

Benefits of Weight Training

- Muscle Strength
- Muscle Endurance
- Strengthen Bones and Ligaments
- Muscle Mass
- Stamina
- Speed
- Power
- Decrease in Body Fat
- Increase Metabolism
- Relieves Stress and Tension
- Prevents injury in Sports

Terms and Definitions

- **Muscular Endurance**—The ability of muscles to work for long periods of time without becoming tired.
- **Strength**—The ability of a group of muscles to generate force.
- **Hypertrophy**—Increase in muscle size.
- **Atrophy**—Weakening of muscle with decrease in muscle size.
- **Overload**— To make the muscle work harder by increasing the weight load or the number of repetitions performed. This is needed to increase muscle size and strength.
- **Specificity**— To exercise the specific muscle and movement needed to perform a sport or activity skill.
- **Repetition (Rep)** - Performing 1 movement of an exercise.
- **Set**—Performing a group of repetitions of an exercise.
- **Dumbbell**—A Weight that can be gripped and lifted in 1 hand.
- **Barbell**— A weight that is lifted with both hands and has weight on each of its ends.
- **Tendon**—Connective tissue that attaches muscle to bone.
- **Ligament**—Connective tissue that connects bones together at the joint.
- **Aerobic**—Exercise which can efficiently use oxygen at an equal rate, as the muscles need it.
- **Anaerobic**—Exercise in which the muscle deplete oxygen and fatigue. Recovery time is needed. **(Weightlifting is anaerobic)**
- **Concentric**—The raising or lifting (contraction) action of the muscle.
- **Eccentric**—The lowering and lengthening movement of the muscle.
- **1 rep max**—How much weight you can lift 1 time successfully in a given exercise.
- **% of your 1 rep max**—Lifting a certain percentage of your 1 rep max during your workouts to help gain strength.

Weight of lifting Bars

Long Olympic barbell - 45 Lbs.

Short Curved Bar - 20 Lbs.

Any weight placed on these bars is added to this weight.

Types of Muscle

1. Skeletal Muscles—Move the bones of the body (*There are 434 skeletal muscles*)
 2. Smooth Muscle—Stomach, Intestines and walls of other internal organs
 3. Cardiac—Heart Muscle
- Voluntary—You can control their movement
 - Involuntary—You cannot consciously control their movement (Heart and Smooth)
 - Fast Twitch Muscle—Muscles which contract at a fast rate with great strength. (Used in weightlifting, sprints and jumping)
 - Slow Twitch Muscle—Contract at a slow rate, are great at endurance. (Used for Jogging, biking and walking)

Types of Muscle Contraction

- Isotonic—Muscle shorten and lengthen and body parts move a full range of motion.
- Isometric—Muscles contract against an object that does not move. No full range of motion.

Stages of a workout

Warm-up—Mild exercise that stretches and warms up the muscles and raises the heart rate

The Workout—Vigorous activity that works muscles and heart aerobically or anaerobically

Cool Down— A segment of your workout that gradually decreases heart rate and reduces tension on muscles.

Types of weightlifting Workouts

1 set till Failure—Performing 1 set of an exercise until the muscle fails to move and needs to recover. This workout will develop muscle size and strength but....takes a great deal of discipline by the lifter.

Pyramid—A strength building workout in which the lifter performs 3 to 5 sets of an exercise. In each set, typically, the lifter will increase the weight load and the repetition will decrease. This type of workout is for building strength and power.

Supersets—A muscle building and “toning” workout which involves doing 2 to 5 exercises of the same or opposite muscle groups with little rest between sets. This will increase heart rate, burn calories, burn fat and increase tone of muscle. Not a strength building workout.

Circuit—A workout in which the lifter performs a resistance type exercise and follows it with an aerobic type exercise. (i.e.. Bench press—jump rope/bicep curl-jump rope/ etc....) This is a muscle endurance and aerobic type workout for the heart and muscles.

What is Your Goal???

It's important to define your goals before starting a weightlifting program. Below are four goals ideas along with the type of workout needed to attain that goal.

1. Muscle endurance and cardiovascular training

If this is your goal you will complete 2 to 3 sets doing 12 to 20 reps of each exercise. You will use 70% or less of your 1 rep max to complete each set. It will also be necessary to limit your rest between set to 30 seconds to keep your heart rate up.

2. Gain muscle size

This program will require the lifter to do 3 to 6 sets of each exercise and complete 8 to 12 reps using 70% to 80 % of their 1 rep max. Rest between set should be 30 seconds to 1 minute. This type of workout is used when doing super sets. This type of workout will increase the intensity of load on the muscle to gain size (not so much strength). This will also help increase metabolism which can help burn body fat.

3. Strength gain

This program will require lifting 80% to 100 % of a 1 rep max. The lifter will do 3 to 5 set completing 1 to 8 reps. Since the weight lifted will be heavy the rest between sets needs to be between 2 and 5 minutes.

Nutrition and Supplements

All of the bodies functions are fueled from the calories you put into your body. Your body needs, and must have, a certain amount of calories each day to function properly. As you continue to take in additional calories then you body uses for energy, the body will store this as extra weight in the body.

Included are the nutrient percentages that your body needs each day along with some information about supplements that can be used to increase your bodies chances of gain muscle and keeping your body healthy.

Protein—Protein is what rebuilds and maintains your muscle. A person that is working to build muscle and maintain it should include 1 gram of protein per pound of body weight each day. This can be tough to do since most protein foods have a great deal of fat in them as well. Supplementing with a reputable powder or protein bar can be taken to ensure that your body is receiving enough protein for your needs.

Carbohydrates—Carbohydrates fuel your workouts and provide ready energy through the day. Carbs come from grains, bread, pasta and cereal just to name a few. Your diet should include 60% carbohydrates a day for your body to maintain the energy it needs.

Fat— 20 to 25 % of your diet needs to include fats. Eating less then this can effect your efforts to build muscle. Fat aids in the growth and reproduction of tissue. Fat cushions our inner organs and acts as a storehouse for energy.

Water— Water is one of the least talked about nutrients but by far one of the most important ones. Water pumps up blood volume and transports nutrients and oxygen. It fills the spaces between the cells. It helps the process of carrying messages between the nerves and muscles. It lubricates the joints.

Don't wait until your thirsty to drink water. By that time you probably have become a little dehydrated. Eight glasses (8 - 8 ounce glasses) might not be enough. A good rule is to drink 1/2 your body weight in ounces of water each day. That means if you weigh 200 Lbs. You should drink 100 ounces of water each day. Any water not needed will be urinated out of the body along with other waste product as well.

Water is the only thing that counts as water. Carbonated beverages, caffeine, and alcohol can not only give you the water you need but can dehydrate you as well.

Supplements

Creatine

Creatine is an Amino Acid which is a building block for skeletal muscle. You can get from food sources such as meat, poultry and fish. In the body it's found mostly in the muscle where it plays a unique role in producing energy in the muscle. This allows for the lifter that uses creatine supplements to complete additional reps during an exercise, which in turn works the muscle harder which can increase muscle strength and size.

Side effects of Creatine can include muscle cramping, muscle tearing and dehydration. You must drink a great deal of water when using creatine.

If you are considering using creatine, talk to your parents and qualified people in the field of fitness and nutrition to make sure your parents and you understand the product and support your decision in taking it.

Fat Burners (Ephedra)

Fat burners such as Ripped Fuel and Xenadrine (just to name a few) are products that are used to help raise your metabolism and help you burn calories and fat at a faster rate. These "Fat Burners" include an ingredient called EPHEDRA. Ephedra is a very powerful stimulant that increases your heart beat to dangerous rates. Taking these products can cause serious health problems that far outweigh the POSSIBLE benefits from it. DO NOT take these products before talking with a doctor and certainly your parents.

Anabolic Steroids

Anabolic steroids are produced by chemical methods from the male hormone *testosterone*. Some athletes use anabolic steroids because the drugs increase strength and body weight. However, this use of anabolic steroids is considered unethical. In addition, the use of these drugs can cause many undesirable effects. These include liver damage, high blood pressure, aggressive behavior, and the appearance of male physical characteristics in females. The use of anabolic steroids in most sports competition is prohibited.

Diet and weight loss

1 pound equals 3500 calories. In order to lose weight it's important to realize that you will need to take in less calories than your body uses each day to try to reach your goal. Through exercising at an aerobic rate, you can help the process by burning extra calories throughout the week to help your body shed body weight. In theory, in order to try to lose true weight (not just water weight) you should attempt to take in 500 less calories each day or burn off an extra 500 calories each day or use a combination of both. Also, as stated before, if additional muscle mass is put on the body, the body's metabolism will increase which will allow your body to burn more calories.....EVEN WHEN YOU SLEEP!!

For more information about weight loss, weight gain or nutrition and supplements feel free to talk with me or a person who is qualified in the field of fitness and nutrition.

Healthy Diet Ideas

- Eat small meals every 2.5 to 4 hours or eat 3 meals and 2 or 3 snacks distributed throughout the day . Here is some rational.
- Eat meals and snacks at regular times every day
 - Less tendency to over eat next meal
 - Particularly if meal is higher fat
 - Less probability to eat easily accessible calorie dense snacks
 - Regular eating may keep metabolism high
 - Particularly digestion of higher fiber foods
 - Thermoneogenesis: calories converted to body heat
 - Maintains energy level throughout day
 - Potentially higher caloric expenditure during activity
- Eat high fiber foods
 - Less tendency to eat calorie dense foods
 - By filling up on vegetables, fruits, and whole grains
 - Fiber can decrease the absorption of dietary fat
 - Fiber acts a barrier in the intestines
 - May help prevent certain cancers
- Eat lower fat foods
 - Lower fat food are less calorie dense
 - 4 Calories per gram of carbohydrates and protein
 - 7 Calories per gram of alcohol
 - 9 Calories per gram of fat
 - Dietary fat is more likely to convert to body fat than carbohydrates or protein
 - It takes 20% more energy for the body to convert carbohydrates or protein to body fat than it does to convert dietary fat to body fat
 - Less tendency to over eat
 - Particularly if previous meal or snack is small or skipped
 - Fat is more palatable for many
 - Too much saturated fat may increase blood cholesterol or LDL

OTHER SUGGESTIONS

- Eat 3 food groups every meal
- Eat 2 food groups every snack
- Plan meals around moderate or intense exercise
 - Plan snack or meal 1 to 2 hours before
 - Eat high carbohydrates meal soon after
- Eat protein and carbohydrates every meal or snack
 - Eat lower fat Meat or Meat Substitute or Milk exchange every meal or snack
 - Eat Starch or Fruit exchange every meal or snack
- Eat a variety of foods from each food group every day
- Eat calcium rich foods
 - Milk, yogurt, cheese
 - Green leafy vegetables

Healthy Diet Con't

- Eat vitamin C rich foods
 - At least 1 serving a day
 - Citrus fruit, tomatoes, fresh melons, strawberries
- Eat vitamin A rich foods
 - At least 1 serving every other day
 - Dark leafy greens, and dark yellow foods
- Make lower fat choices
 - Cook with little or no oil
 - Roast, bake, broil, grill, poach, steam, or boil instead of frying
 - Use salad dressing, mayonnaise, and other fats in moderation
 - Keep saturated fat intake low
 - Eat leaner meats or meat substitutes
 - Remove skin from poultry
 - Lower fat milk and yogurt
 - Choose lower fat snacks
 - Limit hydrogenated fat used in products to increase shelf life
- Limit refined foods
 - White bread and cereals, soda pop, sweets, alcohol

Body Fat

Underneath our skin is a layer of body fat that is not essential to normal bodily function. If this percentage of fat increases to a high range it could be detrimental to your health. We will measure our body fat throughout the semester.

Your body fat percentage is really much more important than your body weight. Percentages that are safe are as follows:

Men 12% to 20 %

Females 18% to 25 %

The bare minimum body fat percentage is 5 % of men and 12 % for females. Body fat that falls below this percentage can cause serious health problems .

How do you loose body fat?

You need to create the right balance between the calories you consume and the calories you burn. In order to burn more calories from fat during your exercise it is necessary to work at an active heart rate that is between 60% and 75% of your maximum heart rate. Here's how you figure that out:

$220 - \text{age} = \text{Maximum Heart Rate}$

$\text{Maximum Heart Rate} \times .60 = \text{Low end active heart rate}$

$\text{Maximum Heart Rate} \times .75 = \text{High end of active heart rate}$

It will be important to maintain this heart rate for 30 to 40 minutes during your aerobic work-out. Not only will you be burning calories but the calories that you burn will be largely fat calories.

Safety in the Weight Room

- 1. NO FOOLING AROUND!**
- 2. Use a spotter when using free weights**
- 3. Use collars on the weight bars**
- 4. Warm up sufficiently so that you don't pull a muscle.**
- 5. Make sure equipment is in working order before you use it.**
- 6. Don't lift more weight than you can handle.**
- 7. Learn and use proper technique that is taught to you by the teacher.**
- 8. Concentrate on your breathing when lifting.**