

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

Cooperative Extension Circulars: 1917-1950

SDSU Extension

1-1931

Feet and Shoes

Anita Andrews

Follow this and additional works at: http://openprairie.sdstate.edu/extension_circ

Recommended Citation

Andrews, Anita, "Feet and Shoes" (1931). *Cooperative Extension Circulars: 1917-1950*. Paper 303.
http://openprairie.sdstate.edu/extension_circ/303

This Circular is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Cooperative Extension Circulars: 1917-1950 by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

CLOTHING to HEALTH

Extension Circular 304

January, 1931

Feet and Shoes

SOUTH DAKOTA STATE COLLEGE
EXTENSION SERVICE
A. E. Anderson, Director
Brookings, S. D.

Feet and Shoes

Anita Andrews

Extension Specialist in Clothing

There is a great deal of pleasure and comfort in good healthy normal feet. Leg-ache, back-ache, head-ache, nervous disorders, over-fatigue and other ailments may in many cases all be attributed to poor feet. There are several reasons for this. Poor feet usually cause their owner to walk incorrectly, throwing the body out of proper posture, and the result is trouble. Improper posture causes strain on certain muscles and nerves so that the entire body is upset when the feet hurt.

Healthy feet in an adult are the result of proper treatment in childhood. Normal feet seem to be the exception rather than the rule. In the recent health survey covering 1600 homemakers in South Dakota the results show that members in 58 per cent of the families suffer from corns, 20 per cent from fallen arches, 17 per cent from bunions and 15 per cent from other foot difficulties. These percentages indicate that foot troubles are far too prevalent. Nearly every family reporting listed some foot trouble.

Prevention is probably the best remedy to suggest. Feet that have been poorly treated should be given immediate attention. Persistent effort will in time restore the feet to a normal state. With proper foot care in childhood these adult foot troubles may be avoided.

The Foot

The foot is a complex structure of twenty-six bones, arranged so that they form two arches known as the longitudinal and the transverse arch. Misplacement of these bones will cause trouble.

The longitudinal arch extends from the heel to the toes. The arch carries most of the weight of the body. When the ligaments and muscles which help hold the bones in place weaken, the arch falls. Poor muscle tone due to malnutrition may be the cause of fallen arches. Long standing, toeing out, carrying extra heavy weight, heavy lifting, or wearing short pointed-toed shoes may also cause the arches to fall.

The arch of the normal foot bears the weight of the body on three points. The weight is distributed so that it is borne by the heel and the ball of the foot under the little and big toe joints. This tripod acts as a shock absorber, relieving the body of jars. If the arch is held rigid or is not functioning properly, the body receives unnecessary jars.

The transverse arch extends between the two points on the ball of the foot. In some cases trouble in this arch causes severe cramps in the toes. Shoes that are too narrow may cause the same difficulty. Causes of weakness in this arch may be: 1. Short stockings. 2. Short shoes. 3. High heels. 4. Overweight. 5. Climbing stairs in tip-toe.

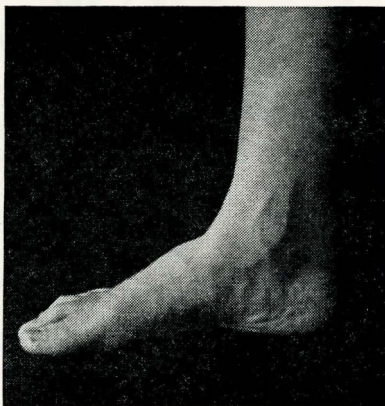


Fig. 1—The longitudinal arch.

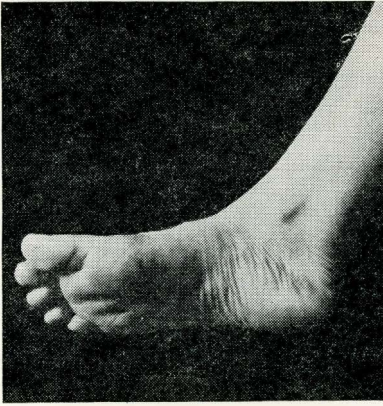


Fig. 2—The transverse arch.

A foot print will tell the story of the foot. Such a print is taken by wetting the foot and standing on a piece of colored blotting paper. A line is then drawn around the print while it is still wet. In a normal foot, the line from the heel to the toe should be straight, and only the outer edge of the arch should touch the paper.

The normal posture in walking or standing is to have the feet toe straight ahead. An old saying goes, "Straight ahead like an Indian, not out like a duck." When the toes are turned outward in walking, the weight is thrown to the inside of the foot where it does not belong. A recent survey made by a shoe manufacturer on the relation between shoes and health shows the following results:

Table 1—Shoes and Health Survey—Made by J. C. Brouwer Shoe Co. Milwaukee, Wisconsin

	KINDER- GARTEN	HIGH SCHOOL		UNIVERS- ITY
		Soph Boys	Soph Girls	WOMEN
	Per cent	Per cent	Per cent	Per cent
1. Types of shoes—Oxfords	26	50	57	40
2. Low cut, pump or strap slippers	—	—	26	53
3. Other types	—	—	16	7
4. Pointed toe	—	—	22	50
5. Shoes too short	47	64	51	50
6. Shoes too narrow	—	2	20	13
7. Shoes too wide	33	39	51	28
8. Correct fit	38	29	29	28
9. Corns	—	13	22	40
10. Weakness in long. arch	42	48	39	53
11. Weakness in trans. arch	—	43	39	73
12. Head-aches	—	11	43	38

This survey shows the high percentage of poorly fitting shoes and probable correlation between shoes worn and foot difficulties. The shoes that are worn are within the control of the individual. High school boys and girls need attention and guidance in shoe selection, and parents need to take more care in selecting the smaller child's shoes.

Properly Fitting Shoes

Properly fitted shoes will:

1. Have a good appearance.
2. Allow for proper distribution of weight.
3. Give opportunity for exercise of the muscles.
4. Protect and support the foot.
5. Allow plenty of room for the toes.

A well dressed foot completes the costume and gives the wearer a sense of satisfaction. A foot that is forced into a shoe appears cramped and uncomfortable and is not attractive.

Proper distribution of weight requires the normal position of the foot. A high heel which forces the foot into the toe of the shoe throws the weight on the ball of the foot. Seventy-three per cent of the University women in the above shoe and health survey showed weakness in the transverse arch. The body is thrown out of correct posture and abnormal adjustments are made to keep the body in an upright position. Street shoes and shoes for work should have a broad, medium heel and a straight inner line in order to keep the foot in its natural position. If this type of shoe is worn for every day purposes, the higher heel dress shoe may be worn for social occasions without harm.

High heels worn for any length of time will shorten the muscles and tendons of the leg so that low heeled shoes are not comfortable. The change from the high heeled to a low heeled shoe must be done gradually until the muscles return to normal length.

A muscle which is not used grows weak. Since shoes are worn constantly, foot muscles must get their exercise in the shoes. Shoes which cramp the toes do not allow for proper exercise. People with normal feet will find both flexible and the more rigid arches comfortable. However, the flexible shank allows better use of arch muscles. The arch in some shoes is made more rigid with the use of heavy leather, others with steel. A weak arch may need more support than a flexible shoe can give.

Feet need protection from the hard cement and rough surfaces. The shoe soles should be heavy enough to prevent bruising but flexible enough to allow for the free action of the toes. The leather on the upper part of the shoe should be light weight.

The last of the shoe has much to do with its comfort and support. A shoe should be low cut around the ankle to allow for free movement and good circulation, but should fit up well around the heel so it will not slip.

One of the difficult problems in shoe fitting is to secure the right length. The Wisconsin survey shows that approximately 50 per cent of all the groups surveyed were wearing short shoes. A shoe for an adult should be at least one inch longer and not more than one-fourth inch narrower than the foot measurements. A sole of right length will show wear at the bend of the arch. It is too short if the shoe breaks in front of this point. The joint of the ball of the foot should rest at the widest part of the sole.

The inner line of the shoe should be straight as possible so that the toes can lie in a straight line. If the big toe is bent out of line to any great extent, the joint is spread and a bunion formed. A shoe that does not have room enough for the toes is apt to cause corns and may even

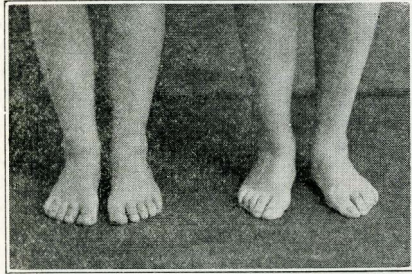


Fig. 3—A contrast in feet—normal feet, abnormal feet.

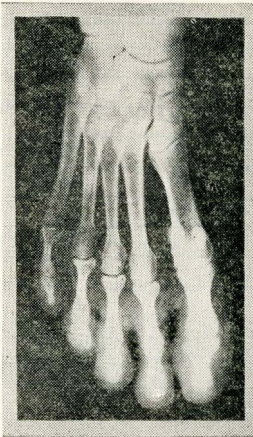


Fig. 4—Bones in a normal foot.

cause bunions also. A shoe which has the leather drawn down too tightly will rub and cause constant irritation. A short shoe does not provide room enough for the toes.

Purchasing Shoes

Fit, then, is the first thing to consider in buying shoes. Shoes should be tested for proper fit by standing. One shoe company fits its shoes and then X-rays them. The shoe should fit up snugly with no wrinkles around the instep.

Cost is not a fundamental guide in buying shoes. Many times it is the style and intricate workmanship on design which is paid for. One record shows that a child's shoe which cost \$1.85 gave one and one-half month's service, \$1.23 per month. A better shoe of a similar type, costing \$3.25 gave nine month's service, only 37 cents per month. The initial cost of the shoe is not the only thing to consider.

Points to look for when buying shoes for an adult:

1. Fit.
 - a. Length—1 inch longer than the foot.
 - b. Width—no more than $\frac{1}{4}$ inch narrower than the foot.
 - c. Straight inner line from heel to toe.
 - d. Ball of foot at widest part of shoe.
 - e. Room for the toes.
2. Appearance.
 - a. Good color for costume, close fitting at heel.
 - b. Style to permit natural walk.
3. Price.
 - a. Price is not an indication of quality and comfort.
4. Other points for comfort and health.
 - a. Avoid patent leather, it prevents evaporation.
 - b. Low cut upper—to allow free circulation.
 - c. Heel—broad heel not over an inch high for general wear; narrower may be worn for social occasions; a rubber heel will save the body from jars and last longer than others.

Children's Shoes

Parents are responsible for the comfort of children's feet. Children may injure their feet with improper shoes. The low heeled oxford type is the favored style in boys' and girls' shoes. Their shoes should be at least one inch longer and as wide as their feet. The shoes should have a straight inner line. Children's feet grow rapidly so great care must be taken to secure proper length. Sometimes they are fitted short in order to make them appear to fit for the less expensive shoes run wide.

High school girls need instruction and guidance regarding their footwear. They have a tendency to wear dress shoes for school. In the Wisconsin survey about 43 per cent of the high school girls suffered from headaches. Part of the difficulty may have been due to poor feet.

An infant does not need shoes until he is ready to walk. Then he should have shoes with a firm, flexible sole which is dull and slightly rough to aid him in walking. The child's shoe should be one inch longer and one-fourth inch wider than the foot. Children should wear shoes with spring heels. This kind of heel has a wedge of leather between the heel seat of the shoe and the outside.

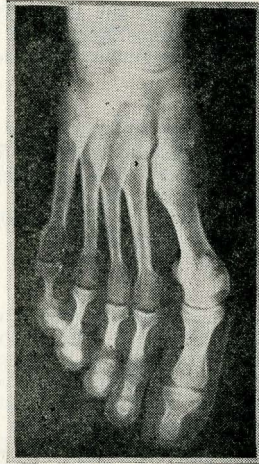


Fig. 5—Bones in an adult foot showing effect of ill-shaped and misfitted shoes and stockings.

Care of Shoes

Shoes should have care like all other clothing if service is expected. Dusty, scarred shoes detract from any costume. Neutral creams should

be used on light leathers. This helps keep the shoes soft and restores the finish. Colored creams are better for the darker shades. Spots from shoes may be removed by carbon tetrachloride. The shoes should then be polished with cream. The best of patent leather will crack, but is more apt to crack in cold weather. A light even oiling with a little castor oil on a cheese cloth pad once or twice a month helps keep the leather soft. Paste and oil polishes are better for shoes than liquid polish.

Shoes will retain the shape and give longer service if they are alternated and not worn constantly. The warmth and perspiration of the feet

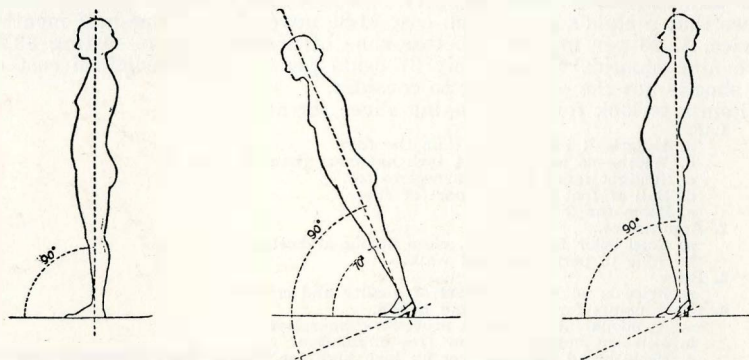


Fig. 6—High heels throw the body out of correct posture and abnormal adjustments are made to keep the body in an upright position. Note protruding abdomen and sway back which result.

are hard on the shoes. It will also be found restful to the feet to change shoes often. Shoes with heels worn down on one side should not be worn, since this throws the foot out of normal position and is unattractive.

Care of the Feet

Bathe the feet daily and change hose often. People who are on their feet a great deal will find this necessary for comfort. Do not stand for any length of time unless required to do so. Rest the feet whenever possible. Cross the feet at the ankles and let them rest on the outer edges. This position will be found to be quite restful. Exercising the toes will also rest the feet.

Hosiery

A large percentage of the clothing budget is spent for hose. Fifteen to twenty per cent of the total budget is spent for footwear. Saleswomen say that color of hosiery is about 75 per cent of its selling power. It is of prime importance, but other features, such as quality, brand, and shape, should be given more consideration.

There are hundreds of different brands of stockings on the market. Some are superior to others in wearing qualities and fit. The wise shopper will know how the different brands wear and refuse to buy those which do not give service. The wearing qualities of all hose depend on the care given. Frequent laundering does not wear out hose but rather protects them. A good soap and warm water used after each day's wear will add to the life of the hose unless they are made of rayon. Hose protectors in the heels of shoes and darning when necessary also protects hosiery.

The right size of a stocking has much to do with its wearing qualities. Hose sizes are listed in inches and are measured at the center of the foot from heel to toe. The foot should be measured and the hose purchased

one-half inch longer than the foot. Short stockings can do almost as much harm to the feet as short shoes. Length of children's hosiery should be watched carefully.

Types of Hosiery

There are three important types of hose to be found. These are known as the seamless, mock seamed or half-fashioned, and full-fashioned.

Seamless Hosiery

The seamless hose are knit in the shape of a tube. They are the same size at the ankle and the knee. The cheaper grades of hose are made this way because the expense of making is very much less than that of a fitted hose.

Mock Seamed Hosiery

The mock seamed or half-fashioned hose are knitted very similarly to the seamless excepting that the thread is drawn a little tighter at the ankle but the number of stitches remains the same at the ankle as at the knee. A chain stitch is made at the center back of these hose and an imitation drop stitch is placed on either side of the seam below the calf of the leg to give the effect of a full fashioned hose. Shape is given to both the seamless and mock seamed hose in the pressing but the shape is lost with the first washing.

Full-Fashioned Hose

Full-fashioned hose retain their shape because the shape is knitted in. Stitches are dropped so that the average hose has from 116 to 124 needles less at the ankle than at the top. Wherever needles are dropped, a fashion mark is made. Two needles are dropped at each fashion mark below the calf of the leg. The average stocking has fashion marks at back of the knee, below the calf of the leg, and several places in the foot. Fashioning in the foot makes the stocking fit much better.

The stocking is knit flat and is then sewed together. Two machines are required to knit a full-fashioned stocking, one for the leg and one for the foot. The gauge of the hose refers to the number of needles used in one and one-half inches of width of the stocking measured just below the hem or welt. That is, a 42-gauge stocking would have 42 needles for every one and one-half inches or 28 needles per inch.

The work required in making full-fashioned hose is much more than for the seamless hose. One company states that it takes an expert knitter a week to knit 25 dozen pairs of full-fashioned hose while an inexperienced operator can knit 25 dozen pairs of seamless stockings a day. The material used may be the same but the additional cost of labor is one of the reasons for the greater expense of a full-fashioned stocking.

Fibers Used in Stockings

All fibers excepting linen, are used extensively in hosiery. Cotton and wool are made into some very attractive styles, especially sport hose. Rayons of all kinds are used in hose but the biggest percentage of all hose sold is made of silk.

Cotton hose do not fit as well as silk because the fiber is not very elastic. Silk is estimated to be nine times stronger and

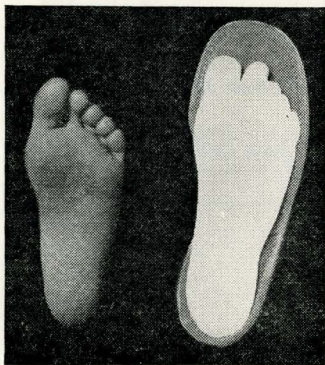


Fig 7—Well fitting shoes are one inch longer than the foot.

eight times more elastic than cotton. Rayon hose also lack elasticity and strength especially when wet. Tests have proved that rayon hose wears better when washed less frequently.

Five strands of the silk as it comes from the cocoon is twisted together to form one strand of silk thread. This is the form in which the silk comes to the manufacturer. He then twists these strands together to make the stocking he desires. A sheer chiffon hose is generally made of four of these strands, a chiffon of five strands, a service chiffon of six, service weight hose of eight or nine, and heavier hose of ten or more strands.

Reinforcements

Silk hose are reinforced in the heel with heavier silk threads or with cotton. Many sheer stockings are easily broken just above the heel splice when the heavier cotton is added. Some companies add as much as a ten-strand thread for their reinforcement. In a chiffon hose of five strands, the heel is usually reinforced with about ten strands which would make fifteen strands over the heel.

Dull Finished Hose

Dull finished hosiery is made in different ways. The cheaper grades have the sheen removed by a chemical process. The better grades are made dull by tightly twisting the yarn from 30 to 36 times in one direction and then almost the same number in the opposite direction. This twist makes the stockings permanently dull and gives them greater elasticity. The hard twist makes them more resistant to snags and pickups.

Figures 1, 2, 4, 5, and 6 were loaned through courtesy of the Agricultural Extension Service, University of California.

Extension Service

South Dakota State College of Agriculture and Mechanic Arts Brookings, S. D.

Published and distributed under Acts of Congress, May 8 and June 30, 1914, by the Agricultural Extension Service of the South Dakota State College of Agriculture and Mechanic Arts, Brookings, A. E. Anderson, director, U. S. Department of Agriculture cooperating.