

# Strength & Conditioning Packet

## Unit 3- Muscles & Movements



Over the course of this unit we will be learning about basic musculature of the body, how to pair specific muscles and exercises together, training variables, and basic muscle movements.

### **Directions for completing packet:**

Packets will be distributed at the beginning of each unit and are due upon the completion of the unit. The three worksheets at the back of the packet are due\_\_\_\_\_.

**\*\*\*NO late work will be accepted. All work turned in after the due date will result in a zero.\*\*\***

### **Worksheets Due:**

1. Matching
2. Crossword
3. Short Answer

**\*\*\*\*Make sure your NAME is on EVERY page\*\*\*\***

# Strength & Conditioning:

## Unit – 3 (Muscles & Movements)

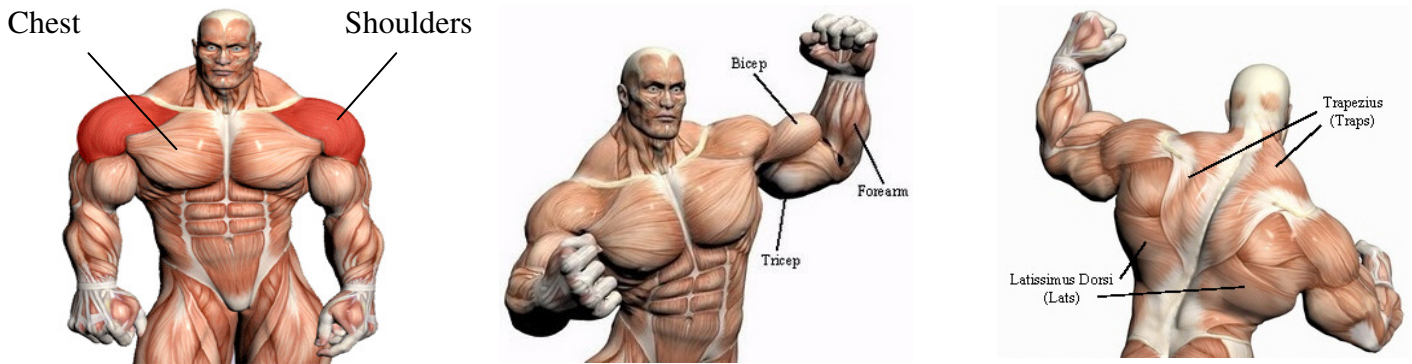
### Unit Essential Question(s):

Why is it important for me to know about the basic musculature of the body and how to use specific training variables to benefit my health and reach my fitness goals?

### Vocabulary Words:

Chest, Bicep, Triceps, Forearm, Quad, Hamstring, Calves, Set, Rep, Tempo, Rest, Lats, Traps, Shoulder, Push-ups, Lunges, Arm Curls, Pull-up, Hypertrophy, Power, Endurance, Eccentric, Isometric, Concentric, Extensions, Dips, Variables, Five, Shrugs, Stabilization, Maximal Strength, Leg Curls

### Muscles of the Upper Body (Excluding Abdominals):



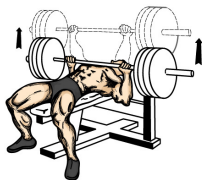
### Benefits of Upper Body Strength:

An important benefit of upper-body strength is that it helps you avoid some particularly troublesome injuries. Repetitive stress injuries result from any kind of activity, from word processing to tennis, that subjects muscles, tendons, and ligaments to constant stress. Joints especially shoulders, are particularly vulnerable. Not surprisingly, arms, shoulders, necks, and backs are more resilient and resistant to injury when they're strong and in good condition. If you have good upper-body strength, you'll be able to prevent these problems, and that means preventing time lost from school or your job. There is no question that keeping your upper body strong can go a long way towards saving your lower back. Even if you make a conscious effort to lift heavy objects carefully, no one does it correctly every time. Having good upper-body strength will help you weather those lapses because it will compensate for the extra strain that you're putting on your lower back.

### Exercises for the Upper Body (Excluding Abdominals):

#### Chest

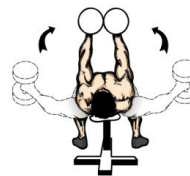
*Bench Press (Barbell/Dumbbell)*



*Incline Press (Barbell/Dumbbell)*



*Flys (Pully/Dumbbell)*



*Push ups*

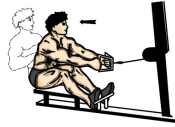


## Back

*Lat Pulldown*



*Row*



*Pull-up*



*Back Extension*

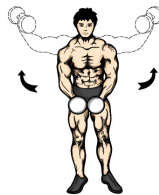


## Shoulders

*Over Head Press (Dumbbell/Machine)*



*Lateral Raises (Dumbbell)*



*Upright Row*



*Shrugs*



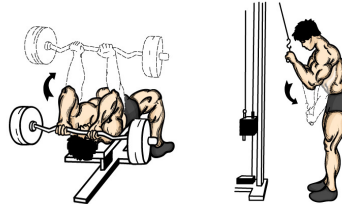
## Biceps

*Curls (Dumbbell/Barbell)*



## Triceps

*Extensions/Pulldowns*



*Dips*

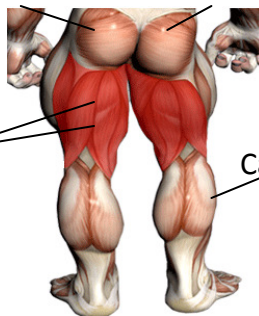


## Muscles of the Lower Body:

Quads



Gluteus (Abductors)



Hamstrings

Calves

Adductors



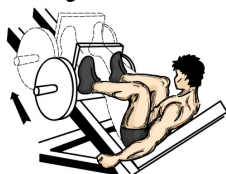
## Benefits of Lower Body Strength:

Your leg muscles are by far the largest and most important muscles in your body with respect to movement, stability and overall power. If you've ever played any type of sport, it becomes fairly obvious that most of your power comes from your legs - whether it's walking, running, cycling, baseball, golf, bowling, swimming or anything similar. As further incentive, the better you keep your legs now, the greater mobility you'll have at an advanced age. How far does an average person walk in their lifetime? They will walk around the Earth about 7 times. It's important to keep your legs in shape like a well-tuned machine - let your legs carry you farther than you ever imagined! By maintaining strong legs throughout your life, you're giving the knees, hips and ankles the support they need to carry you as far as you want to go, injury free! Furthermore, injuries such as ankle sprains, muscle pulls, and ligament tears are far less likely when they're surrounded by strong supporting leg muscles.

## Exercises for the Lower Body:

### Quads (Upper Leg - Front)

*Leg Press*



*Leg Extensions*



*Squats*



*Lunges*



### Hamstrings (Upper Leg - Back)

*Leg Curl*

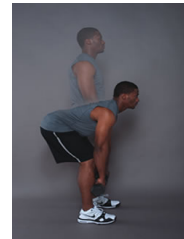
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*Glute Ham Raise*



*RDL (Dumbbell)*



### Calves

*Standing Raises*



*Seated Raises*

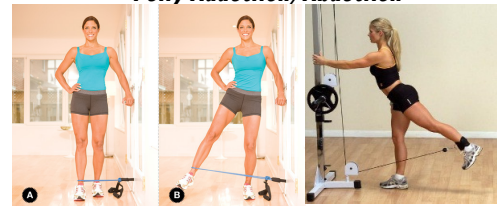


### Adductors/Abductors

*Seated Adduction/Abduction Machine*



*Pully Adduction/Abduction*



## What are Training Variables:

Effective exercise and training programs follow certain principles that allow it to help people keep fit. It may be known in various terms and is achieved through different means, but the basic principles behind exercise and fitness is always there. Knowing them and applying them in your own fitness regimen can help make it more effective in showing you the results that you need. How you work over certain variables in exercise and fitness will help determine how fast you can lose weight, improve stamina or increase athletic performance. You may be able to start with using the different exercise variables in a way that you feel comfortable with. Along the way, you can then change any or all of these variables to either increase the efficiency as well as to reach the target results. The variables can also be used ideally just to make the exercise program even more interesting once they start to become too routine. Understanding your muscles, and changing your training variables can help you increase your fitness levels by helping you create more beneficial and productive workouts. Learning to manipulate training variables can also aid in preventing injuries by training your total body to be strong in all planes of motion.

**Set-** A group of consecutive reps

**Repetition (Rep)-** One complete movement of a particular exercise

**Tempo-** The speed with which each rep is performed

**Intensity-** Is defined as an individual's level of effort compared to their maximal effort

**Rest-** Is the time taken to recuperate between sets or exercise

TRAINING ADAPTATION	REPS	SETS	INTENSITY	REST INTERVAL
Power	1-10	3-6	30% - 45% or up to 10% BW	3-5 min
Maximal Strength	1-5	4-6	85% to 100%	2-5 min
Hypertrophy	8-12	3-4	75% to 85%	45-90 sec
Endurance	12-25	1-3	40% to 70%	0-90 sec

## What are Training Phases?

1. **Stabilization Endurance Training** - The primary focus when progressing in this phase is on increasing the proprioception (controlled instability) of the exercises, rather than just the load. This phase increases, muscular endurance, improves flexibility, increasing neuromuscular efficiency of the core musculature, and improves coordination.
2. **Strength Endurance Training** is a form of training that includes high amounts of volume and it is used to improve lean body mass and decrease body fat. This can also be used as means to “tone” your muscles. Light to moderate weights are used during this phase.
3. **Hypertrophy Training** is specific for the adaptation of maximal muscle growth, focusing on high levels of volume with minimal rest periods to force cellular changes that result in an overall increase in muscle. Moderate to heavy weights are used in this phase.
4. **Maximal Strength Training** focuses on increasing the load placed upon the tissues of the body. Maximal intensity improves: Recruitment of More Motor Units, Rate of Force Production. Maximal Strength Training has also been shown to help increase the benefits of forms of power training used in Phase 5.
5. **Power Training** focuses on both high force and velocity to increase power. This is accomplished by super-setting a strength exercise with power exercise for each body part (ex. performing a barbell bench press super-set w/ a medicine ball chest pass).



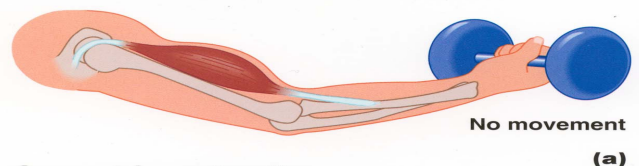
## Basic Muscle Movements:

**Isometric-** Not against or with the direction of resistance.  
(Pausing and holding- no muscle movement)

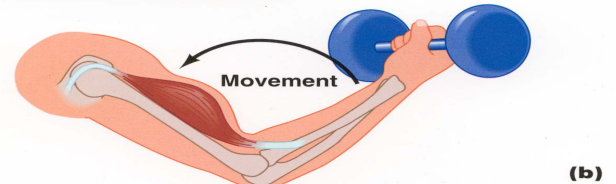
**Concentric-** Against the direction of resistance/gravity  
(Muscle gets shorter aka Flexion)

**Eccentric-** With the direction of resistance/gravity  
(Muscle gets longer aka Extension)

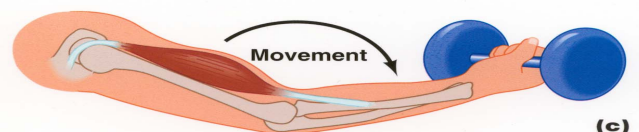
**Isometric contraction**  
Muscle contracts  
but does not shorten



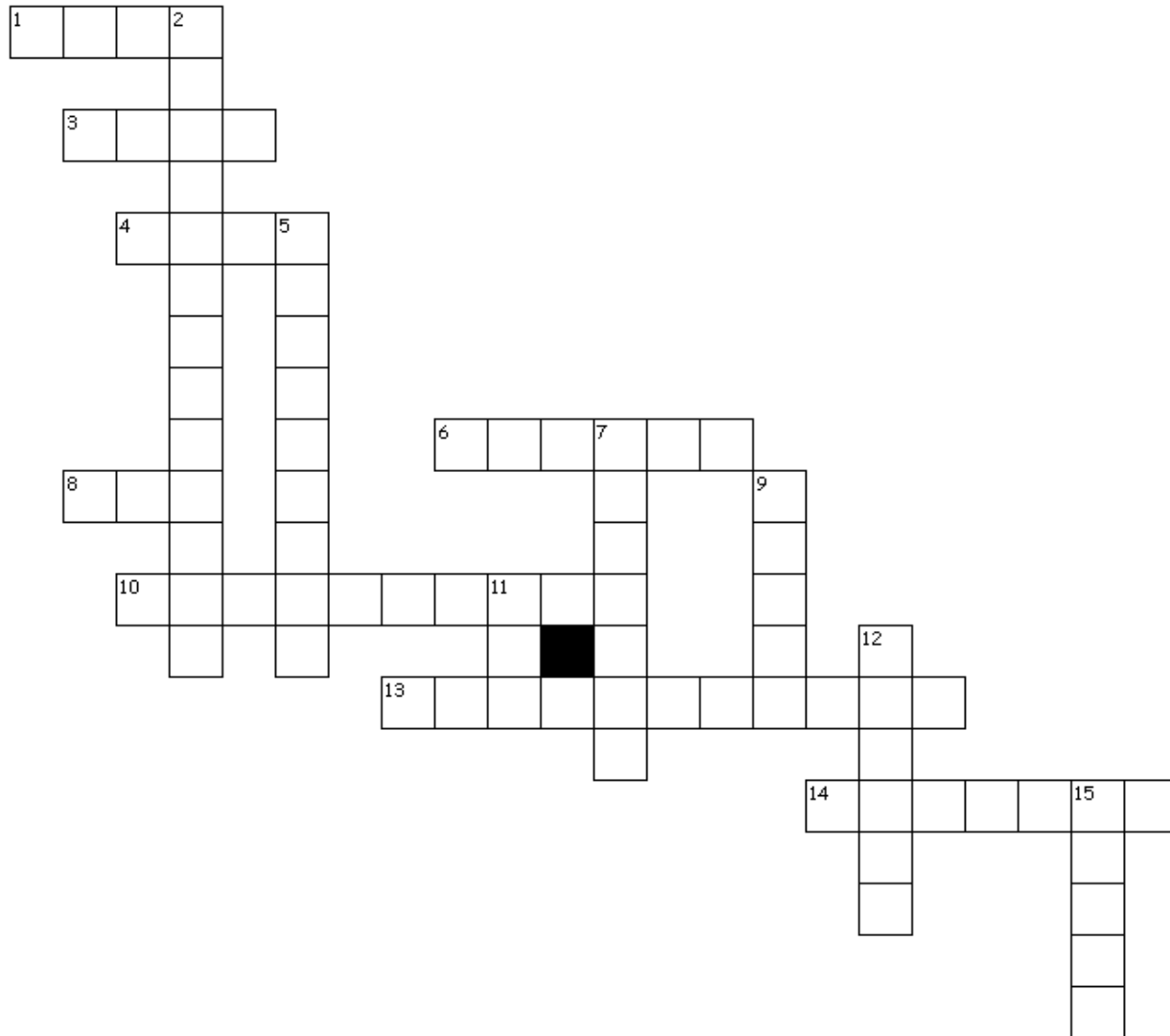
**Concentric contraction**



**Eccentric contraction**



# Unit 3: Muscles & Movements



## Across

1. will help develop and strengthen your triceps muscle.
3. Muscle located in the front of your upper leg.
4. Number of training variables
6. is an example of a back exercise
8. is a group of consecutive reps.
10. this type of muscle movement(Contraction) makes the muscle get shorter.
13. Training is specific for maximal muscle growth (Muscle Size).
14. This is an exercise used to strengthen your chest muscle.

## Down

2. this training helps improve coordination.
5. Training for this type of strength will help you "tone" your muscles.
7. this exercise is used to strengthen your hamstrings.
9. is the speed of which each rep is performed.
11. is one complete movement of a particular exercise.
12. A good exercise to strengthen your shoulders.
15. to training for this adaptation, you should rest 3-5 min in between sets.



## Match the Exercise to the Muscle

Match the number of exercise to the correct muscle.

Chest \_\_\_\_\_

Back \_\_\_\_\_

Quads \_\_\_\_\_

Calves \_\_\_\_\_

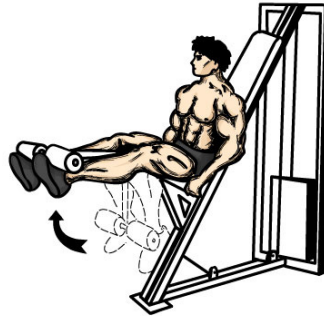
Hamstrings \_\_\_\_\_

Biceps \_\_\_\_\_

Shoulders \_\_\_\_\_

Triceps \_\_\_\_\_

**1**



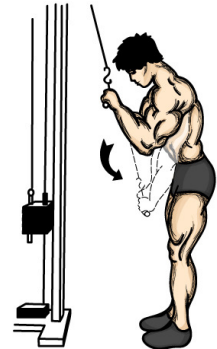
**3**



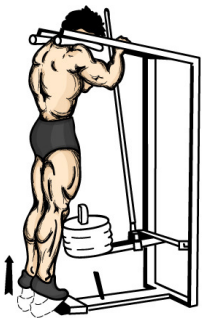
**8**



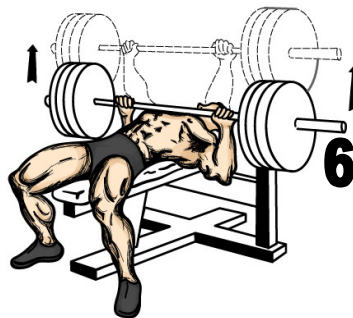
**4**



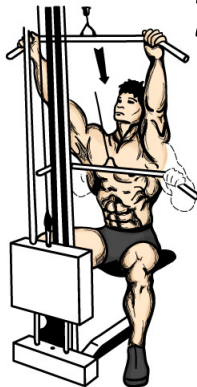
**5**



**6**



**2**



**7**



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