**WEIGHT LIFTING TECHNIQUES—**

**Basic Strength Training Terminology**

The following terms describe different parameters of strength training:

**Group 1 – Reps, Sets, Tempo**

**Rep** - short for repetition, a rep is a single cycle of lifting and lowering a weight in a controlled manner, moving through the form of the exercise.

**Set** - a set consists of several repetitions performed one after another with no break between them with the number of reps per set and sets per exercise depending on the goal of the individual. The number of repetitions one can perform at a certain weight is called the Rep Maximum (RM).

**Tempo** - the speed with which an exercise is performed; the tempo of a movement has implications for the weight that can be moved and the effects on the muscle

**Group 2 – Intensity, Volume, Frequency**

**Intensity** refers to the amount of force required to achieve the activity, and in this case, refers to the mass of the weights being lifted (lifting 20 kg requires more force or intensity than lifting 10 kg regardless of howmany reps/sets are done).

**Volume** refers to the number of muscles worked, exercises, sets and reps during a single session.

**Frequency** refers to how many training sessions are performed per week.

One example of this training strategy can be found in the following chart:

**Type Low Med High**

Intensity (% of 1RM) 10-40% 50-70% 80-100%

Volume (per muscle) 1 exercise 2 exercises 3+ exercises

Sets 1 set 2-3 sets 4+ sets

Reps 20+ reps 8-15 reps 1-6 reps

Session Frequency 1 p/w 2-3 p/w 4+ p/w

A common training strategy is to set the volume and frequency the same each week (e.g. training 3 times per week, with 2 sets of 12 reps each workout), and steadily increase the intensity (weight) on a weekly basis. However, to maximize progress to specific goals, individual programs may require different manipulations, such as decreasing the weight, and increase volume or frequency.

Making program alterations on a daily basis (daily undulating periodization) seems to be more efficient in eliciting strength gains than doing so every 4 weeks (linear periodization), but for beginners there are no differences between different periodization models.

Here is another example of this formulaic approach:

**VARIABLE**  **TRAINING GOAL**

 **Strength Power Hypertrophy Endurance**

Load (% of 1RM) 80-100 70-100 60-80 40-60

Reps per set 1-5 1-5 8-15 25-60

Sets per exercise 4-7 3-5 4-8 2-4

Rest between sets (mins) 2-6 2-6 2-5 1-2

Duration (seconds per set) 5-10 4-8 20-60 80-150

Speed per rep (% of max) 60-100 90-100 60-90 60-80

Training sessions per week 3-6 3-6 5-7 8-14

**Table reproduced from Siff, 2003**

**Examples of Strength Training Methods:**

**Contrast Training**

Contrast strength training is completed by lifting a heavy-load followed immediately by a lighter load. This is designed to improve power by preparing the muscles for maximal forceful efforts.

**Drop sets**

Drop sets do not end at the point of momentary muscular failure, but continue with progressively lighter weights.

**Pyramid sets**

In a pyramid the weight is first increased, and then decreased over a series of sets. A full pyramid typically includes five sets of approximately 12, 10, 8, 10 and 12 reps. The first two sets are performed with light to medium weights to warm up the muscles. The middle set is the *work set,* and uses the heaviest weight possible. The last two sets are *drop sets,* and further fatigue the muscle with progressively lighter weights.

**Burnouts**

Burnouts combine pyramids and drop sets, working up to higher weights with low reps and then back down to lower weights and high reps.

**Diminishing set**

The diminishing set method is where a weight is chosen that can be lifted for 20 reps in one set, and then

70 repetitions are performed in as few sets as possible.

**Rest-pause (heavy singles)**

Rest-pause heavy singles are performed at or near 1RM, with ten to twenty seconds of rest between each lift. The lift is repeated six to eight times. It is generally recommended to use this method infrequently.

**Supersets**

Supersets combine two or more exercises with similar motions to maximize the amount of work of an individual muscle or group of muscles. The exercises are performed with no rest period between the exercises.

**Push-pull supersets**

Push-pull supersets are similar to regular supersets, but exercises are chosen which work opposing muscle groups. This is especially popular when applied to arm exercises, for example by combining biceps curls with the triceps pushdown.

**Pre-exhaustion**

Pre-exhaustion combines an isolation exercise with a compound exercise for the same muscle group. The isolation exercise first exhausts the muscle group, and then the compound exercise uses the muscle group's supporting muscles to push it further than would otherwise be possible.

**Breakdowns**

Three different exercises that work the same muscle group are selected, and used for a superset. The first exercise uses a heavy weight (~85% of 1 rep max) for around five reps, the second a medium weight (~70% of 1 rep max) for around twelve reps, and finally the third exercise is performed with a light weight (~50% of 1 rep max) for twenty to thirty reps, or even lighter (~40% of 1 rep max) for forty or more reps. The entire superset is performed three times.

**Forced reps**

Forced reps occur after momentary muscular failure. An assistant provides just enough help to get the weight trainer past the sticking point of the exercise, and allow further repetitions to be completed. Weight trainers often do this when they are spotting their exercise partner.

**Cheat reps**

Cheating is a deliberate compromise of form to maximize reps. Cheating has the advantage that it can be done without a training partner, but compromises safety.

**Negative/Eccentric reps**

Negatives are performed with much heavier weights. Assistants lift the weight, and then the weight trainer attempts to resist its downward progress through an eccentric contraction. Alternatively, an individual can use an exercise machine for negatives by lifting the weight with both arms and/or legs, and then lowering it with only one. Or they can simply lower weights more slowly than they lift them: for example, by taking two seconds to lift each weight and four seconds to lower it.