

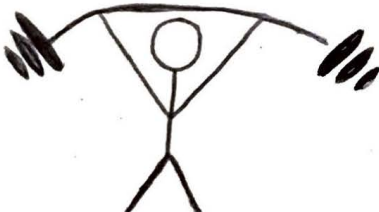

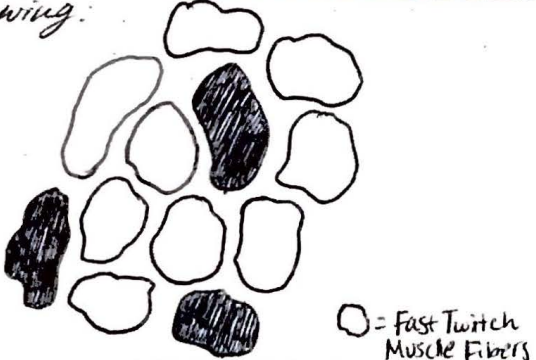
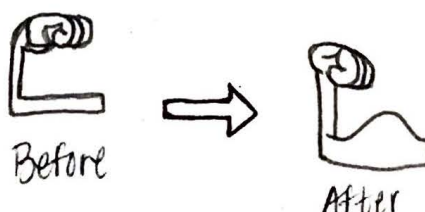
Physical Education
Major Muscle Groups
 White Book Page 175 and 185




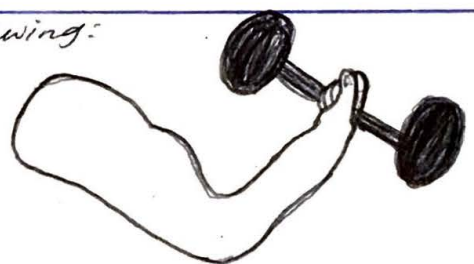

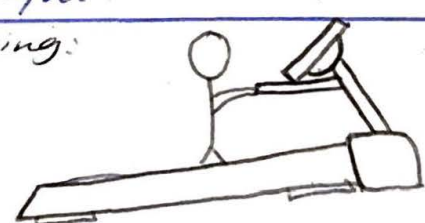
Nam _____

Date: 07/17/18
 Period: 5th

1. Define the following words/phrases.
2. List one facts about each subject.
3. Draw a **colored** picture that represents each word or phrase.

as

<p>Absolute Strength</p>	<p>Calisthenics</p>
<p>Definition: A term for the total amount of weight you can lift or resistance you can overcome regardless of your body weight.</p>	<p>Definition: Exercise done using all or part of the body weight as the resistance.</p>
<p>Fact: The average absolute strength for males is higher than for females.</p>	<p>Fact: Push-Ups & Curl-Ups are Calisthenics.</p>
<p>Drawing:</p> 	<p>Drawing:</p> 
<p>Fast Twitch Muscle Fibers</p>	<p>Hypertrophy</p>
<p>Definition: Muscle fibers that contract at a fast rate and have great strength but very little resistance.</p>	<p>An increase in muscle size.</p>
<p>Fact: Fast Twitch Muscles Fibers are white in color.</p>	<p>Fact: Endurance training does not cause as much hypertrophy.</p>
<p>Drawing:</p>  <p>○ = Fast Twitch Muscle Fibers</p>	<p>Drawing:</p> 

<p>Intermediate Muscle Fibers</p> <p><i>Definition:</i> Muscle fibers having characteristics of both slow- and fast twitch muscles.</p> <p><i>Fact:</i> Intermediate Muscle Fibers contract quickly & have good endurance.</p> <p><i>Drawing:</i></p> 	<p>Isokinetic Exercise</p> <p><i>Definition:</i> An exercise for muscle fitness that regulates the resistance and/or speed of movement through a full range of joint movement.</p> <p><i>Fact:</i> Isokinetic exercise has constant speed.</p> <p><i>Drawing:</i></p> 
<p>Isometric Contraction ↔ Def.</p> <p><i>Definition:</i> A muscle contraction that pulls on the bones and produces movement of body parts.</p> <p><i>Fact:</i> Pushing your arms and hands in front is an isometric contraction.</p> <p><i>Drawing:</i></p> 	<p>Isotonic Contraction</p> <p><i>Definition:</i> An exercise that involves isometric contractions in which the body parts do not.</p> <p><i>Fact:</i> The two types of Isotonic Contractions are concentric and eccentric.</p> <p><i>Drawing:</i></p> 
<p>One Repetition Maximum</p> <p><i>Definition:</i> (1RM) The exertion that can be given by a muscle when performing one repetition at a max level.</p> <p><i>Fact:</i> A one repetition maximum test is considered to be the best test for strength.</p> <p><i>Drawing:</i></p> 	<p>Progressive Resistance Exercise</p> <p><i>Definition:</i> (PRE) The gradual increase in resistance used to improve muscle fitness.</p> <p><i>Fact:</i> Progressive Resistance Exercise is the most commonly used strengthening technique.</p> <p><i>Drawing:</i></p> 

Relative Strength

Definition: The amount of weight or resistance you can overcome for each pound of body weight (strength per pound of body weight).

Fact: The most common method for determining relative strength is to divide your weight into your absolute strength score to get a "strength per pound of body weight" score.

Drawing:

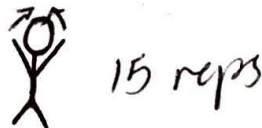
$$125 / 52 = 2.404$$

Reps

Definition: An abbreviation for repetitions; a term used to describe the number of consecutive times you perform an exercise.

Fact: Most exercises have three sets of reps.

Drawing:

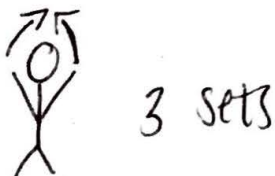


Set

Definition: A group of repetitions of a specific exercise; each set of reps is followed by a rest period before another is performed.

Fact: Most exercises have three sets of reps.

Drawing:

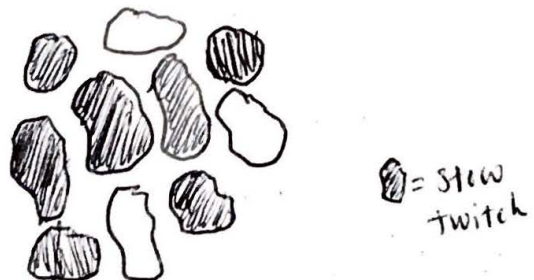


Slow-twitch Muscle Fibers

Definition: Muscle fibers that contract at a slow rate and have great endurance.

Fact: Slow-twitch muscle fibers are usually red in color.

Drawing:



Double Progressive System

Definition: A method or system of resistance training that progressively increases (1) the amount of weight and (2) the number of repetitions used when performing an exercise.

Fact: The Double Progressive System is the most often used method of applying the principle of progression for improving muscle fitness.

Drawing:

sets	reps	resistance (lbs)
1	4	120
2	6	120
3	8	120

Muscle Bound

Definition: Having bulky muscles that decrease a person's flexibility.

Fact: Incorrect training causes inflexibility.

Drawing:



Physical Education

Major Muscle Groups

Chapter 10 L1 Pages 155 - 166

Name: _____

Date: -3

Period: 1st

Overview:

Benefits of good flexibility

1. Improved function
2. Improved health and wellness

Characteristics of Flexibility

1. Body Build and Flexibility
2. Hypermobility
3. Joint Laxity

Fitness Principals and Flexibility

1. Principle of overload
2. Principle of progression
3. Principle of Specificity
4. Marinating Flexibility

-11
89

What is Flexibility?

Flexibility is the ability to move your joints through a full range of motion (ROM). A joint is a place where bones come together. The best known joints include the ankles, knees, and hips in the leg; the knuckles, wrist, elbows and shoulders in the arms; and the joints between the vertebrae in the spine. Some joints, such as the knees and elbows, work like a hinge permitting movement in only two directions. Other joints, such as the hip and shoulder, work like a ball and socket, allowing movement in all directions. Range of motion (ROM) is the amount of movement you can make in a joint.

Benefits of Good Flexibility

Flexibility is sometimes referred to as the forgotten part of health-related fitness. This is because most people tend to focus on the other parts of health related fitness to the exclusion of flexibility. We know, however that having good flexibility has many health benefits, both when you are young and when you grow older. Some of these benefits are described here.

Improved Function

Everyone needs a minimum amount of flexibility to maintain health and mobility, and some people need additional flexibility. For example, dancers and gymnast must be very flexible to perform their routines; plumbers, painters, and dentists often need to bend and stretch; and some musicians need very flexible fingers and wrists. Flexibility is important to many athletes because it allows a longer backswing in throwing and striking movements. A long backswing allows a faster forward swing. In the case of weight lifting, shot put, and some other sports, the greater backward movement, producing more power.

Improves Health and Wellness

Stretching exercises can help prevent injury and muscle Soreness and have a beneficial effect on a number of conditions. For example, flexible musicians are less likely to have Pain in the joints. Stretching exercises can often alleviate menstrual Cramps in women. They can prevent or provide relief from leg cramps in shin splints (pain in the front of the shin caused by over use). Stretching short muscles helps improve posture, which helps prevent or relieve back Pain and reduces fatigue. Stretching a muscle can help it relax.

Characteristics of Flexibility

Just as heredity and other factors influence your Success in sports and recreational activities, similar factors influence your flexibility.

Body Build and Flexibility

Some people are not able to score well on flexibility tests as others no matter how much they stretch. Anatomical differences in our bodies help determine what we can and cannot do. Rather than comparing your scores on flexibility tests with those of others, compare your scores with your own previous scores and seek to improve.

Can short people touch their toes more easily than tall people can? In most cases this is not true because a shorter person does tend to have relatively short legs and trunk but also tends to have short arms (although there are exceptions). In contrast, a tall person tends to have longer legs and trunk, as well as longer arms. There are people who have exceptionally long arms or legs whose body build may make it easier for them to score well or not so well on flexibility tests, but this is the exception, not the rule.

Generally, females tend to be more flexible than males. Also, younger people tend to be more flexible than older people. As people grow older, their muscles typically grow shorter because they are used less, and their joint allow less movement because of conditions such as arthritis. One important reason for doing regular stretching exercises when you are young is to reduce the risk on joint problems when you are older. Good flexibility enhances performance in a variety of tasks for people of all ages.

Hypermobility

Some people have an unusually large range of motion in certain joints, and people often refer to them as being double jointed. This condition is called hypermobility, the ability to extend the knee, elbow, thumb, or wrist joint past a straight line, as if the joint could bend backward. Hypermobility is usually an inherited trait and tends to be more common in some groups than others. Some people who have hypermobile joints are prone to joint injuries and may be more likely to develop arthritis, a disease in which the joints become inflamed. For the most part, however, those with hypermobile joints do not have problems, other than a slight disadvantage in some sports. For example, when doing the push up exercise, the elbows of a hypermobil person might easily lock when the arms straighten, making it difficult to unlock the elbows to begin the downward movement.

Joint Laxity

When the supporting tissue around a joint allows the bones to move in ways others than intended, it is described as joint laxity, or looseness. Laxity occurs when the ligaments around the joint are overstretched, most likely from injury or incorrect exercise. If laxity occurs in a knee joint, it may lead to knee sprains and torn cartilage or a dislocated kneecap. Ligaments cannot be strengthened by doing exercises. However, strengthening the muscles around the joint, can help reduce looseness. In addition to the reasons described in the previous section, joint laxity is another cause of hypermobility.

Balancing Strength and Flexibility

You should do Strength and Flexibility exercises together. Everyone needs strong muscles, but exclusive use of strength exercised can lead to a loss of normal range of motion and a condition sometimes called being muscle-board. On the other hand, if you only do flexibility exercises, then your joints may become susceptible to injury because you need strong muscles to reinforce the ligaments that hold the bones together.

A balanced exercise program includes both Strength and flexibility exercises for all your muscles so that they can apply equal force on all sides of a joint. People commonly use the flexors (muscles on the front of the body) a great deal because many daily activities emphasize the use of those muscles. For example, the majority of people have strong biceps muscles (on the front of the arm), Pectoral muscles (on the front of the chest), and quadriceps muscles (on the front of the thigh). The pull of these strong muscles results in the body hunching forward. To avoid becoming permanently hunched over, you need to make certain that these strong, short muscles on the front of the body get stretched. At the same time, you must strengthen the weak, long, relatively unused muscles on the back of the body.

Are there any muscles that do not need stretching? For most people, the answer is yes. For example, most people eventually begin to develop a hunched - over posture often called humpback at some point in life. Because the upper back muscles become overstretched with this postural problem, they should avoid further stretching of those muscles. Another example might be the abdominal muscle. It is important to keep your abdominal muscles strong but most people do not need to stretch them. In fact, if the abdominals are stretched they begin to sag and the abdomen protrudes, leading to poor posture.

Each person must evaluate his or her own needs to avoid stretching already overstretched muscles and avoid strengthening muscles that are already so strong that they are out of balance with their opposing muscles. Keeping muscles on opposites sides of a joint in balance helps them pull with equal force in all directions. Such a balance helps align your body parts properly, ensuring good posture.

Muscles That Need the Most Stretching

Muscle(s)	Reason for Stretching
Chest muscles	To prevent poor posture
Front of Shoulders	To prevent poor posture, and
Front of hip joint	To prevent swayback posture, backache, or a pulled muscle
Back of thigh (hamstrings)	To prevent swayback posture, backache, or a pulled muscle
Inside of thigh	To prevent back, leg, & foot strain
Calf muscles	To avoid soreness, & Achilles tendon injuries, which may result from running & jumping
Lower back	To prevent soreness, pain, & back injury

Fitness Principles and Flexibility

The principles of overload, progression, and specificity apply to flexibility, just as they apply to the other components of health - related fitness.

Principle of Overload

You need to stretch your muscles longer than normal to increase your flexibility. To stretch a muscle, you need to lengthen it more than you do in your daily activities. To achieve this kind of stretch, you usually need a force greater than your own opposing muscles. For example, if you want to stretch your chest muscles, you cannot get an overload just by pulling your arms back and holding them in that position. You need additional force, such as your own body weight, when you put your arms on either side of a door and lean forward. You can use another body part, a weight, or a partner to assist in the stretch. Be sure to give feedback when a partner helps you stretch or she can apply the proper amount of force.

Principle of Progression

You need to progress your exercise intensity. You can increase intensity by progressing farther as you gain flexibility. Up to a point, you may also progress by gradually the amount of stretch you hold the stretch or the number of repetitions you perform. Eventually you will achieve your flexibility goal. Then you need to maintain the flexibility you have achieved.

Principle of Specificity

Flexibility is specific to the muscles at the specific joint that you stretch. Overall, you must stretch all the muscles that need stretching.

Maintaining Flexibility

Once you have reached an acceptable level of flexibility for your muscles, you must maintain to move all of your range of motion and flexibility through this new and improved range of motion of flexibility on a regular basis. If you do not use the range of motion you have available, in a short period of time, the muscles will begin to lose flexibility and you will again lose that flexibility.

Chapter 10 Lesson 2 – Improving Flexibility

The Physical Activity Pyramid

Flexibility in the joints of the body is essential for good health as well as for efficient, effective foundationing. For best results, you must perform exercises especially designed to improve flexibility, because other activities may do little to improve it. Selecting activities and including EXERCISES for flexibility from the P physical A ctivity P rogram is the most effective way to improve your flexibility.

Types of Flexibility Exercises

Properly selected exercises can improve your flexibility and provide many other Benefits such as helping to relieve muscle cramps. Range-of motion exercises and stretching exercise are two main types of flexibility exercises.

Range of Motion (ROM) Exercises

The term range of motion exercises (ROM) exercise, usually called ROM exercise, refers to flexibility exercises that are used to maintain the range of motion already present in your joints. ROM exercises are probably the safest type of flexibility exercise to use in a warm-up routine. Some experts think that when you stretch your muscles too much in the warm-up, the muscles are more likely to be injured in the workout or sport that follows. So ROM exercises, or moderate stretching exercises, are recommended for the warm-up. More intense stretching is necessary to improve flexibility, but as previously noted, this type of stretching should be done in flexibility workouts when the body is warm rather than in the warm-up.

If you are as flexible as you need to be, then you should move your body to maintain that flexibility. Without attempting to stretch muscles any farther, it is wise to move all of the joints through their complete range of motion at least 3 times a week. Every day is even better. For example, if your self assessment scores are in the good zone where you wish to be, then you should regularly exercise to maintain that level of flexibility.

Stretching Exercise

Where a ROM exercise maintains your current level of flexibility, a stretching exercise is designed to increase your range of motion by stretching farther than you're your current range of motion. The 3 types of stretching exercises are static, PNF, and ballistic.

Static Stretching is stretching slowly as far as you can without pain, until you feel a sense of pulling or tension, then holding the stretch for several seconds, (15 or more for best results). Done correctly, static stretching increases your flexibility and can help you relax. Static stretching exercises are safer than ballistic stretching exercises because you are less likely to stretch too far and injure yourself. Static stretching can be especially beneficial for people who have bad backs, previous muscle or joint injuries, or arthritis. Even athletes should perform static stretches at the beginning and end of their exercise programs to warm up and cool down. By themselves, static stretches might not build enough flexibility for an athlete, so athletes may need to add PNF and ballistic stretches.

PNF stretching (PNF stands for proprioceptive neuromuscular facilitation) is a stretching technique used by physical and occupational therapists. It has recently become popular among athletes. PNF stretching is a variation of static stretching that is more effective for improving flexibility. A PNF stretch involves contracting the muscle before you stretch it so that you can stretch it farther. Some variations of PNF require a partner to assist you, but one form is easy for you to use with or without a partner. It is called CRAC (Contract - relax - antagonist - contract).

After you contract a muscle that you want to stretch, the muscle automatically relaxes. Contracting the opposing muscles (antagonist) during the stretch also makes the muscle you are stretching relax. CRAC does both of these.

Ballistic stretching is a series of quick but gentle bouncing or bobbing motions that are not held for a long time. If you are active in sports, part of your exercise program should include movements used in your sports. If you move or stretch muscles quickly in a sport, then some of your flexibility exercises should resemble the sport's movement. Those who use ballistic stretching should start with static stretching before doing the ballistic stretches. Take care to stretch gently; stretching too quickly or overstretching can cause injury.

Some teachers and coaches have been opposed to all ballistic stretching because of the possibility of overstretching if it is not done carefully. However, studies show that ballistic stretching does not cause as much muscular soreness as static stretching. If you are an athlete and wish to achieve a high performance level of flexibility, you may wish to apply the principle of flexibility. By using a ballistic stretching exercise that closely mimics the backswing so common to sports. You can see an example of this type of stretch at baseball games when the batter takes a few easy swings with a weighted bat or does trunk twists with a bounce in each direction before getting in the batter's box. Another example is the track athlete who stretches the Achilles tendon with a few gentle bounces on the heels.

Guidelines for Flexibility Exercises

To get the most benefit and the most enjoyment from your exercise program, it is important to perform the exercises correctly and observe certain cautions to avoid injury. Before you begin stretching, follow these guidelines and cautions to help you safely achieve and maintain flexibility.

- Use static stretching or PNF when beginning or for general health
- > Don't overstretch or ballistically stretch an injured muscle
- > If you do ballistic stretching, don't bounce too far
- Start with a general body warm-up
- > Don't stretch joints that are hypermobile, unstable, swollen, or infected
- > Don't stretch until you feel pain.
- > Avoid dangerous exercises
- Avoid stretching muscles that are already overstretched from poor posture
- > Be sure to overbreathe when stretching
- > Consider contracting then relaxing the muscle before you stretch
- > Consider contracting the antagonist (opposite muscle) while you stretch
- > Start slowly

Physical Education

Major Muscle Groups

Chapter 10 L1 Pages 155 - 166

Name: _____

Date: 04/04/2018

Period: 1st

Overview:

Benefits of good flexibility

1. Improved function
2. Improved health and wellness

Characteristics of Flexibility

1. Body Build and Flexibility
2. Hypermobility
3. Joint Laxity

Fitness Principles and Flexibility

1. Principle of overload
2. Principle of progression
3. Principle of Specificity
4. Maintaining Flexibility



What is Flexibility?

Flexibility is the ability to move your joints through a full range of motion (ROM). A joint is a place where bones come together. The best known joints include the ankles, knees, and hips in the leg; the knuckles, wrist, elbows and shoulders in the arms; and the joints between the vertebrae in the arms. Some joints, such as the knees and elbows, work like a hinge permitting movement in only two directions. Other joints, such as the hip and shoulder, work like a ball and socket, allowing movement in all directions. Range of motion (ROM) is the amount of movement you can make in a joint.

Benefits of Good Flexibility

Flexibility is sometimes referred to as the forgotten part of health -related fitness. This is because most people tend to focus on the other parts of health related fitness to the exclusion of flexibility. We know, however that having good flexibility has many health benefits, both when you are young and when you grow older. Some of these benefits are described here.

Improved Function

Everyone needs a minimum amount of flexibility to maintain health and mobility, and some people need additional flexibility. For example, dancers and gymnasts must be very flexible to perform their routines; plumbers, painters, and dentists often need to bend and stretch; and some musicians need very flexible fingers and wrists. Flexibility is important to many athletes because it allows a longer backswing in throwing and striking movements. A long backswing allows a faster forward swing. In the case of weight lifting, shot put, and some other sports, the greater backward movement, producing more power.

Improves Health and Wellness

Stretching exercises can help prevent injury and muscle soreness and have a beneficial effect on a number of conditions. For example, flexible musicians are less likely to have pain in the joints. Stretching exercises can often alleviate menstrual cramps in women. They can prevent or provide relief from leg cramps in shin splints (pain in the front of the shin caused by overuse). Stretching of muscles helps improve posture, which helps prevent or relieve back pain and reduces fatigue. Stretching a muscle can help it relax.

Characteristics of Flexibility

Just as heredity and other factors influence your success in sports and recreational activities, similar factors influence your flexibility.

Body Build and Flexibility

Some people are not able to score well on flexibility tests as others no matter how much they stretch. Anatomical differences in our bodies help determine what we can and cannot do. Rather than comparing your scores on flexibility tests with those of others, compare your scores with your own previous scores and seek to improve.

Can short people touch their toes more easily than tall people can? In most cases this is not true because a shorter person does tend to have relatively short legs and trunk but also tends to have short arms (although there are exceptions). In contrast, a tall person tends to have longer legs and trunk, as well as longer arms. There are people who have exceptionally long arms or legs whose body build may make it easier for them to score well or not so well on flexibility tests, but this is the exception, not the rule.

Generally, females tend to be more flexible than males. Also, younger people tend to be more flexible than older people. As people grow older, their muscles typically grow shorter because they are used less, and their joints allow less movement because of conditions such as arthritis. One important reason for doing regular stretching exercises when you are young is to prevent risk on joint problems which flexibility enhances performance in a variety of tests for people.

Hypermobility

Some people have an unusually large range of motion in certain joints, and people often refer to them as being double jointed. This condition is called hypermobility, the ability to bend the knee, elbow, thumb, or wrist joint past a straight line, as if the joint could bend backward. Hypermobility is usually an inherited trait and tends to be more common in some groups than others. Some people who have hypermobile joints are prone to joint injury and may be more likely to develop arthritis, a disease in which the joints become inflamed. For the most part, however, those with hypermobile joints do not have problems, other than a slight disadvantage in some sports. For example, when doing the push up exercise, the elbows of a hypermobile person might easily change when the arms straighten, making it difficult to unlock the elbows to begin the downward movement.

Joint Laxity

When the supporting ligaments around a joint allows the bones to move in ways others than intended, it is described as joint laxity, or looseness. Laxity occurs when the ligaments around the joint are overstretched, most likely from injury or excessive exercise. If laxity occurs in a knee joint, it may lead to knee sprains and torn cartilage or a dislocated kneecap. Ligaments cannot be strengthened by doing exercises. However, strengthening the muscles around the joint, can help reduce looseness. In addition to the reasons described in the previous section, joint laxity is another cause of hypermobility.

Balancing Strength and Flexibility

You should do strength and flexibility exercises together. Everyone needs strong muscles, but exclusive use of strength exercised can lead to a loss of normal range of motion and a condition sometimes called being muscle - bound. On the other hand, if you only do flexibility exercises, then you joints may become susceptible to injury because you need strong muscles to reinforce the ligaments that hold the bones together.

A balanced exercise program includes both strength and flexibility exercises for all you muscles so that they can apply equal force on all sides of a joint. People commonly use the flexors (muscles on the front of the body a great deal because many daily activities emphasize the use of these muscles). For example, the majority of people have strong biceps muscles (on the front of the arm), pectoral muscles (on the front of the chest), and abdominal muscles (on the front of the trunk). The pull of these strong muscles results in the body leaning forward. To avoid becoming permanently hunched over, you need to make certain that these strong, short muscles on the front of the body get unused. At the same time, you must strengthen the weak, long, relatively unused on the back of the body.

Are there any muscles that do not need stretching? For most people, the answer is yes. For example, most people eventually begin to develop a rounded - over posture often called humpback at some point in life. Because the upper back muscles become overstretched in people with this postural problem, they should avoid further stretching of those muscles. Another example might be the abdominal. It is important to keep your abdominal muscles strong but most people do not need to stretch them. In fact, if the abdominals are stretched they begin to sag and the abdominal protrudes, leading to poor posture.

Each person must evaluate his or her own needs to avoid stretching already overstretched muscles and avoid strengthening muscles that are already so strong that they are out of balance with their opposing muscles. Keeping muscles on opposite sides of a joint in balance helps them pull with equal force in all directions. Such a balance helps align your body parts properly, ensuring good posture.

Muscles That Need the Most Stretching

Muscle(s)	Reason for Stretching
Chest	Prevent poor posture
Front of Shoulders	Prevent poor posture
Front of Hip joint	Prevent sway back posture, back posture, backache or pulled
Back of thigh	Prevent sway back posture, backache or pulled muscle
Inside of thigh	Prevent back, leg and foot strain
Calf muscles	Prevent soreness and Achilles Tendon injuries
Lower Back	Prevent soreness, pain and back injury

Fitness Principles and Flexibility

The principles of overload, progression, and specificity apply to _____, just as they apply to the other components of health - related fitness.

Principle of Overload

You need to stretch your muscles longer than normal to increase your flexibility. To stretch a muscle, you need to stretch it more than you do in your daily activities. To achieve this kind of stretch, you usually need a force greater than you own opposite muscle. For example, if you want to stretch your chest muscles, you cannot get an overload just by pulling your arms back and holding them in that position. You need additional force, such as your own body weight, when you put your arms either side of a doorframe and lean forward. You can use another body part, partner, or a weight to assist in the stretch. Be sure to give feedback. partner helps you stretch so that he or she can apply the proper amount of force.

Principle of Progression

You need to gradually gradually your exercise intensity. You can increase intensity by stretching farther as you gain flexibility. Up to a point, you may also progress by gradually increasing the amount of time you hold the stretch or the number of repetitions you perform. Eventually you will achieve your flexibility goals. Then you need to develop the flexibility you have achieved.

Principle of Specificity

Flexibility can only improve only the specific muscles at the specific joint that you stretch. To develop overall flexibility, you must stretch and the muscles that need stretching.

Maintaining Flexibility

Once you have reached an acceptable level of flexibility for your muscles, you must continue to move all of your joints and muscles through this new and improved range of motion on a regular basis. If you do not use the range of motion you have available, in a joint, the muscles will begin to shorten and you will again lose that flexibility.

Chapter 10 Lesson 2 – Improving Flexibility

The Physical Activity Pyramid

Flexibility in the joints of the body is essential for good health as well as for efficient, effective functioning. For best results, you must perform exercise especially designed to improve flexibility, because other activities may do little to improve it. Selecting activities and including exercise for flexibility from the P Physical A Activities P Pyramid is the most effective way to improve your flex.

Types of Flexibility Exercises

Properly selected exercises can improve your flexibility and provide many other benefits such as helping to relieve muscle cramps. Range of motion exercises and stretching exercise are two main types of flexibility exercises.

Range of Motion (ROM) Exercises

The term range of motion exercises (ROM) exercise, usually called ROM exercise, refers to flexibility exercises that are used to maintain the range of motion already present in your joints. ROM exercises are probably the safest type of flexibility exercise to use in a warm-up routine. Some experts think that when you stretch your muscles too much in the warm-up, the muscles are more likely to be injured in the workout or sport that follows. So ROM exercises, or moderate stretching exercises, are recommended for the warm-up. More intense stretching is necessary to improve flexibility, but as previously noted, this type of stretching should be done in flexibility workouts when the body is warm rather than in the warm-up.

If you are as flexible as you need to be, then you should move your body to maintain that flexibility. Without attempting to stretch muscles any farther, it is wise to move all of the joints through their complete range of motion at least 3 times a week. Every day is even better. For example, if your self-assessment scores are in the good zone where you wish to be, then you should regularly exercise to maintain that level of flexibility.

Stretching Exercise

Where a ROM exercise maintains your current level of flexibility, a stretching exercise is designed to increase your range of motion by stretching farther than you're your current range of motion. The three types of stretching exercises are static, PNF, and ballistic.

Static Stretching is stretching slowly as far as you can without pain (until you feel a sense of pulling or tension), then holding the stretch for several seconds (15 or more for best results). Done correctly, static stretching increases your flexibility and can help you relax. Static stretching exercises are safer than ballistic stretching exercises because you are less likely to stretch too far and injure yourself. Static stretching can be especially beneficial for people who have bad backs, previous muscle or joint injuries, or arthritis. Even athletes should perform static stretches at the beginning and end of their exercise programs to warm up and cool down. By themselves, static stretches might not build enough flexibility for an athlete, so athletes may need to add PNF and ballistic stretches.

PNF stretching (PNF stands for proprioceptive neuromuscular facilitation) is a stretching technique used by physical and occupational therapists. It has recently become popular among athletes. PNF stretching is a variation of static stretching that is more effective for improving flexibility. A PNF stretch involves contracting the muscle before you stretch it so that you can stretch it farther. Some variations of PNF require a partner to assist you, but one form is easy for you to use with or without a partner. It is called CRAC (contract - relax - antagonist - contract).

After you contract a muscle that you want to stretch, the muscle automatically relaxes. Contracting the opposing muscle (antagonist) during the stretch also makes the muscle you are stretching relax. CRAC does both of these.

Ballistic stretching is a series of quick but gentle bouncing or bobbing motions that are not held for a long time. If you are active in sports, part of your exercise program should include movements used in your sports. If you move or stretch muscles quickly in a sport, then some of your flexibility exercises should resemble the sport's movement. Those who use ballistic stretching should start with static stretching before doing the ballistic stretches. Take care to stretch gently; stretching too quickly or overstretching can cause injury.

Some teachers and coaches have been opposed to all ballistic stretching because of the possibility of over-stretching if it is not done carefully. However, studies show that ballistic stretching does not cause as much muscular soreness as static stretching. If you are an athlete and wish to achieve a high performance level of flexibility, you may wish to apply the principle of specificity. By using a ballistic stretching exercise that closely mimics the backswing so common to sports. You can see an example of this type of stretch at baseball games when the batter takes a few easy swings with a weighted bat or does trunk twists with a bounce in each direction before getting in the batter's box. Another example is the track athlete who stretches the Achilles tendon with a few gentle bounces on the heels.

Guidelines for Flexibility Exercises

To get the most benefit and the most enjoyment from your exercise program, it is important to perform the exercises properly and observe certain cautions to avoid injury. Before you begin stretching, follow these guidelines and cautions to help you safely achieve and maintain flexibility.

- Start with a general warm-up
- Use static stretching or PNF when
 - beginning or for general health
- Do NOT overstretch or ballistically stretch an
 - injured muscle
- If you don't ballistic stretching, don not proceed for
- DO not stretch joints that are hypermobile, unstable
 - swollen, or infected.
- Do not stretch until you feel pain
- Avoid dangerous exercises.
- Avoid stretching muscles that are already over
 - stretched from poor posture

Physical Education

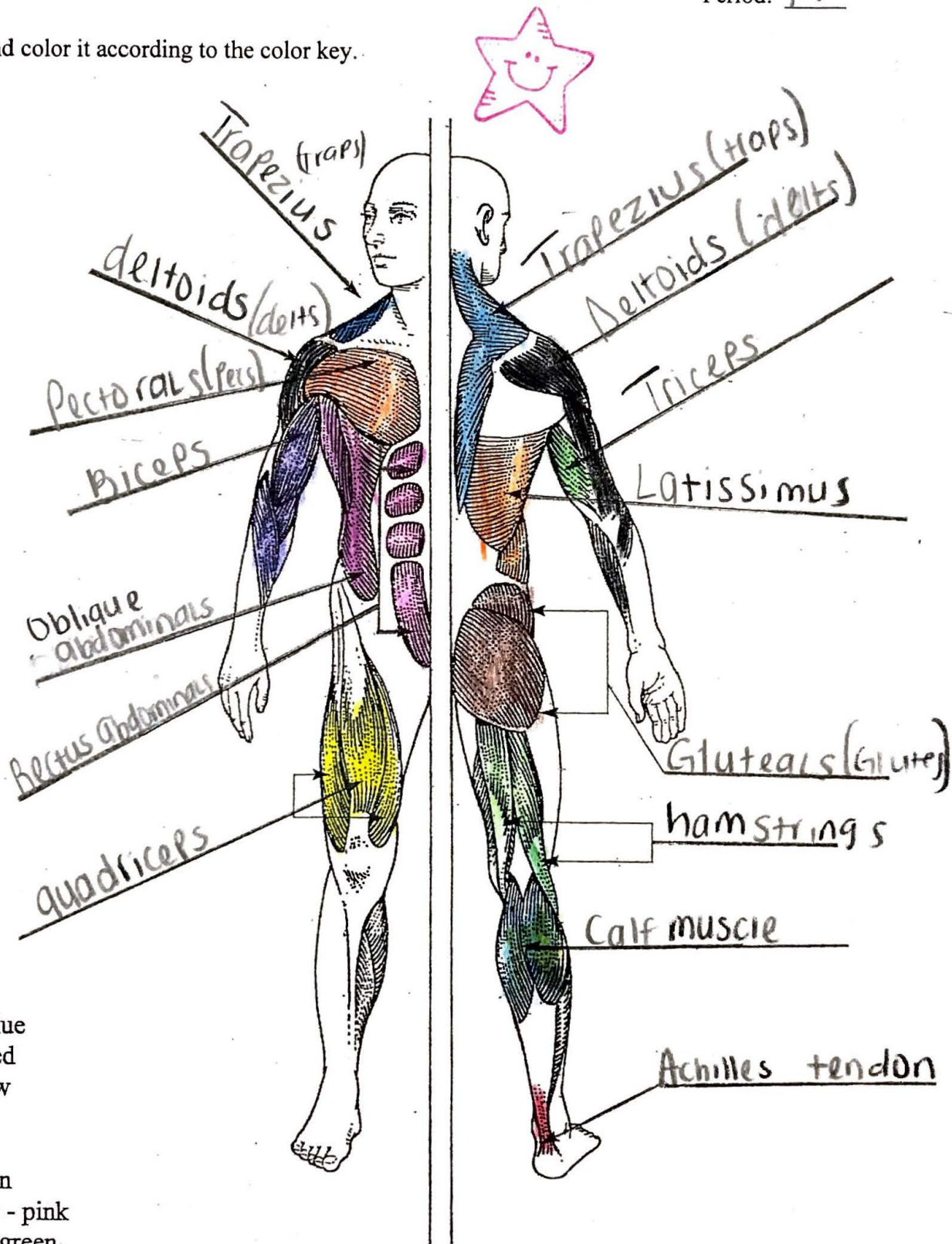
Major Muscle Groups

Name _____

Date: 04/16/18

Period: 1st

Label each muscle and color it according to the color key.



- Trapezius - light blue
- Achilles tendon - red
- Quadriceps - yellow
- Deltoids - black
- Calf muscle - gray
- Triceps - light green
- Rectus abdominals - pink
- Hamstrings - dark green
- Latissimus Dorsi - light orange
- Gluteals - brown
- Oblique abdominals - light purple
- Pectorals - dark orange
- Biceps - dark purple