Considering the Height Compensation

If a height compensation is required, it can be realised, for example, through the orthosis. A height compensation at the orthosis provides the advantage that patients may wear ready-made shoes. The following text describes which steps must be considered when modifying a height compensation, in addition to the steps of the usual modifying technique. One part of the modifying technique is, for example, Making the Negative Cast withe-Cast, where you can find all information regarding the positioning of the plumb line - which is also used in this tutorial - under the subitem “Determining the Ideal Position”.

And, if the final model is finished, you can see how to proceed with a height compensation when producing an orthosis by using the online tutorial Producing a Height Compensation.

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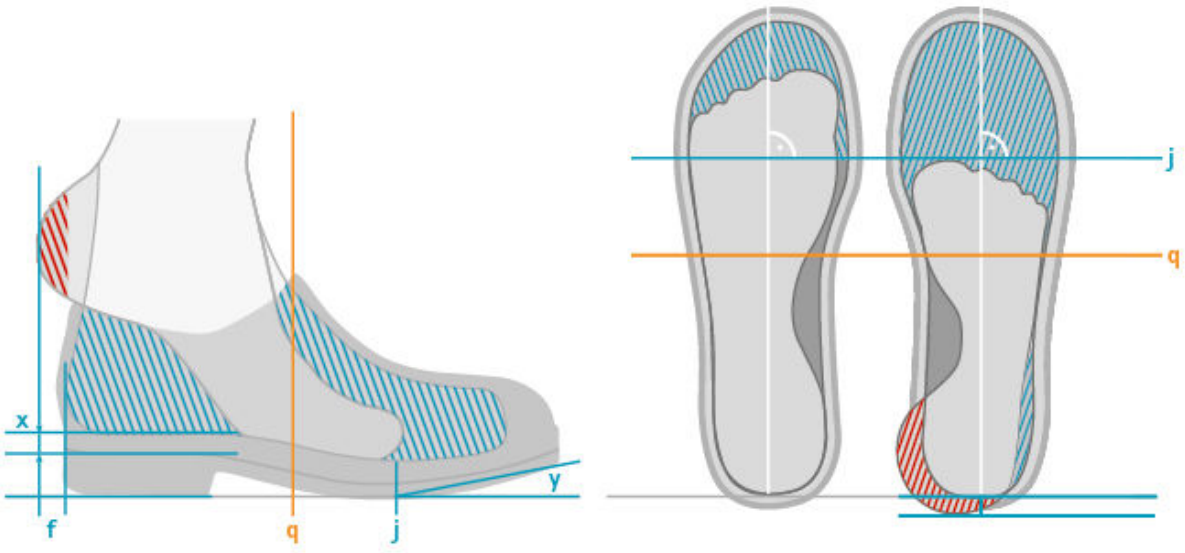
Considering the Height Compensation

Step 1/6



When producing a height compensation, it is essential to create a leverage ratio that is similar to the contralateral side. To do so, the following steps are necessary:

- compensate the volume under the heel and in the forefoot area (blue hatching),
- set the heel back (pink hatching),
- define the mechanical rolling-off line (j),
- consider the heel-to-toe drop (x),
- consider the toe spring (y).

Note: Mark the plumb and rolling-off line of the healthy/unaffected foot on the shoe's insole (or a copy) and use the insole as a guidance for all further steps

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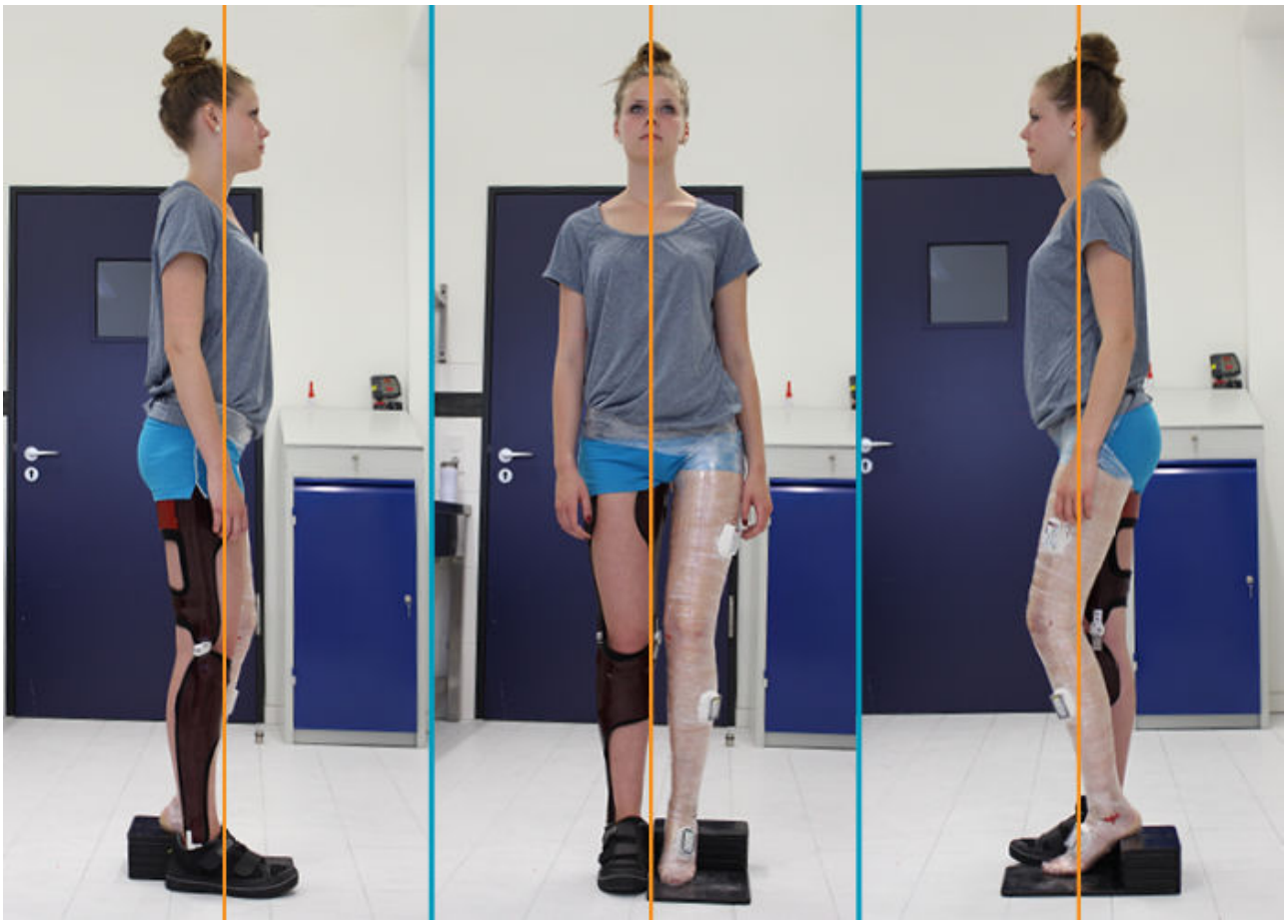

Setting the Ideal Position

You can set the height of the pitch and the height compensation on the h-Cast. On the contralateral sight, the patient may wear an orthosis or also stand on an h-Cast. If possible, the patient stands in the gait-related normal posture. Here, the stance-related normal posture is described:

- feet as close as possible,
- consider the external rotation,
- both legs carry the same load,
- drop the plumb line,
- put the h-Cast back until the plumb line drops correctly and a balanced load on both legs is possible.

Also consider the online tutorial Making the Negative Cast with e-Cast.

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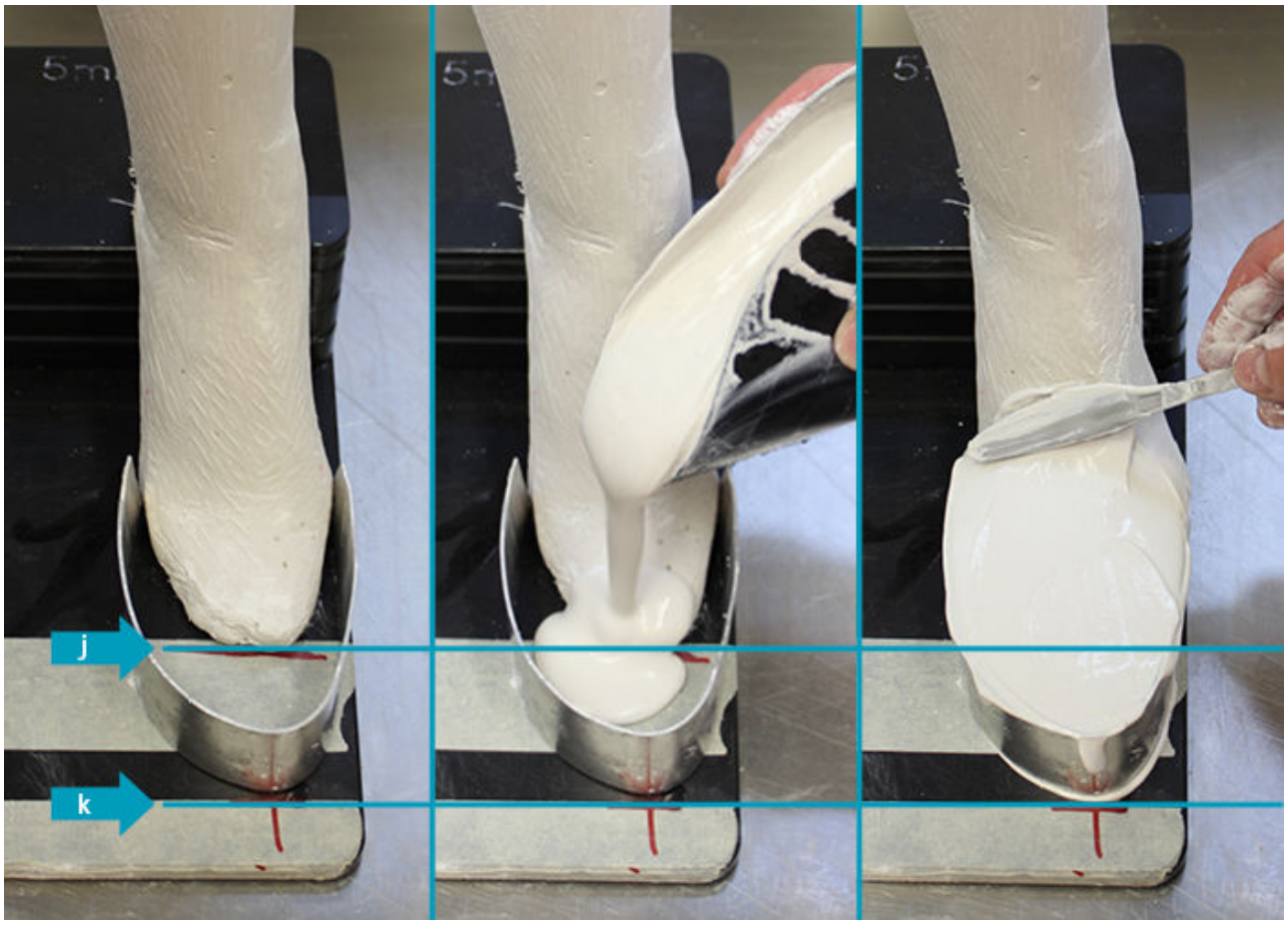

Modifying the Positive Cast

A. position the aluminium clasp or similar

Prolong the forefoot up to k. k stands for the inner shoe dimension and j marks the mechanical rolling-off line.

B. fill the form with plaster

C. create a smooth transition

D. let the model harden

Also consider the online tutorialMaking the Positive Castand Modifying the Positive Cast KAFO.

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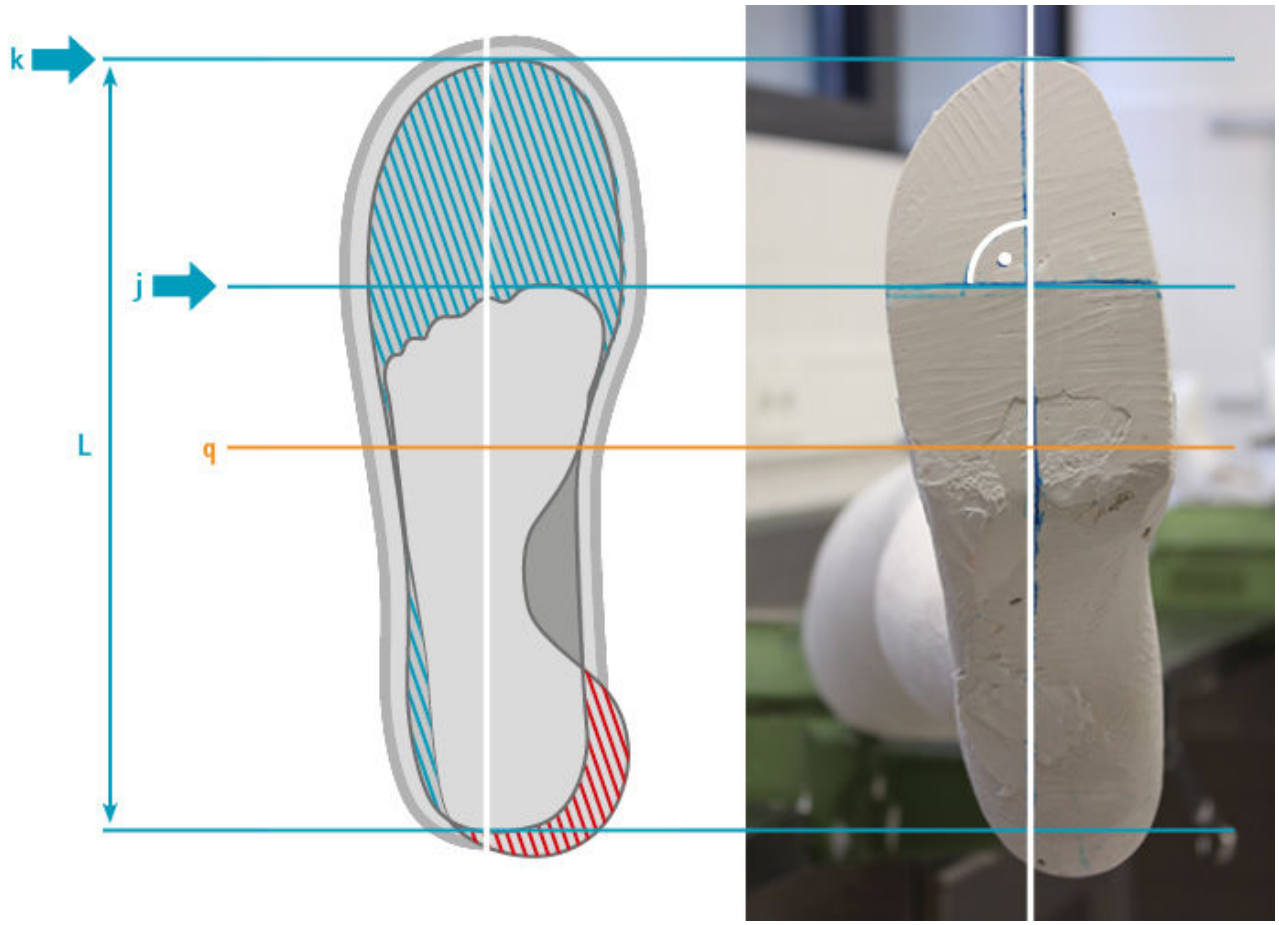

Modified positive cast from below:

- j is the mechanical rolling-off line
- k is the point where the aluminium clasp had been positioned
- l is the inner shoe length (the heel protrudes; pink hatching)

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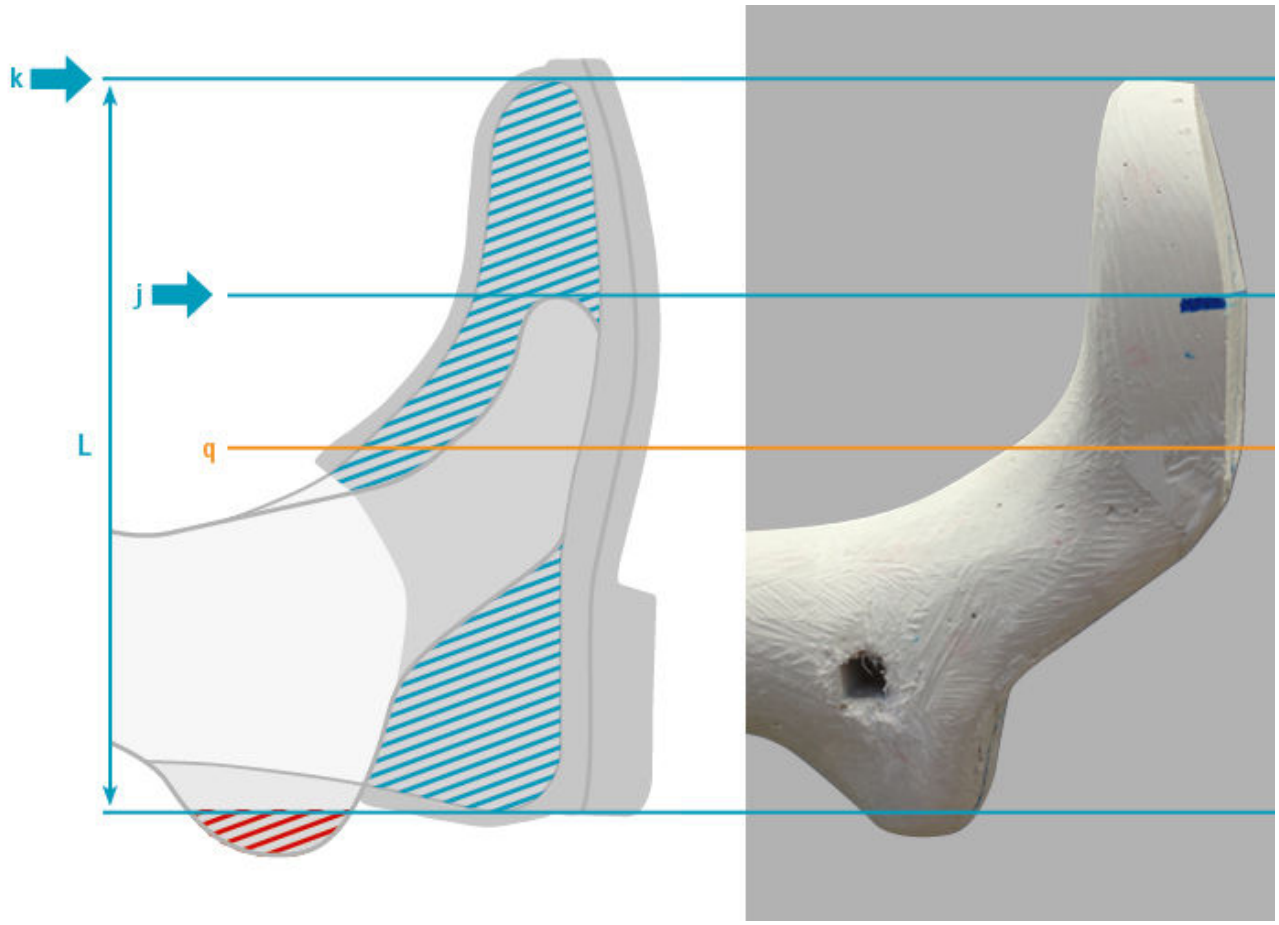

Modified positive cast from lateral:

- j is the mechanical rolling-off line
- k is the point where the aluminium clasp had been positioned
- l is the inner shoe length (the heel protrudes; pink hatching)

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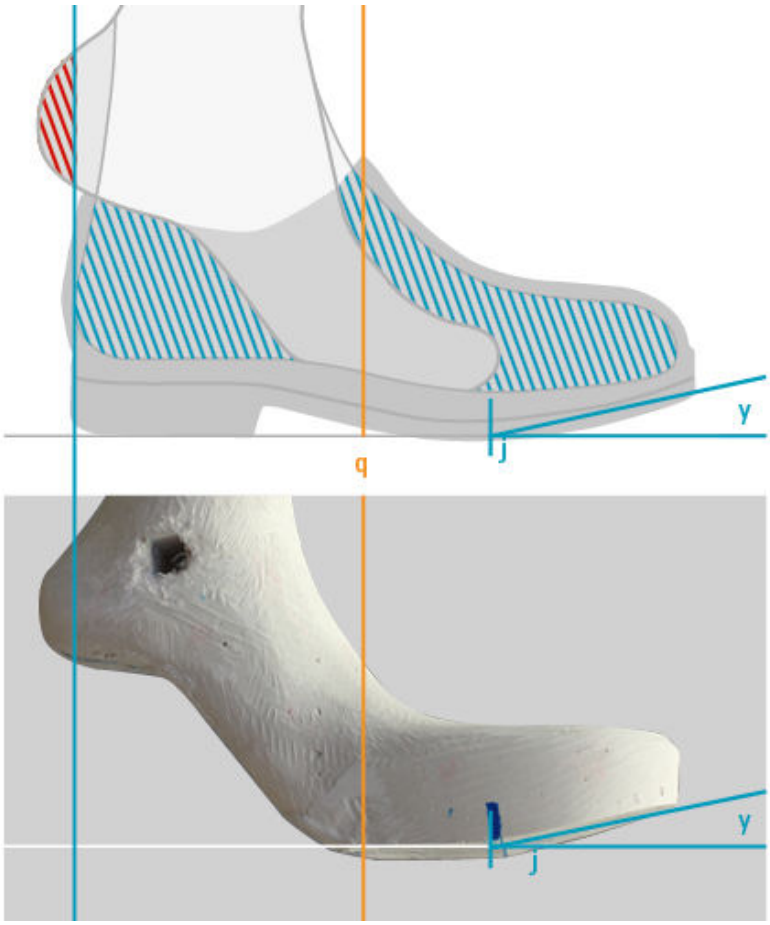

Modified positive cast from lateral while standing:

- the toe spring y must be modified
- it begins at the mechanical rolling-off line j

The toe spring is essential for:

- the foot piece’s fitting in the shoe
- making a physiological terminal stance possible → knee remains extended longer → body's centre of gravity remains at one height → energy is saved
- making a physiological swing phase possible → functional shortening of the leg → swinging freely without compensating (e.g. vaulting, circumduction) possible → energy is saved

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