



Standard Practice for Fitting Athletic Footwear¹

This standard is issued under the fixed designation F 539; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers a practical method for fitting athletic footwear. This practice is applicable to the following general flexible types of footwear: running baseball, basketball, football, and tennis.

1.2 There are as many variations in shoe forms and materials available to users as there are variations in the anatomy of the user's feet. Shoe forms are different due to manufacturer's materials, type of construction, and also the type of activity anticipated in its end use.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 Definitions:

2.1.1 *end use, n*—the use for which the footwear is intended.

2.1.2 *last, n*—a block or form shaped like a person's foot, used by shoemakers in building or repairing shoes and boots.

2.1.3 *improperly fitted*—a term descriptive of footwear that is either too loose or too tight on the foot for its intended purpose or protection thereof.

2.1.4 *subject*—person on whom foot measurements are made.

3. Significance and Use

3.1 Improperly fitted footwear can cause discomfort, but more importantly, prolonged use causes disfigurement of the bone structure, bunions, corns, callouses, and finally fatigue, often leading to serious accidents. Footwear performance may also be diminished if improperly fitted.

4. Apparatus

4.1 *Measuring Device*,² suitable for performing the measurements described in this practice.

5. Measurement Procedure

5.1 Prepare the measuring device by setting the movable width bar to its widest position and with the movable ball to heel length indicator (pointer) slid back, so that the foot can be easily positioned in the device (Fig. 1).

5.2 The subject should be in a standing position during measurement of the foot with footwear removed from both feet. The subject should wear a sock similar to one that will be worn while wearing the footwear being fitted.

5.3 Have the subject place their right heel in the area marked for the right heel. The person being measured should stand with their weight distributed equally between both feet to ensure that the foot has elongated to its maximum size. To ensure the heel is properly located in the back of the heel cup, grasp the ankle and device together (Fig. 2).

5.4 *Determination of Toe-to-Heel Length (Toe Length)*—Take measurement by looking straight down over the end of the toes. Make sure the sock is pulled tightly over the toes without drawing the toes back. Press the toes down so that they lie flat against the base of the device and read the size of the longest toe (not always the first toe). This is the toe-to-heel measurement (see Fig. 3).

5.5 *Determination of Ball-to-Heel Length (Arch Length)*—Place the thumb over the ball joint of the foot as shown in Fig. 4 and move the pointer so that the inner curved side of the pointer fits around the ball joint of the foot and the two high ribs of the pointer come in contact with the thumb as shown in Fig. 4. When the pointer is in proper adjustment, the low middle rib (marked A in Fig. 4) will be touching the bone on the side of the foot (marked B in Fig. 4). This may be checked with the index finger. Read the size indicated by the pointer as the arch length.

¹ This practice is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.54 on Footwear.

Current edition approved Nov. 10, 2001. Originally published January 2002. Originally published as F 539 – 78. Last previous edition F 539 – 78 (1994).

² An acceptable measuring device is available from the Brannock Device Co., 509 East Fayette St., Syracuse, NY 13202.

