

Footwear Modifications, Permanent and Non-Permanent



PEDORTHIC
ASSOCIATION OF CANADA

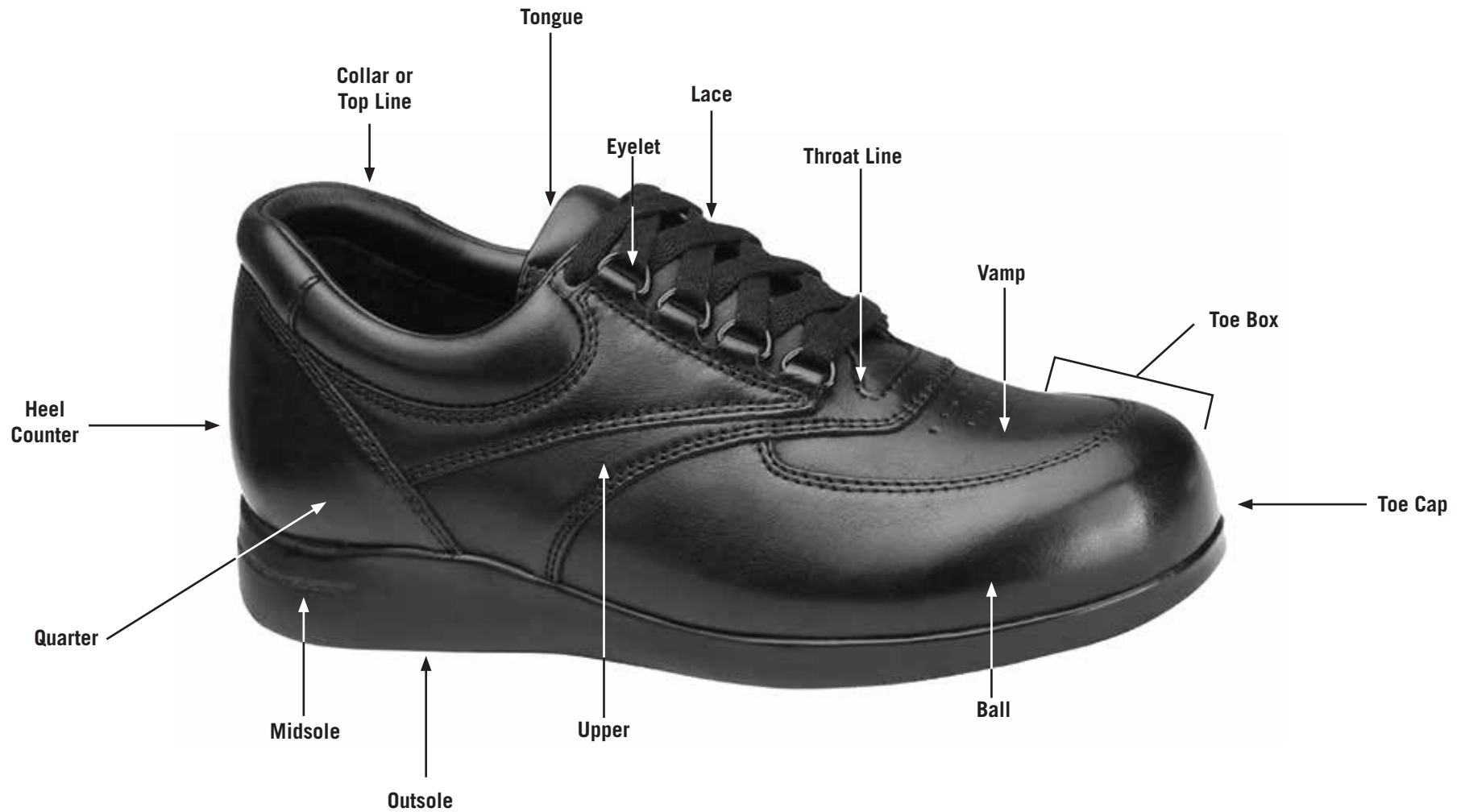
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This content is subject to ongoing review and revision.

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Anatomy of a Shoe



Permanent Footwear Modifications

Our Position

Only someone specially trained in footwear modification should perform permanent footwear modifications. A pedorthist is best positioned to assess the performance of modifications and make additional alterations if required. Poorly executed modifications could cause a patient additional discomfort and possibly harm.

Permanent footwear modifications are changes that are not temporary, but are substantive and result in a shoe that cannot be easily returned to its original condition. Once modified, this footwear would not be appropriate for someone without the medically indicated deformity.

Footwear modifications – either on their own or combined with custom-made orthoses and/or orthopaedic shoes – are a useful way to help patients with certain foot conditions.

Footwear modifications can be simple or complex, with price and impact varying accordingly.

These modifications can be made to everyday footwear as well as athletic shoes. Canadian Certified Pedorthists have the experience and training to modify sports footwear such as hockey, speed, and figure skates, and boots for hiking, skiing, and snowboarding.

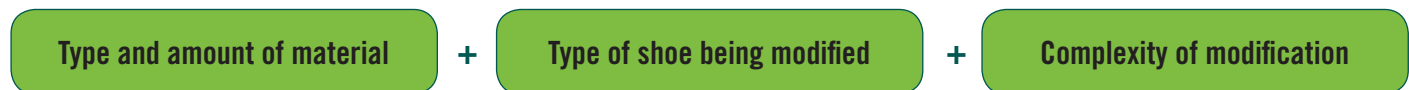
Some modifications are not appropriate for all types of footwear and options should be discussed carefully with a trained Canadian Certified Pedorthist.

A note on language: Sometimes, the word “customized” is used to describe a pre-fabricated shoe that has been altered. Canadian Certified Pedorthists discourage the use of the term in this context, opting instead for “modified” to avoid any confusion with “custom-made” orthotic devices.

Considerations in Interpreting Fees for Permanent Footwear Modifications

The following fee guidelines represent current reasonable and customary rates in the Canadian Pedorthic industry.

Reasonable and customary (R&C) fees in the following footwear modification chart include the cost for materials and labour only, which are dependent on:



Currently, not all pedorthists bill separately for services such as assessment, patient education and advice, fitting, and follow-up appointments. Rather these costs may be waived or included in the price of the prescribed products or provided modifications. The cost of the purchased footwear must be clearly separated.




These values do not include assessment, fitting, or follow-up fees which can range from \$70 to \$175 depending on:

- Length of time for initial assessment (45–60 min);
- Length of time for fitting and follow-up (20–30 min/session);
- Number of follow-up visits included (1 to unlimited within a certain time); and
- Length of time follow-up visits are covered free of charge (3 months – 1 year).

Exceptions to Fees

1. If a custom-made foot orthosis is purchased at the same time as a footwear modification, the cost for the assessment, fitting, and follow-up might be built into the cost of the foot orthosis resulting in a reduced billing for the footwear modification.
2. When multiple pairs of shoes are modified simultaneously, the cost for assessment, fitting, and follow-up should not be charged for each shoe.
3. When multiple modifications are performed on one shoe, the total fees billed should be less than the sum of the individual modifications because:
 - The time/labour per modification is reduced; and
 - The assessment/fitting/follow-up fee should only be charged once.

Permanent Upper Modifications


| MODIFICATION | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|--|----------|--|---|-----------------------------------|--|
| <p>Balloon Patch Alternative names: Tent patch, bubble patch</p> | <p>U</p> | <p>A patch of material is fastened over a hole made in the upper to accommodate a bony prominence.</p> | <p>To accommodate bony prominences over the top of the foot; i.e., hammer toes, bunions, or any deformity that requires extra volume to reduce pressure over the top of the foot.</p> | <p>\$37.50 – \$102 (per foot)</p> |  |
| <p>Closure Modification Alternative names: Hook-and-loop closures, “fake” lacing</p> | <p>U</p> | <p>Permanent, external modification of the upper of the shoe by the addition of leather and fabric. Examples include the addition of hook-and-loop (Velcro) straps or buckles, or a closure system including both hook-and-loop and lacing (lace stitch Velcro).</p> | <p>This modification allows the use of footwear by patients with mobility or flexibility issues, vision impairment, or upper limb, hands, back, hips, or knee dysfunction.</p> | <p>\$62.50 – \$102 (per foot)</p> |  |
| <p>Stretching Alternative name: Ball-and-ring stretching</p> | <p>U</p> | <p>Stretching the upper of the shoe using a standard shoe stretcher or a ball-and-ring stretcher.</p> | <p>A ball-and-ring stretcher can be used to stretch a small area over a bony prominence. A standard shoe stretcher can increase the width, depth, or volume of the upper; spot stretching also when used in conjunction with metal or wooden plugs.</p> | <p>\$1.25 – \$18 (per foot)</p> |  |

Location: U - Upper, M - Midsole, O - Outsole



*These fees do not include assessment, fitting, or follow-up fees

Footwear Modifications, Permanent and Non-Permanent

Permanent Upper, Midsole, and Outsole Modifications

| MODIFICATION | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|--|--------------|--|--|--------------------------------|---|
| <p>Buttress (medial or lateral) Alternative names: Outrigger, counter support, external arch support, flange</p> | <p>U M O</p> | <p>Material (typically EVA) is fastened to the upper and sole on the inside or outside of the shoe creating a “wall” that bolsters support of the foot and widens the base of support to help control abnormal motion.</p> | <p>Useful with extreme hypermobility or deformity of the foot that cannot be controlled by an orthosis and shoe alone.</p> | <p>\$75 – \$108 (per foot)</p> |  |





Permanent Midsole and Outsole Modifications

| | | | | | |
|---|------------|--|---|--|---|
| <p>Charcot Modification (combination of three modifications: split sole, excavation, and rocker sole)</p> | <p>M O</p> | <p>Splitting and widening the sole of the shoe, possible excavations inside the shoe, and the addition of a rocker sole.</p> | <p>Used to accommodate severe deformity and reduce pressure on the bottom of the foot. Examples: Charcot foot, plantar bony prominences, plantar foot ulcers.</p> | <p>\$175 – \$204 (per foot)</p> |  |
| <p>Excavation Alternative name: Aperture</p> | <p>M</p> | <p>A hole is drilled out of the midsole of the shoe from the inside to create a well for a soft tissue lesion, bony prominence, or sensitive area.</p> | <p>Used to reduce vertical pressure on areas of the bottom of the foot. May be used for bony prominences or ulcers.</p> | <p>\$18.65 – \$60 (per foot) Or \$90/hour</p> |  |

Location: U - Upper, M - Midsole, O - Outsole

*These fees do not include assessment, fitting, or follow-up fees

Permanent Midsole and Outsole Modifications





| MODIFICATION | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|--|------------|---|---|---|---|
| <p>Flare</p> <p>Alternative name: Sole and heel flares</p> | <p>M O</p> | <p>Material is added to the side of the sole to broaden the base of support on the inside (medial) or outside (lateral) portion of the shoe. The flare should be widest where it meets the ground.</p> | <p>Increases stability of the shoe and gently forces the foot away from the modified side.</p> | <p>\$50 – \$108 (per foot)</p> |  |
| <p>Metatarsal Bars</p> | <p>M O</p> | <p>A permanent, external modification to the midsole in which a “bar” of material is added beneath the ball of the foot to change the flex point of the shoe. Similar to a rocker sole, but with less adjustability and specificity of treatment.</p> | <p>Used to reduce painful pressure under the ball of the foot and to reduce dorsiflexion at the metatarsal phalangeal joints.</p> | <p>\$37.50 – \$60 (per foot)</p> |  |
| <p>Resole</p> | <p>M O</p> | <p>The original sole is removed and replaced with a new sole.</p> | <p>Original sole may be replaced due to excessive wear, or can be replaced to optimize traction, i.e., minimal tread and grip for shuffle gait especially with carpeting; maximum tread and grip for hard surfaces and outdoor winter wear.</p> | <p>\$43.75 – \$90 (per foot) \$87.50 – \$174 (per pair)</p> |  |
| <p>Rocker Sole</p> <p>Alternative name: Rocker bottom (types of rockers: forefoot rocker, heel-to-toe rocker, midfoot rocker, severe angle rocker)</p> | <p>M O</p> | <p>An addition of material and/or grinding modification made to the bottom of the shoe designed to address range-of-motion limitations, offload an area on the bottom of the foot, or improve function and gait patterns.</p> | <p>Used to reduce painful pressure on the bottom on the foot, reduce energy consumption, and reduce stress on stiff joints in the foot and ankle – and also to protect fused and/or painful joints in the foot and ankle.</p> | <p>\$100 – \$180 (per foot) on average</p> |  |

Location: U - Upper, M - Midsole, O - Outsole

*These fees do not include assessment, fitting, or follow-up fees

Footwear Modifications, Permanent and Non-Permanent



Permanent Midsole and Outsole Modifications

| MODIFICATION | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|---|------------|--|---|---|---|
| <p>SACH Heel (solid ankle cushioned heel) Alternative name: Plantar flexion heel</p> | <p>M O</p> | <p>A soft compressible material wedge replaces a portion of the back of the heel base.</p> | <p>Reduces shock at heel strike and compensates for diminished ankle motion.</p> | <p>\$37.50 – \$108 (per foot)</p> |  |
| <p>Shoe Lift Alternative names: Shoe extension, external lift, LLD correction, short leg correction</p> | <p>M O</p> | <p>Extra material added to the midsole or outsole of one shoe to make it thicker than the other.</p> | <p>Accommodation for structural leg length difference and occasionally functional leg length difference, scoliosis, or pelvic imbalance following injury or surgery.</p> | <p>\$106.25 per ½-inch (would never be bilateral)</p> |  |
| <p>Shuffle Plate/ Toe Slider</p> | <p>M O</p> | <p>Addition of a smooth, low-friction, non-treaded material to the forefoot of the shoe.</p> | <p>Useful when the patient is unable to fully lift the forefoot, or uses a shuffle gait – especially in carpeted environments (similar to what is used by dancers who require the comfort of a supportive shoe, but without the tread).</p> | <p>\$37.50 – \$96 (per foot)</p> |  |
| <p>Split Sole Alternative name: Sole widening</p> | <p>M O</p> | <p>A cut is made through the midsole and outsole of the shoe which is then spread. Additional material is inserted to maintain the split and the required broadened base of support.</p> | <p>Useful when the foot requires greater width in a localized area, but not through the entire shoe. This accommodates deformity and widens the base of support.</p> | <p>\$100 – \$144 (per foot)</p> |  |

Location: U - Upper, M - Midsole, O - Outsole

*These fees do not include assessment, fitting, or follow-up fees

Permanent Midsole and Outsole Modifications

| MODIFICATION | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|--|----------|--|--|---------------------------------------|---|
| Thomas Heel | M O | An anterior medial extension of the standard heel on the inside to add rearfoot or midfoot support medially. | Provides added support for an excessively pronated foot. | \$75 – 90 (per foot) (rarely done) |  |
| Wedge (Varus/Valgus) Alternative name: Lateral/medial sole wedge | M O | A wedge is fixed to the shoe midsole to direct weight away from the modified side. | Used to prevent distortion of the upper and sole of the shoe and improve control in feet with a rigid supinated or pronated posture. Also used by individuals with neurological or strength inhibitions affecting their control at foot plant and/or by others to direct weight or stress away from an area (e.g., an arthritic knee). | \$50 – \$132 (per foot) |  |

Location: U - Upper, M - Midsole, O - Outsole





*These fees do not include assessment, fitting, or follow-up fees

Non-Permanent Minor Footwear Modifications

Non-permanent footwear modifications are considered minor alterations and are not considered permanent footwear modifications. They are generally used to fine-tune the fit or support of a shoe.

The following fee guidelines represent current reasonable and customary rates in the Canadian pedorthic industry.





Non-Permanent Minor Footwear Modifications

| FOOTWEAR ALTERATIONS | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|---|----------|---|---|---------------------------|---|
| Doughnut | U | Soft material about ¼-inch thick cut in a circle with a hole in the middle and with the outside edges ground smooth. | Used to reduce pressure on a small bony prominence or soft tissue lesion such as a callus, corn, or wart. | \$1.25 – \$24 (per foot) |  |
| Heel Grip Pad | U | Soft material (often foam covered in leather) applied to the inside of the heel collar to reduce heel movement inside the heel cup during gait. | Reduces heel slippage and pads collar. | \$18.75 – \$48 (per foot) |  |
| Heel Lift Internal | L | Temporary lift placed inside the shoe on the heel seat. | Used in one shoe to address a minor leg length discrepancy or part of a major one. Used as a pair for certain conditions requiring a slight heel raise such as certain foot deformities, limited ankle range of motion, or some tendon injuries (e.g., Achilles tendinitis, posterior tibial tendinitis). | \$1.25 – \$60 (per foot) |  |
| Metatarsal Pad Alternative names: Met pad, metatarsal dome, metatarsal mound, tear drop pad | L | Addition of a mound of material fastened to the insole or inside of the shoe just behind the ball to support the transverse (metatarsal) arch. | Used to reduce pressure under the ball of the foot. Can be used in the treatment of metatarsalgia (MTP joint pain, plantar fat pad atrophy, neuroma, etc.). | \$12.50 – \$42 (per foot) |  |

Location: L - Last, U - Upper

*These fees do not include assessment, fitting, or follow-up fees

Non-Permanent Minor Footwear Modifications

| FOOTWEAR ALTERATIONS | LOCATION | DESCRIPTION | EXAMPLES OF USE | *R&C FEES | PHOTO |
|---|----------|---|---|--|---|
| Scaphoid Pad Alternative names: Arch cookie, navicular pad, longitudinal arch pad | L | Addition of padding to the medial longitudinal arch of the insole or inside of the shoe. | Typically used with children or with adults requiring support for the arch of the foot when an orthosis is not feasible. | \$1.25 – \$24 (per foot) |  |
| Sole Plate | L | Addition of a carbon fibre “plate” to the inside of the shoe in order to minimize shoe flex. | Often used in conjunction with a “rocker sole” modification to help restrict movement in an injured bone/joint. (Note: in some cases, it might be necessary to incorporate this plate into the midsole of the shoe which makes it a more complicated modification.) | \$37.50 – \$72 (per foot) Price may vary depending on the material used |  |
| Tongue Pad | U | A foam or felt pad shaped like the tongue of a shoe and fastened to the inside of the tongue of the shoe. | Used to take up space in the instep of the shoe and can be used to improve shoe fit (width, length, different sizes), reduce heel slipping, pad bony prominences. | \$16.25 – \$42 (per foot) |  |
| Wedge Alternative names: Posting, shim | L | Addition of “shims” to modify the angle of the rearfoot (heel) and/or forefoot (ball). | Often used as a pre-orthosis trial to determine efficacy of corrective treatment. | \$1.25 – \$36 (per foot) |  |

Location: L - Last, U - Upper

*These fees do not include assessment, fitting, or follow-up fees

Footwear Modifications/ Questionable Charges

Questionable footwear modifications refer to charges that may be excessive and/or inappropriate for various reasons outlined in this section.

Footwear Modifications/Questionable Charges

Built-in Orthotic

Simply gluing orthoses into footwear does not qualify as a permanent modification of the footwear, nor does it make it an orthopaedic or custom-made shoe. Orthoses must be removable so they can be altered.

Elastic Laces

Not a permanent modification.

Firm Midsole

The midsole is the layer of material sandwiched between the sole and the upper of the shoe. It must provide a firm, stable base of support while offering optimal cushioning. It is an original manufacturer's component of a shoe, not a modification.

Glued Insole Removal

Not a permanent modification.

There should not be a fee for simply removing an insole from a shoe, whether fastened or not.

Heel Reshaping by Heat Forming to Cast

It is difficult and inappropriate to reshape a heel (counter) as it is made from rigid plastic or fibre built in with the purpose of preventing mis-shaping.

Increasing Vamp Depth/Vamp Raise

This would fall under stretching as a feasible modification, however the need to stretch this area of a new shoe would indicate that the shoe is inappropriate to begin with.

Lengthen Shoe

Often billed as a shoe modification, this implies the shoe is too short to begin with and therefore is inappropriate for the patient. This is an unnecessary modification if the patient was correctly fit for size.

Padding – Heel Cushioning/Heel Counter

Not a permanent modification.

If footwear is also being claimed, a shoe should be chosen that: (a) already has padding; or (b) fits more appropriately so padding isn't needed. [Note: A deformity to the rearfoot (e.g., Haglund's deformity) would make this a reasonable modification, but the medical necessity must be made clear on a claim.]

Plastizote Insole

There are stock shoes that come with a plastizote insole/sockliner. If plastizote sheeting is directly moulded to the patient's foot and has some modifications performed (e.g., posting, MT pads), it would not be considered a shoe modification, but a direct-moulded orthotic device and the medical need should be provided. If an orthotic device is also being claimed, this is a duplication.

Footwear Modifications/Questionable Charges

| | |
|---|--|
| Reinforced Heel Counter/Stiff Heel Counter/Extended Heel Counter | Some footwear – like canvas running shoes – has flexible heel counters. A reinforced heel counter is typically present in shoes designed for jogging or orthopaedic footwear. It is an original manufacturer's component of a shoe, and not typically a modification. Any claim would have to include detailed information regarding the need. |
| Steel Shank/Shank Stiffener | The shank is a component part of all supportive footwear and is a rigid material placed into the midsole to stiffen the base of the shoe and provide torsional stability. While there might be the very rare occasion that this is warranted as a modification to a shoe, the necessity of this modification would deem the shoe inappropriate. |
| Stretch Toe Box | Billed as a shoe modification, this implies the toe box is too narrow, short, or shallow and therefore might be inappropriate for the patient. Occasionally, a specific stretch is needed to accommodate a specific toe or forefoot joint deformity to make room for that enlarged area with a specific spot stretch or ball-and-ring stretcher. |
| Toe Box Reshaping by Heat Stretching to Cast | <ol style="list-style-type: none">1. The need to stretch this area of a new shoe would deem the shoe inappropriate as it would mean it was too short or not deep enough to begin with.2. It is difficult and inappropriate to stretch a toe box as it has a rigid plastic or fibre cap built in with the purpose of preventing mis-shaping. |
| Tongue Split and Material Added | Possible but highly unlikely. Any claim would have to include detailed information regarding swelling or foot deformity. |
| Velcro to Replace Laces | <ol style="list-style-type: none">1. This can be a feasible modification, but medical condition necessitating the fastener replacement should be satisfied – e.g., incapacity to tie due to age (child); upper extremity dysfunction (paralysis, arthritis, CMT); flexibility issue (back injury, hip replacement, obesity); or mental handicap.2. Many orthopaedic shoes are readily available with Velcro closures; if a shoe is also being claimed, a shoe manufactured with Velcro could have been chosen in the first place. |