SUPERSLOW TRAINING

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This paper was presented as part of the NSCA Hot Topic Series.

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INTRODUCTION

Throughout the brief history of the fitness industry, many individuals have continually searched for the elusive "secret," a fast and efficient workout or exercise that will maximize benefits while minimizing the duration they must actually spend engaged in physical activity. In fact, most marketing campaigns for particular exercise equipment or programs aimed at the general population utilize the strategy of promoting a superior workout as compared to a "traditional" one, and in less time. Not surprisingly, the developers of relatively new forms of resistance training collectively known as Superslow exercise have similar claims regarding the efficacy of their own program (7,9,15). [Note: formally, Superslow® training is a trademarked commodity, but for the purpose of this article, the term "Superslow" will be applied to several exercise regimes that are characterized by the guidelines below].

What is Superslow training?

The Superslow resistance training philosophy is multifaceted; generally, it involves 4-10-second eccentric (when the muscle is lengthening; i.e. the "negative" portion of a lift) and 10-second concentric (when the muscle is shortening) muscle actions. Each exercise is performed for only one set, which typically lasts approximately 80-160 seconds. Aerobic work is not included in the program and is actually viewed as ineffective at fat loss by many Superslow proponents (7,9,15). The Superslow regime is touted as a superior workout as compared to weight training of more "traditional" speeds because its slow speed is supposedly safer and momentum is reduced throughout the lift. Additionally, since metabolism is elevated for a longer period of time post-resistance training versus aerobic training (2), Superslow advocates claim that it is the best way to achieve a reduction in body fat (7,9,15).

Does Superslow training work?

To date there has been only one peer-reviewed study demonstrating that a Superslow regime would be better at developing muscular strength as compared to a traditional one. Over the course of 8-10 weeks, a group training in accordance with Superslow guidelines had a 50% greater increase in strength than one training at a "regular" speed (13). However, the two groups were tested for strength using different protocols; consequently, the only conclusion that can be drawn from this study is that Superslow training will make someone better at Superslow training, which is of little practical value.

All of the other studies investigating the efficacy of a Superslow regime do not support that it is superior to "traditional"-speed resistance training speeds in regards to muscle strength, cardiorespiratory endurance (i.e. aerobic fitness), or body fat reduction (1,3,8,10). Keeler et al. found that after a 10-week period, "traditionally" trained subjects' strength increased by 24% more over 8 exercises as compared to the Superslow group (10). Interestingly, a 2003 study showed that 16-weeks of training in accordance with either the American College of Sports Medicine (ACSM) guidelines for muscular strength and endurance or a Superslow protocol did not improve most measures of strength (1). The lack of strength gains in both groups may be attributable to the use of isokinetic testing as the only measure of strength. Isokinetic work involves measuring force/torque production against a fixed velocity (i.e. no matter how "hard" one pushes/pulls, the speed of the movement is kept constant); however, it may be such a specific test that it is difficult to detect significant strength gains made on alternate pieces of equipment. In contrast, a significant increase in muscular endurance was observed in the Superslow (but not ACSM) group (1). Given the nature of Superslow training, it is not surprising that sets lasting over one minute would increase the local endurance of a muscle/muscle group.

The claim that Superslow training would be ideal for athletes is not based on any published research and may be considered illogical by many practitioners. The vast majority of sports depend highly on power and speed and, therefore, on the ability of a muscle to develop near-maximal force in a short amount of time. Since this ability is considered to be a trainable attribute (5,14), lifting weights at slow velocities would theoretically produce the exact opposite of the desired effect (i.e. the muscle would take longer to produce maximal force than it did prior to training).

CARDIORESPIRATORY BENEFITS AND FAT LOSS

The claim that Superslow training provides many of the benefits associated with cardiorespiratory exercise is not supported by any of the published scientific studies. VO_2 max, a measure of aerobic fitness, went unchanged during 16 weeks of Superslow training whereas a group exercising aerobically according to ACSM guidelines saw a 10.5% improvement (3). Over this same 4-month period, the ACSM group's body fat percentage dropped by an average of 5.5%, whereas the Superslow group saw no change (3). Additionally, Hunter et al. reported that subjects performing "traditional" resistance training burned approximately 48% more calories than a Superslow group during a workout and a 15-minute recovery period (8). Favorable changes in blood lipid profiles as a result of exercise appear to be primarily dependent upon how many calories

are expended; therefore, it would be surprising if Superslow training had an effect on this multi-disease risk factor (4). Aerobic exercise has also been shown to reduce resting blood pressure; there is evidence that traditional resistance training may have a similar effect (11). However, after 16-weeks of Superslow training, resting blood pressure was not affected (6).

I*s Superslow really safer?*

One of the more widely publicized reasons to engage in Superslow training is that it provides a safer workout than traditional-speed resistance training. Although there is no evidence to support or refute this claim, slower velocities are anecdotally thought to reduce the risk of injury. However, while it may theoretically be beneficial from an injury perspective to avoid ballistic movements in certain populations and without adequate preparation, it is most likely unnecessary to use repetitions slow enough to last 20 seconds in order to avoid traumatic injuries.

Additionally, Superslow training has traditionally been performed only on machines that are, once again, anecdotally believed to be a safer mode of resistance training as compared to free weights. However, in healthy, non-elderly adults, the injury rates in using free weights are not significantly different from those using machines (12).

Practical applications and conclusions

Few practitioners would disagree that incorporating variety is an important component of any effective and well-designed resistance training program. Variety is typically integrated by manipulating any or all of the following: volume (repetitions and sets), intensity (% of 1 repetition maximum), exercises, and rest. Many individuals may benefit from occasionally changing repetition speed as well, but adhering to a program as extreme as Superslow may not be necessary. Conclusions regarding the efficacy of a Superslow program can not yet be drawn due to a lack of evidence; similarly, some of the suggestions presented in this article are based upon studies that have not yet been peer-reviewed (i.e. evaluated by other scientists to ensure proper methodology). So although it is too early to draw any formal conclusions, Superslow training is clearly not the magic bullet for which many recreational lifters are looking; however, it may be beneficial for increasing local muscular endurance as well as strength that is exerted at a similar speed as that of the training (which is of very limited use). It should also be emphasized that the cardiovascular benefits associated with aerobic exercise do not develop as a result of Superslow training. For a more advanced and detailed review, the reader should refer to: Greer, B. The Effectiveness of Low Velocity (Superslow) Resistance Training. *Strength and Conditioning Journal* 27:32-37 (2005).

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