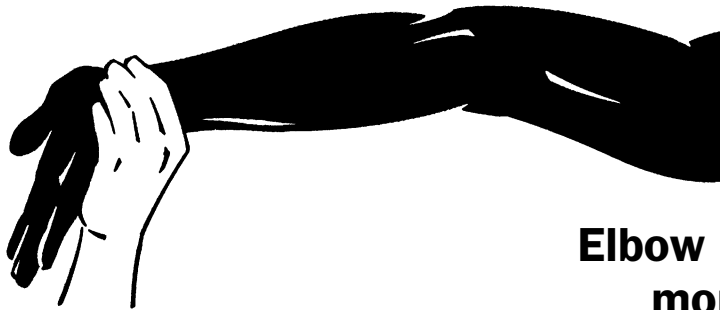


EXAMPLES OF HYPERMOBILITY



**Thumb can bend back
to touch the forearm**



**Elbow can bend back
more than 10°**



**Ability to touch floor
with both palms
while knees are straight**

FITNESS TARGET ZONES FOR FLEXIBILITY

Static/PNF

Ballistic

F

Frequency

- Stretch each muscle group daily, if possible, but at least 3 days a week. Do ROM exercises before and after stretch workouts.
- *Caution:* Before doing any ballistic stretching, read “Ballistic Stretching Exercise” and the guidelines.
- Stretch each muscle group daily, if possible, but at least 3 days a week.

I

Intensity

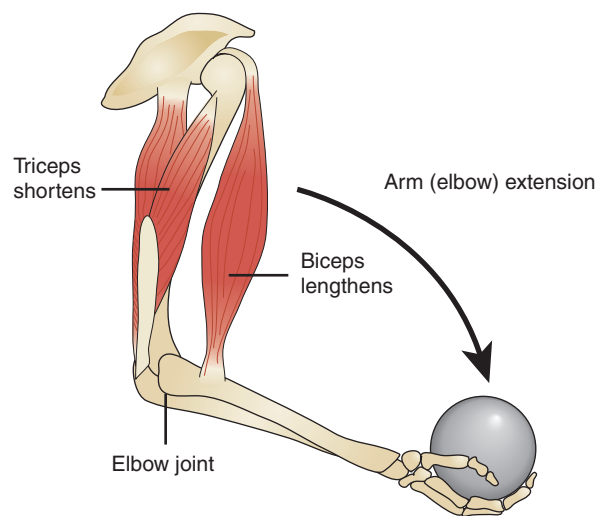
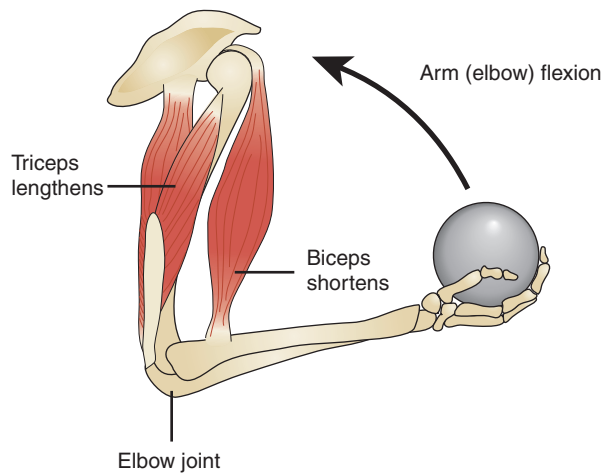
- The muscle must be stretched beyond its normal length.
- You must have a partner or equipment, or you can use your own body weight to provide an overload.
- The muscle must be stretched beyond its normal length.
- Use slow, gentle bounces or bobs, using the motion of your body part to stretch the specific muscle.
Caution: No stretch should cause pain, especially sharp pain. Be especially careful when doing ballistic stretching.

T

Time

- Hold each stretch for 10 to 15 seconds. Rest for 10 seconds.
- Stretch each muscle group. Start with 1 set of 1 rep and progress to 3 to 4 sets, 1 rep each.
- Bounce against the muscle slowly and gently 10 to 15 times. Rest for 10 seconds.
- Stretch each muscle group. Start with 1 set of 10 to 15 reps, and progress to 3 sets.

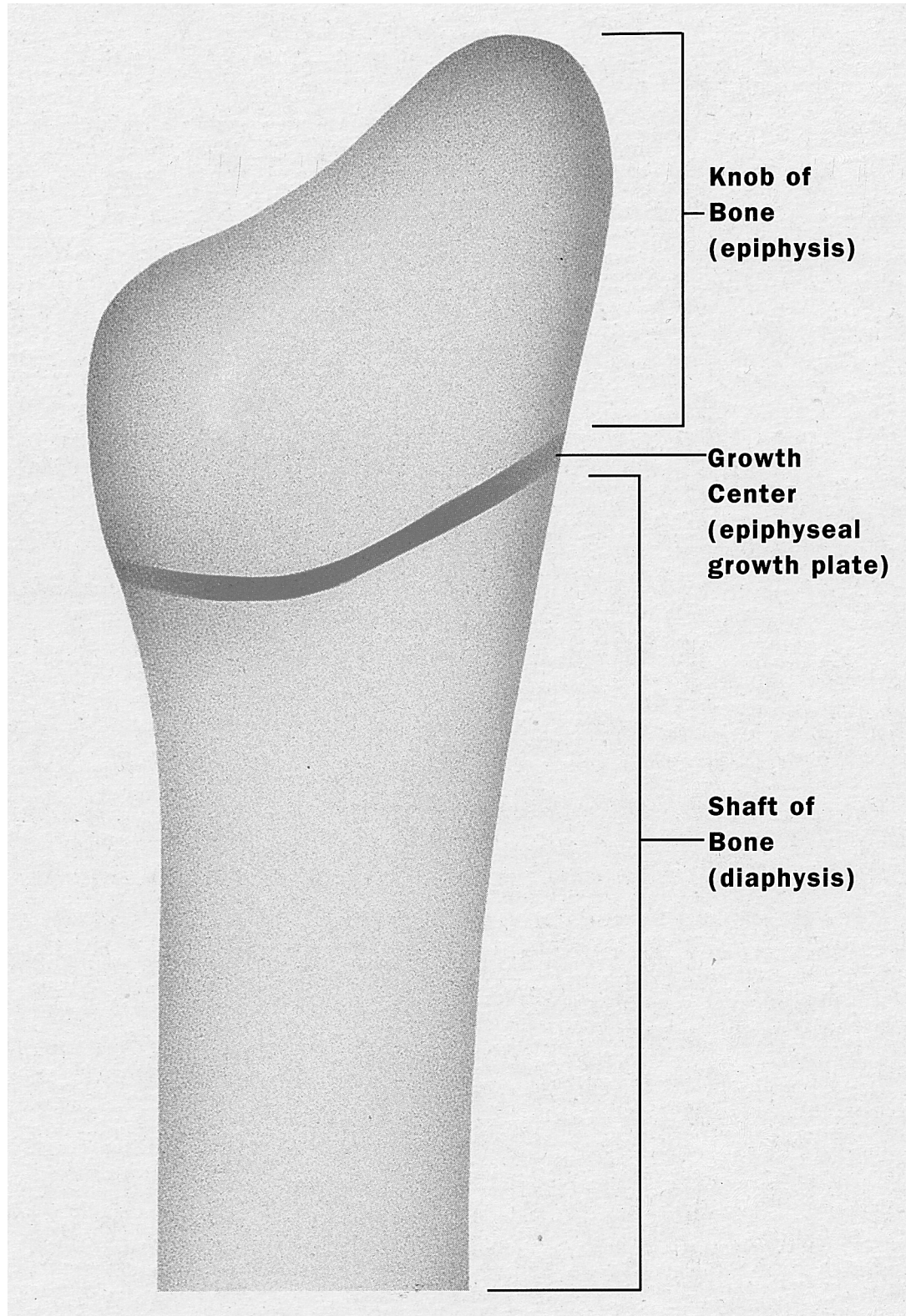
HOW MUSCLES APPLY FORCE TO BONES



Overhead
Transparency
Master

10-D

GROWTH CENTER OF BONE



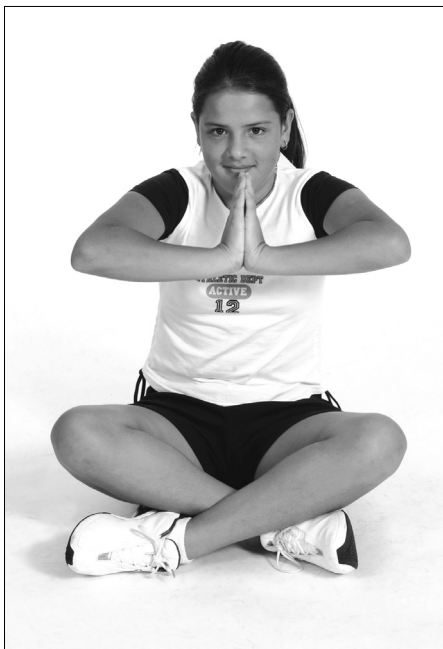
From *Fitness for Life: Teacher Resources and Materials, Fifth Edition* by Karen McConnell, Charles B. Corbin, and Darren Dale, 2005, Champaign, IL: Human Kinetics.

STRENGTH EXERCISES

Overhead
Transparency
Master

10-E

Isometric



Isotonic (weight/resistance training)



Isotonic (calisthenic)

From *Fitness for Life: Teacher Resources and Materials, Fifth Edition* by Karen McConnell, Charles B. Corbin, and Darren Dale, 2005, Champaign, IL: Human Kinetics.

Application**10****FLEXIBILITY ADVICE COLUMN**

Read each situation below. Then write your advice on the lines provided. Be sure to explain why you gave each point of advice.

1. Amber is running in a track meet on Saturday. What stretching exercises should she include in her warm-up?

2. Marvin rode his bicycle for an hour yesterday. Now his lower back muscles feel stiff. What can he do to stretch the muscles of his lower back?

3. Peter often gets sore muscles in the back of his lower legs from jogging. What flexibility exercise could help him?

4. Karen is beginning an exercise program. Which two or three exercises would be best if she plans to do aerobic dance?

5. Rosalba wants to be promoted into the intermediate ballet class, but her ballet teacher said that she needs to improve her overall flexibility. He suggested that she exercise at a gym. What can she do?



10

Reinforcement

FLEXIBILITY WORD SEARCH

Write the correct word or words defined by each clue. Then find and circle each word in the word search puzzle.

1. Places in your body where bones come together _____
2. Tough white tissues that connect bones _____
3. Condition in which joints are limited in their range of motion because muscles are too short _____
4. Stretching slowly and then holding the stretch for several seconds _____
5. The ability to move joints through a full range of movement _____
6. Series of quick but gentle bouncing stretches not held for a long time _____
7. Sudden tightening of a muscle _____
8. Principle applied when you stretch your muscles farther than normal to increase flexibility _____
9. Principle applied when you gradually make each flexibility exercise more difficult _____
10. Amount of movement you can make at a joint (abbreviation) _____
11. Involves using the body's reflexes to relax a muscle before stretching it (abbreviation) _____
12. A disease in which joints become inflamed _____
13. Ability to extend knee, elbow, or wrist joints past a straight line _____-mobility
14. Looseness of the joints due to overstretched ligaments _____

F L E X B C L E P B U B
 O L O I E R G O R A S A
 S I E O S X S Y O L G L
 I G C X T L T R G I R L
 T A V O I A A D R A O I
 I M P C T B T C E T M S
 R E N L C R I R S I T T
 H N F E B T C L S C Y I
 T T T C O B S O I I U C
 R S J O I N T S O T N S
 A S H Y P E R V N Y Y T
 D S L B V R E B O A D R
 S Y S T O R T Y T J O E
 M U S C L E C R A M P T
 T N U O U O H L T R I C
 E X A S U M I A O D N H
 A D C L E I N G O I S I
 L A X I T Y G R B S T N
 M U S C L E B O U N D G



10

Personal Project

LOGGING AND PLANNING FLEXIBILITY EXERCISES

Part 1—Logging Flexibility

Use this form to record your participation in flexibility exercises for one week. Record the number of sets (holding each stretch for at least 10 seconds) you complete for each exercise each day. Refer to the FIT formula chart in your textbook for guidance. Answer the questions provided when you have finished your weekly log.


Write the number of sets you complete for each stretch each day. See your textbook for FIT guidelines and descriptions of the stretches.

| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|
| | / | / | / | / | / | / | / |
| Back-Saver Sit and Reach | | | | | | | |
| Knee to Chest | | | | | | | |
| Spine Twist | | | | | | | |
| Sitting Stretch | | | | | | | |
| Zipper | | | | | | | |
| Arm Pretzel | | | | | | | |
| Hip Stretch | | | | | | | |
| Arm Stretch | | | | | | | |
| Chest Stretch | | | | | | | |
| Calf Stretch | | | | | | | |
| Other: | | | | | | | |
| Other: | | | | | | | |

Did you complete the Basic 10 Flexibility Exercises at least 3 times during the week?

How might you adjust your physical activity to better maintain or improve your flexibility level?

What short-term goals might you have for improving your flexibility?



10

Personal Project

LOGGING AND PLANNING FLEXIBILITY EXERCISES

(continued)

Part 2—Planning Flexibility Exercise

Make a plan for the following week incorporating changes that might help you reach your goals. Use the chart to indicate how many sets of each of the flexibility exercises you will perform over the next week. For each day, write the total sets of each stretch you plan to complete.

| Write the number of sets you plan to complete for each stretch each day. See your textbook for FIT guidelines and descriptions of the stretches. | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|--|-------|-------|-------|-------|-------|-------|-------|
| | / | / | / | / | / | / | / |
| Back-Saver Sit and Reach | | | | | | | |
| Knee to Chest | | | | | | | |
| Spine Twist | | | | | | | |
| Sitting Stretch | | | | | | | |
| Zipper | | | | | | | |
| Arm Pretzel | | | | | | | |
| Hip Stretch | | | | | | | |
| Arm Stretch | | | | | | | |
| Chest Stretch | | | | | | | |
| Calf Stretch | | | | | | | |
| Other: | | | | | | | |
| Other: | | | | | | | |

Does your plan match up with the FIT guidelines for your flexibility needs?

Identify some strategies you can use that will help you achieve your plan.



10

Chapter Test

FLEXIBILITY

Choose the letter of the *best* answer for questions 1-14.

Use what you learned throughout the chapter to answer the final question.

1. The ability to extend the knee, elbow, or wrist joint past a straight line is
 - a. flexibility.
 - b. hypermobility.
 - c. range of motion.
 - d. muscle boundness.
2. Looseness in the joints allowing bones to move in ways other than intended is
 - a. stretching.
 - b. overload.
 - c. flexibility.
 - d. joint laxity.
3. Which shows good flexibility?
 - a. hugging your legs to your chest
 - b. lifting weights
 - c. doing 20 push-ups without stopping
 - d. running 5 miles
4. Who generally would be most flexible?
 - a. old male
 - b. young male
 - c. old female
 - d. young female
5. The BEST balanced exercise program includes
 - a. strength exercises of overstretched muscle.
 - b. strength exercises only.
 - c. strength and flexibility exercise.
 - d. flexibility exercise only.
6. Joints are places in the body where
 - a. ligaments connect muscles to bones.
 - b. bones come together.
 - c. muscles are attached to bones.
 - d. muscles come together.
7. Static stretching is
 - a. quick, gentle bouncing or bobbing motions.
 - b. the amount of movement a joint can make.
 - c. slow stretching without pain, for several seconds.
 - d. not recommended for athletes.
8. When you stretch your muscles farther than you normally stretch them, you are using the principle of
 - a. overload.
 - b. progression.
 - c. specificity.
 - d. flexibility.
9. Which is a part of the principle of progression for flexibility?
 - a. Start with a few hyperextended stretches.
 - b. Stretch for the longest period you can tolerate.
 - c. Stretch muscles until they feel tired.
 - d. Stretch a little farther each day.
10. Ballistic stretching is
 - a. slow stretching without pain, for several seconds.
 - b. overstretching.
 - c. gentle bouncing or bobbing motions.
 - d. leaning into a doorway.
11. Static stretching
 - a. always builds the most flexibility for an athlete.
 - b. increases flexibility.
 - c. causes back injuries.
 - d. causes muscle cramps in the legs.
12. Warm-up exercises used to maintain your present range of joint motion are
 - a. ROM exercises.
 - b. static stretching.
 - c. PNF stretching.
 - d. CRAC stretching.
13. In general, to build flexibility you should stretch until
 - a. 1 minute passes.
 - b. the muscle feels loose.
 - c. the muscle feels a little uncomfortable.
 - d. it feels painful.
14. Ballistic stretching is acceptable if you
 - a. rarely exercise.
 - b. rate low on the self-assessment.
 - c. have a partner.
 - d. exercise regularly and rate high on the self-assessment.
15. The old saying “No pain, no gain” is wrong. Explain why in relation to flexibility.
