



Redefining the Boundaries of Weightlifting

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Editorial

According to the Center of Disease Control and Prevention, almost 36% of U.S. citizens over the age of 20 are obese. To address this issue, healthcare professionals have proposed interventions that target physical activity, even going so far as to consider physical activity a vital sign to be addressed by health care providers. Although most exercise recommendations target aerobic conditioning, recent studies suggest that weightlifting programs offer many health benefits as well.

With the recent emphasis on the positive health benefits associated with strength training, the popularity of weightlifting has risen. Between 1998 and 2007, the number of people participating in weightlifting increased by almost 65% [1]. This increased popularity may be attributed to the benefits of the exercise, extending beyond increased strength. Resistance training has been shown to improve strength and speed of walking, ultimately resulting in higher scores on measures such as mobility and quality-of-life. Research also suggests that resistance training has profound effects on the musculoskeletal system, including the prevention of osteoporosis, sarcopenia, and lower back pain [2]. To advise our patients, it is important to understand the appropriate weight and repetitions needed to obtain optimal results. The long-standing guide for advancing strength has been provided by Alexander Prilepin, a Russian weightlifting coach and scientist. From his findings, weightlifters are advised to use weights of at least 70% of their one repetition maximum for optimal strength gains [3]. This has been the standard for decades and has received few viable challenges in the literature.

In our global search for exercise techniques that will benefit our patients, we have discovered a novel training program that uses the conventions of Eastern Medicine and redefines the limits of weights lifted, and seems to point us in a new direction of treatment and discovery. The Gravitational Wellness (GW) system was developed by a Russian physiologist, Anatoly Samodumov, and brought to the United States by Vladimir Chubinsky, a physiotherapist. As we have demonstrated in previous publications, GW provides our patients and athletes the capacity to load the musculoskeletal system, with uniquely high weights, leading to rapid weekly strength gains through 30 minute, weekly training sessions (In one study, subjects averaging 48 years of age were able to lift on average 1100 pounds (498.95 kg) after 10 sessions) [4].

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Contrary to conventional weight lifting programs that emphasize performing a full range of motion during lifts, GW emphasizes the stimulation of the qi, using a wide belt attached to free weights, allowing for stress to be transmitted through the lower Dantian. By first stimulating the qi, and using four distinct lifts (belt lift, hand lift, chest lift, and leg lift), individuals have been able to achieve impressive strength and wellness benefits. In the study mentioned above, by the 10th session, the average weight lifted in the belt lift for males and females had increased to 1336.7 lbs (606.32 kg) and 949.4 lbs (430.64 kg) respectively [4]. In a study of 75 consecutive patients beginning the program, we found no injuries during the weightlifting sessions.

In addition to the dramatic gains in weight lifted, recent GW research suggests significant subjective health benefits. The majority those studied began GW with a desire to improve a health condition. The modal of these was chronic musculoskeletal discomfort, particularly in the cervical or thoracic/lumbar spine. Those in our studies have complained of chronic conditions, resistant to treatment by more conventional methods. In one study, after finishing 10 sessions, the majority of these reported an amelioration of back pain, as reflected by a Likert-scale improvement of 4.1/5. This is a hopeful finding as most studies of traditional exercise for chronic low back pain have failed to demonstrate significant improvement. Several other benefits of GW have been noteworthy. In one study, subjects realized a mean gain in overall well-being of 4.27/5 on the Likert scale [5]. A subsequent case series found a mean increase in bone mineral density of 6.1% and 15.3% in the lumbar spine and femoral neck respectively [5]. These results are intriguing, given that our best medications offer less than a 4% increase.

In a review of athletic performance, an elite college baseball team was provided GW during their offseason. Individual batting statistics were collected for the season before and after the use of GW. Using the previous ten years of year to year performance change as a historic control, better performance was found in the GW group. As a team the GW group averaged a 17% improvement in batting average as compared to 0% improvement for the historic controls. As individuals, the average GW player realized a 39% improvement in batting average, compared to 13% improvement for the historic control [6].

Another weightlifting technique has recently emerged from the east which shows promise. Yoshiaki Sato, inspired during a Buddhist ceremony, created the idea of using a low-intensity resistance exercise combined with blood flow restriction. Again, moving outside of the suggestions of Prilepin, Sato's kaatsu method advocates low-intensity (20% 1RM) resistance training combined with restricted venous blood flow. This training technique offers similar increases in muscular hypertrophy to high intensity training, when frequencies and volume are the same [7]. Interestingly, kaatsu training does not seem to require long recovery periods between training sessions, thought to be due to minimal muscle damage produced with these low weights [7]. This may introduce an option to patients with painful joints and unable to load with high weights.

We have highlighted these two techniques as they break with traditional weightlifting doctrine. The GW dramatically exceeds the weight recommendations of Prilepin, while kaatsu dramatically reduces the loads of these recommendations. Both have produced impressive results. The GW data, while in its early stages has demonstrated that untrained individuals can lift loads that were before now unimaginable, exceeding by multiple factors those that can be lifted by conventional techniques [8]. With minimal injuries, and multiple reports of health and performance benefits, GW seems

to be an important addition, worthy of further inquiry. The data from the studies of kaatsu suggest this may also be a useful, new resistance technique, particularly for patients who cannot lift the weights recommended by Prilepin.

At our Integrative Medicine Center, combining Eastern and Western medical techniques and thought is critical to providing new opportunities for the health of our patients. We present in this paper, a sampling of the power of this integration.

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