Rest and recuperation

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Rest Between Sets
The amount of rest between sets depends upon the desired results of the workout. If muscular endurance is desired, little rest should be taken between sets. If strength-power is desired, more rest between sets is needed. A short rest period will achieve a better muscle “pump,” but not as much strength-power. Several minutes of rest between sets is needed if the objective is to lift heavier weights.

Time is needed for the muscle to “energize” before another heavy load is handled. It takes about 30 seconds for half the energy to be restored and two to three minutes before almost all the energy is restored to the muscle. Rest periods of less than one minute between sets do not permit adequate energy restoration for high intensity performances. Rest periods of more than three to four minutes are usually not necessary.

When doing a circuit training or supersetting program, rest periods between sets can be cut down significantly as long as successive exercises do not stress the same muscle groups.

Example: A set of squats are followed by a set of bench. In this situation only a few seconds rest between sets is needed. While one muscle group is exercised, the other group is resting and recuperating.

Rest Between Exercises
The rest taken between exercises depends greatly on what muscle groups are exercised on that day. If the athlete is working the whole body three times per week and alternating upper and lower body exercises, the rest between exercises should be minimal (30 to 60 seconds). If the athlete is working on a split routine and all the exercises for the day work a specific area, much more rest will be needed between exercises.

This is one of the reasons I like for my athletes to work the whole body when training with weights. Because of better recuperation during the workout, they can get stronger.

Example: Power clean, bench, squat and incline are done on the same day in that order. While he does his bench, the legs are recuperating getting ready for the squat. While the athlete does squats his upper body is recuperating for the incline press. If a split routine was used, the bench would be followed by the incline press. Even if the athlete would take a good rest between the bench and incline press, the weight handled in the incline would be less than that handled by the athlete working his total body (more rest between lifts). The same goes for the day he works his lower body.

Rest Between Workouts
The understanding of the recovery period between workouts is one of the most misunderstood factors in strength training. Many coaches neglect the recuperation factor when planning workouts. The coach has to understand that muscle growth and strength occur between training sessions. The “pump” in the muscle during workouts is not muscle growth. When the muscle is stressed beyond its normal demand, a certain amount of time is required for the muscle to recover. If the time between workouts is too short, the muscle cannot recover or rebuild before being worked again. When this happens, the muscle becomes chronically fatigued and actually decreases in strength.

It is not possible to suggest a specific amount of time needed between workouts. A general consensus is 48 hours. The longer and harder the workout the more time the muscles will need to recuperate. Some athletes just need more recuperation time than others. Also, the advanced lifter will need more rest than the beginner for he will be working at a high intensity. If after a day’s rest the athlete is not capable of performing the successive workout “intensely,” this could indicate that a longer recovery period is necessary. If the coach finds that with two days rest the successive workout is performed
"intensely" and with pleasure, then a two day recovery period would be appropriate.

In some situations the coach has to make an optimum training program for a given rest period (e.g., in-season). Due to outside factors (practices, games) the strength workout itself has to be modified so to fit the situation. If this is not done, and the coach tries to put on a "regular" lifting program, the end result will be overtraining. Too much work would be demanded from the athlete compared to the amount of recuperation time available.

Rest Between Cycles
At the end of a hard cycle or the competition season, the athlete should "slow down." This period is called Active Rest. It is relatively a short period (two to three weeks) compared to the other periods in getting ready for the competition season. This period is "slow key" with little or no wear and tear on the body. A regular relaxed training schedule should be maintained using high repetitions and low intensity. The length and intensity of the preceding cycle will determine the length and intensity of the Active Rest period.

Example: A) After 12 hard weeks of football, the athlete might take three weeks of active rest before starting the off-season program.

Example: B) If two different cycles are done in the off-season, a two week active rest period should be taken between the two cycles.

Strength Plateau
A strength plateau is when a muscle is not increasing in strength and eventually into a loss of strength.

Example: "I am training harder, but I am not getting stronger."

The strength plateau is an indication that something is wrong and some aspect of the training program should be changed. Generally there are two causes of strength plateaus:

A) Not enough rest and recuperation.

B) Not enough variation in the workout (sets and reps, intensity, exercise choice and sequence).

Most often the reason is not enough rest and recuperation. The muscle is being worked too hard compared to the amount of time it has to recuperate before another stress is imposed on it. If an extended recovery time does not get the athlete out of a plateau, the workout has to be changed. It may be that the muscle gets used to the workout and it no longer promotes positive strength adaptations.

Whatever the reasons for the plateau, for it to be corrected the workouts have to be less demanding.

The person training has the tendency of working harder when a plateau occurs. Many think the plateau is there because they are not working hard enough. Of course, this is wrong. If the person does train harder he will maintain that strength plateau and later lose strength (overtraining).

There are several ways to "get out" of a strength plateau:

A) If the plateau is noticed early, make the next couple of workouts a little easier.

B) If it is a severe plateau, cancel the lift(s) for a couple of workouts.

C) Substitute the exercise which has plateaued with another exercise.

Example: No progress in squats, do leg presses for a short while in place of the squat.

Overtraining

Overtraining is a condition in which there is a plateau or drop in performance over a period of time. If the athlete's performance decreases over a few workouts, there is a good chance that the athlete is overtraining. This will occur when the body does not have time to recuperate before the next workout.

How many times do you hear, "If this much work is good, then twice should be really good" or "If I feel tired I must not be in good shape, so I better do more work." You seldom hear, "Let's rest today so we can work better tomorrow." There is nothing wrong with hard work, for it is the key to success, but it has to be accompanied with proper rest. If the athlete is spending more than six to eight hours each week engaged in weight training, it is likely that he is overtraining. Here are some easily observable symptoms of overtraining:

A) Tiredness, desire to skip workouts
B) Lack of enthusiasm
C) Plateau or decrease in performance
D) Sleep disorders
E) Continued muscle soreness
F) Lack of appetite, weight loss

(For a more detailed description of overtraining symptoms, see "The Overtraining Syndrome" by Steve Fleck and William Kraemer, NSCA Journal 4(4):50, 1982.)

When you notice some of these symptoms the athlete needs to "slow down" his workouts so his body can catch up. Most coaches unfortunately do the opposite for lack of knowledge. To reduce the chances of overtraining:

A) Vary the intensity, exercises, sets and reps when planning workouts.
B) Have sufficient recuperation periods between workouts.
C) Get plenty of sleep
D) Eat nutritious foods

Outside Factors

There are some outside factors not related to strength training workouts that can hinder performance. Most times they cannot be controlled or anticipated when planning the workouts and desired goals. They just pop up and they have to be dealt with. Usually they will hinder the recuperation factor which in turn will hinder the performance. Some outside factors that can hinder performance are:

A) Academics -long nights of study -exam week
B) Financial -has to work a part-time job -poor diet
C) Family -not supportive -need to work at home
D) Sickness -reduced workout time -weight loss

Whatever the situation is, the coach has to recognize it and understand that it will affect the performance of the athlete. The athlete might be doing all he can, but will not reach the desired goals. What is important is to do the best possible under such situations.