CHAPTER 3

WARM-UP, STRETCHING, AND FLEXIBILITY

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TABLE OF CONTENTS

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WARM-UP, STRETCHING, AND FLEXIBILITY

1. WARM-UP.

a. The warm-up is an essential part of an exercise program and serves as a preparation for the actual conditioning session. Performing warm-up exercises increases body and muscle temperature. This, in turn, increases metabolic activity (production of energy increases), increases blood flow and oxygen availability, decreases contraction and reflex time (run and move faster, jump higher, etc.), and increases the flexibility of muscle. When muscles are cold and stiff, strains, pulls, and tears are more likely to occur. This is especially true when the activity requires speed and/or full range of motion. Proper warm-up helps prevent these types of unnecessary injuries and decreases the severity of delayed muscle soreness.

b. Many people equate the word “warm-up” solely with stretching exercises. Although stretching can supplement a warm-up, it does not adequately prepare the muscles for exercise. Conversely, a proper warm-up should gradually increase the heart rate and blood flow to the muscles. A foam roller may also be utilized in any warm-up routine to increase blood flow to the muscle groups that are intended to be exercised. Appropriate stretches should then be performed. Keep stretching positions under a minute prior to a workout. Holding a stretch position over a minute may lead to a decrease in performance. The point of stretching prior to an exercise routine is to continue blood flow throughout the muscles. It is not to be confused with static stretching, which is utilized to increase flexibility. To properly prepare the specific muscles involved, an excellent technique is to engage in the desired exercise routine, but at a reduced intensity.

c. The following are examples of stretches that can be included in an exercise program. They are not all inclusive; therefore, there may be similar stretches that are more suitable. The activities engaged in, and personal goals will dictate what kind of stretches to include in a program. Be sure to discuss any variations with the Area Fitness Coordinator.

(1) If preparing to jog or run, the warm-up would consist of five to seven minutes of jogging at half to three-quarters of normal pace.

(2) If preparing to sprint, the warm-up would consist of more dynamic warm-ups (e.g., high knees, butt kickers, side shuffle, etc.).

(3) If preparing to lift weights, the warm-up would consist of various body weight and/or light weight exercises for the targeted muscle group intended to exercise.

2. COOLDOWN.

a. Cooling muscles down after exercising is just as important as warming them up before exercising. There are two important reasons for cooling down:

(1) Metabolic waste products are removed more rapidly from the exercising muscle, which promotes faster recovery from fatigue.

(2) Prevents the blood from pooling in the extremities, particularly the legs, which reduces the possibility of delayed muscular stiffness and soreness.

b. The proper way to cooldown after an intense workout (e.g., run, sprint, weightlifting) is to keep moving at a lower intensity. Stretching and foam rolling can also be used as a proper way to cooldown to aid in recovery. It is not recommended to stop immediately after a workout without a proper cooldown. Otherwise cramping, stiffness and/or soreness will be more intense.

3. FLEXIBILITY AND STRETCHING.

a. Poor flexibility is associated with an increased risk for the development of chronic pain. Flexibility is a major component of physical fitness because it is an important factor in preventing injury and maintaining an optimal level of physical activity.

b. Stretching is for everyone. Flexibility decreases with age, but even young people may not have sufficient flexibility if they do not stretch. There is a correct way and a wrong way to stretch. The correct way is a relaxed, sustained stretch, gradually applying tension to the muscle and holding it there for approximately two minutes to effectively make change and lengthen the muscle. This is known as a STATIC STRETCH. It is important not to overstretch. Pain means injury and injury means loss of flexibility.

c. The incorrect method of stretching is to bounce, jerk, or stretch to the point of pain. This is called BALLISTIC STRETCHING and often does more harm than good. Muscles are protected by a mechanism known as the stretch reflex. When stretching the muscle fibers too far by bouncing or overstretching, a nerve reflex reacts by sending a message to the muscle fibers to contract (a response that

attempts to keep the muscle from being injured). The end result, however, is that when stretching too far, the muscles actually tighten.

d. It is important to ease into a stretch for the first 15-30 seconds then slowly increase the intensity without bouncing until two minutes is reached per stretch. If the intensity begins to be too much, release for a breath and continue the stretch. Breathing should be slow and controlled while stretching. If bending forward to do a stretch, exhale while bending forward and then breathe slowly while holding the stretch. If breathing is inhibited by the stretch, ease the tension slightly until breathing normally.

4. COMMON STRETCHES. It is recommended to hold each stretch for approximately two minutes per stretch after a workout. It is not recommended to stretch for an extended period prior to a workout; otherwise, it can decrease performance. When stretching prior to a workout, keep the time between 30-60 seconds per stretch. If a joint or muscle is injured, it is not recommended to stretch to the point to further aggravate the condition.

NOTE: If there is pain in a certain joint, the joint is usually not the problem; it is the symptom. The problem usually stems from improper form, not keeping core tight when lifting, or muscle imbalances or tightness from a muscle above and/or below that joint (e.g., knee pain when squatting could be caused by improper form, left to right muscle imbalance causing an individual to shift to one side or tight quadricep muscles).

a. The following are examples of stretches that can be included in an exercise program. They are not all inclusive; therefore, there may be similar stretches that are more suitable. The activities engaged in and personal goals will dictate what kind of stretches to include in a program. Be sure to discuss any variations with the Area Fitness Coordinator.

(1) Quadricep and Hip Flexor Muscle Stretch.

(a) From a standing or kneeling position, place either foot against a wall with the shin as close to a vertical position as possible. Keep the torso upright while bringing the calf to the hamstring. (Refer to Photo 3-1 and 3-2)

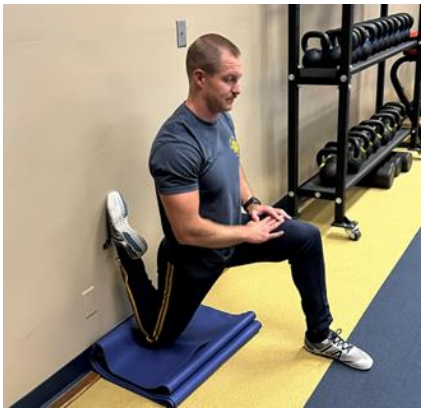

Photo 3-1, Ground quadricep and hip flexor muscle stretch

Photo 3-2, Standing quadricep and hip flexor muscle stretch

(2) Hamstring Muscle Stretch.

(a) From a seating or standing position, extend one or both legs while keeping knees locked out. Keep back straight to further intensify the stretch. (Refer to Photo 3-3 and 3-4)

Photo 3-3, Ground hamstring muscle stretch

Photo 3-4, Standing hamstring muscle stretch

(3) Adductor Muscle Stretch.

(a) Variation one: Place knees and elbows on the ground, with a bend in the knees keeping calves parallel to each other. Push hips back so they are in line with the knees. (Refer to photo 3-5)

(b) Variation two: Place either knee on the ground and extend the opposite leg keeping the knee locked out and place that foot flat on the ground. Push hips back to stretch the muscle. (Refer to photo 3-6)

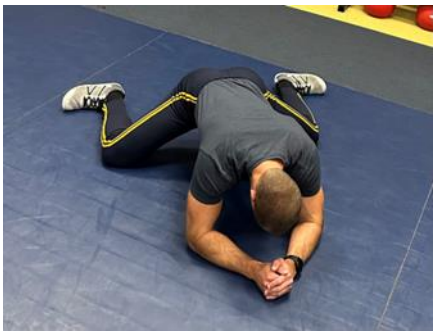

Photo 3-5, Adductor muscle stretch (Variation one)

Photo 3-6, Adductor muscle stretch (Variation two)

(4) Adductor and Hip Flexor Muscle Stretch.

(a) Variation one: Keep the back knee on the ground while dropping the opposite elbow to the ground, close to heel of the front foot. (Refer to Photo 3-7)

(b) Variation two: Same as variation one, but slightly elevate the back knee off the ground with an upright torso to stretch the hip flexor muscle. (Refer to Photo 3-8)

Photo 3-7, Variation one Adductor and hip flexor muscle stretch

Photo 3-8, Variation two Adductor and hip flexor muscle stretch

(5) Hip Stretch.

(a) Start with both hip bones on the ground and legs at 90-degree angles. As shown in Photo 3-9, the right leg is straight at the hip flexor and the left leg is bent at the hip flexor at a 90-degree angle. Drop knees to the ground to obtain a stretch in the right hip. Switch legs to obtain a stretch in the left hip.

Photo 3-9, Hip stretch

(6) Gluteal Muscle Stretch.

(a) From a seated or standing position, bring one leg in front and bend that knee at a 90-degree angle. Lower the torso towards the bent leg. (Refer to photo 3-10 and 3-11)

Photo 3-10, Ground gluteal muscle stretch

Photo 3-11, Standing gluteal muscle stretch

(7) Low Back Stretch. In most cases low back pain is a symptom, not the main issue. The issue could be from tight hamstring muscles, gluteal muscles, hip flexor muscles, and/or quadricep muscles.

(a) Variation one: From a seated position, place one leg over the other with a 90-degree bend. Place the opposite arm over the leg and rotate the torso until it feels stretched. (Refer to Photo 3-12)

(b) Variation two: From a supine position, place one leg across the body while keeping the shoulder blades on the ground. (Refer to Photo 3-13)

Photo 3-12, Variation one gluteal muscle stretch

Photo 3-13, Variation two gluteal muscle stretch

(8) Calf Stretch.

(a) Straighten one leg to stretch the gastrocnemius muscle (large calf muscle). Bend the knee to stretch the soleus muscle (smaller calf muscle that lies underneath the gastrocnemius). This can also be done by standing or placing the ball of foot on an elevated surface while dropping the heel to the ground. (Refer to Photo 3-14 and 3-15)

Photo 3-14, Calf stretch (straighten leg)

Photo 3-15, Calf stretch (bent leg)

(9) Front of the Ankle and Tibialis Anterior (Shin) Muscle Stretch.

(a) Sit down on the heels of the feet with the toes pointed back to stretch the ankles and the tibialis anterior muscles (front of the shins). (Refer to Photo 3-16)

Photo 3-16, Front of
the ankle and shin
muscle stretch

(10) Latissimus Dorsi (Lat) Muscle Stretch.

(a) From a standing position hold onto a fixed object just above head (this can be done palm up or palm down). Shift weight back with chest down. (Refer to Photo 3-17)

Photo 3-17,
Lat muscle stretch

(11) Chest and Front of the Shoulder Stretch.

(a) From a standing position, hold onto a fixed object and rotate the body away from the hand. (Refer to Photo 3-18)

Photo 3-18, Chest and front of the shoulder stretch

5. FOAM ROLLING TECHNIQUES. Foam rolling can be done prior to a workout to warm up the muscle and to release any tension in the muscle; and post workout to release tight or sore muscles and to help push the lactic acid out of the muscle. Spend at least one minute per muscle group when utilizing a foam roller and roll side to side, as well as up and down the muscle, to realign the fascia. Muscles should be relaxed, and the desired pressure on the muscle can be obtained by lifting one's body weight off the foam roller. If a knot or tender spot is present when foam rolling, keep pressure on the knot and utilize the foam roller until the knot is released.

a. The following are examples of foam rolling techniques which can be included in an exercise program. They are not all inclusive; therefore, there may be similar ways to foam roll that are more suitable. The activities engaged in and personal goals will dictate which foam rolling techniques to include in a program. Be sure to discuss any variations with the Area Fitness Coordinator.

(1) Quadricep and Hip Flexor.

(a) Start at the hip flexor area, just below the hip bone. Slowly work down to just above the knee. (Refer to Photo 3-19)

Photo 3-19, Quadricep and hip flexor stretch

(2) Gluteal Muscles.

(a) Sit on the foam roller and rotate hips to the desired side to be foam rolled. On the side being rolled, either elevate that leg (see photo below) or keep it straight on the ground. (Refer to Photo 3-20)

Photo 3-20,
Gluteal muscle stretch

(3) Hamstring Muscles.

(a) Sit on the foam roller and start high just under the gluteus muscle and end just above the knee. On the side intended to be foam rolled, either elevate the opposite leg and place it over the top of the other leg to put more pressure down on the foam roller (Refer to Photo 3-21) or keep the leg straight on the ground.

Photo 3-21, Hamstring
muscle stretch

(4) Calf Muscles.

(a) Start just below the knee and work down to just above the heel. If desired, place one leg on top of the other to obtain more pressure on the calf muscle. (Refer to Photo 3-22)

Photo 3-22, Calf muscle stretch

(5) Shin Muscle.

(a) Start just below the knee and end above the ankle. (Refer to Photo 3-23)

Photo 3-23, Shin muscle stretch

(6) Back Muscles.

(a) Start in between the shoulder blades and end at the low back area. When foam rolling the upper back, move arms in different positions (overhead, to the side, across the body) to target different muscles. When foam rolling the low back, try to keep the upper body off the ground to prevent injury in the low back. (Refer to Photo 3-24)

Photo 3-24, Back muscle stretch

(7) Latissimus Dorsi (Lat) Muscles.

(a) Start in the armpit area and work down to just before the ribcage. Bend the elbow at a 90-degree angle, then internally and externally rotate arm to target different muscles. (Refer to Photo 3-25)

Photo 3-25, Lat muscle stretch