The Muhlenberg High School

Strength and Conditioning Manual

Mr. Eisenhofer

**Warm Up and Flexibility**

**Warm-Up/ Cool Down**

A Warm-Up does not have to be long but done with *focus* and *intensity*. This is what gets our day started so we need to start it out on the right foot. Part of the Warm-Up will incorporate some of our speed development movements. Some type of Warm-Up should be done before you work out or run. After the work out or run is complete it is important to work on your flexibility. The Cool Down and stretch is just asimportant as the Warm-Up and stretch.

**Flexibility Program**

The Flexibility Program is designed to increase the strength of a joint at an extended range of motion, thus increase your durability and decreasing the possibility of injury. All Athletes are different and have different levels of flexibility. But fortunately flexibility is trainable and will increase if you work on it.

**Core Development**

**Program**

**Abs and Lower Back**

The Abdominal and Lower Back muscles are trained to develop your strength and power, and to decrease the possibility of injury to your lower back, hamstrings, and the entire body. Fifty percent of the power that is developed by your legs is transferred to your upper body through your abdominal muscles. With strong and well-conditioned Abdominal and Lower Back muscles you will be able to more efficiently transfer this power throughout you body, which will allow you to become a more productive athlete.

\*\*Quick Fact\*\*

The 3 main cause of low back pain are (1) overweight/weak abdominal muscles, (2)tight hip flexors, and (3) tight hamstrings.

\*\* Quick Fact\*\*

**Back Exercises:**

Back Crunches: Lie on your stomach with your hands behind your head. Keep your toes on the floor throughout the entire movement. Raise your chest 3 to 6 inches off of the floor and hold at the top for one second then slowly return to the starting position. Continue this movement until your set is complete.

Supermen: Lie on your stomach with your arms straight out in front of your body. Simultaneously raise your upper body and legs off of the ground, make sure to keep your thumbs pointed up toward the ceiling. Hold this position for 1 to 3 seconds and return to the starting position. Continue until the set is complete.

Opposite Arm Opposite Leg: Lie on your stomach with your arms straight out in front of your body. Simultaneously raise your left arm and right leg, making sure to keep your thumbs pointed up toward the ceiling. Hold this position for 1 to 3 seconds and return to the starting position. Repeat this movement with your right arm and left leg. Continue until the set is complete.

Back Bridges: Lie on the floor with your knees bent to 90 degrees. Place your feet flat on the floor shoulder width apart, keep your hands on the floor next to your body. From this position push your hips directly toward the ceiling and hold it for 2-4 seconds. Return to the starting position and repeat the exercise until your set is complete.

**Abdominal Exercises:**

Crunches: Lie flat on your back with your knees and hips flexed at 90 degrees. Place your arms across your chest and keep your chin off of your chest throughout the entire movement. Lift your shoulders off the ground about 3-5 inches, and slowly return to the starting position. Immediately repeat the exercise.

Toe Touches: Lie flat on your back with your legs perpendicular to the floor (legs straight up). From this position keep your chin off of your chest, keep your arms straight up and raise your upper body toward your feet, touch your toes with your fingers and return to the starting position. Immediately repeat the exercise.

Bicycles: Lie on your back with your knee and hip flexed at 90 degrees. Raise your shoulder blades off the ground several inches, put your hands behind your head, keep your chin off your chest, and keep your left leg off of the ground. Straighten your right knee while simultaneously driving the left knee in the opposite direction toward your shoulder. Touch your left knee to your right elbow and immediately repeat to the other side. Each time your right elbow touches your left knee it is one rep.

Squirms: Lie on your left side and keep your legs straight. Put your right hand behind your head and place your left hand on your side. From this position slowly lift your shoulders 2-6 inches off of the ground and hold for a count of one and return to the starting position. Continue on same side for one set then repeat on the opposite side.

Bus drivers: sit on the floor so that your knees bent to 90 degrees. Your heels should be off the ground and your buttocks should be on the floor. Your shoulders and back should be off of the floor by 12-18 inches. Gripping a weight in your hand and twist your upper body to the left while keeping your legs together and still. Repeat this movement to the right. Teach time you rotate to the right it is considered one rep. Continue this movement until all of your reps are completed.

Reach Through: Lie on your back with your knees bent to 90 degrees. Keep your feet flat on the floor about shoulder width apart. From this position keep your chin off of your chest and slowly lift your shoulders off of the ground allowing your hands to go between your legs until your elbows reach your knees. Slowly return to the starting position and repeat the movement.

Ricochets: Lie on your back with your hands straight beyond your head and legs straight out. Bring your leg perpendicular (legs straight up) while at the same time bringing your arms up so to touch your toes with your fingers. Return to the starting position and repeat this movement.

Suit Case Crunches: Lie on you back with hands behind your head, chin off of your chest and your knees and hips should be at 90 degrees. From this position bring your knees to your chest and elbow to your knees as fast as possible. Repeat this movement until your set is complete.

Opposite Elbow Opposite Knee: Lie flat on your back with your knees and hips flexed at 90 degrees. Place your arms across your chest and keep your chin off of your chest throughout the entire movement. Lift you shoulders of the ground while taking your left elbow to your right knee and slowly come back to the ground. Repeat to complete set to one side then switch sides.

Reverse Crunches: Lie flat on your back with your knees and hips flexed at 90 degrees. Place your arms across your chest and keep your chin off of your chest throughout the entire movement. Bring your knees to your chest, lifting your hips and lower back off the ground and keeping your legs at a 90 degree angle and slowly

return your hips to the ground.

**Explosive Movement**

**Program**

**Plyometrics:**

The Plyometric Program is designed to enhance your overall explosive power by using a series of jumping and bounding movements. Plyometric exercises will also enhance your joint stability, coordination and help prevent injuries.

**Defining Movements:**

Jumps: In Place - normally vertical while remaining in the same place standing

Hops: - movement begins on one or both legs and ends on the same.

Bounds: - involves alternate landing from one foot to another; combination bounds may also be performed.

Shocks: - ballistic movements in which high levels of stress are placed on muscle and connective tissue (weighted vest)

**Plyometric Exercises:**

Tuck Jumps: Start with feet shoulder width apart with the body in a vertical position with the knees slightly bent. Jump up bringing the knees to the chest. Land in a standing vertical position. Be explosive, land softly and repeat jump immediately.

Split Jumps: Spread your feet apart from front to back. Start with you left foot up and your right foot back, similar to a lunging position. Jump up vertically landing in the same position. Be explosive and use the double arm swing. Upon landing in the same position, flex the knees and jump again immediately. After the reps are completed, repeat the exercise with the opposite foot up.

Squat Jumps: Start in a squat position with feet shoulder width apart and hands placed behind the head. Jump vertically and upon landing resume at the starting position and repeat. Be explosive and land softly. Upon landing bend knees and hips, without pause repeat exercise.

Scissor Jumps: Spread your feet apart from front to back. Start with you left foot up and your right foot back, similar to a lunging position. Jump up vertically and switch leg positions while in the air. Upon landing flex the knees, so to land softly. Jump again immediately.

Front Cone Hops: Start with a row of five cones set up 3 feet apart. Stand with the feet shoulder width apart at the start of the cones. Keeping feet at shoulder width, jump over each cone, Landing on both feet at the same time. Use a double arm swing motion to help elevate. Land softly, but be quick and explosive.

Box Jump: Start standing on the ground with feet shoulder width apart, facing the box. Bend knees slightly and jump onto the box. Use a double arm swing motion. Jump explosively onto the box, bend knees and hips upon impact. Remember to land softly and *always step down from the box.*

Standing Long Jump: Stand in a quarter squat position with your feet shoulder width apart. Flex your knees and jump forward as far as possible. Use a double arm swing motion to help gain distance.

Power Jumps: Star with feet shoulder width apart. Thrust arms upward and reach as high as possible with both hands. Be explosive off the ground. Upon landing, flex the knees and repeat jump immediately.

Double Leg Zigzag Hop: Start with eight cones placed about six inches apart in a zigzag pattern. Your feet should be shoulder width apart. Jump diagonally over the first cone and propel the body in a forward diagonal direction. Use a double arm swing motion, be explosive and think about *hanging* in the air. Keep Shoulders perpendicular to the center of the cones.

**Strength Training**

**Program**

**Explosive Strength:**

The incorporation of Olympic lifts in our program will benefit you in the following ways:

1. Teaches you to explode while using a maximum number of muscle units.

2. Teaches you to apply force with the muscle group in the proper sequence.

3. You learn to accelerate objects under varying degrees of resistance.

4. You learn to receive force from another moving body effectively.

5. You train specific muscle groups in the motor patterns used on the field.

6. They are the only exercises that provide triple extension of the hip, knee and ankle; which mimic such movements as running, jumping, and tackling.

**Exercise Technique:**

Clean Stance and Grip:

Feet should be hip width apart, toes pointed slightly out to the side.

Bar should be placed over top of the toes.

Measure clean grip one thumbs length from the beginning of the knurling (the rough grip on the bar).

The athlete may need to widen grip depending on the athlete.s size.

Hang Clean:

Feet hip width apart.

Arms are straight, wrists curled and elbows rotated out to the side.

Shoulders should be slightly over bar.

Pressure is felt on heels.

Using the legs the jump shrug begins.

The bar elevates from the jump shrug, as the hips come forward and upward.

The elbows break out to the side, and then rotate around to help receive the bar in front of the shoulders.

Bend at the knees to absorb the weight, and then stand tall after the bar is racked.

Push Jerk:

Grip should be the same as your clean grip, feet not wider than the shoulder width.

Barbell should be resting on the shoulders and upper region of the traps.

Your chest and upper torso should be held high and tight at all times.

The lifter dips into a quarter squat position (the drive).

From the squat position, the lifter must change directions quickly, thrusting up and fast pressing the bar to arms length overhead.

The feet shift from hip width to shoulder width. This will help create a base that will enable you to balance yourself when pressing the weight overhead.

Clean Pull:

Feet hip width apart, bar should be over the middle of the feet.

Grip should be slightly wider than shoulder width.

Shoulders slightly over bar, hips slightly over bar, and hip slightly higher than the knees.

Bar is raised off the floor at a constant speed using the legs.

Hips and shoulders rise at the same time (back angle remains constant).

Bar comes up straight feet remain flat.

As bar passes knee level, wrists remain curled and elbows rotated out to the side.

Bar is then pulled explosively, bringing the shoulders back and up.

As the bar travels up the thigh region, the legs are completely extended.

Bar is pulled close to the body as the traps shrug to elevate the bar.

Lat Pull Down:

Hold bar with hands slightly wider than shoulder.s width.

Secure body in seat with arms overhead.

Pull bar straight down until it touches your chest just below the color bone.

As the bar travels down, squeeze the rear deltoids and hold for a brief second, then return to the starting position.

Inhale down, exhale up.

Back Extension or Hyperextension:

Lie face down on bench.

Position your body so that the hips are on the edge of the bench and torso is hanging over.

Have partner sit on legs about knee level.

Hang torso down to from close to a 90-degree angle at the hip.

Raise torso straight up until slightly past parallel.

Return to starting position.

One Arm Dumbbell Row:

Stand at one side of the bench

Kneel down on bench with inside leg.

Lean forward and place inside hand on the bench in front of the knee.

Grasp dumbbell with outside hand.

Hold dumbbell at full elbow extension along side of the shoulder joint.

Pull dumbbell up toward the waist at a slight ankle.

Return dumbbell slowly o extended position.

Back Squat:

Place the bar on the upper part of the back/trap area.

Find a grip comfortable to you, usually slightly wider than shoulder width.

Head should be up, back straight; feet shoulder width apart, and eyes looking slightly upward.

Lift bar off of the rack holding chest up and out, lungs full of air.

Maintain vertical body position.

Slowly lower hips until thighs are parallel to the floor.

DO NOT Bounce.

Slowly raise bar by driving feet into the floor, using the hips and thighs.

Keep knees aligned over feet, knees should never be over the toes.

Keep heels on the floor through the entire lift.

Inhale on the way down and exhale on the way up.

Front Squat:

Place bar in front on Deltoids and upper chest.

Place hands evenly on bar using the Clean position.

Align hips under bar.

Lift bar off rack.

Keep elbows high and chest filled with air.

Establish a shoulder width stance, with eyes looking slightly upward.

Slowly lower hips until tops of thighs are parallel to the floor.

DO NOT Bounce.

Slowly raise the bar by driving feet into the floor using the hips and thighs.

Keep knees aligned over feet. Knees should never be over the toes.

Inhale down, exhale up.

Lunge:

Place barbell behind the neck on shoulders.

Grip should be slightly wider than shoulder width.

Maintain an erect body position.

Take one exaggerated step forward with the lead leg.

Plant lead foot flat on floor.

Flex lead knee slowly and under control.

Lower the trail knee to about 6 inches from the floor.

Keep torso vertical and chest up.

Lead knee is directly over lead foot. Knee should never be over the toes.

DO NOT Bounce. This is a smooth movement.

Forcefully push off with lead leg.

Bring lead foot back to starting position.

Pause and repeat reps.

After completion of reps, switch legs and repeat sequence.

Bench Press & Close Grip Bench:

Lie face up on a bench.

Position feet flat on floor.

Head shoulders and buttocks should be flat on bench.

Eyes should be directly below the bat.

Grasp bar with a grip slightly past shoulder width.

Move bar from rack.

Lower the bar slowly to about one inch below nipples.

Maintain body position on bench with feet on the floor.

DO NOT Arch back or raise buttocks off the bench.

Keep wrists straight and elbows in as the bar lowers.

Push the bar in a controlled manner to full elbow extension.

Inhale down, exhale up.

When doing Close Grip Bench, narrow the grip to chest width, causing the triceps to do more work. You will need to lighten the weight.

Incline Bench and Dumbbell Incline Bench:

Lie facing forward on incline bench.

Position feet flat on floor.

Head, shoulders, and buttocks should be flat on bench.

Eyes should be ahead of the bar.

Grasp bar with a grip slightly past shoulder width.

Move bar off rack.

Lower the bar slowly, positioned right above nipples.

Maintain body position on bench with feet flat on floor.

DO NOT arch the back or raise the buttocks.

Keep wrists straight and elbows in as the bar lowers.

Push the bar in a controlled manner to full elbow extension.

Inhale down, exhale up.

When doing dumbbell incline bench, lower the dumbbells to touch the outer part of the chest to get a good stretch.

Standing Front Press & Dumbbell Alternating Press:

Grip should be shoulder width apart.

Elbows should be under the bar.

Torso should be erect.

Move bar off racks.

Keep chest up.

Push bar to full elbow extension.

Keep elbows pointing out to the side until your arms are fully extended.

Do not forcefully lock out the elbows.

Lower the bar slowly and under control to shoulder level.

Do not jerk or bounce at the bottom.

Dumbbell Side Lateral Raise:

Hold dumbbells palm-in, arms straight down at the sides.

Raise dumbbells in a semicircular motion slightly above shoulder height

tilting the head of the dumbbell down.

Pause, and then lower to starting position under control.

Keep arms straight.

Use the same path to continue the reps.

Exhale up, inhale down.

Dumbbell Alternate Front Raise:

Hold dumbbells in front of thighs, palms facing in.

Arms should be straight, elbows locked.

Raise dumbbells straight up, keeping elbows locked until dumbbells are

overhead.

Return to starting position using the same path.

Can also be done sitting or alternating.

Upright Row:

Grasp bar about shoulder width apart.

Hold barbell with palms down.

Start with bar at arms length

Flex knees slightly.

Pull bar upward along abdomen and chest toward chin.

At the top, the elbows should be slightly higher than the wrist, and above the shoulders.

Lower the bar slowly and under control to the front of the thighs.

Do not jerk.

Preacher Curls:

Hold barbell, palms up about shoulder width apart.

Sit on bench with upper arms against pad.

Curl arm until forearms and biceps touch.

Keep upper arms in close.

Return to starting position position slowly.

Do not bounce.

Tricep Pushdown:

Stand erect head up.

Hold bar with hands about 8 inches apart, with palms down.

Bring upper arms to sides and keep them there.

Start with forearms and biceps touching.

Press bar down to arms length.

Return slowly and under control to starting position.

Tricep Extension:

Using easy curl bar, place hands on closest handgrip.

Lie on bench with head down, chin up.

Press bar to arm.s length above shoulder.

Lower bar to forehead by bending arms at elbows, keeping upper arm vertical and elbows in.

Return to starting position.

**Conditioning and Agility**

**Program**

**Conditioning/Agility Training:**

Conditioning may be the most unsavory part of any training program. The degree to which you are conditioned and your ability to recover quicker than your opponent may be the difference in winning and losing. Our program will gradually condition not only your body but will challenge you to push yourself to the limit.

**Drills:**

T-Test:

Run to second cone. (5 yards)

Shuffle right to third cone. (5 yards)

Shuffle Left to fourth cone. (10 yards)

Shuffle right to center cone. (5 yards)

Back peddle to the first cone. (5 yards)

L-Drill:

Touch first line with right hand. (5 yards)

Touch the second line with your right hand. (5 yards)

Run around the left side of the second cone. (5 yards)

And the right side of the third cone. (10 yards)

Pro Agility:

Start at the middle cone.

Run to the cone to the right. (5 yards)

Plant with the right foot and run to the 3rd cone. (10 yards)

Plant with the left foot and run through the start finish. (5 yards)