



ottobock.

C-Brace Interim.
Training guide.

Adaptive support for
early rehabilitation.

C-Brace joint adjustment.

Whether you are a certified therapist or not, you can use either the professional app or the user app to adjust the settings of the **C-Brace** joint.



connectgo.pro for certified clinicians

- ① Login with Ottobock ID and connect to **C-Brace**
- ② Enter Basic data and calibrate **C-Brace**
- ③ Adjust stance phase flexion resistance, modes and functions for each patient and their situation individually

Cockpit App for users & not certified clinicians

- ① Get Bluetooth® pin from orthotist or user
- ② Connect to **C-Brace** and add component
- ③ Change between preconfigured modes and adjust stance phase flexion resistance +/- 10 points
 - When more change is needed contact orthotist

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Android



Apple



Discover
connectgo.pro

Android



Apple



and Cockpit App

Instructions for correct setting in basic mode

For sitting down, walking with knee flexion on uneven ground and descending ramps or stairs, a single resistance applies: stance phase flexion resistance (= resistance against knee flexion). It corresponds to the eccentric activity of the M. quadriceps and supports bending the orthotic knee under load. Due to the patient's muscular control, the level of support provided by **C-Brace Interim** differs. The initial adjustment of stance phase flexion resistance must be set accordingly.

The steps are as followed

- ① Assess muscular control of the lower limb without orthosis
- ② Determine support level: less muscular control = higher support
- ③ Set stance phase flexion resistance: if no muscular control, use maximum resistance that still allows sitting down.
- ④ Adapt resistance based on training focus and activity

As the patient progresses (regaining muscle activation and strength), less stance phase flexion resistance is likely to be needed.



Steps for initial adjustment or re-adjustment if support level changes:

① Determine the amount of muscular control of the lower limb without orthosis

No muscular control

- Unable to bear weight when attempting to stand
- Cannot control the leg (= knee gives way into flexion)
- Loss of stance stability

Sufficient muscular control

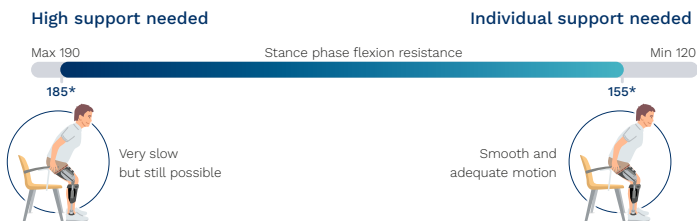
- Can bear weight when standing
- Has enough knee control to avoid collapsing into the knee during static and dynamic stance

② Determine the level of support: High support or individual support needed



③ Set the stance phase flexion resistance accordingly

Key activity to determine adjustment of stance flexion resistance is sitting down – assessed is the speed and ease of motion



* optimal value can differ from patient to patient

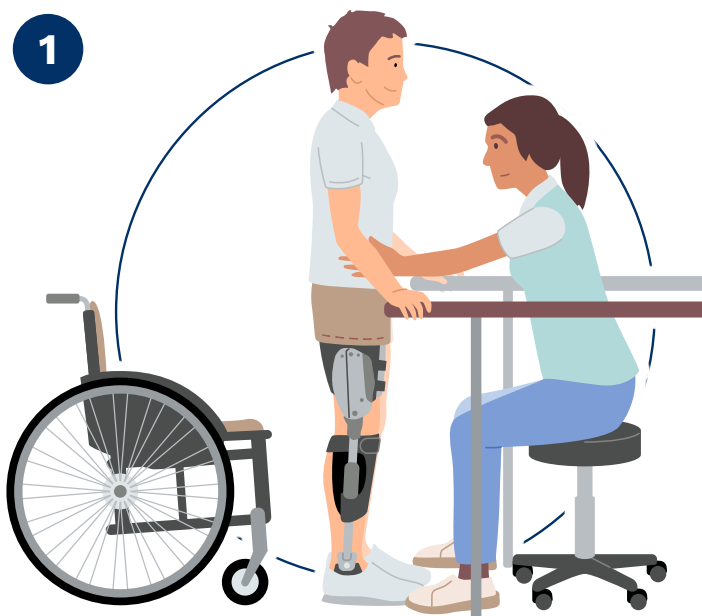
④ Activity during training sessions: Can the activity be performed with stance flexion resistance set in basic mode?

- ❌ No: Change to **training mode** or adjust stance phase flexion resistance (according to the training guide below)
- ✅ Yes: Keep in **basic mode**

Exercises

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1



Verticalization (incl. transfers).

App

High support

Activate **training mode** (= locked stance phase) while patient is sitting (→ for sitting down it is necessary to change back to **basic mode**).

Individual support

Keep in **basic mode**. If required increase stance phase flexion resistance before standing up.

Training

- Standing up with support (**C-Brace Interim** stabilizes knee)
- Standing for several minutes
- Standing with even weight distribution (arm support allowed)
- Weight shifting (forwards / backwards, left / right)

Goal

Improve cardiovascular system and increase time in a standing position.

2



Sit to stand / Stand to sit.

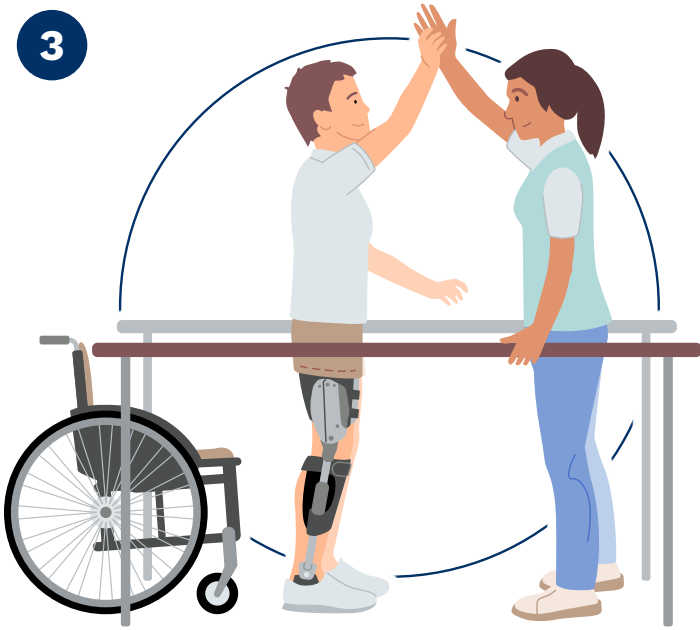
App Keep in **basic mode**.
(Adjust stance phase flexion resistance if support level changes.)

Training

- Sitting down / standing up from different sitting heights.
- Sitting down / standing up with the contralateral leg in front
- Sitting down / standing up with even weight distribution
- Sitting down / standing up with less arm support

Goal Achieve independence during transfers and strength in lower limb muscles.

3



Balance training.

App

High support

Change to **training mode** or **freezing** while standing.

Individual support

Keep in **basic mode**. Adjust stance phase flexion resistance if needed.

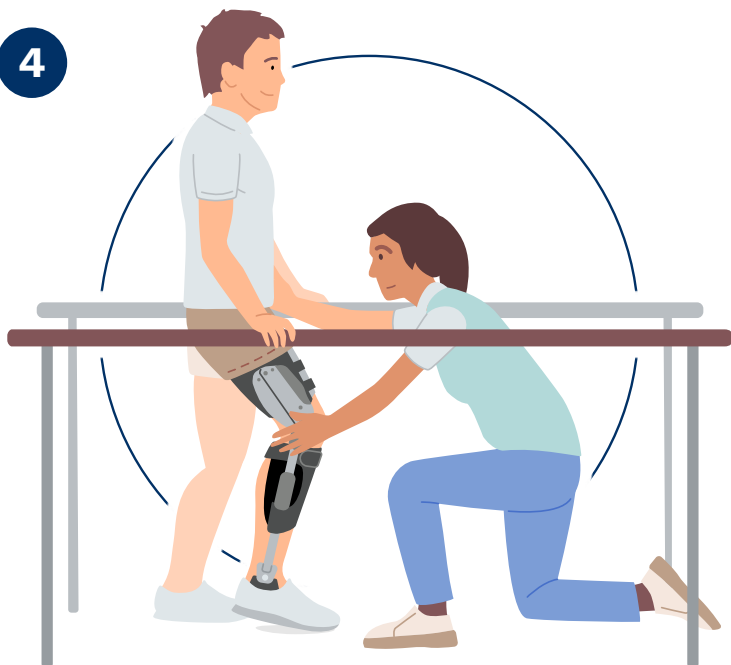
Training

- Weight shifting (forwards / backwards, left / right) with less to no arm support
- Free secure standing with even weight distribution
- Free secure standing with dynamic arm / trunk movement
- Standing on balance boards / pads with / without eyes closed, dual tasking ...

Goal

Improve body perception, coordination and regain trust.

4



Building trust.

App Keep in **basic mode**.
(Adjust stance phase flexion resistance if support level changes.)

Training • Step position (affected leg in front): push into knee flexion and back to extension. Only flex knee joint as far as the person can stabilise and let them go back into extension by themselves.

(!) **Reduce arm support / help as the patient becomes more confident.**

Goal Improve trust in the orthosis and knee control and get to know the flexion resistance.



5



Stance function.

App

Activation

If joint is at rest in a flexed position ($5^{\circ} - 65^{\circ}$) it blocks in flexion direction.

Deactivation

Intuitive: Move knee forward or backward or straighten the knee (e.g. take a step – doesn't matter which side)

Training

Train activation of stance function on level ground

- Lean against wall / parallel bars with knees slightly flexed
→ joint blocks → elevate sound side.

Train getting in and out of stance function

- While walking downhill train stopping on an inclination (utilize stance function to gain full foot contact on inclination)

Goal

Improve independence and range of ADLs.

6



Stance phase training.

App

High support

Activate **training mode** or **freezing** while patient is standing.

Individual support

Keep in **basic mode**.

Training

- Both legs at same level. Place full weight on orthotic side. Orthotic side remains in stance while contralateral leg steps on a stepboard or makes a small step forwards / sideways without shifting body weight.

! Reduce arm support or make higher steps as the patient becomes more confident to achieve more hip extension activation.

Goal

Improve stance phase & loading of the affected leg.

7



First steps.

App

High support

Activate **training mode** while patient is standing to ensure they achieve knee extension at TSt.

Individual support

Keep in **basic mode**. Support movement if needed to ensure patient achieves knee extension at TSt.

Training

Activation of stance release

- Start with step position (affected leg in front, heel contact), move center of mass forward to load the orthotic side. Make a step with the contralateral leg and roll over the entire foot.
- Take an exercise ball to facilitate the hip flexion movement (= initiating swing phase)

Further hints

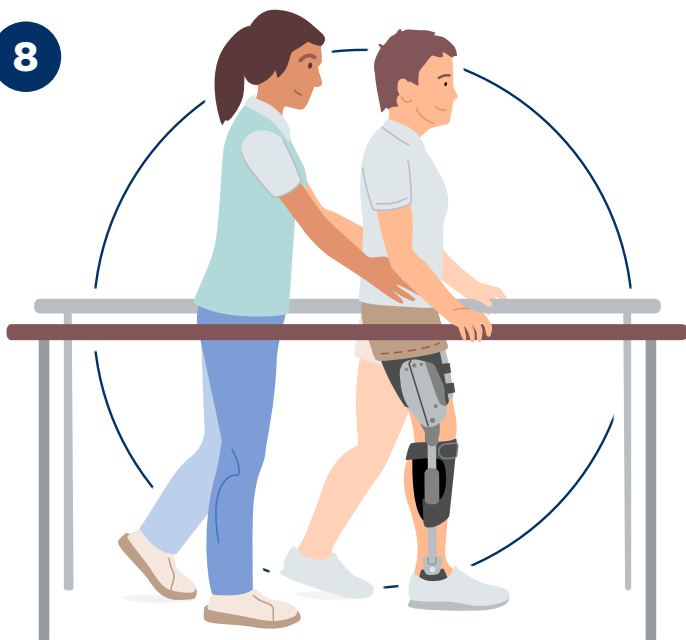
- Support forward movement at the hip to facilitate weight bearing till the end of stance phase
- Avoid circumduction and raising the hip

Goal

Transition from stance to swing phase –
Reliable activation of stance release.



8



Walking on level ground.

App High support

Activate **training mode** while patient is standing to ensure they achieve knee extension at TSt.

Individual support

Keep in **basic mode***. Support movement if needed to ensure patient achieves knee extension at TSt.

Training

- Train walking with respective walking aid
- Train fluid walking pattern on level ground with reliable stance release
- Train appropriate gait width

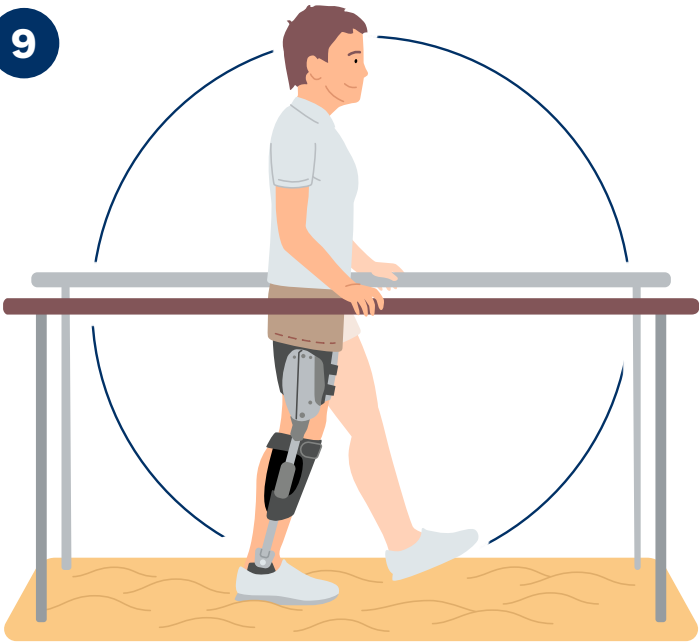
(!) Adjust stance phase flexion resistance PLUS if required.

* If patient struggles with stance release, switch to **training mode** → repeat → switch back to **basic mode** → repeat. If patient still struggles, they may require more support for hip / knee extension (high support level).

Goal

Enhance walking distance and duration.

9



Walking outdoors / on uneven ground.

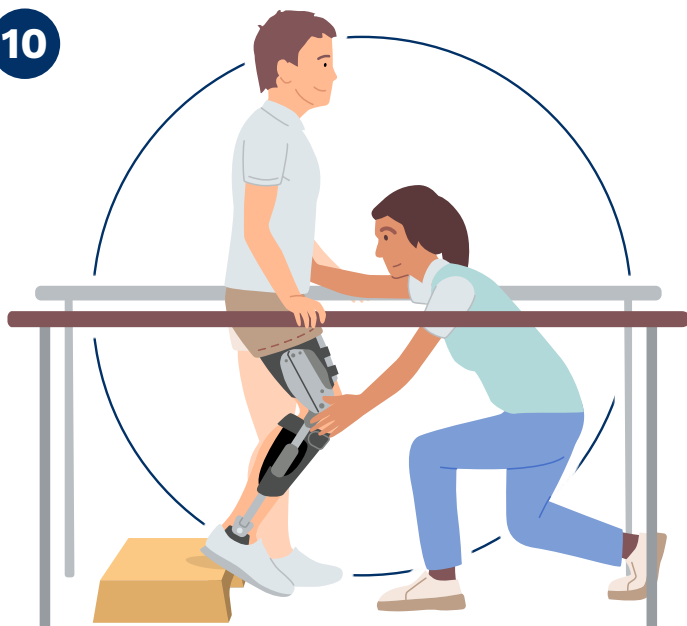
App Keep in **basic mode**.

Training

- Make sure to start in a safe environment (inside or outside).
- Take the training outside as early as possible to boost motivation and self-confidence

(!) If there are problems achieving stance release (e.g. full knee extension is missing) activate **training mode** and repeat walking on uneven ground. Keep in mind that for sitting down you need to unlock the knee joint via the app.

Goal Improve walking ability and range of ADLs.



Descending stairs – First exercise.

App Keep in **basic mode**.
(Adjust stance phase flexion resistance if support level changes.)

Training **Start inside parallel bars on a step board**
Place 1/3 of the foot on the orthosis side on the edge. Place weight on orthosis. Allow knee flexion (no active hip extension motion) and take step down with the contralateral leg.



- Train foot position
- Train putting weight on the orthosis side
- Make sure patient steps down vertically and does not bend the upper body too much forward
- Make sure leg axis is maintained

Goal Improve independance and range of ADLs.

11



Walking downstairs.

App Keep in **basic mode**.

(Adjust stance phase flexion resistance if support level changes.)

- Training**
- Repeat previous exercise with step board on the lowest step and pay attention on the foot positioning.
 - Train going downstairs with step-to-step pattern (contralateral leg goes down – same as in “Descending stairs – First exercise”)
 - Train going downstairs with alternating steps.
 - Change side of handrail

Possible indications if stance phase flexion resistance is set too high

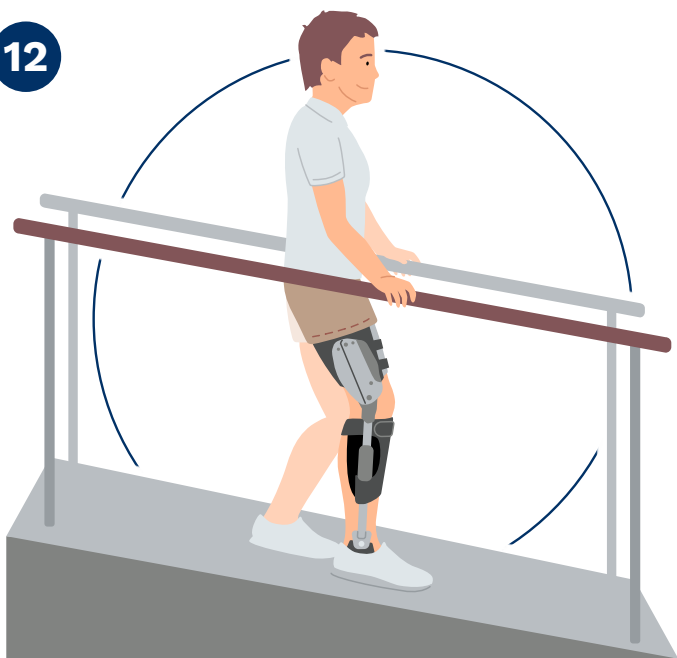
Allowing knee flexion while stepping down is hard. Patient possibly shows exterior rotation of leg and feels insecure.

Possible indications if stance phase flexion resistance is set too low

Orthotic knee joint bends very quickly, is hard to control by the patient, which can make them feel insecure.

Goal Improve independence and range of ADLs.

12



Walking downhill using yielding steps.

App Keep in **basic mode**.
(Adjust stance phase flexion resistance if support level changes.)

Training For learning yielding steps, it is easier to start on a steeper inclination in a safe environment.

Steep slopes

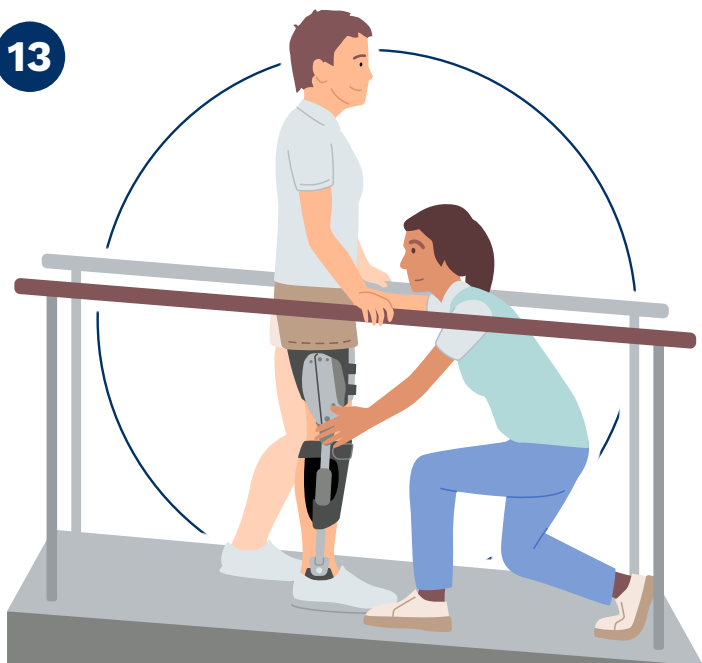
- Walking down with yielding steps = bending the orthotic leg under load.
- Walking pattern is similar to walking downstairs as well as how to secure the patient.
- Make sure the patient is completely rolling over the toes on the orthosis side.

In general

- Smaller steps are easier in the beginning
- Keep upper body upright
- Change side of handrail / reduce arm support

Goal Learn yielding technique.





Walking downhill on slopes.

App Keep in **basic mode**.
(Adjust stance phase flexion resistance if support level changes.)

Training **Walking on shallow slopes**

- Walking pattern corresponds to walking on level ground (stance release)

Walking on medium slopes

- Most difficult – patient has to actively decide which walking technique (stance release or yielding) is appropriate and secure.
- Which technique to choose also depends on the patient's walking ability, the use of walking aids and the surface (even, uneven, slippery ...)

In general

- Smaller steps are easier in the beginning
- Keep upper body upright
- Change side of handrail / reduce arm support

Goal Improve independence and range of ADLs.

