Standards:

PANPE1: Competency in movement forms facilitates a desire to participate in and benefit from a lifetime of physical activity

PANPE1a: Plan and implement a personal / group physical activity learning project, focusing on an alternative to traditional sports

PANPE1b: Demonstrate knowledge and movement skill readiness in an activity that is an alternative to traditional sports

PANPE1c: Demonstrate conditioning activities that develop the basic fitness qualities needed to perform a selected alternative physical activity

PANPE1d: Self-assess performance of alternative physical activity skills and evaluate and adjust alternative physical activity learning plan

PANPE2a: Identify the health, wellness and fitness benefits of selected alternative physical activity

Objectives:

You will:

- Recognize why and when to stretch
- Demonstrate traditional stretches
- Stretch with a partner
- Compare stretching methods

Guiding Questions:

1. What factors affect flexibility and why?
2. What are the four benefits of regular stretching, and maintaining good flexibility?
3. How can you apply the FITT principle to the recommended training guidelines for flexibility?

Introduction:

Stretching lengthens your muscles and loosens up the joints that are connected to muscles within the body. This allows a person to move more freely without many restrictions while keeping your joints stable. If someone is too flexible, it may cause joints to be unstable. On the other hand, the lack of flexibility or having very tight muscles and tendons may lead to very restricted movements. When your muscles are at their ideal length, you can walk without stiffness or turn around when someone calls your name without having back pain. Most take simple movements for granted until they have trouble doing them.

Content:

Stretching Methods

Two common stretching methods are **Active Isolated** and **Proprioceptive Neuromuscular Facilitation (PNF)**. These stretches actively stimulate the nervous system to respond and release tightness of muscles. In order to apply these methods, you should hold these stretches for a shorter period than you do with a traditional stretch, and you need to contract the muscle to encourage more relaxation among the muscle fibers.

Muscular tension is not simply a result of tight muscle tissues. For example, if you were under anesthesia, your body would be more flexible. The neuromuscular system regulates muscular tension. You are not pulling on muscle fibers during stretching. Instead, you are stimulating the nervous system to signal the muscle to rest in a longer position.

How Long Do You Hold a Stretch?

Several research studies suggest that the optimal amount of time to hold a stretch is between 20 and 30 seconds, and that the greatest increases in flexibility come from the first four repetitions.

Holding a stretch for 60 seconds does not seem to improve flexibly. In fact, it is better to do two stretches of 30 seconds each or three stretches of 20 seconds each than to do a one-minute stretch. The theory states that stimulating your nervous system multiple times to encourage the muscle to be longer leads to a greater likelihood of “re-setting” the resting muscle tension length in a longer position.

Alleviating Muscle Tension

It is important to understand that muscular balance affects the resting length of your muscles. In other words, the back of your leg does not exist in isolation from the rest of your body--the tightness you feel in your calves relates to the strength of your shins. If your calves are relatively strong compared to your shins, then the calf muscle dominates the pair and your calf feels tight. To decrease this muscular tension, you need to strengthen the muscles fibers in your shin. Stretching alone cannot eliminate muscular tension--your resistance-training program must consist of both strengthening and stretching exercises for all muscle groups.

The goal of stretching is to prevent injury and ease muscle soreness. However, new research suggests that traditional methods of stretching may be falling short of these goals. In fact, stretching may cause injuries such as muscle tears from overstretching, and there may be some benefits of having tight muscles for stability--but this may be true only to a point. If muscles are too tight, the risk of injury appears to increase.

Stretch Reflex Response

The stretch reflex response defends against overstretching and tearing, and signals the muscle to shorten and tighten when stimulated.

When your doctor taps your knee with a little hammer and your leg moves without you telling it to move is an example of the stretch reflex repose.

A strategy to use to avoid over stimulating the stretch reflex, is to never stretch to an extreme length or stretch quickly as in a bouncing movement.

Stretching Methods

Currently, most research has looked only at traditional stretching methods, and there is little research comparing other types of stretching.

Some non-traditional stretches are showing promise in preventing injuries and muscle soreness. In addition, more studies are suggesting that there may not be one best way for all people because we each have different body types, experiences, and goals.

Experiment with a variety of stretching methods, and find out which stretches feel most comfortable to you. You may even want to combine a number of

stretching methods. You may find, for example, that you enjoy doing Active Isolated stretches for your hamstrings but traditional stretching for your shoulders.

ASCM Stretching Guidelines

- Hold each stretch for 10 to 30 seconds and repeat up to four.
- Perform at least one stretch for each major muscle group.
- Stretch at least two to three times a week, preferably every day.
- Stretch to the point of discomfort but not beyond.
- Do not hold your breath while stretching.

Traditional Stretching

Traditional stretching is the method performed at the end of many exercise classes and in exercise videos. While it may not achieve as much increase in flexibility as some of the other methods, it's very safe, easy to understand, and has a low risk of injury.

Traditional stretching is also called static stretching which means to hold your body still. As you hold the position, you feel a pull that spreads up and down the length of the muscle.

In traditional stretching, you hold each stretch for 10 to 30 seconds without bouncing.

Traditional/Static Stretching Methods

Advantages

- Almost anyone can perform these stretches; position easily modified to suit level of flexibility.
- Stretching may be a good way to relax and to cool down after a workout.
- When done at least three days a week, flexibility increases.

Disadvantages

- If you are not flexible, this stretch may be so uncomfortable that you skip stretches altogether.
- It is difficult to separate one muscle group from another; often you must stretch several muscle groups at once--this is a problem if one of the muscles being stretched is tighter than the others.

When to Do Traditional Stretching

Contrary to popular belief, you should not do traditional stretching before you warm up. Stretching is not a warm-up.

If you are new to stretching, start with 10 seconds of stretching and gradually work your way up to a full 30 seconds.

- Do not bounce. Jerky movements may actually make you tighter.
- Slowly/smoothly, get in the proper stretching position, and then stay there.
- After you have held the stretch for a few seconds, slowly stretch a bit further.
- Hold each of position for 10 to 30 seconds.

Follow these simple guidelines, which apply to all methods of stretching.

Stretch daily, Aim to stretch daily, but make sure that you stretch at least three times per week. You improve your flexibility the same way you learn math: practice, practice, practice. Your muscles will remember to stay loose and flexible if they are reminded often enough.

Stretch after your workout, not before. Follow this rule whether you're doing aerobic exercise, weight training, or both. On days when you do only weight training, you need to do at least five minutes of rhythmic, low-intensity aerobic exercise such as walking, jogging, cycling, or stepping. Warming up gets your blood flowing and raises your body temperature so your muscles are more receptive to the stretch.

Never stretch a cold muscle. Stretching, which can safely be included as part of a warm-up. Never force a stretch. Stretch to the point at which you're right on the edge of discomfort, never to the point of pain. There is no optimal amount of flexibility, so stretch within the limits of each individual joint.

Do not forget to breathe. Deep, natural breathing increases your flexibility by helping you to relax and by sending oxygen-rich blood into your muscles. Just before you go into a stretching position, inhale deeply and exhale through your mouth as you move into the stretch. Breathe deeply several times as you hold the stretch.

Do not just go through the motions – Concentrate & Focus. Do you feel the stretch you are supposed to feel? Are you using correct form? Do you need to back off or push a little further? You do not need to quiz yourself with the intensity of a prosecutor. After all, stretching is should be relaxing.

Safety Tips:

- Hands behind head or high on neck.
- Straight legs (keep knees bent and hold the feet on the floor)
- Deep knee bends and duck walk.
- Straight leg raise.
- Stretching past the point of discomfort, hold each stretch for 15-20 seconds.
- Ballistic stretching (not as harmful as once thought)
- Forward stretching - sitting on the floor and is done from the hips, not the waist and one leg flexed.
- When stretching from a standing position, do not hyperextend the knees, knees should be relaxed.
- For the furdler stretch, substitute one leg forward and the other bent with foot toward the crotch area.
- Do not do activities that place stress on the neck.
- Do not over arch your back.
- Don't hold your breath! Breathe deeply through each stretch.

Treatment Protocol

There is currently no cure for the common cold, but we do have a method for most minor sprains and strains--it is called RICE which is an acronym for

- Rest
- Ice
- Compression
- Elevation

RICE is most effective if you apply the process within 48 hours of injury. The RICE treatment protocol is a good first step in treating many exercise and sports injuries. However, seek medical care if the symptoms do not stop within a few hours.

Rest and stop performing activities that aggravate an injury. Wait until you have had two completely pain-free days before doing exercises that involve the injured area.

Ice reduces swelling of most injuries. Ice an injury 15-20 minutes, 3 or 4 times a day (e.g. ice pack, plastic bag of ice cubes, and package of frozen food). Do not sit ice directly on the skin; it may burn--wrap ice in a thin towel. Contrary to popular belief, ice, not heat, helps reduce the pain and swelling of most common injuries. Two areas may not respond well to icing. The back and neck may be so sensitive to cold ice that it may cause the muscles to tense up. If this happens, a moist heating pad or wet, warm towel may treat the injury by causing the muscles to relax.

Compression put pressure on an injury to reduce swelling. Use a damp elastic bandage, brace, or wrap (knee, elbow, or wrist). Wrap the bandage tightly so that some tension is felt, but not so tight that circulation is cut off or numbness occurs.

Elevation of an injured body part reduces swelling by draining fluids/waste. For example, an ankle is propped up on to several pillows, elevated only above the hip, so that gravity assists the blood flow downward.

Things to Remember

Don't be afraid to exercise, research from the NIH shows that actually the opposite is true. Exercise is safe for people of all ages. You hurt your health far more by not exercising than by exercising. An inactive lifestyle can cause you to lose ground in fitness areas that are essential for staying healthy and fit: muscular strength, cardiovascular fitness, flexibility, body composition and muscular endurance.

Consult with a Physical Educator, coach, exercise physiologist or physician for instruction on how to approach physical activity.

- Training too hard or fast is the common cause of sports-related injuries.
- Train with a partner if possible, this helps to increase motivation, the intensity of the workout and increase safety.
- Wear protective gear. Make sure your sporting equipment (including shoes) is well-maintained.

Effective Training Hints

- Always breathe when lifting:
    - Exhale during the concentric (positive) phase of contraction.
    - Inhale during the eccentric (negative) phase.

- Rest 30 seconds to 3 minutes between sets of exercises and/or different muscle group exercises. Recover at least 48 hours between workouts, but not more than 96 hours, to let the body recover and help prevent over training and injury.

- Progress slowly. Never increase resistance by more than 10 percent at a time. Alternate pulling and pushing exercises (follow triceps extensions with biceps curls). Do all exercises through their full range of motion.

Accelerate the weight through the concentric phase of contraction. Next, return the weight to the starting position in a controlled manner during the eccentric phase. Exercise large muscle groups first, then the smaller ones.

The training program must be balanced. Train the whole body, not just specific areas. Concentrating on weak areas is all right, but the rest of the body must be trained too.

Always use strict form or technique. Do not twist, lunge or arch the body, this can cause serious injury. These motions also detract from the effectiveness of the exercise because they take much of the stress off the targeted muscle groups and place it on other muscles.

The FITT Principle provides a foundation for building an effective training program from the basic to the advance. The FITT Principle describes how to safely apply the principles of overload and progression.

- Frequency: how often you exercise
- Intensity: how hard you work during exercise
- Time: how long you exercise, and
- Type: what type of activity you do

Summary

Find ways to get the support of friends, family members, co-workers, and training partners. Social support is the single most important factor for sticking to a workout program. Share your goals with people who care about you. Beware of people who may try to sabotage your goals. Let them know how important training is and why you want to succeed. Finally, share what benefits you expect to achieve and show your appreciation to those around you who help you to succeed.

Adequate physical activity is dependent on having a well-rounded program to

improve health and prevent disease. A program should include: cardiovascular fitness, muscular strength and endurance, flexibility, posture, and maintenance of body composition. An approach for getting started is to think carefully about your motivations, goals, and needs, select activities that will meet those needs, and apply the FITT formula to these activities.

Student Practice:

Create a Flexibility Routine
In this assignment, you will apply the concepts of the FITT principle.

Instructions: Students will apply the FITT principle to create flexibility training routine for increasing or maintaining adequate flexibility. These routines will be create in a separate word document or excel file. The flexibility routine needs to be in a chart format. Creativity is encouraged!

Resistance Training

In this activity, you will assess your comprehension of physical education concepts.

Instructions: Read the question(s) and provide a written response, and upload the document.

Question: In paragraph format, describe and explain five benefits of resistance training in a separate Microsoft Office document.