

Assessment of the Feet Handbook

The content of this handbook has been adapted from the assessment methods designed by Simon J. Wikler, Doctor of Surgical Chiropody



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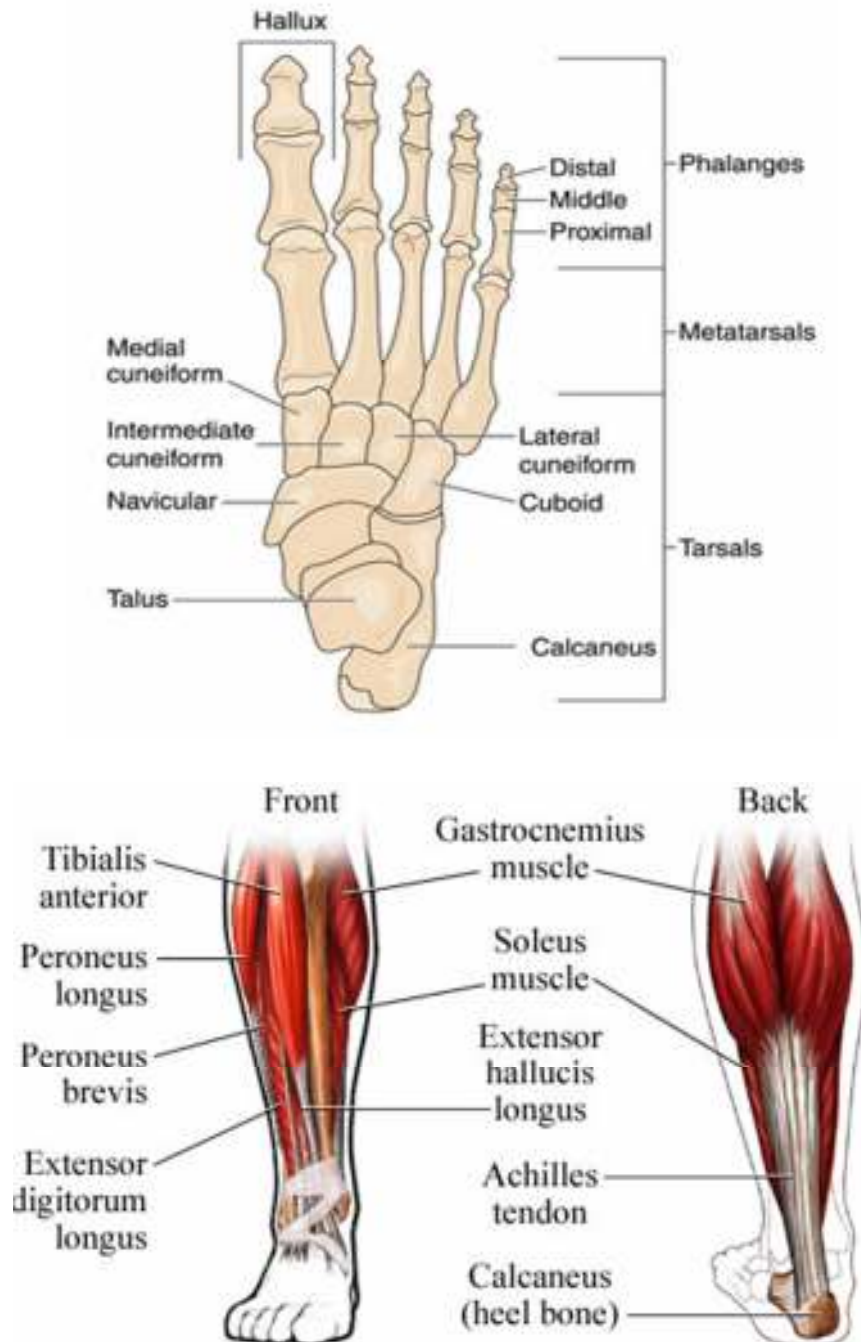
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Getting Started

In this handbook there are nine tests of the feet. When you become familiar with each test, all of them should take you less than ten minutes in total to perform. Each test is scored on scale of 1 to 4 as follows. After you take each test, record your results using the **Score Chart** found on page 3.

1 - Very Poor 2 - Poor 3 - Fair 4 - Excellent

Anatomy of the Foot and Lower Legs: Bones & Muscles



Score Chart: Your Foot Assessment

Date: _____

Name: _____ Gender: _____ Age: _____

TESTS	1 - Very Poor		2 - Poor		3 - Fair		4 - Excellent		Test Score
	Left	Right	Left	Right	Left	Right	Left	Right	
Toe Strength									
Toe Spreading									
Four Toes Placement									
Bunion (Hallux Valgus) on Big Toe									
Hip Rotation									
Calf Muscle Contraction									
Foot Pronation and Supination									
Muscle Depth on Bottom of Feet									
Shoulder Posture	<input type="checkbox"/> 1 - Very Poor <input type="checkbox"/> 2 - Poor <input type="checkbox"/> 3 - Fair <input type="checkbox"/> 4 - Excellent								

Score Chart:

- 18 - 31 Points = Very Poor Feet
- 32 - 44 Points = Poor Feet
- 45 - 57 Points = Fair Feet
- 58 + Points = Excellent Feet

Total Score: _____

When you were growing up, how many hours a day did you walk barefoot? _____ hrs. And now? _____ hrs.

Do you have any important information you should share about your feet? Have you had any sprains? Injuries? Surgeries? Broken bones? Pulled muscles? Skin or other conditions? Something else?

Test 1 – Toe Strength

Definition: Three bones make up each of our toes; they are: the proximal, middle, and distal bones. The distal bones are the tiny ones at the very end of our toes (see page 2 to view the foot's bone anatomy). It's the distal bones in your three (3) smallest toes that you want to assess for strength.

Your toes should be as strong as your fingers. Form a fist with one hand, then try to uncurl your clenched fingers it with your other hand. It's somewhat difficult, right? Scrunch up your toes. Can you uncurl your three smallest toes using your fingers? All the muscles of your foot correspond with bending your toes. If you cannot bend your toes or find it quite easy to uncurl them, your foot muscles are weak.

What you need to do: Sit on a chair and rest the heel of your foot on the floor. Scrunch up your toes and keep them curled. Then, using your fingers try to uncurl or pry open your last three (3) or smallest toes. Were your toes easy or difficult to uncurl? Repeat doing the same test on your other foot.



What's your observation and score?

- 1 – Very Poor: If there is practically no strength in your toes.
- 2 – Poor: If the 3rd, 4th and 5th smallest toes can be readily uncurled.
- 3 – Fair: If the 3rd, 4th and 5th smallest toes can be barely uncurled only with much force.
- 4 – Excellent: If a strong effort by you cannot uncurl the 4th and 5th smallest toes.

Test 2 – Toe Spreading

Pointed shoes and rigid construction make certain that the toes' range of spread with strength is substantially reduced. Most shoe-wearing people cannot spread or bend their toes fully. It is the breath of strongly-spread toes which enables you to keep the entire body in easy balance.

What you need to do: Sit on a chair and rest the heels of your feet on the floor. On each foot, try to spread your toes as far apart as possible. How easy or how difficult was it to spread your toes?



What's your observation and score?

- 1 – Very Poor: If there is practically no spreading of toes at all.
- 2 – Poor: If there is only slight spreading movement possible.
- 3 – Fair: If all toes can be spread, or some of them at least ½ cm or ¼" inch apart.
- 4 – Excellent: If all toes can be spread quite far apart from each other.

Test 3 – Four Toes Placement

People think “*what is so bad about a little thing like crooked toes, or toes that curl under one another?*” Toe deformities, such as crooked toes, throw the mechanics of the entire body off balance and so put the body under stress.

What you need to do: Standing up, put your feet together. Look straight down at them. What do you observe especially when looking at your four toes (ignoring your big toe for the moment)? Are your toes straight? Are some scrunched or curled? Are others bent? Do some toes overlap other toes?



What’s your observation and score?

- 1 – Very Poor: If all four of your toes are squeezed together and bent, so that you are placing your weight on your big toes and NOT on your other toes.
- 2 – Poor: If all four of your toes are permanently squeezed together.
- 3 – Fair: If just the ends of the 4th and 5th smallest toes are curled in.
- 4 – Excellent: If all four toes are straight with no irregularities.

Test 4 – Bunion or Hallux Valgus on the Big Toe

Definitions: The **Hallux** (see page 2 to view the foot's bone anatomy) are the two bones that make up our big toe. **Valgus** is a term for outward angulation of a bone or joint, so **Hallux Valgus** (or bunion) means a progressive foot deformity in which there is a deviation of the big toe toward the second toe. A **bunion** forms when your big toe pushes against your second toe, forcing the joint of your big toe to get bigger and stick out. It's a bony bump that forms on the joint at the base of your big toe.

Wearing tight, narrow shoes might cause bunions or might make them worse. Bunions can also develop as a result of an inherited structural defect, stress on your foot or a medical condition, such as arthritis. The big toe is an important lever to enable the body to propel itself forward. When the big toe is turned inward, its leverage action is diminished which leads to fatigue when standing or walking.

What you need to do: Standing up, put your feet together. Look straight down at them. What do you observe especially when looking at your big toe? Is your big toe straight? Bent? If it's bent does it lean in towards your 2nd toe? If so, how by how much?

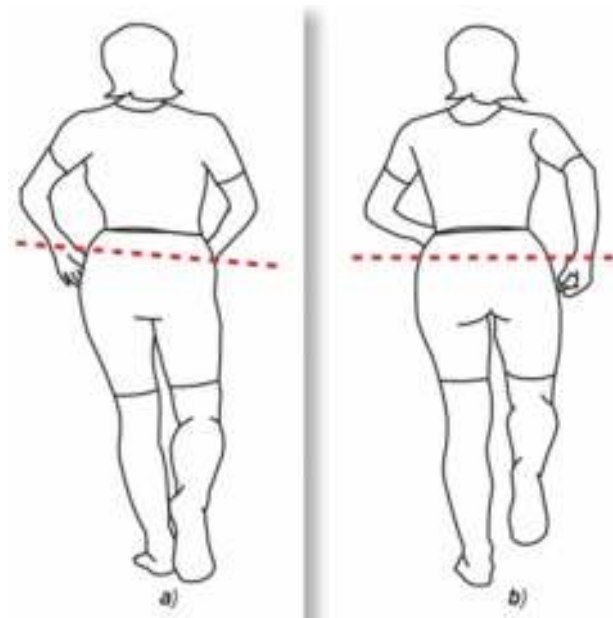


What's your observation and score?

- | | |
|----------------|--|
| 1 – Very Poor: | If more than a 15 degree valgus (or angle) of the big toe. |
| 2 – Poor: | If the big toe has turned in but is slightly less than a 15 degree valgus (or angle). |
| 3 – Fair: | If there is only a slight valgus (or angle) of the big toe. |
| 4 – Excellent: | If both joints of the big toe are straight and in alignment with the inner side of the foot. |

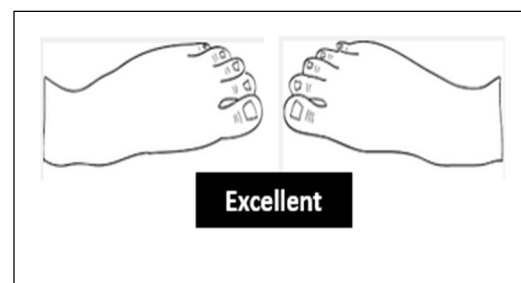
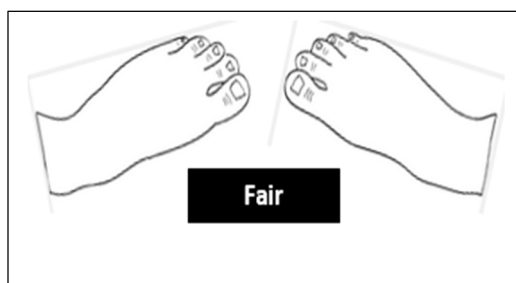
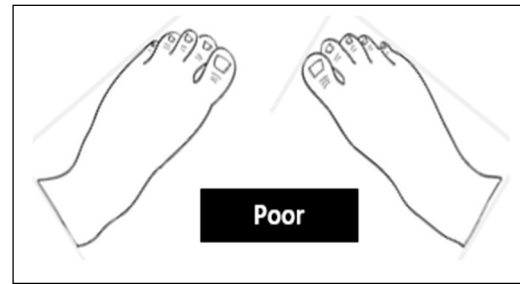
Test 5 – Hip Rotation

When you take a step, the in-turning of the hip (or abduction) plays a very important part. If the thigh and hip do not turn, the gait is thrown off and so you must waddle as seen in **illustration a)** below.



The big, heavy, thick arteries – or the femoral and common iliac arteries – supply huge amounts of blood. If the gait is thrown off, the heavy musculature of the buttocks and thighs is not used properly, which means the blood vessels become less flowing, which in turn contributes to peripheral vascular disability. Usually the hip muscles can be limbered up with proper exercise.

What you need to do: Stand up or sit down. If you sit down, point your legs out straight in front of you. Now, simultaneously turn both your feet in towards each other as far as you can. How far can you turn them in? Can both feet turn easily in together? If yes, by how much? **Use these illustrations to help determine your score:**



What's your observation and score?

- 1 – Very Poor: If you can only turn your feet only slightly.
- 2 – Poor: If you can turn your feet in forming an A-shape.
- 3 – Fair: If you can turn your feet in towards each other to a fair degree.
- 4 – Excellent: If you are able to turn your feet so that your big toes point to each other.

Test 6 – Calf Muscle Contraction

Definition: The gastrocnemius muscle (see page 2 to view the lower leg’s muscle anatomy) is a muscle located on the back portion of the lower leg, being one of the two major muscles that make up the calf. The other major calf muscle, the soleus muscle is a flat muscle that lies underneath the gastrocnemius.

The purpose of these tests are to determine if the calf muscles have shortened and tightened up. Walking should be an effortless exercise. If you do not have supple calf muscles, walking will not be enjoyable and your gait will be stiff. Unless you can take a long stride while the other heel is on the ground, that stride is stressful.

Take only one of these tests:

TEST 6A - What you need to do: Stand or sit on a chair. Stretch your leg out and rest the heel of your foot on the floor. Bend or flex your foot upwards towards your shin. Was it easy or difficult to bend your foot up? Repeat doing the same test on your other foot.

TEST 6B - What you need to do: As an alternative, you can test your calf muscle contraction by bending over to touch your toes. Don’t bend your knees. Do so may cause back strain.

Test 6A



Test 6B



Test 6A - What’s your observation and score?

- | | |
|----------------|---|
| 1 – Very Poor: | If you can barely flex your foot up from the floor (see 1 above). |
| 2 – Poor: | If you can flex your foot up but at or less than 15 degrees (see 2 above). |
| 3 – Fair: | If you can flex your foot up but between 15 to 30 degrees (see 3 above). |
| 4 – Excellent: | If the foot can be flexed up almost vertically from the floor (see 4 above). |

Test 6B - What’s your observation and score?

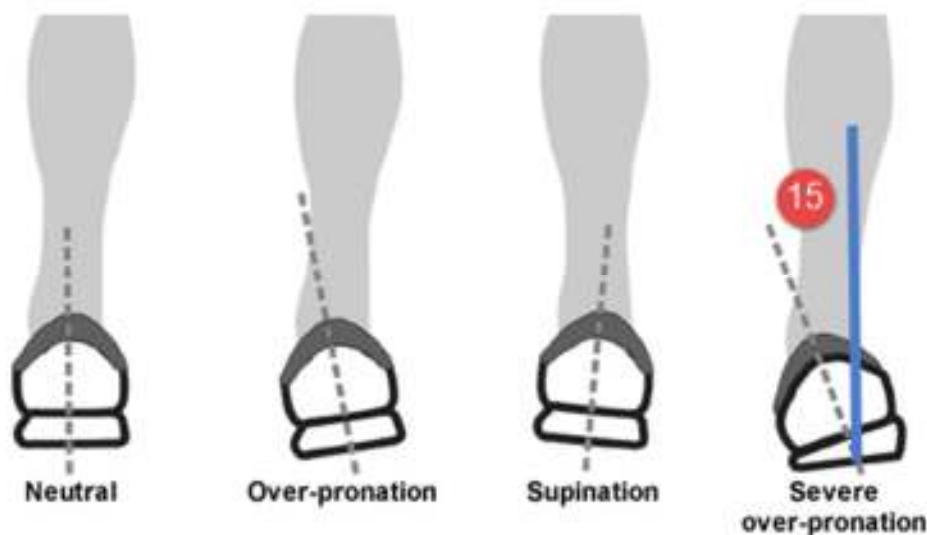
- | | |
|----------------|--|
| 1 – Very Poor: | If tips of fingers are more than 5 cm or 2” inches away from the floor. |
| 2 – Poor: | If tips of fingers are as much as 5 cm or 2” inches away from the floor. |
| 3 – Fair: | If tips of fingers can touch floor while knees are stiff. |
| 4 – Excellent: | If palm of hand can be placed on floor while knees are stiff. |

Test 7 – Foot Pronation and Supination

Definition: *Pronation means “turned in.” It refers to the movement of the foot and leg in which the foot rolls inward. Supination means “turned out.” It refers to the movement of the foot and leg in which the foot rolls outward with an elevated arch.*

In a healthy foot, all the arch joints roll easily. You should have over 150 posture motions with your tarsal bones (see page 2 to view the foot’s bone anatomy) so you can easily assume supination, pronation and the other varieties of postures.

What you need to do: In front of a mirror, watch yourself walk on a straight line for about 5 to 10 paces. Are your feet straight when you walk? Does one foot swing or turn in? Does one foot swing or turn out? Do any of your feet roll inward or outward? If yes, to what degree?



Test 7 – What’s your observation and score?

- 1 – Very Poor: If you have more than a 15 degree pronation (inward turn) or 15 degree supination (outward turn) present in both feet.
- 2 – Poor: If you have some pronation (inward turn) or some supination (outward turn) present in both feet but less than 15 degrees.
- 3 – Fair: If you have only a slight pronation (inward turn) or slight supination (outward turn) present when walking.
- 4 – Excellent: If you walk in a straight line with your feet pointing forward.

Test 8 – Muscle Depth on Bottom of Foot

Often times what one considers a sick, flat foot is really a strong muscled healthy foot. Muscles are built by use and people who go barefooted often will have more muscle depth. A high arched foot is usually the worst type of foot, as it has little muscle depth.

What you need to do: While sitting in a chair, cross one leg over onto your knee. Reach down and using your either one or both hands firmly pinch the arch of your foot - right in the middle - to determine how thick or thin the depth of your foot muscles are. Repeat doing the same test on your other foot.



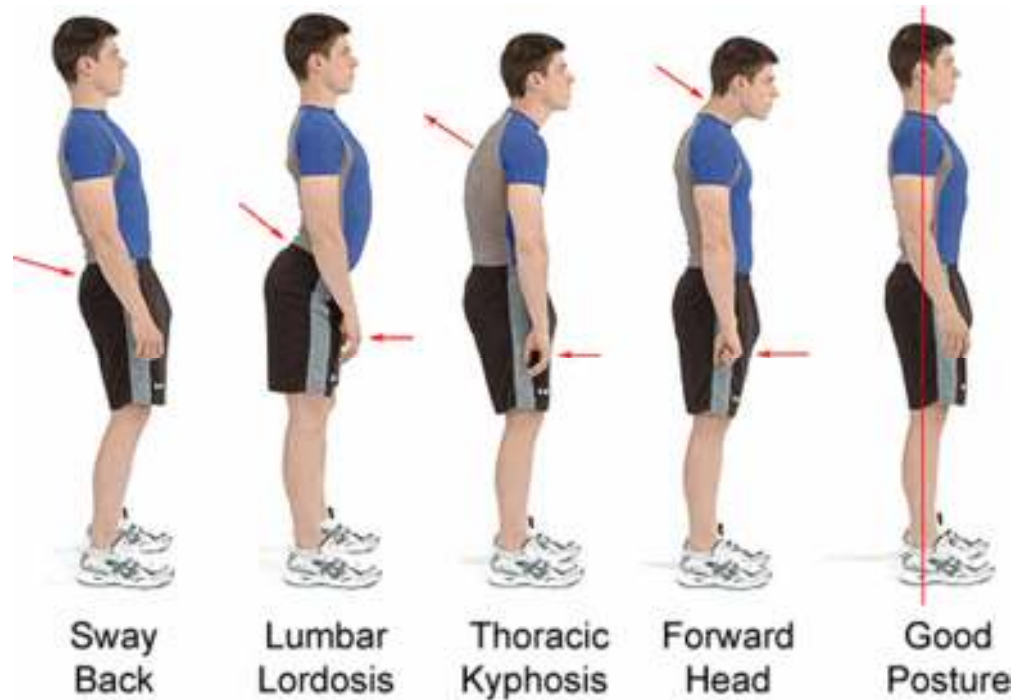
What's your observation and score?

- 1 – Very Poor: If you feel bones without very much tissue intervening.
- 2 – Poor: If you can feel the bones through the muscle layers on the bottom of the foot.
- 3 – Fair: If you cannot feel the bones through the muscle but there is just a thin layer of muscle.
- 4 – Excellent: If on pressing your fingers in the bottom of the foot you feel as though there is 1 cm or ½" inch or more of muscle.

Test 9 – Shoulder Posture

Generally, the person who goes barefooted will have good posture. What is your posture like?

What you need to do: In front of a mirror, stand sideways and look over your shoulder to observe your posture. Then turn to face the mirror and examine your posture again. How does your neck, shoulders, mid and lower back look? Are your shoulders on the same level or is one higher than the other?



What's your observation and score?

- 1 – Very Poor: Shoulders markedly forward and markedly rounded in back.
- 2 – Poor: Shoulders forward and rounded in back.
- 3 – Fair: Shoulders only moderately well back.
- 4 – Excellent: Shoulders well back and squared.

FOOT & LOWER LEG EXERCISES

Like the rest of your body, your toes need a workout too. Try doing some or all of these exercises to keep your feet and toes pain free, flexible, and feeling good. Do them barefoot.

1. Foot Strengthening: Dorsi and Plantar Flexion

- Sit on a chair.
- Stick one leg out.
- Bend your foot up (dorsi) and hold for 5 seconds.
- Bend your foot down (plantar) and hold for 5 seconds.
- Do this 10 times on one foot.
- Rest your leg.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like when you feel stiff & tired.



2. Foot Strengthening: Eversion and Inversion

- Sit on a chair.
- Stick one leg out.
- Swing your foot in (inversion) and hold for 5 seconds.
- Swing your foot out (eversion) and hold for 5 seconds.
- Do this 10 times on one foot.
- Rest your leg.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like when you feel stiff and tired.



3. Foot Strengthening: Rotation

- Sit on a chair.
- Stick one leg out.
- Rotate your foot clockwise 5 times. Stop.
- Rotate your foot counter-clockwise 5 times. Stop.
- Rest your leg.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like when you feel stiff and tired.



FOOT & LOWER LEG EXERCISES - Continued

4. Toe Strengthening: Towel Curls

- Standing, place a small towel on the floor.
- Using one foot, curl the towel toward you using only your toes.
- Try to pick up the towel just with your toes.
- Repeat this exercise 5 times.
- Rest your leg.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like.



5. Toe Strengthening: Marble Pick Up

- Standing, place 20 marbles on the floor.
- Using one foot, pick up one marble at a time with your toes.
- Put them in a pile or in a bowl.
- Do this exercise until you have picked up all 20 marbles.
- Rest your leg.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like.



6. Toe Strengthening: Rolling a Ball

- Standing up, place a small ball (e.g., golf or tennis ball) on the floor.
- Using one foot, roll the ball under your foot for about two minutes.
- Rest your foot.
- Do this exercise 2-3 more times.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like.



7. Lower Leg: Achilles Tendon Stretch

- Standing up and facing a wall, put your hands against the wall at eye level.
- Using one leg, turn your foot slightly inward.
- Slowly lean into the wall until you feel a stretch in the back of your calf.
- Hold for 30 seconds.
- Rest your leg.
- Do this exercise on your other leg.
- Repeat this exercise as often as you like.



FOOT & LOWER LEG EXERCISES - Continued

8. Fallen Arches: Up and Down

- Standing up, balance yourself on both feet behind a chair.
- Place your two feet in a V (turned-out) position.
- Rise up on your toes, hold for 5 seconds, then lower yourself down.
- Do this exercise 5 times.
- Now, place your feet inward in an A (turned-in) position.
- Rise up on your toes, hold for 5 seconds, then lower yourself down.
- Do this exercise 5 times.
- Repeat this exercise as often as you like.



9. Leg and Foot Strengthening: Using a Resistance Band

- Sit on the floor.
- Take a resistance band and fasten it to a secure point (e.g. sofa leg, bed frame) at a height of about 20 cm or 8" inches.
- Place the other end around the top of your foot right below your toes.
- With your leg extended straight, create tension on the band.
- Pull your foot toward your shin, hold, release, then pull back again.
- Repeat this exercise 10 times.
- Rest your foot.
- Do this exercise on your other foot.
- Repeat this exercise as often as you like.



10. Foot and Toe Strengthening: Walking Tiptoe

- Simply walk about on tiptoes.
- Do not wear shoes but perform the exercise barefoot.
- Aim to do this for 1-2 minutes.
- Rest your feet. Then, do 5 more sets of 1-2 minutes each.
- Complete this exercise 2 times a day.
- Progress by increasing the duration of these walks.
- Do this exercise as often as you like.



11. Foot and Toe Strengthening: Heel Walking

- Simply walk about on your heels.
- Do not wear shoes but perform the exercise barefoot.
- Aim to do this for 1-2 minutes.
- Rest your feet. Then, do 5 more sets of 1-2 minutes each.
- Complete the exercise 2 times a day.
- Progress by increasing the duration of these walks.
- Do this exercise as often as you like.



FOOT & LOWER LEG EXERCISES - Continued

12. Walking

- Walk for 15 minutes, 4 times a week without arch supports.
- Keep your head high with chin parallel to the ground.
- Keep your shoulders squared back.
- Keep your abdomen pulled in a little.
- Walk with your toes pointing straight ahead.
- Walk correctly for the first 100 paces.
- Then, walk as you would normally do for the rest of your walk.
- Increase walking correctly (as directed above) about 100 paces every week.

