**Skinfold Measurements**

*Recommended*

This section provides information on measuring skinfolds, including suggestions on how best to learn to do skinfold measurements.

**Test Objective**

To measure the triceps and calf (and abdominal for college students) skinfold thicknesses for calculating percent body fat.

**Equipment and Facilities**

A skinfold caliper is necessary to perform this measurement. The cost of calipers ranges from $5 to $200. Both the expensive and inexpensive calipers have been shown to be effective for use by teachers who have had sufficient training and practice. Appendix A on page 81 lists a source for calipers.

**Testing Procedures**

The triceps and calf skinfolds have been chosen for FITNESSGRAM because they are easily measured and highly correlated with total body fatness. The caliper measures a double layer of subcutaneous fat and skin.

**Measurement Locations**

The triceps skinfold is measured on the back of the right arm over the triceps muscle, midway between the elbow and the acromion process of the scapula (photo 6.1). Using a piece of string to find the midpoint is a good suggestion. The skinfold site should be vertical. Pinching the fold slightly above the midpoint will ensure that the fold is measured right on the midpoint (photos 6.2 and 6.3).

The calf skinfold is measured on the inside of the right leg at the level of maximal calf girth. The right foot is placed flat on an elevated surface with the knee flexed at a 90° angle (photo 6.4). The vertical skinfold should be grasped just above the level of maximal girth (photo 6.5) and the measurement made below the grasp.

For college students, the formula for calculating percent body fat includes the abdominal skinfold measurement in addition to the triceps and calf skinfolds. The abdominal skinfold is measured at a site 3 centimeters to the side of the midpoint of

(continued)
the umbilicus and 1 centimeter below it (photo 6.6). The skinfold is horizontal and should be measured on the right side of the body (photo 6.7) while the subject relaxes the abdominal wall as much as possible.
Skinfold Measurements (continued)

**Measurement Technique**
- Measure skinfolds on the person’s right side.
- Instruct the student to relax the arm or leg being measured.
- Firmly grasp the skinfold between the thumb and forefinger and lift it away from the other body tissue. The grasp should not be so firm as to be painful.
- Place the caliper 1/2 inch below the pinch site.
- Be sure the caliper is in the middle of the fold.
- The recommended procedure is to do one measurement at each site before doing the second measurement at each site and finally the third set of measurements.

**Scoring**
The skinfold measure is registered on the caliper. Each measurement should be taken three times, with the recorded score being the median (middle) value of the three scores. To illustrate: If the readings were 7.0, 9.0, and 8.0, the score would be recorded as 8.0 millimeters. Each reading should be recorded to the nearest .5 millimeters. For teachers not using the computer software, a percent fatness look-up chart is provided in appendix B on pages 96 and 97 and is also available on the enclosed DVD—access the PDFs titled “Girls Conversion Chart” and “Boys Conversion Chart.” *FITNESSGRAM* uses the formula developed by Slaughter and Lohman to calculate percent body fat (Slaughter et al., 1988).

**Suggestions for Test Administration**
- Skinfolds should be measured in a setting that provides the child with privacy.
- Interpretation of the measurements may be given in a group setting as long as individual results are not identified.
- Whenever possible, it is recommended that the same tester administer the skinfold measurements to the same students at subsequent testing periods.
- Practice measuring the sites with another tester and compare results on the same students. As you become familiar with the methods you can generally find agreement within 10% between testers.

**Learning to Do Skinfold Measurements**
Using video training tapes or participating in a workshop are excellent ways to begin to learn how to do skinfold measurements. The videotape *Practical Body Composition Video* illustrates the procedures described in this manual. Appendix A contains information on obtaining this videotape.