

# *Pitching Kinetics*

*Training w Med Balls, Kettlebells &  
Arm Care*

## **TRAINING PRINCIPLES**

### Warm-up

Every strength training workout should be preceded by a warm-up and stretching session. The warm-up should take a minimum of 5 minutes and the athlete should break a sweat. Follow the full stretching program given in this manual.

### Frequency/ Duration

The off season should consist of 3 total body days of training per week. Workout length during the off season should not exceed 60-75 minutes, whereas in season training may only last 30 minutes. Each major body part should be trained 2-3 x week on non-consecutive days, 8-12 exercises per day, 3-5 work sets per exercise, 10-20 total work sets per workout.

### Full range exercise

Every rep of every exercise should be performed through a full range of motion (all the way up, all the way down). This will strengthen the whole length of the muscle as well as adding functional flexibility.

### Use strict exercise form on all exercises

Make the muscles do the work. Eliminate all bouncing, arching and throwing the weight. If you have to cheat to perform a rep then the weight is momentarily too heavy. Do not count cheated reps. When technique begins to break, immediately stop the exercise, lower the weight and continue.

### Emphasize the lowering of the weight

It should take you twice as long to lower a weight as it did to raise it. The same muscle that lifts a weight also lowers it. You can lower approximately 40% more than you can raise so do not waste this part of the exercise.

### Record all workouts

In order for you to get stronger you must attempt to do more repetitions with a given weight or increase the weight. This must be done on a regular basis for you to achieve results. Recording workouts allows you to challenge yourself and keep progress of your gains, otherwise your training will be haphazard and unproductive.

### How many reps?

Any repetition range from 5-20 will work well as long as you are consistent in your form and effort. Avoid changing rep ranges too frequently, as this will not allow your body to adapt to a specific stimulus. On the other hand, a change in reps may be all you need to break out of a strength plateau. Reps from 1-5 will help increase power and 6-12 will increase strength. Doing more than 12 reps runs the risk of training a different energy system (not gaining strength) or gaining more size than strength.

**Stabilization Level:**

Phase 1: Stabilization Endurance—increase stabilization strength, develop optimal nervous-muscular system communication; proprioceptive progressions; correct muscle imbalances; increase flexibility, joint and postural stabilization

**Strength Level:**

Phase 2: Strength Endurance—continue enhancing stabilization strength and endurance while increasing prime mover strength

Phase 3: Maximal Strength—maximize prime mover strength

**Power Level:**

Phase 4: Power—enhance prime mover strength while improving rate of force production

Phase 5: Maximal Power—produce maximal acceleration and rate of force production; reserved for high-level athletes

Strength training is crucial for baseball pitchers to improve their performance, prevent injuries, and increase their throwing velocity. Here are some key exercises that can be incorporated into a strength training program for baseball pitchers:

### 1. Squats:

Squats target the lower body, specifically the quadriceps, hamstrings, and glutes. Stand with your feet shoulder-width apart, with a barbell resting on your upper back. Lower your body by bending at the hips and knees, keeping your back straight. Go as low as you can while maintaining proper form, then drive through your heels to return to the starting position. Perform 8-12 repetitions.

### 2. Deadlifts:

Deadlifts work the posterior chain, including the glutes, hamstrings, and lower back. Stand with your feet hip-width apart, with a barbell in front of you on the ground. Bend at the hips and knees, keeping your back straight, and grip the barbell with hands slightly wider than shoulder-width apart. Drive through your heels, extend your hips and knees, and pull the barbell up to a standing position. Lower the barbell back down to the ground with controlled movement. Perform 6-10 repetitions.

### 3. Romanian Deadlifts:

Romanian deadlifts primarily target the hamstrings and lower back. Stand with your feet shoulder-width apart, holding a barbell in front of your thighs. Hinge at the hips, keeping your back straight, and lower the barbell towards the ground. Go as low as you can while maintaining proper form, then return to the starting position by driving through your heels and extending your hips. Perform 8-12 repetitions.

### 4. Pull-Ups:

Pull-ups work the upper back, shoulders, and arms. Hang from a pull-up bar with your palms facing away from you and your hands slightly wider than shoulder-width apart. Pull your body up by engaging your back and arms, until your chin clears the bar. Lower your body back down with controlled movement. Perform as many repetitions as possible, aiming for 3-4 sets.

### 5. Core Exercises:

Strong core muscles are essential for stability and power generation in pitching. Planks, Russian twists, medicine ball slams, and cable rotations are all effective exercises for strengthening the core. Aim for 2-3 sets of 10-15 repetitions for each exercise.

## **Medicine Ball**

Medicine ball power exercises are an excellent way for baseball pitchers to develop

explosive strength, rotational power, and improve their throwing velocity. Here are some effective medicine ball exercises for pitchers:

#### **1. Medicine Ball Chest Pass:**

Stand with your feet shoulder width apart, holding a medicine ball at chest level. Explosively push the ball forward, extending your arms fully and releasing the ball. Catch the ball on the rebound and repeat the movement. Perform 8-12 repetitions.

#### **2. Medicine Ball Rotational Throws:**

Stand with your feet shoulder width apart, holding a medicine ball with both hands in front of your chest. Rotate your torso explosively, pivoting on your back foot and throwing the ball to the side. Catch the ball on the rebound and repeat the movement on the other side. Perform 6-10 repetitions on each side.

#### **3. Overhead Medicine Ball Throws:**

Stand with your feet shoulder-width apart, holding a medicine ball overhead. Explosively throw the ball forward and upward, extending your arms fully. Catch the ball on the rebound and repeat the movement. Perform 8-12 repetitions.

#### **4. Medicine Ball Slams:**

Hold a medicine ball with both hands, standing with your feet shoulder-width apart. Raise the ball overhead and forcefully slam it down to the ground, using your entire body. Catch the ball on the rebound and repeat the movement. Perform 6-10 repetitions.

#### **5. Side Throws:**

Stand perpendicular to a wall or partner, holding a medicine ball with both hands at waist level. Explosively rotate your torso and throw the ball against the wall or to your partner. Catch the ball on the rebound and repeat the movement on the other side. Perform 6-10 repetitions on each side.

These exercises should be performed with maximum effort and explosiveness. Start with a lighter medicine ball and gradually increase the weight as you become more comfortable and proficient with the movements. Remember to maintain proper form and engage your core muscles throughout the exercises. Incorporating these medicine ball power exercises into your training routine can help enhance your pitching performance and increase your throwing power.

#### **Kettlebell**

**<https://totalworkout.fitness/en/exercise/list>**

Kettlebell exercises can improve a pitcher's strength and conditioning routine, helping to improve overall strength, stability, and power. Here are some kettlebell exercises.

**Kettlebell double press:** a challenging exercise that targets your shoulders, triceps, and core. Here's how to perform it:

Start by standing with your feet shoulder-width apart and hold a kettlebell in each hand at shoulder level. Your palms should be facing inwards, and your elbows should be bent. Brace your core and press the kettlebells overhead by extending your arms fully. As you press, make sure to keep your wrists straight and your elbows close to your head. Once your arms are fully extended, lower the kettlebells back down to shoulder level in a controlled manner. Repeat the press for the desired number of repetitions. Aim for 3 sets of 8-10 reps.

Tips:

- Maintain a neutral spine throughout the exercise and avoid arching or rounding your back.
- Engage your core muscles to stabilize your body and prevent excessive leaning or swaying.
- Start with a weight that challenges you but allows you to maintain proper form. Gradually increase the weight as you get stronger and more comfortable with the exercise. Remember to warm up before starting any workout and listen to your body's limits.

**Kettlebell Swings Single or Two handed:** Swings are a dynamic exercise that helps develop hip power and explosiveness. They mimic the hip rotation and power transfer used in the pitching motion. Place one kettlebell in front of your feet. Push back with your butt and bend your knees. Make sure that your back is flat and look straight ahead. Grab a kettlebell with **one hand or two** with an overhand grip. Swing the kettlebell between your legs forcefully. Quickly reverse the direction and drive through with your hips taking the kettlebell straight out until it reaches at a height of your shoulders. Let the kettlebell swing back between your legs.

**Turkish Get-Ups:** This exercise enhances shoulder stability and core strength, which is important for maintaining proper pitching mechanics and injury prevention. Roll onto your back and hold the kettlebell up with your right arm. Position your legs so that they form a 45-degree angle with your body. Keep your right leg bent and your right foot flat to the floor. Then place your left arm out at a 45-degree angle for support when you push off from the ground. Push off to your left with your right foot, keep the kettlebell up and press your left elbow into the floor. Lift your left leg and pull it underneath yourself. Then lower yourself to your left ankle. Now stand up whilst pressing your right foot into the floor to stand. Keep your elbow locked and wrist straight (your kettlebell hand).

**Goblet Squats:** Goblet squats are excellent for strengthening the lower body and promoting good posture. Strong legs and a stable lower half are crucial for a pitcher's balance and power. A squat that holds the KB with two hands under the chin, hence the name.

**Kettlebell Rows:** Rows work the upper back and shoulders, helping to improve posture and upper body strength, which is essential for maintaining arm health.

**Kettlebell Deadlift:** Stand with your feet shoulder width apart. Hold the kettlebell with both hands. Ensure that your back is straight and stays that way for the duration of the exercise. Allow your arms to hang perpendicular to the floor, with the wrists pronated and the elbows pointed to your sides. Initiate the movement by flexing your hips, slowly pushing your bottom as far back as you can. This should entail a horizontal movement of the hips. The knees should bend only slightly, and your weight should remain on your heels. Drive your bottom back as far as you can. Extending your hips slowly, return to the starting position.

**Single-Leg Deadlifts:** This exercise targets balance, stability, and strength in the lower body, which can help pitchers with their landing and follow-through.

**Russian Twists:** These exercises target the obliques and rotational strength, which are essential for generating power during the pitching motion. Lie on your back and keep your knees bent. Lift your upper body up so it creates an imaginary V-shape with your thighs. Grab your kettlebell and hold it between your hands. Engage your core and twist your torso to one side lifting the kettlebell in the same direction. Hold the position and move back to the starting position. Repeat on the other side.

**Sumo Squats:** Use 1 or 2 hands to pick up the kettlebell, pulling it up to your chest. Pushing your hips back, slowly bend the knees and lower your legs until your thighs are just below parallel to the floor. Press through the heel of the foot and push your hips through to return to the starting position.

**Core Sit Up:** (sometimes called push up) Both arms holding KB fully extended skyward in front of your face. Sit up keeping KB extended and in front of you.

**Windmills:** Feet should be double hip width. Both feet pointing 45 degrees in one direction. Load the back heel pushing the hip out. Raise the rear hand keeping it straight. Focus on the top hand. Keep both legs straight as you lower, taking the bottom hand over the knee towards the floor. Drive back up to the top position and ensure that you straighten the body. You will instantly notice during the movement that if you keep both legs straight that good flexibility is required through the hips and hamstrings. If you find that you cannot reach the floor or opposite ankle without bending your knees then you have two options: Keep the knees straight and go down as far as possible. Bend the front knee slightly and reach the floor, with time gradually reduce the bend in the knee until the leg is straight and you can reach the floor

- We recommend that you **practice the windmill without a kettlebell** before advancing to the loaded kettlebell windmill as mentioned above.

**Farmers Carry:** Stand tall, holding a kettlebell in each hand at your sides. Walk forward, keeping your shoulders back and chest up. Continue walking for the desired distance or time.

**Reverse Lunge:** Stand with your feet shoulder width apart. Your arms should be extended next to your body holding the kettlebell in both hands. Brace your core and then step back into a lunge with your left leg. Go down onto the back knee and ensure both knees finish close to 90 degrees. Hold for a few seconds. Raise your body back up to the starting position so your feet come together again.

**Side Lunge:** Stand straight holding a kettlebell with both hands in front of your chest. Slightly bend your knees and hips. Put your feet shoulder width apart. Take a slow, lateral step to one side. Keep your toes pointed forward and stay low. Extend the opposite knee, driving your weight to the stepping side. Keep your head and chest up. Through the working leg return to the starting position. Repeat the motion to the other side.

- *When incorporating kettlebell exercises into a baseball pitcher's training program, it's crucial to start with a weight that allows for proper form and gradually increase the load as strength improves.*

### Arm Care/Rehabilitation

All weight is adjusted based on level of strength throughout the program.

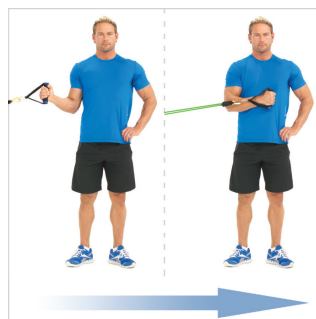
Arm Care Workout: 3-4 days a week

#### Shoulder, Forearm and Scapula Workout

##### Thera-band

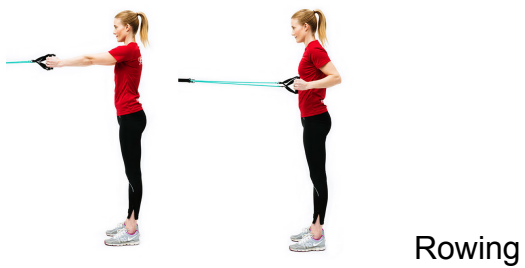
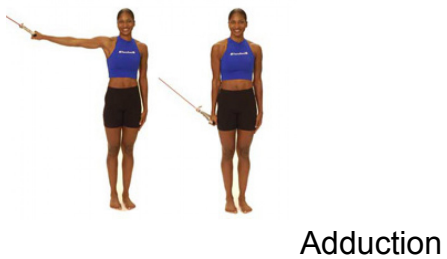
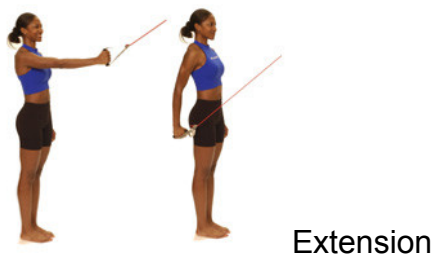
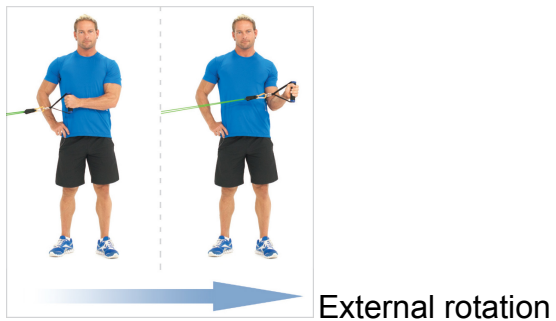
- Internal rotation 2x15
- External rotation 2x15
- Extension 2x15
- Adduction 2x15
- Rowing 2x15

Pictures to follow Thera-band



Internal rotation





### 3-5 lb free weights

T's	2x15
Empty can	2x15
Side Lying on bench Thumb up/thumb down	2x15
Side Lying on bench Thumb down/ thumb up	2x15

Weight and load will vary for the following based on strength level; increase weight when ready

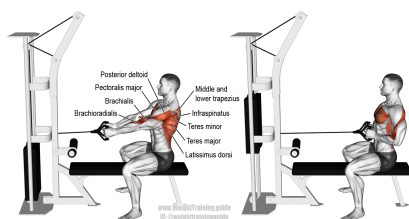
**Lat pull down 30-60 lbs**

**2x15**



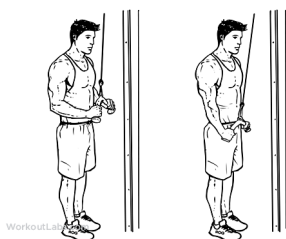
**Rowing 30-60 lbs**

**2x15**



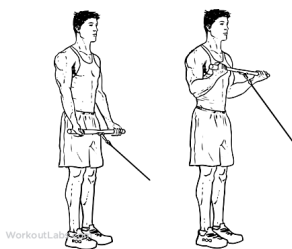
**Triceps push-downs 30-40 lbs**

**2x15**



**Biceps curl 20-40 lbs**

**2x15**



## Body Blade

- 90 degrees of forward flexion      30 sec. x 2  
[https://www.youtube.com/watch?v=\\_ysuKzx6h9c](https://www.youtube.com/watch?v=_ysuKzx6h9c)
- 90 degrees of abduction            30 sec x 2  
<https://www.youtube.com/watch?v=colePoY0qHc>
- D1/D2 pattern                         30 sec x 2  
<https://www.youtube.com/watch?v=RNmHlnM82Fc>

## Scapula exercises

- Foam roll --- Standing scapular squeezes (2-3 lb)
  - 2x15 2 sec. hold when squeezing
- Serratus Punches 15 – 20 lbs      2x15
  - Lying on back fist to ceiling elbow locked and punch to up  
<https://www.youtube.com/watch?v=Bd4TFRqgsrl>
- Serratus Lifts                         2x15
  - Hands on bench and lift but up off bench  
<https://www.youtube.com/watch?v=vZuVsLDp1x8>
- Wall Pushups                         2x15  
<https://www.youtube.com/watch?v=a0SdF-BaGg0>
- Scapular abduction and upward rotation 2x15 3 lbs
- Scapula adduction (5 lbs)            2x15
- Scapula depression (5 lbs)         2x15
- Scapular adduction and downward rotation 2x15 3 lbs
- Scapula stabilization on exercise ball (no weight)
  - Y's                                        2x15
  - W's                                        2x15
  - T's                                        2x15<https://www.youtube.com/watch?v=af53A4ybUf8>
- Bilateral external rotation            2x15  
<https://www.youtube.com/watch?v=JN9Re-z0fxM>

- **Modified Plank with protraction**      **2x15**  
<https://www.youtube.com/watch?v=GVZRsdQCD-I>
- **Pec Stretch W and Snow Angles on Foam Roller**    **2x15**  
<https://www.youtube.com/watch?v=6LSYmLWHC1Y>

### **Stretching**

- Doorway stretch
  - Elbow bent at 90 degrees      2x15 sec
  - Elbow straight      2x15 sec
- Triceps stretch      2x15 sec
- Deltoid stretch      2x15 sec
- Forearm stretches      2x15 sec each
- Stick Mobility and Stick stretch, supine on bench
  - Forward Flexion into overhead extension
  - Abduction and adduction both sides
  - External rotation stretch with stick in hand, elbow bent about 95 degrees
  - Internal rotation stretch with head, stick in hand behind back and lightly pull up