

## **Principles of Exercise**

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### **OVERLOAD**

To improve physical fitness, the muscular and cardiopulmonary systems must be stressed. For a skeletal muscle to increase in strength, the muscle must work against a heavier load than normal. This concept is termed the OVERLOAD principle and it is a key component of all conditioning programs. We achieve an overload by increasing the intensity of exercise like using heavier weights in resistance training. You can also achieve overload by increasing the duration or time of exercise. For instance, to increase muscular endurance a muscle must be worked over a longer duration than normal, such as by performing a higher number of repetitions. To improve flexibility and increase range of motion at a joint, you must stretch the muscle to a longer length than normal or hold the stretch for a longer time.

Although overload is important to attaining fitness, your training should not be done beyond “end point exhaustion”. You must always stay hungry for the next training session. This concept is critical and often over looked.

### **PROGRESSION**

The principle of progression states that the overload should be increased gradually during the course of a fitness program. As an example, the first day you go out for a 20 minute walk and do that for the next week. Then you increase that walk to 30 minutes and so on to push the lactate threshold. You need to focus on continually shocking the body with various training routines with short bursts of high intensity. Change, Change, Change. Adapt, Adapt, Adapt.

### **SPECIFICITY OF EXERCISE**

The exercise training effect is specific to those muscles involved in the activity. Specificity of training also applies to the types of adaptations that occur in the muscle. For example, strength training, such as with free weights, results in an increase in muscle strength but may not improve muscle endurance depending on how one trains. Strength training is specific to improving muscular strength. Similarly, endurance training, such as distance running, cycling and swimming results in improved muscular endurance however may not increase muscular strength. This principle also relates to specific activities and sports. For example one would train differently for the sport of snow skiing as opposed to training for basketball.

### **RECUPERATION**

Your body needs a period of rest before your next training session. During the recovery period, your body adapts to the training stress by increasing endurance or strength. Failure to get enough rest between sessions may result in fatigue syndrome referred to as overtraining. Overtraining may lead to chronic fatigue and injuries. Although too much training is the primary cause of the over-training syndrome, an inadequate nutrition program will contribute to poor results in training routines.

## **REVERSIBILITY OF TRAINING EFFECTS**

Although rest periods are important to maximizing your benefits from training, going too long between training routines or being too inconsistent will result in losing the progress you have made. To maintain fitness, you need to train regularly. Physical fitness cannot be stored. You will lose fitness 80% faster than it took you to attain it after you stop training. And the older you are, the faster you lose it.

## **DIMINISHING RETURNS**

This principle, which is not typically seen in references, means there is a point when you train too long, in one session, and no further gain is made from your increased efforts. As a result, you simply place added stress on your body without any further benefit. We all have pushed beyond our limits and that is not a bad thing. However, one must understand their body and know when to stop otherwise recuperation takes much longer prior to the next workout or the next training session may not be as desired. Push the envelope; however always stay hungry for your next training session.