



THE FOOT'S CONNECTED TOO...

Evaluation Procedures for
Orthotic Therapy Prescription
©2005



 **BIOMECHANICAL**
S E R V I C E S

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BIOMECHANICAL SERVICES RX CARD:

Account No.: _____

P.O. No.: _____

PRACTITIONER'S NAME: _____ DATE: _____

ADDRESS: _____

TELEPHONE: _____

PATIENT NAME:

LAST NAME		FIRST NAME
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SEX: M/F AGE: _____ WEIGHT: _____ HEIGHT: _____ PREVIOUS ORTHOTIC THERAPY: Y/N DEVICE No.: _____

SHOE SIZE: _____ SHOE STYLE: _____ SHOES ENCLOSED: Y/N

OCCUPATION/ACTIVITY LEVEL: _____

SPECIAL PROBLEMS (NEUROMOTOR, STRUCTURAL, SURGICAL) _____

CHIEF COMPLAINT: _____

OTHER COMPLAINTS:(KNEE/HIP/BACK)

RANGE OF MOTION:

★ Subtalar:
 LEFT Average <15°
 <5° Eversion from Neutral
 Axis _____
 RIGHT Average <15°
 <5° Eversion from Neutral
 Axis _____

○ Midtarsal (Global):
 LEFT Within Normal Limits Loose
 Restricted Loose
 RIGHT Within Normal Limits Loose
 Restricted Loose

○ Midtarsal (Integrity):
 LEFT Stable Unstable
 RIGHT Stable Unstable

○ First Ray:
 LEFT Flexible Semi-rigid
 Rigid Rigid
 RIGHT Flexible Semi-rigid
 Rigid Rigid

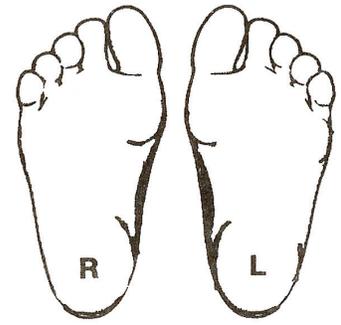
○ FIRST METATARSAL RAY POSITION:
 LEFT Normal Plantarflexed
 Dorsiflexed Dorsiflexed
 RIGHT Normal Plantarflexed
 Dorsiflexed Dorsiflexed

○ Hallux Dorsiflexion (open chain):
 LEFT >65° >45° <25°
 RIGHT >65° >45° <25°

○ Ankle Dorsiflexion:
 LEFT ≥10° >3°
 >6° ≈0°
 RIGHT ≥10° >3°
 >6° ≈0°

○ TOE POSITIONS:
 (Non-weight Bearing)
 LEFT Contracted Straight
 HAV Morton's
 RIGHT Contracted Straight
 HAV Morton's

○ LOCATION OF CORNS/CALLUSES:



FOOT APPEARANCE:
 + Semi-weight Bearing Arch
 LEFT High Med Low
 RIGHT High Med Low
 + Weight Bearing Arch
 LEFT High Med Low
 RIGHT High Med Low

◆ Hallux Dorsiflexion (closed chain):
 LEFT >9° >4° None
 RIGHT >9° >4° None

◆ TIBIAL VARUM:
 Degrees Left _____ Right _____

◆ KNEE POSITIONS:
 LEFT Genu Varum Straight
 Genu Valgum Straight
 RIGHT Genu Varum Straight
 Genu Valgum Straight

CALCANEAL STANCE POSITION:
 ◆ Neutral Subtalar
 LEFT Inverted Rectus Everted
 RIGHT Inverted Rectus Everted

◆ Resting/Relaxed
 LEFT Inverted Rectus Everted
 RIGHT Inverted Rectus Everted

◆ Half Squat
 LEFT Rectus Everted More Everted
 RIGHT Rectus Everted More Everted

SHORT LEG(IF ANY):
 LEFT/RIGHT _____ MM/INCHES

DIAGNOSIS:

PATIENT NAME: | | | | | | | | | | | | | | | | | | | | | |

SEX: M / F AGE: _____ WEIGHT: _____ HEIGHT: _____ PREVIOUS ORTHOTOIC THERAPY: Y / N

SHOE SIZE: _____ SHOE STYLE: _____ SHOES ENCLOSED: Y / N

OCCUPATION/ACTIVITY LEVEL: _____

SPECIAL PROBLEMS (NEUROMOTOR, STRUCTURAL, SURGICAL):

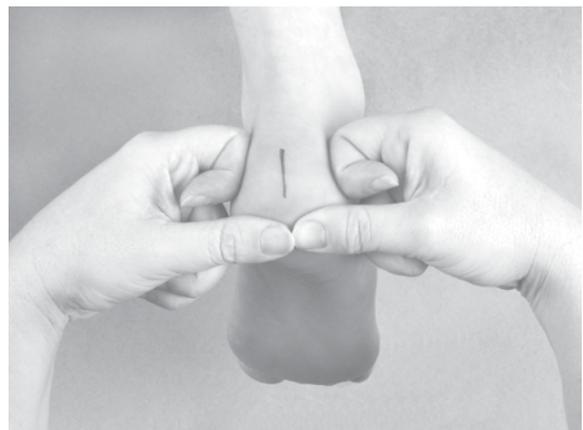
CHIEF COMPLAINT: _____

OTHER COMPLAINTS (KNEE, HIP, BACK): _____

DIAGNOSIS: _____

KEY

- ★ = PRONE
- = SUPINE/LONG SITTING
- ⊕ = SIT TO STAND
- ◆ = STANDING



RANGE OF MOTION:

★ SUBTALAR:

- LEFT
- Average
 - <math> < 15^\circ </math>
 - <math> < 5^\circ </math> Eversion from Neutral
 - Axis _____

- RIGHT
- Average
 - <math> < 15^\circ </math>
 - <math> < 5^\circ </math> Eversion from Neutral
 - Axis _____

From neutral position of the subtalar joint, there should be 20° of calcaneal inversion with passive open chain supination.

From neutral position of the subtalar joint, there should be 10° of passive open chain calcaneal eversion with pronation.

The subtalar joint is *Within Normal Limits* if there is 30° total range of motion, fully inverted to fully everted. It is *Loose* if it has greater than 30° total range of motion or greater than 10° eversion. It is *Restricted* if it has less than 5° eversion with pronation or less than 15° total range of motion (passive end range pronation to end range supination).



○ MIDTARSAL (GLOBAL):

LEFT Restricted
 Loose
 Within Normal Limits

RIGHT Restricted
 Loose
 Within Normal Limits

Grasp the calcaneus along the medial side in one hand and pronate the subtalar joint to end range of motion.

Grasp across the mid-foot with your contralateral hand. Range the OMJA and LMJA separately to assess available motion qualitatively around both axes.

Assess for ligamentous feel at the end range of motion, determine if it is spongy vs. solid. Also, assess total range of motion, as compared to your overall clinical population, contrasting experiential evaluations of mid-foot motions presented by other patients.



○ MIDTARSAL (INTEGRITY):

LEFT Stable
 Unstable

RIGHT Stable
 Unstable

Grasp the calcaneus along the medial side in one hand and supinate the subtalar joint to end range of motion. Grasp the cuboid between your index finger and thumb of your contralateral hand. Range the OMJA at the cuboid to assess available motion.

Grasp the calcaneus along the lateral side in one hand and supinate the subtalar joint to end range of motion. Grasp the navicular between your index finger and thumb of your contralateral hand, resting your other fingers and ulnar immanence along the 1st metatarsal. Range the LMJA at the navicular to assess available motion.

If detection of a change in range of motion is difficult, pronate the subtalar joint and retest to differentiate midtarsal locking and unlocking.

When the subtalar joint is maximally supinated, motion at the OMJA should be completely suppressed and motion at the LMJA should be significantly suppressed, which is a positive finding for midtarsal stability.



○ FIRST RAY:

- LEFT Flexible
 Semi-Rigid
 Rigid

- RIGHT Flexible
 Semi-Rigid
 Rigid

There should be 1/4" dorsiflexory excursion of the 1st metatarsal head with dorsiflexion/inversion ROM of the 1st Ray. Additionally, there should be 1/4" plantarflexory excursion of the 1st metatarsal head with plantarflexion/eversion ROM of the 1st Ray. If the range of motion is restricted in either direction, note semi-rigid. If the range is restricted in both directions, note rigid.



○ FIRST METATARSAL RAY POSITION:

- LEFT Normal
 Plantarflexed
 Dorsiflexed

- RIGHT Normal
 Plantarflexed
 Dorsiflexed

Establish a plane for the 2nd through 5th metatarsal heads between your index finger and thumb in one hand. Place your index finger and thumb of your contralateral hand onto the 1st metatarsal head. If the fingernail of the index finger holding the 1st met head is pressed into the pad of the index finger of the hand holding 2nd through 5th met heads, the 1st Ray is plantarflexed. If your thumbnail on the 1st presses into the pad of your thumb holding the 2nd through 5th met heads, the 1st Ray is dorsiflexed.

○ HALLUX DORSIFLEXION (OPEN CHAIN):

LEFT >65°
 >45°
 >25°

RIGHT >65°
 >45°
 >25°

Open chain - the hallux is measured relative to the 1st metatarsal shaft.

○ ANKLE DORSIFLEXION:

LEFT ≥10°
 >6°
 >3°
 ≤0°

RIGHT ≥10°
 >6°
 >3°
 ≤0°

With the inside palm of your hand against the ball of the foot, palpate STJ neutral with your outside hand. Raise and lower the fibula into a horizontal position using an angle finder to establish zero.

Dorsiflex the foot at the ankle until the lateral column reaches 90°. This is the starting point for measurement. Relocate the angle finder along the lateral margin of the calcaneus, against the plantar surface, in the sagittal plane. Continue passive dorsiflexion to end range of motion while maintaining neutral.

Observe how far past 90° the ankle angle measures into maximum dorsiflexion. Determine the difference between zero and end range dorsiflexion in degrees, report which threshold is achieved.



○ TOE POSITIONS:

(NON-WEIGHT BEARING)

LEFT Contracted
 Straight
 HAV
 Morton's

RIGHT Contracted
 Straight
 HAV
 Morton's

Plantarflex the toes to where the met heads blanch the skin on the dorsum of the foot. Locate the distal end of the first metatarsal head and the proximal aspect of the second metatarsal head. If the distal end of the first met head is shorter than the proximal aspect of the second met head (along the long axis of the foot), a Morton's Toe is present. Check corresponding box for positive finding.



○ LOCATION OF CORNS/CALLUSES:

Shade area where callusing is apparent on the bottom of the left and/or right foot, light shading for light callouses and dark shading for heavy callouses.



FOOT APPEARANCE:

+ SEMI-WEIGHT BEARING ARCH

LEFT High
 Med
 Low

RIGHT High
 Med
 Low

+ WEIGHT BEARING ARCH

LEFT High
 Med
 Low

RIGHT High
 Med
 Low

Is there a perceptible change in arch shape between semi-weight bearing and weight bearing? Actual differentiation between what constitutes a high, medium or low arch is not clinically significant. Does the arch shape change from what you determine to be high to medium or medium to low? It is important to note any perceptible change in arch shape.

If it falls somewhere in-between classifications, use arrows to indicate:

HIGH -> MED or MED <- LOW



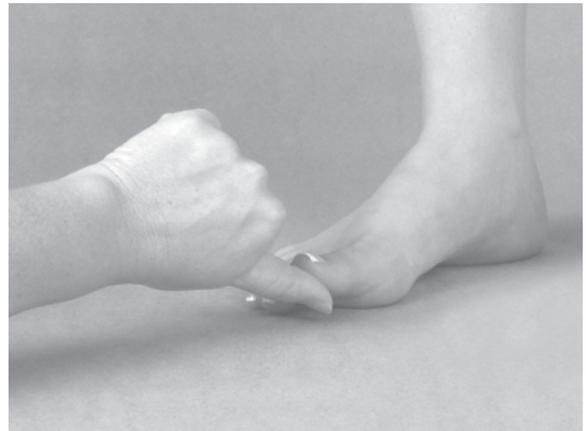
◆ HALLUX DORSIFLEXION (CLOSED CHAIN):

LEFT >9°
 >4°
 None

RIGHT >9°
 >4°
 None

Closed chain - the hallux is measured off the supporting surface (horizontal plane).

Be careful to measure the proximal phalanx, as the distal phalanx can dorsiflex further at the distal phalangophalangeal joint.



◆ TIBIAL VARUM (IF ANY):

DEGREES:

LEFT _____°

RIGHT _____°

With the subtalar joint in neutral position, place one edge of an inclinometer along the apex of the tibial crest, at the lower third of the bone.

If the tibia is vertical or up to 4° inverted, the alignment of the bone is within acceptable limits. If it is greater than 4° inverted, the subtalar joint will pronate excessively to achieve ground contact with the medial calcaneal condyle. If the tibia is inverted greater than 7° the amount of subtalar joint motion required to achieve calcaneal contact is pathologic.



◆ KNEE POSITIONS:

LEFT Genu Varum
 Straight
 Genu Valgum

RIGHT Genu Varum
 Straight
 Genu Valgum

Ask your patient to march in place, then have them bring their feet together until either their knees touch or their malleoli touch.

The knee angle is straight if the malleoli are touching together and there is a two finger space (or less) between the knees. Or if the knees are touching, there should be a finger space (or less) between the malleoli.



CALCANEAL STANCE POSITION:

◆ NEUTRAL SUBTALAR

LEFT Inverted
 Rectus
 Everted

RIGHT Inverted
 Rectus
 Everted

◆ RESTING/RELAXED

LEFT Inverted
 Rectus
 Everted

RIGHT Inverted
 Rectus
 Everted

◆ HALF SQUAT

LEFT Inverted
 Rectus
 Everted

RIGHT Inverted
 Rectus
 Everted

Rectus is not vertical. It is within 2° of vertical, either inverted or everted.

Does the calcaneus move from inverted to rectus, or rectus to everted? Does it move from everted to more everted in the half squat? If it does not change more than 2° in any direction, mark the starting position and ending position as the same.

SHORT LEG (IF ANY):

LEFT/RIGHT _____MM/Inches



NOTES

