



GENERAL STRENGTH TRAINING GUIDELINES

- DO NOT OVERTRAIN! Overtraining, which is defined by over-reaching in your workouts leading to cumulative microtrauma, can lead to injuries and has been shown to actually stimulate the release of catabolic hormones, such as cortisol, which break down muscle. To avoid overtraining be sure to follow the prescribed progressions in your workout plan.
- Strength train at your current level of fitness. In other words - do not push yourself if you are just beginning your weight training after a lay-off of several weeks or more. Whether you're a beginner or seasoned athlete, give your body a chance to repair its muscle and connective tissue (36 hours between strength workouts).
- Generally speaking, exercising with dumbbells and barbells is considered to be the best training method for stimulating muscle gain and functional strength. Although, free weight training is not without risks, so be sure to learn the proper techniques and form before lifting heavier weights.
- If you can adhere to the variety it is best to follow a periodized approach to your conditioning program. This means you'll want to complete your program in phases throughout any given week, month, season and year. A typical strength training approach for **power-endurance athletes** would be to progress your training through macro-cycles or phases similar to those listed below:
 - **Phase 1** (2-6 weeks) = **Anatomical or Functional adaptation (FA)**: Complete 2-3 sets x 10-20 repetitions of exercises listed in the prescribed functional training program. Additionally add 1-2 sets of exercise in a "Basic Core Routine". Emphasis is on good form and light to moderate resistance.
 - **Phase 2** (4-6 weeks) = **Hypertrophy or high volume training (VOL)**. High volume means more sets, reps and resistance. The goal is increasing lean mass. After a warm-up complete 4-6 sets of exercises. Begin with light weight and 15 repetitions (reps), increase weight and 12 reps, increase again and 10 reps, increase again with 1-2 sets of 6-8 reps. Be sure to rest for at least 60-90 seconds between sets.
 - **Phase 3** (4-6 weeks) = **Maximum Strength (MS)**: After a warm-up complete 3-5 sets of exercises. Begin with light weight and 15 repetitions (reps), increase weight and 10 reps, increase again and 8 reps, increase again with 1-3 sets of 3-6 reps. Be sure to rest for at least 60-90 seconds between sets.
 - **Phase 4** (4-8 weeks) = **Power/Endurance (PE)** and sport specific training Warm-up for 10-30 minutes. Complete designated plyometric workout (see under core routines). Reduce the weight and do 3-4 sets of 8-15 reps. Eventually, you may want to split your weight training into two sessions per day to maximize your hormonal responses.
- In order to prevent against increasing body fat levels you should continue to exercise cardiovascularly for 20-40 minutes 3-5 times a week.

Weight Training and Progressive Overloads

Once a base level of core stability and functional (pain free) range of motion is established then a progressive increase in the resistance loads is required for continued increases in muscle strength, tone and endurance. All the movements of the body should be challenged to insure appropriate muscle balance and functional movement.

More Weight Training Guidelines

1. Unless otherwise specified exercises should be slow and controlled with attention to form. If the exercise produces pain adjust your grip or change the exercise. Avoid discomfort at the joint; tension should be at the target muscle not the joint.
2. Always incorporate full range of motion when possible. Many times dumbbells provide the greatest range of motion.
3. Include antagonistic (opposing) muscles to promote muscle balance and decreased risk of injury. For example if you are performing the bench press to strengthen the chest you should also incorporate an exercise that centers on the opposing back muscles (e.g., Row machine).
4. Improper technique (or “cheating”) can promote injury to adjacent areas of the body and negate the development of the program’s goals. It is far better and safer to lift a smaller amount of weight correctly than a large amount of weight incorrectly.
5. Include all body parts; exercise larger muscle groups before smaller. Sometimes adherence to the program may involve getting rid of tedious exercises, which take away from the enjoyment of the session.
6. Always start with light loads, then gradually progress to larger loads.
7. Shoes and comfortable clothing suitable for exercise should be worn at all times.
8. Avoid lifting an unusually heavy weight. Large amounts of weight may cause muscle injury or other related accidents. Follow the suggested program training guidelines and do not experiment or show off.
9. Always warm-up prior to beginning a strengthening and toning exercise routine.
- 10. Be sure to allow for adequate recovery time (rest) between workout days. Never work the same muscles two days in a row. Try to incorporate regeneration days in between hard workouts.**

Specific Load Guidelines:

Relative Loading	Outcome	%1RM	RM Range	# of Sets	Rest Between sets
Light	Muscle Endurance	< 70	15-20+ repetitions	1-3	20-30 seconds
Moderate	Hypertrophy (tone/size)	70-80	8-12	2-6	30-90 seconds
Heavy	Maximum Strength	80-100	1-8	3-5+	2-5 minutes

RM = Maximum Repetitions at failure %RM = percentage of your 1 repetition max
 *Chart modified from Baechle & Groves, 1992 & D. Brooks, 2002