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| What Is SuperSlow®?  SuperSlow is an exercise protocol whereby the weight is lifted in approximately 10 seconds and lowered in five seconds. It is the protocol that best fits The Definition of Exercise, and is the protocol of choice for research, rehabilitation, bodybuilding and all general exercise. It can be used with any kind of resistance equipment: free weights, Nautilus or other machines, or calisthenics (dry land) exercises.  [Please note: Most of the information in this section is taken from SuperSlow: The Ultimate Exercise Protocol, 2nd Ed. by Ken Hutchins, ©1993]   Why So Slow?  • Slow movement reduces force - the number one cause of injury when exercising.  • Slow movement minimizes momentum, which improves fiber recruitment and makes it easier to attain deeper inroad.  • SuperSlow is safer and more productive than any other form of training.  Core concepts  [The Definition of Exercise](http://www.superslow.com/articles/definition_of_exercise.html) [Exercise vs. Recreation](http://www.superslow.com/articles/exercise_vs_recreation.html) [Safety](http://thepersonaledge.net/new_page_19.htm#safety) [Thorough Inroad](http://thepersonaledge.net/new_page_19.htm#inroad) [Force and Injury](http://thepersonaledge.net/new_page_19.htm#force_injury) [Excessive Friction](http://thepersonaledge.net/new_page_19.htm#excessive_friction) [Intensity vs. Work in Exercise](http://thepersonaledge.net/new_page_19.htm#intensity_work) [Maximizing Skill](http://thepersonaledge.net/new_page_19.htm#max_skill) [Requirements for Functional Ability](http://thepersonaledge.net/new_page_19.htm#functional_ability) [Toning and Body Fat Reduction](http://thepersonaledge.net/new_page_19.htm#toning_fat) [General Guidelines for Strength Conditioning](http://thepersonaledge.net/new_page_19.htm#gen_guide)  Safety  If everyone in the US immediately stopped performing the activities they pursued as "exercise" the collective health of the nation would improve dramatically. "Exercise" causes thousands of injuries per year. The most important guidelines an exercise instructor should follow are:  • Insure the safety of the subject  • Insure the safety of the Instructor  • Insure the safety of individuals in the vicinity  Exercise should improve resistance to injury - it should never cause it. If the number of knees, feet, hips and other structures damaged due to running, aerobic dance and other activities that supposedly make people more fit were accurately tallied and presented to an individual before starting a program, they might think twice before subjecting themselves to it. Super Slow is safe because it exposes the body to minimal levels of force.   Thorough Inroad  Thorough inroad is a term denoting the fundamental objective of an exercise: A particular exercise is performed to fatigue the target musculature as thoroughly and efficiently as possible. Inroad is the depth of momentary fatigue attained due to exercise. If a fresh muscle's maximum force output is 100 pounds, then 80 pounds after an exercise, the inroad is 20%. When considering the quality of an exercise, the following factors must be taken into consideration:  • Minimum quantity of work required to insure safety.  • Minimum inroad required to effect stimulation.  • Maximum inroad the system can tolerate and recover from.  • Maximum time between growth stimuli.  • Minimum time required for growth and recovery from stimulus.  Thorough Inroad technique involves pushing a muscle to its maximum. When all movement stops, effort must continue. The muscle doesn't care if the weight has stopped moving, it only knows it is being being asked to contract. Regardless of whether the weight is moving or not, the muscle is performing work. If this attitude is maintained during the last few repetitions of an exercise, they can often take 30 seconds or more to finish. When all perceptible movement stops, effort must continue for a minimum of ten seconds. Keep in mind this effort is always in the form of controlled, even pressure. Intensity at the cost of safety (by heaving, jerking etc.) is not desirable.  Many people have commented that such effort is dangerous. Realize that during the last few repetitions of an exercise, the target musculature is so weak there is virtually no danger of exceeding the tensile limit of the structures involved. Using Super Slow protocol minimizes the dangers of force and acceleration, allowing safe workouts at this level of intensity.  The effectiveness of an exercise is directly proportional to the amount of inroad.  Force and Injury  It is a misconception that excessive weight causes injury during exercise. Many well-meaning physicians recommend reduced weight for patients without realizing the real danger; force. Many injuries sustained through activities pursued as exercise were caused when little or no additional weight was involved - the acceleration of the subjects own limbs often causes the injury (for example: the impact on a jogger's knees, tennis elbow, a baseball pitcher's shoulder, a lower back injury sustained while picking up a golf ball, even weight-training injuries sustained with "light weight, low reps" often cause injury). The key to minimizing injury is minimizing force. Force equals mass times acceleration. In physics, this is known as the acceleration law:  F=ma While it is natural to beware the amount of weight (mass); acceleration, the greater danger, is almost universally ignored. If you limit the speed of movement (don't heave, explode or use any other ballistic movement) you significantly reduce the probability of injury. This also enables people rehabilitating injuries to work them directly by significantly reducing the possibility of exacerbating them. Strengthening the damaged structure directly will speed rehabilitation.   Excessive Friction  The efficiency of SuperSlow can be compromised when using high-friction equipment. While it is possible to get excellent results from these machines, better results can be obtained by using a low-friction alternative. On these machines, it is often necessary to move slightly faster than the ideal 10/5 to avoid sticking and bogging-down.  Intensity vs. Work in Exercise  Muscular growth occurs through a mechanism that is still poorly understood. It is known; however, that growth in a healthy subject is a response to high-intensity exercise.  For many years, the "total tonnage theory" was popular - and still is in many weight-lifting circles. The idea is: the more work you perform (i.e. the more weight you manage to lift over a given amount of time - whether it involves long, multiple sets, or exotic split routines) the better your results. This has lead to the four-day-a-week, two hours in the gym approach many bodybuilders take. Unfortunately for them, the only time all that work was helping was when it was done in a high intensity fashion - usually the last few repetitions in the last set. Everything else was superfluous at best and harmful to their progress at worst.  High-intensity is the stimulus that provides the body's response of growing larger and stronger and the two appear to be directly proportional - the greater the intensity, the greater the effective growth stimuli. Intensity is indirectly proportional to the amount of work. Excess work uses up recovery resources that would otherwise contribute to growth. Intensity can be looked at like this:  Intensity=Inroad/Time This means that the greater a muscle is fatigued in a limited time frame, the greater the exercise intensity. And, again, the greater the intensity, the greater the effective growth stimuli.  To summarize: Deep muscular stimulation is enhanced when exercises are performed to failure with a minimum of rest between them. Also, with high-intensity, less total work is performed from which the body must recover. Excellent results can be obtained from brief, infrequent, intense workouts.   Maximizing Skill  It is a common misconception that there are such general skills as agility, speed, grace etc.; and many activities practiced by athletes are performed with the intention of improving one of these general skills.  This is mostly a waste of time.  The scientific discipline of Motor Learning demonstrates that skills are highly specific. For example, while the skills of swinging a tennis racquet and swinging a racquetball racquet appear similar, they are each actually very specific skills. An individual could be great at one and completely inept at the other.  The idea that specific skills can be improved by mimicking their performance with weight has been a common practice for years. For example: a baseball player who swings several bats before his swing assuming that the heavier load will make the lighter swing more powerful. A far-worse, but no less common example would be the sprinter who performs the leg press exercise explosively, assuming that he/she can build "explosive power" to improve his/her starts. This practice is common and, more often than not, dangerous.  Any activity that mimics a specific skill with weight will most often cause what is called negative transfer - performance of the activity will actually degrade as the subjects skill sets become confused.  Skills should be performed as closely as possible to the actual event. When practicing for an activity, it should be performed to improve the skill, not to enhance any secondary (and probably minor) exercise effect. Exercise should be performed according to muscle and joint function, never according to the motions of a specific activity.  Requirements for Functional Ability   |  |  | | --- | --- | | **Non-Productive**  •Neurological Efficiency  •Body Proportions  •Cardiovascular Efficiency  •Skill Proficiency  •Flexibility | **Productive**   •Muscular Strength |  |  |  | | --- | --- | | **Trainable**  •Cardiovascular Efficiency  •Skill Proficiency  •Flexibility  •Muscular Strength | **Non-Trainable**  •Neurological Efficiency  •Body Proportions |   The trainable factors break down into:   |  |  | | --- | --- | | **Physical Conditioning**  •Muscular Strength  •Cardiovascular Efficiency  •Flexibility | **Skill Conditioning**  •Skill Proficiency |   Maximum muscular strength is encouraged by working maximum muscle fibers in high-intensity, low-force Super Slow Exercise. Working maximum fibers demands the application of resistance throughout a full range of motion. A full range of motion involves adequate stretching to promote and maintain functional flexibility. Working maximum muscle tissue makes greater demand on the transport system to promote increased cardiovascular efficiency. Therefore, all three components of physical conditioning are most directly addressed through Super Slow protocol.   Toning and Body Fat Reduction  This word is used a lot in the fitness industry. It is a marketing ploy. When an individual desired to "tone-up", most physical trainers will put them on a program of reduced weights and aerobics. This wastes the client's time and robs them of results that could be obtained faster and safer using Super Slow protocol.  There is no such thing as "Toning". Toning is a marketing derivative of the word Tonus, a proper biological term describing the residual tension in a skeletal muscle when it is at rest. Flaccid is a lack of tonus. To truly "tone-up" requires two things.  • Stronger and larger muscles  • Decreased body fat  Regarding the first requirement:  • If a muscle is stronger it is larger  • If a muscle is larger it is stronger  • If a muscle is stronger it exhibits more tonus  • If a muscle becomes weaker it loses tonus  The best way to build larger, stronger muscles is through Super Slow exercise.   Decreased Body Fat  There is a misguided emphasis on aerobics and its role in fat loss. Indeed, exercise in general is only about 10% of a fat-loss program. The other 90% is all diet. Fat is gained when an individual consumes more calories in a given time period than his/her body needs to sustain itself. Fat is lost when fewer calories are consumed than are needed by the body. To lose fat, the total calories consumed must be lower than what is required by the body.  While exercise is only 10% of a fat-loss program, the kind of exercise performed is essential. There is a common misconception that exercise burns a significant number of calories. It does not. A single pound of human fat stores approximately 3500 calories. That's enough to sustain a grown man on a 50 mile run. An hour of aerobic activity may burn around 300 calories. Performed three-times-a-week, it would take several months to lose even a small amount of fat (more often than that and the body will have a difficult time recovering, resulting in fatigue, soreness and , very likely, injury). Often, the weight lost through this type of program is indiscriminate - it comes uniformly from tissues throughout the body - fat, muscle, bone, water and organ tissue. The exercise performed must guarantee that the weight lost through a caloric-deficit diet comes from fat, and not vital muscle, bone and organ tissue. This is best accomplished by stimulating the muscles with high-intensity exercise to promote the natural growth mechanism.  Super Slow exercise builds muscle. The calories burned during the exercise are insignificant compared to the additional amount burned due to added muscle. A single pound of muscle will increase the metabolic rate of the body by 50-100 calories a day. So, five pounds of additional muscle will use an additional 1/2 to one pound of fat a week - even without the caloric-deficit diet.  In short, the ideal fat-loss plan involves a balanced, caloric-deficit diet combined with regular Super Slow workouts.   General Guidelines for Strength Conditioning  • Use Super Slow protocol (10 seconds to lift the weight, 5 to 10 seconds to lower it)  • Perform one set of each exercise to thorough inroad using a weight that allows failure between 4 - 8 Super Slow repetitions, or between 80 and 160 seconds. When you can perform eight repetitions in good form, increase the weight by 5%.  • Perform exercise for both the lower-body and upper-body in the same workout. Perform no more than 6-8 exercises per workout (10-12 total is okay if the additional exercises target smaller muscles - such as those in the arms and neck). Extremely advanced subjects require limitation to 4-6 exercises or less.  • Move as quickly as possible from one exercise to the next. Ideally, there should be no rest at all between exercises. That is not always possible or practical, but is something to aim for.  • Beginners should allow at least one full rest day between workouts, training no more than three times per week. Once one becomes proficient at performing the exercises and is training with a higher degree of intensity, workout frequency should be reduced to one workout every 3rd or 4th day, or twice a week. Advanced trainees often require as many as 7 or more rest days between workouts.  • Workouts should last less than 30 minutes. If rest between exercises is limited, advanced subjects may require as little as 10 minutes for a thorough workout.  • Never hold your breath. Over-breathe if you have to, but always supply your body with enough oxygen for the work it is doing. Holding your breath indicates a Val Salva Sync, which can send blood pressure to dangerously high levels and contribute to Exercise Induced Headache.  • If you begin to experience a headache - even a slight one - while working out, stop immediately. This could be a sign of Exercise Induced Headache.  • Keep accurate records. Exercise performed, the number of (correct) repetitions, body weight, and any other notes (duration of workout, etc.). There's no point in recording "cheated" reps.  • Stick to the same workout for at least six-to-eight weeks. Don't vary it.  • The immediate purpose of a workout is to FATIGUE THE MUSCLES, not to lift the weight or just go through the motions. Try to make it as hard as possible (within the limitations of safety). The harder you work, the more productive your workout. Be sure to allow enough rest and to get maximum benefit from your recovery time.  • Make your workouts brief, intense, and infrequent. |