America.

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