

# Flexibility

Strand 8 Fitness Concept



# Flexibility

Introduction

Benefits of Flexibility

What Determines Flexibility

Assessing Flexibility

ASCM Guidelines

# 5 Basic Components of Physical Fitness

- What are the “5”?
  - Cardio-respiratory endurance
  - Muscular Strength
  - Muscular Endurance
  - Body Composition
  - **Flexibility!!!!**



# Introduction to Flexibility

- What is Flexibility?
- Definition = The ability of a joint to move through its range of motion
- Flexibility involves your bones, joints, surrounding tissue, nervous system, but most importantly your muscles
- 3 important traits of muscles
  - Contractability – force-production
  - Elongation - ability to stretch, increase in length
  - Elasticity - the ability to return to resting length

# Introduction to Flexibility

- Flexibility is highly adaptable, and is increased through stretching exercises.
- Muscles can also become less flexible (reversibility)



# Types of Flexibility?

- Static Flexibility?

- The ability to assume and maintain an extended position at one end or point in a range of motion (Ex - bending over). This depends on the structure of the joint and the tightness of the muscles, tendons, and ligaments

- Dynamic Flexibility?

- The ability to move a joint through a range of motion (Ex - Rotate body). This depends on static flexibility as well as strength, coordination, and resistance to movement

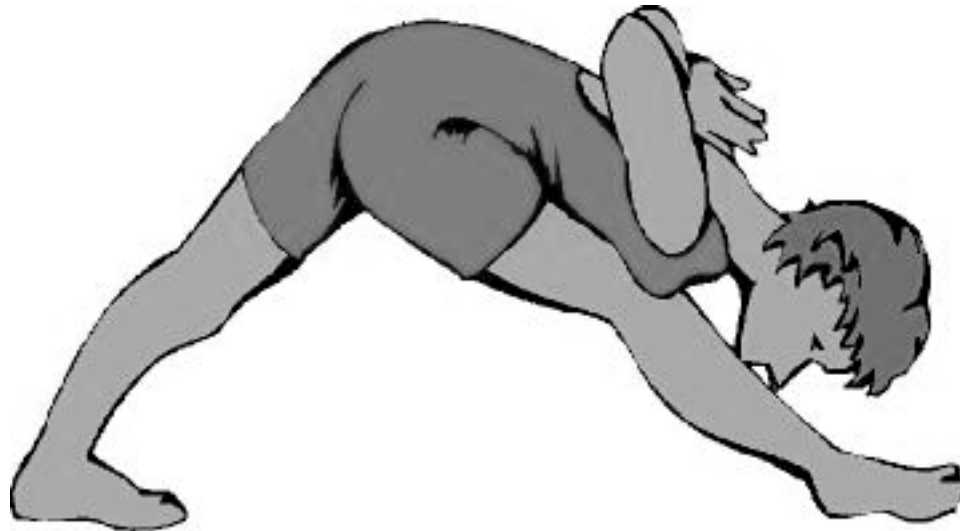
# Benefits of Flexibility and Stretching Exercises

- Can you identify some?
  - Joint Health
  - Protection against low-back pain and injuries
  - Reduction of post-exercise muscle soreness
  - Potential relief of aches and pains
  - Improved body position
  - Enhances range of motion
  - Relaxation
  - Other?



# What Determines Flexibility?

- 1) Joint Structure and Surrounding Tissue
- 2) Muscle Elasticity and Length
- 3) Nervous System Activity

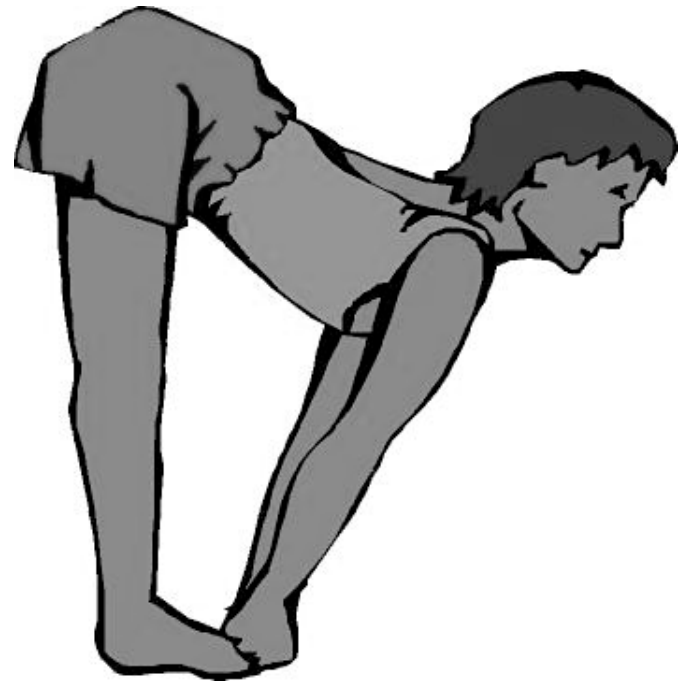




# What Determines Flexibility?

## 1) Joint Structure and Surrounding tissue

- Determined by the nature and structure of the joint
- Type of Joints
- Flexibility of Joint Capsule
- Heredity (genetics)



# What Determines Flexibility?

## 2) Muscle Elasticity and Length

- Muscle tissue is key to developing flexibility because it can be lengthened if regularly stretched
- The connective tissue that surrounds muscle is elastic, and it will lengthen if gently and regularly stretched
- Collagen - white fibers that provide structure and support
- Elastin - yellow fibers that are elastic and flexible

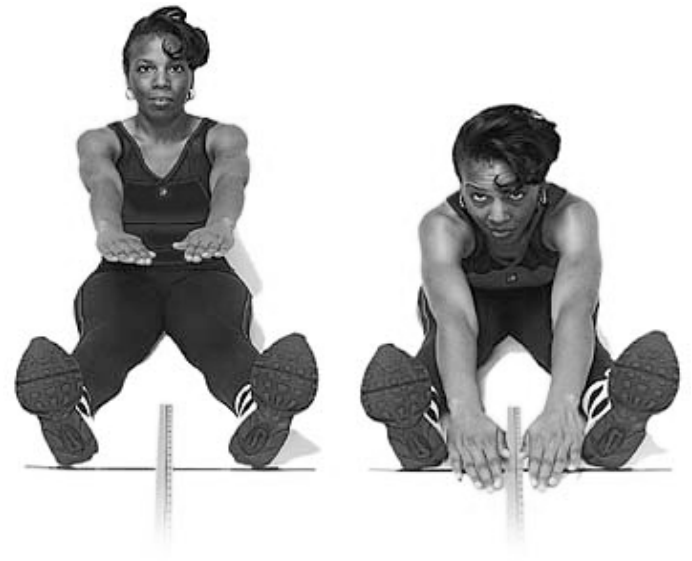
# What Determines Flexibility?

## 3) Nervous System Activity

- Muscles contain stretch receptors that control their length
- If a muscle is stretched suddenly, stretch receptors send signals to the spinal cord, which then sends a signal back to the same muscle, causing it to contract
- Stretch receptors help the body know what the muscles are doing and allow for fine control of muscle length

# Assessing Flexibility

- Flexibility is specific to each joint
- Therefore, there are no specific tests to measure general flexibility
- “Sit-and-reach” test is normally used
- The Sit-and-reach measures flexibility of muscles in the lower back and hamstrings



# ACSM Stretching Guidelines

- American College of Sports Medicine
  - Stretch 2-3 days per week
  - Do flexibility training 3-5 days per week
  - Stretch your muscles after they are warm
  - Incorporate stretching into your cool-down following exercise



# Exercises to Improve Flexibility

- There are hundreds of exercises that can improve flexibility – “web” resources
- Your program should include exercises that work all the major joints of the body by stretching their associated muscles
- Search reputable texts and “web” sites for different types of stretches that you might use
- Be sure to use correct technique for each stretch, hold each stretch for 10-30 seconds, and perform at least 3-4 repetitions

# Common Questions/Answers

- **Is stretching the same as warming up?**

People often confuse stretching and pre-exercise warm-up. A warm-up involves light exercise that increases body temperature so that your muscles get warm. Stretch following 5-10 minutes of low-intensity exercise. Warmed muscles stretch better than cold ones.

- **Does weight training limit my flexibility?**

Weight training, or any physical activity, will decrease flexibility if the exercises are not performed through a full range of motion. When done properly, weight training increases flexibility

# Common Questions/Answers

- **Can I stretch too far?**

Yes. As muscle tissue is progressively stretched, it reaches a point where it becomes damaged and may rupture. The greatest danger occurs during passive stretching when a partner is doing the stretching for you.

- **Does jogging impair flexibility?**

Jogging, without incorporating regular flexibility exercises for the hamstrings and quadriceps, might decrease flexibility due to the limited range of motion used during the jogging stride



# Summary

- Flexibility is highly adaptable and specific to each joint
- Benefits include reducing the risk of injury, and preventing abnormal stresses that lead to joint deteriorations
- Range of motion can be limited by joint structure, muscle elasticity, and stretch receptor activity
- Developing flexibility depends on stretching the elastic tissues within muscles regularly