Army Physical fitness Research Institute (APFRI)

Academic Year 2012 (AY12)

Softball Pre-Season Training Guidelines

Dear AY12 Student,

Welcome to the Army War College! On behalf of the entire Army Physical Fitness Research Institute (APFRI) Team, I extend to you my warm welcome and best wishes for a great year at Carlisle Barracks for you and your family.

Prior to your arrival to Carlisle Barracks, please consider beginning your "Spring Training" in preparation for the intramural softball season that starts in mid-August during your first full week of classes. Important facts:

- A lack of conditioning and sport specific training increases injury risk.
- Each one of you is coming in with a different fitness level.
- Your training intensity level will differ based on your overall fitness level.
- You need a solid foundation of strength training and conditioning for optimal results.

Why should I complete this recommended training?

"You must condition to play, not play to get into condition". Every year, a significant number (over one-third) of Army War College students suffer from a variety of injuries during softball, with quadriceps, hamstring and knee injuries representing 52% of all softball injuries for students in the AY11 class. Research shows that participating in a comprehensive exercise program that includes sports specific exercises at least 3 times per week for 6-8 weeks pre-season can reduce the risk of injury during the season. Please incorporate these guidelines into your regular physical fitness program before your arrival and prior to the start of the softball season.

Please do not delay your preparation. You will find that it will help make your softball season a more enjoyable one! Again, welcome to Class AY12 and we look forward to meeting you this fall.

Director, APFRI

Softball Pre-SeasonTraining Guidelines

None of the stretches or exercises described in this handout should be painful or uncomfortable. If you have a history of musculoskeletal injury, consult your health care provider before beginning a new exercise program.

Softball is a sport that requires muscular strength, endurance, flexibility and agility. For the purpose of injury risk management, a training program should be initiated at least 6-8 weeks prior to the start of the softball season. The following pages include examples of dynamic warm-up exercises, strength training exercises, agility drills and flexibility exercises that can be used for a pre-season training program. Any exercise or training program should be preceded by a proper cardiovascular warm-up, consisting of light aerobic activity for a duration of at least 5 minutes. This will ensure that you have elevated your heart rate, increased blood flow to your muscles and prepared your body for the training program.

To ensure you have a well-balanced and effective program, it is important to include at least 2-3 exercises from each of the following categories: dynamic warm-up, strength, agility and flexibility. Additional exercises can be added as you progress through the weeks of training.

Dynamic Movement Exercises: Dynamic movement exercises are designed to work muscles and joints that will be utilized for a particular sport or activity. These exercises are designed to mimic specific sport movements to locally warm-up and stretch individual muscle groups. Performing these exercises can increase your functional range of motion (ROM).

Strength Exercises: Strength training exercises will improve muscle strength and endurance and are intended to improve play while decreasing your risk for injury. The strength training exercises should be performed on non-consecutive days to allow for recovery. Begin with light weight/resistance and progress to heavier weight/resistance as tolerated through the weeks of training.

Agility Drills: Agility drills train your body to rapidly change position or direction without losing control of your body weight or decreasing movement speed. Agility drills can be used during pre-season training, pre-game warm-ups or during a game with long periods of inactivity, such as a long inning.

Flexibility Exercises: Stretching helps to improve flexibility and may increase or maintain a joint's ROM. Stretch 5-7 days per week for optimum flexibility benefits. Having a tight or inflexible joint increases your risk for a sprain or strain.

****Example of a Softball Pre-Season Training Workout****

Cardiovascular Warm-Up:	5 min of light jogging/cycling			
Dynamic Movement:	Standing Medicine Ball Swings	8-10 reps	2-3 sets	3x/week
	Walking Lunges (both directions)	10-12 reps	2-3 sets	3x/week
	Throwing Warm Up	(See page 3)		
Strength Exercises:	Internal Shoulder Rotation	10-12 reps	2-3 sets	3x/week
	External Shoulder Rotation	10-12 reps	2-3 sets	3x/week
	Plank	30 sec	2-3 sets	3x/week
	Lateral Lean	30 sec	2-3 sets	3x/week
Agility Drills:	Reverse Runs	10-15 yds.	3-5 reps	2x/week
	Figure Eight Run	vary distances	3-5 reps	2x/week
Flexibility Exercises:	Butterfly	30 sec	2-3 reps	5x/week
	Knee to Chest	30 sec	2-3 reps	5x/week
	Pectoral Stretch	30 sec	2-3 reps	5x/week

Refer to the following pages for pictures and descriptions of the various exercises.

Softball Pre-Season Training
Dynamic Movement Exercises

Arm Swings

Starting Position

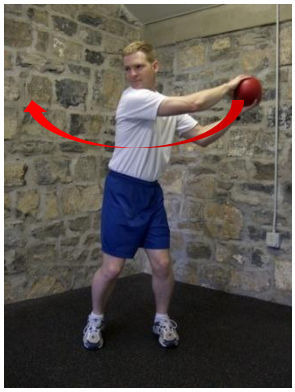
Arm Swings

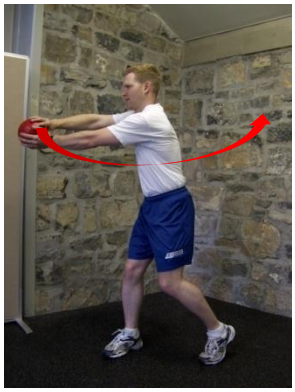
Ending Position

Arm Swings: Extend arms out to the side and up to shoulder height. Arms should be fully extended and directly to the side of the shoulders. Swing one arm across the chest while taking a step forward with the opposite leg. Swing the same arm back through a full range of motion. Take a step with the opposite leg. Repeat the process using the opposite arm. Perform 10-12 repetitions per arm, 2-3 sets. **Caution: Avoid excessive trunk rotation.**

Standing Medicine Ball/Bat Swing

Starting Position





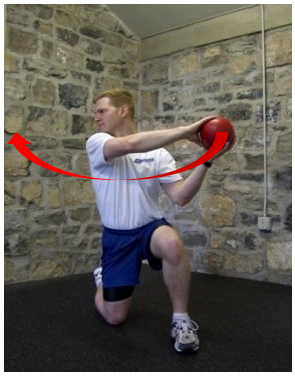
Standing Medicine Ball/Bat Swing

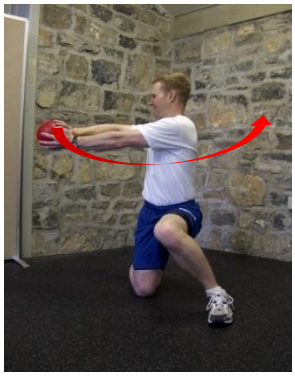
Ending Position

Standing Medicine Ball/Bat Swing: Start in a standard batting position (left or right). Hold a light (~3 lbs.) medicine ball with both hands. Perform a wind-up motion by bringing the medicine ball backwards while shifting body weight to back leg. Quickly swing medicine ball forward across body. Transfer weight to front foot and pivot on the back foot. This movement should be smooth and continuous. Repeat for opposite side to ensure muscle balance. Perform 8-10 repetitions per side, 2-3 sets. This exercise can also be performed by holding a bat with one hand on each end to keep the upper body warm between innings.

Kneeling Medicine Ball Swing

Starting Position





Kneeling Medicine Ball Swing

Ending Position

Kneeling Medicine Ball Swing: Left-handed batters, kneel on the right knee while keeping the left foot on floor. Left leg should be bent at a 90-degree angle. Grasp a light medicine ball with both hands. Perform a wind-up by rotating to the left side, bringing the ball behind your body. Swing the medicine ball across your body using a quick fluid movement. Right-handed batters should kneel on their left leg and rotate from the right side. Perform 8-10 repetitions, 2-3 sets.

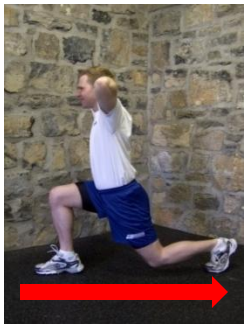
Softball Pre-Season Training
Dynamic Movement Exercises

Forward Walking Lunge

Walking Lunge with Twist

Forward Walking Lunge/Forward Walking Lunge with Twist: Place both hands behind your head. Take a step forward with the right leg. Drop the left knee down until it is just above the floor. The knee of the front leg should not go beyond your toes. Look forward keeping your back in a neutral position. Pause in the lunge position. Repeat with the opposite leg, moving forward with each step. **Caution: If you have a history of anterior knee pain (front of the knee), this exercise may exacerbate (worsen) your symptoms.**

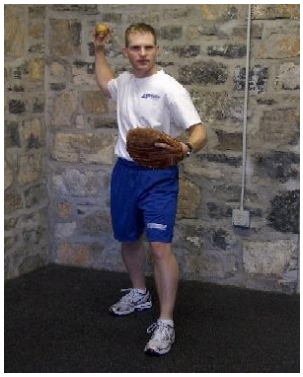
As an advanced exercise, an upper body twist can be added to the movement. While dropping into the lunge position, twist to the left. The right elbow should nearly touch the outside of the right knee. Then twist to the right. The left elbow should nearly touch the inside of the right knee. Take a step forward with the opposite leg. Repeat the process. Perform 10-12 repetitions for each leg, 2-3 sets. **Caution: If you have a history of lower back pain, this exercise may exacerbate (worsen) your symptoms.**



Reverse Walking Lunge

Reverse Walking Lunge: Place both hands behind your head. Take a step backward with the right leg. Drop the right knee down until it is just above the floor. The knee of the front leg should not go beyond your toes. Look forward, keeping your back in a neutral position. Pause in the lunge position. Emphasis should be on the rear leg to perform the majority of the work, with the forward leg used only for balance and stability. Repeat with the opposite leg, moving backward with each step. **Caution: If you have a history of anterior knee pain (front of the knee), this exercise may exacerbate (worsen) your symptoms.**

Throwing Warm Up: ***(Perform after other upper and lower body dynamic warm-ups.) Remember, "Warm-up to throw, don't throw to warm-up." ASMI (American Sports Medicine Institute)***



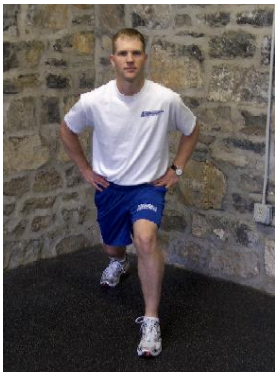
Begin with short distances of approximately 15 feet apart. Throw the ball ten times at this distance with slow ball velocity. Take two or three steps backwards and repeat the ten throws. When comfortable at a given distance, you can increase the velocity of the throw. Gradually increase distance and velocity of the throws, changing only one parameter at a time, until you have reached the distance normally thrown for the specific position played.

Softball Pre-Season Training
Dynamic Movement Exercises

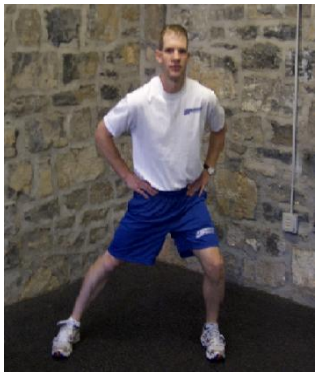
High Knee Tucks: Take a step forward with right leg. Raise the left leg, clasping hands in front of the left knee bringing it up and toward chest. Pause in this position, release hands, take a step forward with the left leg. Repeat the procedure with right leg. Perform 10-15 repetitions for each leg, 2-3 sets.

12 O'Clock

3 O'Clock



6 O'Clock



9 O'Clock

Clock Lunges: Stand with feet shoulder width apart, hands on hips. Take a step forward with the right leg. Drop the left knee down until it is just above the floor. The knee of the front leg should not go beyond the toes. Look forward with back in neutral position. Move in a controlled manner toward 12 O'Clock, 3 O'Clock, 6 O'Clock and 9 O'Clock with the right leg, and then switch legs moving in the opposite direction. Perform 10-12 repetitions in each direction.

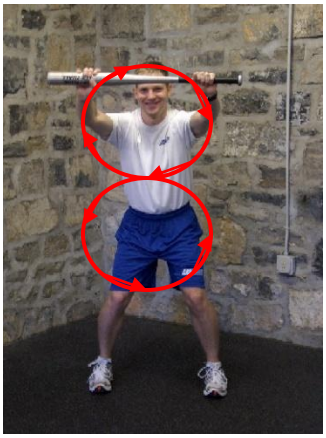
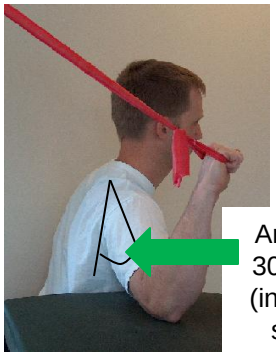


Figure 8 with Bat: Stand with feet shoulder width apart holding a bat with both hands as shown. Keep arms straight. Begin a "figure 8" pattern with the bat, moving the arms, upper torso, and hips. Keep head up and back in a neutral position. Reverse directions. Perform 10-12 repetitions in each direction.

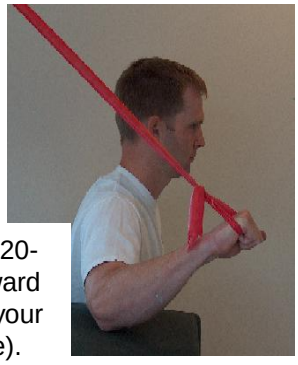
Softball Pre-Season Training
Strength Exercises

Internal Rotation

Starting Position



Arm positioned 20-30 degrees forward (in the plane of your shoulder blade).



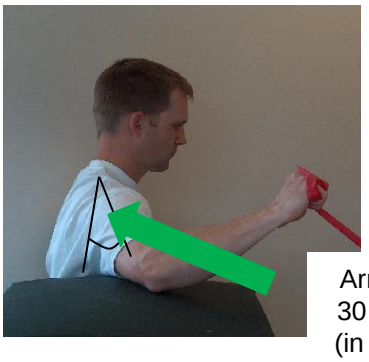
Internal Rotation

Ending Position

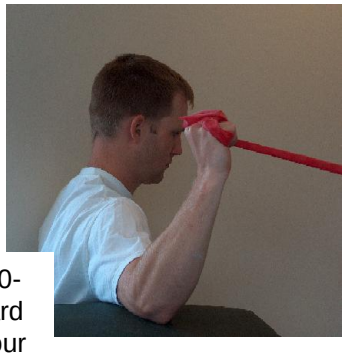
Internal Rotation: Secure a length of exercise tubing or resistance band to the back of a door or other stationary object that is above shoulder height. Face away from the attached resistance band with the loose end securely wrapped around hand. Your shoulder should be elevated 70-80 degrees away from your side, elbow bent 90 degrees and supported on a table. Slowly pull the band forward so that the forearm is parallel to the floor. Pause and slowly return to the starting position. Perform 10-12 repetitions for each arm, 2-3 sets.

External Rotation

Starting Position



Arm positioned 20-30 degrees forward (in the plane of your shoulder blade).



External Rotation

Ending Position

External Rotation: Secure a length of exercise tubing or resistance band to the back of a door or other stationary object that is above shoulder height. Face in the direction of the attached resistance band with the loose end securely wrapped around hand. Your shoulder should be elevated 70-80 degrees away from your side, elbow bent 90 degrees and supported on a table. Starting from a palm-down position, slowly rotate your arm back (mimicking the throwing motion). Pause, then slowly return to the starting position. Perform 10-12 repetitions for each arm, 2-3 sets.

Dynamic Scapular Stabilization: Find a partner of similar height and stand facing one another. Raise your right arm out in front of you. Position your arm at or just below shoulder level and keep the elbow straight, meeting “palm to palm” with your partner. Next, balance on one leg and lean into your partner’s hand. Your partner will meet your resistance and randomly move his hand up/down/diagonally/in a circle, avoiding a steady pattern and not exceeding a distance of 6-8” in any direction. Maintain your balance and hand contact for 15 seconds. Repeat 3-4 times. Switch sides. Gradually increase the contact time to 60 seconds by the end of the season.

Softball Pre-Season Training
Strength Exercises

Bent Over Row: Maintaining a neutral spine or “power position”, hold a dumbbell in each hand and flex the knees to approximately 90 degrees. Bend forward at the waist keeping back straight. Lower the weights toward the floor until arms are fully extended. Pause and return the weights back up toward armpits, keeping elbows tight to body. Perform 10-12 repetitions, 2-3 sets.

Plank: Lie facedown on the floor with upper body propped up on forearms. Elbows should be directly under shoulders. Raise torso so you are supported only on forearms and toes. Back should be straight and core tight. Hold this position, relax and repeat. Progress to holding this position for 30-60 seconds. Perform 2-3 sets. If unable to perform this movement on forearms and toes, bend knees and use forearms and knees for support as shown in the picture below.

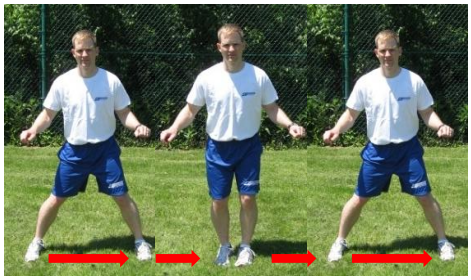
Lateral Lean: Lie on side with body weight on forearm and hip. Elbow should be directly below the shoulder. Lift hips off the floor. Body should be in a straight line. Maintain this position. Lower and repeat on other side. Progress to holding this position for 30-60 seconds. Perform 2-3 sets per side. If unable to perform this movement on forearm and feet, bend knees and use forearm and knees for support as shown in the picture below. **Caution: Avoid this exercise of you have any history of lower back pain.**

Softball Pre-Season Training

Agility Exercises

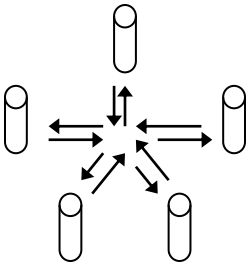
Reverse Runs: Start by walking backwards. Progress from a fast walk to an easy jog then a run. Gradually slow back down to a walking pace. Backwards movement should be in a straight line. This drill should be performed on a soft, smooth and rut-free surface for safety purposes. Repeat 3-5 times for a distance of 10-15 yards. **Caution: Avoid this exercise if you have a lower extremity injury or history of balance deficits.**

Karioka Runs: Run sideways. Cross one leg in front of body. Bring back leg out to the side. Bring the first leg behind the other leg. Repeat this movement and continue to move sideways. Alternate and perform these movements in the opposite direction. Repeat 3-5 times for a distance of 10-15 yards. **Caution: Avoid this exercise if you have a lower extremity injury or history of balance deficits.**



Side Step Runs: Run sideways. Bring trailing leg to meet leading leg so that heels touch. Take another step sideways with leading leg. Increase the speed of these movements to a running pace. Alternate and perform these movements in the opposite direction. Repeat 3-5 times for a distance of 10-15 yards.

Figure Eight Run: This drill requires forward and backward running. Begin by running forward, switch to running backwards. These movements should be performed in a figure eight pattern. To increase the difficulty, progressively decrease the size of the pattern. Repeat 3-5 times.



5-Point Drill: Position 5 cones in a star pattern. Starting from the center of the cones, sprint to a cone, touch it, return to the center starting position. Repeat this process 3-5 times moving in a clockwise or counterclockwise rotation.

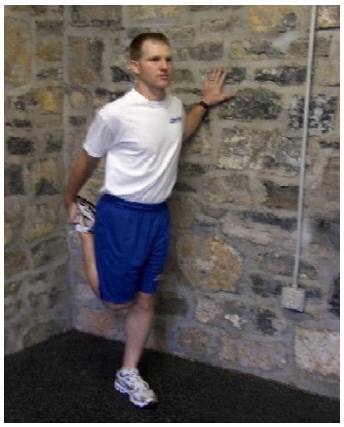
Sprint Drill: Perform 6 to 8 sprints, increasing your speed slightly with each repetition, running approximately 70-80 feet per sprint. Practice accelerating and decelerating as if running bases.

Softball Pre-Season Training

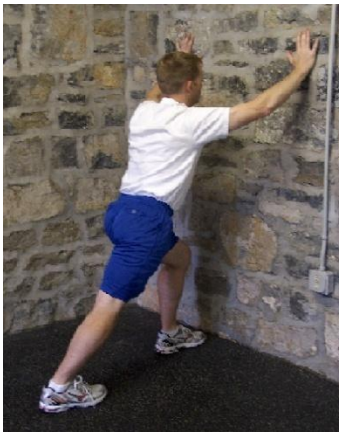
Flexibility Exercises

Static stretches for the lower body and trunk

Hamstring



Quadriceps

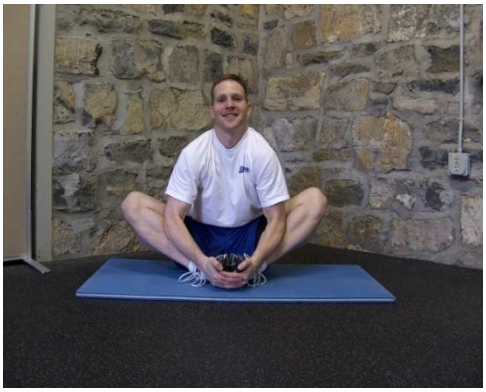


Calf

Knee to Chest

Rotational Twist

Figure Four



Butterfly

Static Stretches: Stretch until you feel tension in the targeted muscle, not to the point of pain. Each stretch should be held for 30 seconds without bouncing. If the amount of tension doesn't decrease or actually increases during the 30 second hold, you are applying too much force. Relax and then reposition, reducing the tension. Repeat each stretch 2-3 times, alternating sides. Be careful not to lock the knee and elbow joints. Breathe evenly as you stretch. Stretching should be performed 5-7 days/week to achieve maximum benefits.

Softball Pre-Season Training

Flexibility Exercises

Static stretches for the shoulder

Pectoral / Anterior Chest

Place your arms behind you and support your torso on the palms of your hands, keeping your elbows straight. Now bring your chest forward until you feel a stretch across the front of your shoulders and chest.

Shoulder Posterior Capsule

Lay semi-side lying (45 degree angle to the ground) so the shoulder blade is stabilized (fixed in position) by the floor. Bend the elbow to 90 degrees and position the arm approximately 60 degrees away from your side. Actively rotate the arm down toward the floor until a stretch is felt in the back of the shoulder. Hold this position using no more than two fingers to limit the amount of pressure applied. (If this position is uncomfortable for your head or neck, you may support them with a pillow.)

None of the stretches or exercises described in this handout should be painful or uncomfortable. If you have a history of musculoskeletal injury, consult your health care provider before beginning a new exercise program.

Information adapted from NSCA's Performance Training Journal: Baseball and Softball, February 2005.
www.nsca-lift.org/perform