

Lower Extremity User's Guide

The long-term goals of good posture are; increased function, circulation, pressure relief and reduced demand on muscles.

IDEAL POSTURE

- Slight hip abduction
- Neutral pelvis – no rotation, obliquity or tilt
- Femurs parallel to seat
- 1" (25mm) space from back of knee to front edge of seat
- 2" (51 mm) minimal clearance from foot support to floor

POSITIONING

- Ensure the pelvis is optimally positioned*
- Stabilize the hips with a supportive Hip Belt
- Evaluate chair seat depth to ensure the front edge is 1" from the back of the knee
- Position the femurs parallel to the seat with legs slightly abducted by adjusting the footplate height and angle

- Establish appropriate footplate-to-floor clearance
- Position feet securely on the footplates


RESULTS

- Increases stability for function
- Sustains hip and knee position
- Increases range of motion
- Improves foot circulation
- Eliminates posterior pelvic tilt
- Protects feet from injury
- Facilitates self-repositioning in the wheelchair

NOTE

- Foot supports positioned too low increase pressure under the thigh
- Foot supports too high increase sacral area pressure



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**Refer to the Hip Belt User's Guide for additional information*

Knee Extension

ASSESSMENT

- Knees are extended, causing feet to hang forward of the footplate
- Can lead to foot injury and pressure behind the foot
- Increases overall wheelchair turning radius

POSSIBLE CAUSES

Wheelchair issues: inadequate postural support to prevent extensor thrust, pelvis sliding forward, inadequate footrest hanger angle, footplates not low enough

Physical conditions: increased extensor tone, weakness, decreased quadriceps range of motion, over-lengthening of the hamstrings and structural knee changes

FOOT SUPPORT GOALS

- Reduce overall extensor tone
- Increase stability
- Alleviate pelvis and lower leg pull
- Protect the feet
- Accommodate fixed knee extension



Uncorrected posture



Improved positioning with Velcro Ankle Huggers (FT202A)

FOOT SUPPORT OPTIONS

Adjustable Angle Footplates provide greater depth adjustability, increasing knee extension without changing the footrest hangers. Mount to the anterior aspect of the hanger tube and adjust the depth of the footplate to fully support the foot.

Velcro Ankle Hugger keeps the foot on the footplate while still allowing some foot movement.

Unequal Lower Leg Length

ASSESSMENT

- One leg is shorter than the other, which may require an asymmetrical seat
- One foot may need to be supported higher than the other

POSSIBLE CAUSES

Wheelchair issues: none

Physical conditions: leg length discrepancy, polio, fixed pelvic obliquity, asymmetrical hip flexion contractures, surgery, trauma

FOOT SUPPORT GOALS

- Prevent pressure under the thigh by providing support to each foot at the correct height
- Increase stability for function

FOOT SUPPORT OPTIONS

Adjustable Angle Footplate with Mounting Clamp provides greater height adjustability. Mount to the existing hanger tube and adjust height so that the femur is parallel with the seat and the foot is fully supported.



Uncorrected posture



Improved foot support with Adjustable Angle Footplate (FT102), Mounting Clamp (FT104), Extension Tube (FT022) and Inverted Extension Tube (FT021)



Ankle Contractures

ASSESSMENT

- Fixed range of motion limitations do not allow the full inferior surface of the foot to contact the footplate
- Can lead to poor lower body support
- Can lead to pressure over the areas that contact the footplate

POSSIBLE CAUSES

Wheelchair issues: poorly fitted footplates, often collapsing in at middle

Physical conditions: abnormal muscle tone leading to range of motion limitations in the ankle and/or orthopedic changes in the foot, Duchenne's muscular dystrophy, lack of weight bearing, surgery

FOOT SUPPORT GOALS

Match the angle of the feet as much as possible to provide full support and pressure distribution, keeping femur parallel to the seat.

FOOT SUPPORT OPTIONS

Adjustable Angle Footplates accommodate fixed posture and fully supports the foot. Adjusts in dorsi/plantar flexion, height and depth.



Plantar flexion and inversion



Improved foot support with Fulcrum Series Footrest (FT106) and Velcro Ankle Hugger (FT203A)

Fulcrum Series Footplates accommodate fixed posture and fully supports the foot. Adjusts in inversion/eversion, dorsi/plantar flexion, height and depth.

Ankle Huggers® keep the foot on the footplate, stabilizing the foot without causing joint stress. Add a Toe Strap to prevent foot rotation.

Knee Flexion

ASSESSMENT

- Feet are often positioned under or behind the knees
- Pulling the feet forward usually results in a posterior pelvic tilt
- The feet may become caught behind the footplates and injured

POSSIBLE CAUSES

Wheelchair issues: lack of stability in the seating system may lead someone to tuck their legs under in an effort to stabilize

Physical conditions: range of motion limitations, particularly the hamstrings, increased knee flexor tone, structural knee changes

FOOT SUPPORT GOALS

Provide lower body support without causing stress to the hamstrings or the knee, while maintaining a neutral pelvic tilt



Uncorrected posture



Corrected foot position with Adjustable Angle Footplate (FT102) and Velcro Hugger (FT203A) shown

FOOT SUPPORT OPTIONS

Adjustable Angle Footplate can be mounted behind the footrest hanger using the *Mounting Clamp* and by sliding the footplate back on the mounting slots. This allows the feet to be placed under or even behind the knees.

Ankle Huggers keep the feet on the footplate

Posterior Lower Leg Support



Padded Calf Panel
(AC003P shown)

POSSIBLE CAUSES

- Inadequate leg support
- Orthopedic deformities
- Above ankle amputation
- Paraplegic or Quadriplegic with no lower extremity sensation

LOWER LEG SUPPORT GOALS

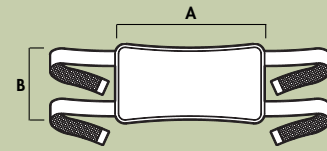
- Prevent posterior tilting of pelvis
- Provide additional support when using elevating leg rests or tilt
- Prevent unequal weight bearing and pressure on thighs
- Provide proper support to maintain foot position on footplate

ASSESSMENT

- Increased risk of injury from feet falling behind footplates
- Increases pressure points on thighs
- Additional support is required when using elevating leg rests or tilt

SUPPORT OPTIONS

Padded Calf Straps and Panels provide comfortable support, keeping feet safely on the footplates. Retains shape for best pressure distribution and durability.



CALF PANEL SIZING

	A	B
S	11" (28cm)	6" (15cm)
M	15" (38cm)	8" (20cm)
L	18" (46cm)	9" (23cm)



Calf Strap
(SP102M shown)



Padded Calf Panel
(AC003P shown)

Ankle Huggers® Closure Options



FT202A

Velcro Strap Closure

- Soft fabric conforms to any curvature of the ankle. May be worn with or without shoes (pad footplate for use without shoes)
- Cinches tightly against the ankle for a proper fit.
- Adapts to daily footwear changes with a simple adjustment



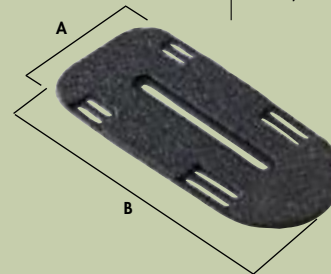
FT202SR

Side Release Buckle Closure

- Retains position to accommodate varying caregiver skill levels and high usage
- Fast and easy to use
- Strong, durable closures

Footplate Sizing

	A	B
S	4" (10cm)	7-3/4" (20cm)
L	4-3/4" (12cm)	9-1/4" (24cm)



Fitting Ankle Huggers®



Measure circumference above ankle.



XS	5-1/2"-7" (14cm-17cm)
S	6-1/2"-8" (17cm-20cm)
M	7-1/2"-9" (19cm-23cm)
L	8-1/2"-11-1/2" (22cm-29cm)
XL	11"-13" (28cm-33cm)

Placement and tension of lower straps on footplate allows varying degrees of foot movement.

NOTE: Heavily padded shoes and orthotic devices may interfere with the proper fit of the Ankle Hugger.



EXTENSION TUBES Ø3/4" (19mm)

	Tube Length	
Original	8-1/2" (22cm)	12-1/2" (32cm)
Fulcrum Series	8-1/2" (22cm)	12-1/2" (32cm)
Quickie	12-1/2" (32cm)	