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UNIVERSITY OF IDAHO

# Fitting the Shoe

## — to the foot — to the occasion —

In your foot you have 14 toe bones, 2 for the big toe, 5 arch and 7 heel bones — 28 in all. These are tied together with muscles, tendons, ligaments, nerves and blood vessels to create a most complex mechanism that enables you to walk, run, jump and balance. These bones are arched to provide spring and grace. One arch runs lengthwise and one crosswise of the foot.

Nearly everyone is born with perfect feet. What happens afterward is what causes the trouble. Incorrectly fitting shoes is the major contributor to foot ailments. Over one-half of the men and three-fourths of the women in the United States have foot problems. Even these may find relief from aching feet by being properly shod and, in some cases, by seeking medical attention.

Why do feet hurt? As a child the individual's feet may have been squeezed into ill-fitting shoes that deformed the feet. This person may now walk poorly as a result and be more difficult to fit well.

The individual may be buying shoes for style rather than comfort. Women's fashions, especially, may dictate poor choices of too high heels, pointed toes and other extremes.

Wrong shoes for the job cause problems for many. Homemakers ask for trouble by wearing old runover shoes around the house. Those 7 miles a day of walking in the house call for the best available pair of sturdy, well-fit shoes.

Hosiery or socks that are too short can cause as much trouble as poorly fit shoes. Hose should extend one-half inch beyond the large toe.

Results of poorly fit shoes include ingrown toenails, bunions and corns. Headaches, backaches, poor posture, burning feet and "minor aches and pains" may come from a foot problem. Often the source of that sour expression on a passerby is cramped and tired feet.

Do you often sit down, remove your shoes and breathe a sigh of relief as the imagined steam rises from your poor,

poor feet? Let's see if you have been wearing shoes designed for **your** foot shape.

### Fitting Shoes

Buy shoes in the afternoon, if possible, when feet are the largest. Every time you shop for shoes, have both feet measured. Be measured both sitting and standing. You will find that one foot, usually the left, is larger. Fit the larger foot.

Feet differ considerably as to proportion. Some are high in the arch; others are low. Some have short toes while others have a long length from heel to ball (Fig. 1). Manufacturers fit shoes on different lasts (shoe shapes) in the factory. For this reason every 7½ B will not fit the same foot properly.

Select only comfortable shoes suitable for the occasion. Well-fit shoes do not need to be broken in. When you find a last that fits your foot, ask to see other styles by the same manufacturer in that last. A good shoe salesman also will know which lasts from other manufac-

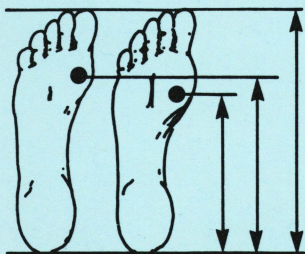


Fig. 1a. These feet are the same length but they need different length shoes. Shoes must fit right — heel to ball. The correct shoe accommodates the ball joint in the widest part of the shoe.

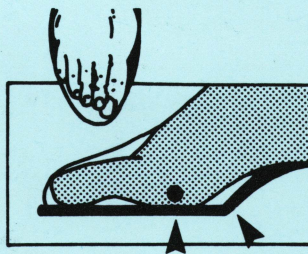


Fig. 1b. This foot is incorrectly fitted. The toes are cramped and twisted. Short shoes like these cause enlarged toe joints, bunions, strain to the foot and general foot discomfort.

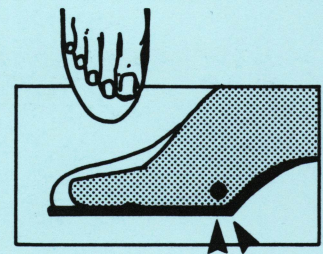


Fig. 1c. This foot is properly fitted. The ball joint of the foot and the arch base of the shoe meet at the same point. The arch of the foot rests comfortably on the full length of the shoe shank.



turers are similar. Make your selections from shoes made on these lasts only. When you have found lasts that are particularly comfortable, stay with them over the years. To do this, mark down the shoe manufacturer and the design name and date of purchase. When you buy again, ask for the new shoe designs built over those lasts.

If a shoe you are trying on feels tight or "wrong," take it off and quickly look at the foot to see the points of pressure. They will be white at first then red. By noticing these, the shoe salesman can see where the problem is.

The difference between half sizes, i.e., 8 to 8½ is ⅛ inch. Difference in widths B to A, for example, is ¼ inch.

### For Correct Fit

Some of the common terms that describe parts of shoes are shown in Fig. 2. The references for correct fit are indicated in Fig. 3.

The ball of the foot should be in the widest part of the shoe (see #1 in Fig. 3). You should be able to squeeze up a little of the shoe across the ball. Too narrow a shoe will cause the foot to bulge at the throat of the shoe (2) and will cause the shoe to buckle or gape along the sides.

Look for instep support. Check to see if ½ inch is between the big toe and inside tip of the shoe (3). Pointed toes and low toe boxing call for more room (4).

The heel of the shoe should fit your heel snugly and not slip off when you bend your foot. If it slips, the shoe heel is too wide or the shoe is too long and your foot has slid forward. The shoe heel should not cut into the tendon (5). A heel pad cures this problem.

Open toe and open heel shoes should fit so the toe or heel doesn't extend past the end of the shoe sole. Place shoes together. There should be a fairly straight line from heel to the ball of the shoe. The V formed from the ball to the toes should not be too wide or the shoe will distort the foot and cause bunions (6).

### Check Your Old Shoes

Old shoes can be excellent guides when choosing new ones. Look at your worn shoes and check them with Table 1. What makes a good shoe? The leather is soft, pliable, firm and even grained. The shoe should have the following features:

- Fabrics firm, yet pliable.
- Stitching fine and regular.
- Edges evenly trimmed, well finished.
- Perforations, if any, regular and clear cut.
- Leather in various parts of shoe matched.
- Linings smooth and soft.
- No tacks, rough places, heavy or open seams on inside of shoe.

### What's the Occasion?

For happiest feet, suit the shoe to the use intended. Have sturdy shoes with good support for work, and reserve the more delicate constructions and styles for dress occasions.

Wear a variety of heel heights each day to keep flexible back tendons and leg muscles. Too many women can no longer go barefoot or wear flats, as their legs have grown accustomed to higher heels. By gradually lowering heel heights, they can overcome this problem.

Don't wear the same shoes 2 days in a row. Studies have proven that shoes will wear out faster than if you alternate two pairs.

### Flattering Styles for Feet

Once you have determined the lasts suitable for your feet and you have decided on the type of shoe desired, you may wish to consider what effects will be most flattering for your feet. See Table 2 for advice on shoe types to buy.

### Consumer Protection

Shoes are made of leathers of various kinds, fabrics and plastics. Sometimes it is hard to tell from the appearance just what the shoe is made of. To dispel confusion about which are leather and which are leather substitutes made to look like leather, the Federal Trade Commission has been authorized to require shoes and slippers to be labeled accurately.

The term "leather" refers to top grain leather only. Misleading names are not allowed. Split leather must be identified. If leather is processed to look like another kind of leather, this must be indicated. Shredded or ground leather must be so labeled. If not of leather, the label must state what the product used was. Non-leather innersoles must be labeled as to content. Advertising must be truthful, too.

### Shoe Materials for Uppers

**Leather:** A good quality has a fine grain, is pliable and firm; a poor leather is coarse, lacks elasticity and tends to be stiff. Leather uppers, when bent, should show fine graining of about 30 creases per inch for average and 50 to 60 creases for excellent quality.

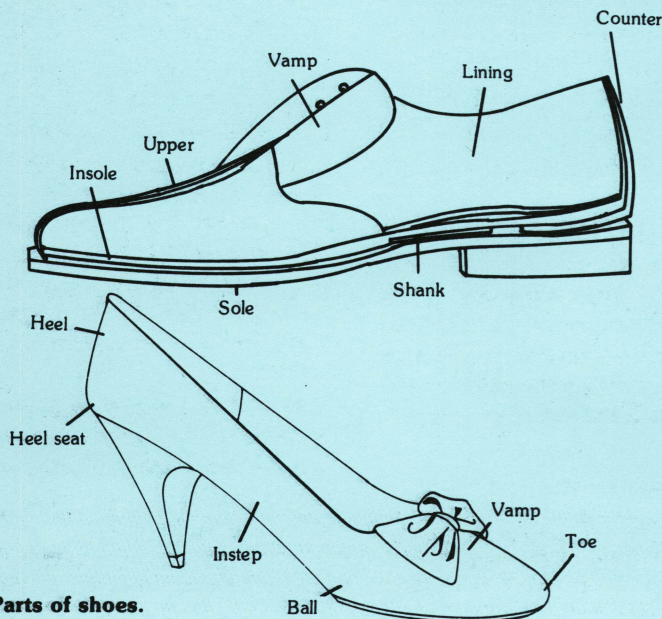


Fig. 2. Parts of shoes.

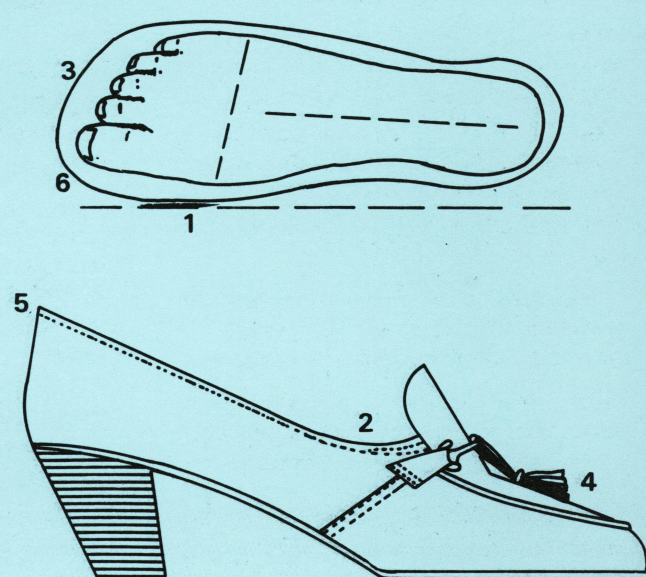


Fig. 3. References to correct fit in shoes.



**Table 1. Description of shoe fit problems and possible causes.**

Description	Possible cause
Outer sole curls a lot at toe. (It should curl a trifle off the ground.)	Shoe too long
Sole worn unevenly, more in the front.	Shoe is too short, especially from heel to ball.
Upper bulge over sole line.	Shoe is too narrow.
Heel pushes under or new lift needed often.	Shoe is too short.
Heel wears on inside.	Weakness in the foot. Slight wear at back or outside line is normal.
Shoe wears at toe-tip.	Shoe is too short.
Inside lining of heel is worn.	Shoe may be too long.
Shoe worn out of shape.	Size wrong, improper gait, foot weakness.
Inside of sole of shoe has worn pockets formed for toes.	Shoe is too tight.
Shoe puckered or wrinkled behind the ball along the arch.	Shoe is not long enough from ball to heel, pushing ball forward. Overall length may be right but the proportion is not. Wrong last.

**Table 2. Shoe designs for specific feet characteristics.**

Foot type	Look for	Avoid
Plump feet	Low vamp pumps, simple styles, V throat.	Open sandals, thick straps and conspicuous ornaments, clogs, platform soles.
Thin feet	Interesting trim, high throat, platform soles.	Long, straight lines.
Wide feet	Closed toe lasts and diagonal lines, ankle straps.	Bulky shoes and welt soles.
Long feet	Broken lines, open toes, open heels, clogs, trim on vamp that tends to shorten, buckles and bows.	Long, straight lines.
Short feet	Diagonal lines, closed toes, closed heels, low throat, ankle straps.	Extension soles, heavy heels, large or bulky trim, platform soles, clogs.
Low instep	High cut vamp.	Low cut vamp.
High instep	Low cut vamp.	High cut vamp.
Large ankles	Low cut vamp.	Ankle straps and high cut vamps.

**Calf leather:** This is sturdy and resistant to scuffs. It is good for walking shoes, work shoes and children's shoes.

**Kidskin:** This is lighter weight, softer and more pliable than calf. It will scuff more readily than calf. In general, it is used for dress shoes.

**Suede:** This is the flesh side of calf or kidskin, available in many qualities. The best quality is recognized by a fine silky nap.

**Patent:** This is a leather coated with a varnish-like substance. In good quality, the grain of the leather can be seen.

**Fabrics:** Gabardine, canvas, mesh, satin, faille, crepe and brocades are most often used. Wool, rayon, cotton, linen, nylon and blends of fibers are popular. Serviceability will depend on the quality of the fiber, the fabric and the shoe construction. Elasticized fabrics give comfort and help to retain the shape of the shoe.

**Plastics:** Sheeting and plastic-coated fabrics are used for patents and embossed leather grains. Fabric-backed plastic wears better than unsupported plastic. Plastic yarns are woven, braided or crocheted in novelty fabrics. Plastics may vary in quality which affects the durability of the shoe.

**Poromerics:** Leather-like shoes are on the market that have many of the characteristics of leather and some interesting qualities of their own, including returning to their original shape when off the foot. They do not need polishing, just a quick wipe off. Poromerics are cooler to wear than plastics as the porous material permits foot moisture to escape.

### Shoe Materials for Soles

Leather of good quality is porous, allowing for ventilation. It is durable and holds its shape well. Good leather is firm yet flexible.

Rubber of all kinds is widely used, particularly for sports, casual and, more recently, for work shoes. Synthetic rubber withstands effects of weather as well as excessive abrasion.

Plastics of various kinds are used. Some brands are comprised of polyvinyl chloride sole which is expected to outwear the uppers. Plastic and rubber soles are less comfortable to wear as they are not porous.

### Materials for Counters, Insoles and Linings

The counter is the stiffening which holds the heel part of the shoe erect. Press the counter down. It should be stiff, yet springy. Heavy leather and other fibers are commonly used.

Insoles are made of leather, cork or other fibers. A good insole increases the life of the shoe. Check to make sure the lining is smooth and wrinkle-free, with few seams. Leather and synthetics are used in the back inside of the shoe. Cotton liners in the shoe front should be smooth.

### New Leather Developments

Due to greater production of leather hides and increasing competition from synthetics, the U.S. Department of Agriculture and the leather industry have been working on ways to improve leather and its production. A tanning process using a chemical glutaraldehyde makes leather more perspiration resistant, washable, shrink resistant, more durably dyed and more pliable.

Look for rubber-impregnated leather which lasts 8 times longer than ordinary sole leather and 2½ times longer than the major substitutes for sole leather.

New surfaces and finishes are being designed for leathers. Some will make polishing virtually unnecessary!

Other new features available now in shoes include treating with fungicides and for water repellence, thermal insulation, nonskid and slip resistant features. Some major chain stores order their shoes made with Sanitized or Pacifate-treated linings which retard odor and bacterial growth.

A process for curing leather by radiation has been developed by scientists at the USDA's Eastern Regional Research Center in Philadelphia. The radiation is less powerful than X-rays and poses no hazard to people wearing the cured leather. The leather is covered with a wet film containing chemicals composed of



small molecules such as acrylics. A conveyor belt carries the leather through radiation equipment (which has built-in shielding), where an electron beam solidifies the mixture by linking the small molecules into polymer chains that fix to the leather as a tough coating. Advantages of this method include superior scuff resistance for the consumer and elimination of chemical pollution for the industry (instead of evaporation, the chemicals become part of the coating). Also, because savings in energy costs, plant space and labor will permit prices to decrease, U.S. products will be more attractive to both domestic and foreign consumers of leather, thus reducing a current multibillion-dollar trade deficit in the leather industry.

### **Construction of Shoes**

Many different methods are used, some especially suited to the style of shoe. Remember that good or poor qualities may be found in any type of construction, depending on the materials used and the workmanship.

**Sewed Shoes** — Goodyear Welt, McKay, Littleway and Turned describe the methods in which the sole is stitched to the upper.

The Goodyear Welt method is used to give a sturdy, durable shoe for street wear, work and children's shoes. It holds its shape well and is easily repaired.

McKay and Littleway are medium weight construction and more flexible than the welt shoe. These are common methods for women's medium and low priced shoes.

Turned shoes, as the name implies, are turned right side out after the sole is stitched to the upper. It is a very light and flexible shoe.

**Cemented Shoes** — The upper is joined to the sole with cement. Many women's shoes are made by this method as the shoe is lightweight and dainty in appearance. The "slip lasted" process is also a cemented type. It generally is made with a platform sole of resilient material, with heels low, high or wedged shape. This method is used for street, casual and dressy styles.

### **Shoe Care**

Don't wear shoes 2 days in a row; perspiration will rot shoes if they are not allowed to dry out. Check shoes after each wearing. Dust and polish them when necessary. Store them on racks or with

shoe trees to maintain shape. Let them air out before placing them in boxes or bags.

Replace worn heel lifts before they are worn through. Resole shoes when soles become soft at wear spots.

Wipe wet shoes clean. Place on shoe trees or stuff with paper to maintain shape. Dry away from heat. Soften stiffened leathers with saddle soap. Give several coats of polish to restore finish.

When necessary wear boots or rubbers to protect shoes.

Brush suede shoes with wire brush or foam sponge to restore nap. Re-dye when necessary using suede dye as directed.

Dry soles of shoes using product designed for this purpose.

Toss shoes when they become misshapen and your feet tire easily when you wear them. Old shoes do not provide the support they should. They are not worthy of repairing.

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