

Anatomy and Physiology

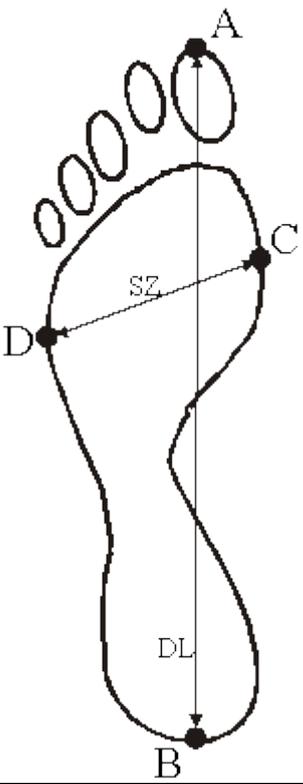
Laboratory 10 - Podography analysis

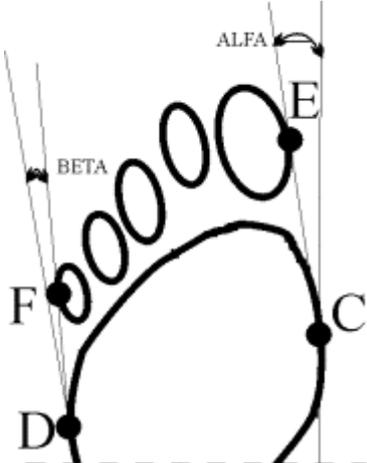
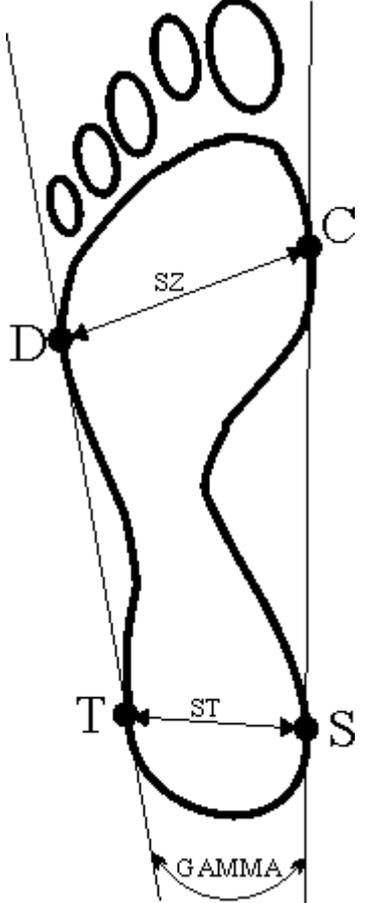
1. Introduction

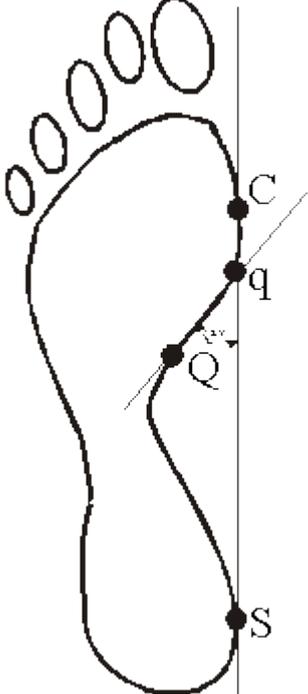
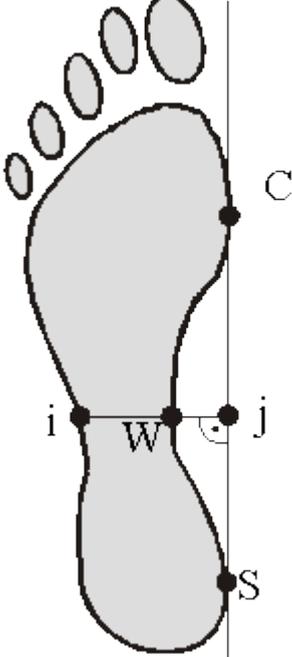
Podiatry, sometimes called podology, is a branch of medicine devoted to the study, diagnosis, and medical and surgical treatment of disorders of the foot, ankle, and lower extremity. In feet examination a number of parameters is examined. In order to estimate the values of these parameters the plantoconturogram has to be created.

Parameters [1]:

Table 1

	<p>Foot length estimated between points A and B (DL)</p> <p>Foot width estimated between points C and D (SZ)</p> <p>Foot length/foot width relation (Wejsflog indicator)</p> <p>The relation of foot length to its width should amount to 3:1.</p> <p>As a rule it takes on values between 2 and 3. The values closer to „2”, e.g. 2.15 give evidence of transversal platypodia, whereas closer to „3”, e.g. 2.95 prove correct transversal arching.</p>
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 <p>The diagram shows a top-down view of a foot. A vertical dashed line represents the medial axis. Point D is at the heel, F is at the ball of the foot, and E is at the tip of the hallux. A tangent line is drawn at point E, and another tangent line is drawn from point F to the outer edge of the hallux. The angle between these two tangents is labeled ALFA. Other points C, D, and F are marked on the foot's outline.</p>	<p>Hallux valgus angle ALFA It is an angle between a tangent drawn to medial foot edge and a tangent drawn from the point at the widest place of forefoot to the outer edge of hallux. The standard value for hallux valgus angle amounts from 0 to 9 degrees</p>
 <p>The diagram shows a top-down view of a foot. Point D is at the medial ball of the foot, and point C is at the lateral ball of the foot. A line segment SZ connects D and C. At the heel, point T is on the medial side and point S is on the lateral side. A horizontal line segment ST connects T and S. Two tangent lines are drawn from the heel area, one to the medial edge and one to the lateral edge. These tangents cross at an angle labeled GAMMA.</p>	<p>Heel width estimated between points S-T.</p> <p>Heel angle GAMMA It is marked by two tangents drawn to the inner and outer foot edge. The tangents cross beyond the heel and form an angle. The standard for heel angle amounts to 15-18 degrees</p>

	<p>Clarke angle indicator (CL)</p> <p>There are a lot of methods used for evaluation of prints by drawing a number of auxiliary lines. The most popular and simplest is Clarke method. It consists in drawing a straight line (C-S). This line crosses the inner tangent (Q-q) and forms the Clarke angle. The value of this angle looks like as follows: flat foot $x - 30^\circ$, foot with diminished arching $31^\circ - 41^\circ$, normal foot $42^\circ - 54^\circ$, foot with increased arching $55^\circ - x$.</p>										
	<p>Sztriter-Godunow indicator (KY)</p> <p>It determines the length relation of a segment which runs at the center of arching of the longitudinal arch (through a shadowed part of the trace) to the length of a segment which is drawn through the shadowed and not shadowed part of plantokonturogram.</p> $KY = (W - i) / (j - i)$ <p>(W - i) - shadowed part; (j - j) - shadowed and not shadowed part.</p> <p>Foot classification according to KY-indicator in adults:</p> <table data-bbox="810 1451 1214 1637"> <tr> <td>hollow foot</td> <td>0,00 – 0,25,</td> </tr> <tr> <td>normal foot</td> <td>0,26 – 0,45,</td> </tr> <tr> <td>lowered foot I°</td> <td>0,46 – 0,49,</td> </tr> <tr> <td>lowered foot II°</td> <td>0,50 – 0,75,</td> </tr> <tr> <td>flat foot</td> <td>0,76 – 1,00.</td> </tr> </table>	hollow foot	0,00 – 0,25,	normal foot	0,26 – 0,45,	lowered foot I°	0,46 – 0,49,	lowered foot II°	0,50 – 0,75,	flat foot	0,76 – 1,00.
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[1] http://cq.com.pl/e_st_parametry.html

2. Laboratory tasks

Use the podograph (plantoconturograph) to obtain the imprint of a foot of each group member. Perform measurements based on the information in Table 1 in the introduction to fill in Table 2.



Table 2

Parameter	Person 1		Person 2	
	Measurement	Diagnosis	Measurement	Diagnosis
Foot length		-		-
Foot width		-		-
Wejsflog indicator				
angle ALFA				
Heel angle				
Clarke angle indicator				
W – i		-		-
j – i		-		-
Sztriter-Godunow indicator				

3. Final questions

A. Classify footprints as hollow foot, correct foot or platypodia.

1.		c
2.		p
3.		h
4.		p
5.		c
6.		h
7.		p
8.		c
9.		p
10.		h

B. What type of exercises would you suggest for a patient with hollow feet?

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C. And for patient with platypodia?

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