

C-Brace Activity Chart Guide

Comparing C-Brace to Patient's Current Device

September 24, 2018

The purpose of this guide is to strengthen your C-Brace Activity Chart. First we will go over the features and benefits and identify how the C-Brace can help your patient. Then there are some examples of how to complete the Activity Chart using this information.

Falls and Stumbles

Stumble Recovery

If medical records state that there are documented falls, your records will be stronger if you include detail about the number of falls and respective injuries and costs incurred as a result. The insurance payer likely paid for those injuries, but may not take the time to look back when deciding whether to cover C-Brace or not.

After compiling a history of falls and injuries state the following: “When the C-Brace microprocessor senses that the patient is in an insecure position—such as during a trip or stumble—it will increase resistance to provide the support needed to recover safely.”

Difficulty Walking Backward

Describe activities where that require stepping/walking backwards, such as when opening a door and the difficulties encountered. Follow with: “The C-Brace microprocessor technology provides safety and stability when the patient is forced to step backwards.”

Need to Stand Securely on Level Ground or on Slopes

Intuitive Stance

Describe activities that when on a level surface or on an incline your patient might have to stop and rest or stand in a locked position. Follow that with “The intuitive stance function on the C-Brace allows the patient to safely stand in a locked position (5°-15° knee flexion). This allows the patient to unload and rest while securely standing on level ground and slopes.

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Difficulty Transitioning to a Sitting/Standing Position or Relaxing in a Confined Space

Describe the lack of control observed when your patient transitions to a sitting/standing position. Follow with: "The C-Brace automatically detects when the patient begins to sit down, adjusting the hydraulic resistance so the knee joint provides progressive support during sitting. This allows the patient to complete the sit down motion in a controlled manner and at a controlled rate."

"The C-Brace automatically detects when the patient is in the sitting position and allows the patient's brace to be in a relaxed position in confined spaces"

"The C-Brace automatically detects when in a sitting position and allows the patient to more easily position the leg in preparation for standing."

Unable to Change Walking Speed

Compensatory Movements

Energy Expenditure Issues

Real-Time Gait Analysis

When discussing activities that require changes in walking speed (e.g. walking in crowds or crossing a busy street), follow with: "The C-Brace microprocessor receives information from the electronic sensors 100 times per second. Each time, gait is analyzed and the hydraulic controls are adjusted to prepare for the patient's next movement (in real-time). This allows the patient to walk with less concentration and easily change walking speeds.

Additionally, the patient will walk with less compensation of the sound side (e.g. hip hike, circumduction, or vault) and use less energy to ambulate."

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Long Distance Walking Requirement

For microprocessor-controlled prosthetic knees, most payers require patients have a need to ambulate more than 400 yards per day and many have this same requirement for microprocessor-controlled orthotic components. Establish this need based on what the patient desires to do on a typical day (not current). This should be realistic activities that patient will be able to do using C-Brace, and based on patient's activity level prior to the injury/illness. Measure the distances out using Google Maps.

Unable to walk down Hills, Ramps or Stairs (step-over-step) Requires Support for Sitting Down

Stance Flexion Resistance

Describe activities that include hills, ramps or stairs and then state that C-Brace provides hydraulic resistance against knee flexion (bending) allowing controlled partial knee flexion in early stance phase during weight bearing, thus providing shock absorption and reduced impact. This allows the patient to securely walk down hills and ramps and to descend stairs step over step.

Patient with Slow Walking Speed

Stance Flexion Resistance Plus

Describe activities that your patient has had difficulty performing due to a slow walking speed, such as transitioning from level ground walking to descending a ramp/stairs, or transitioning to an activity requiring increased knee flexion resistance for level ground walking. Follow with: "For patients with slow cadences, the C-Brace flexion resistance setting needs to be different when walking on level ground from that needed for descending ramps and stairs or for stand to sit support. Stance Flexion Resistance Plus is a setting that allows the knee joint to provide increased knee flexion resistance during level ground walking, which helps maintain the center of gravity height.

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Knee is not in Correct Position at Terminal Swing

Swing Flexion (Angle) Resistance

Describe situations where the swing phase knee flexes too much (not damped) and the limb lacks the timing for the knee to be in the proper position at terminal swing. Follow this with: "C-Brace adjusts hydraulic resistance of swing knee flexion during swing phase to insure that the swing phase limb is exhibiting proper swing phase mechanics. Without control of the swing flexion angle, the patient can be in a state of perpetual stumble at initial contact."

Knee Hyperextension Thrust Low Back Pain

Stance Extension Resistance

Document the patient's hyperextension thrust during stance extension and the resulting low back pain and any medical treatment, associated expenses, etc. Follow with "The C-Brace provides microprocessor-controlled real-time hydraulic resistance during stance extension resulting in a more natural gait. This resistance reduces knee hyperextension thrust by controlling the knee extension moment at terminal stance. This feature prevents the patient from over-rotating the pelvis posteriorly and overloading the lower back during ambulation on level ground."

Patient with Fast Walking Speed Difficulty with Deceleration

Swing Extension Resistance

Describe activities that require fast walking speed. Also describe any difficulties with deceleration. Follow with: "The C-Brace provides microprocessor-controlled real-time extension hydraulic resistance during terminal swing.. This resistance is essential to provide shock absorption against impact with faster walking speeds. Additionally, adjustment is provided for smooth deceleration at all cadences."

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Daily Activity Chart Example:

Daily Activities	Distance Traveled	Without a mobility aide or orthosis?	With current orthosis and/or mobility aid.	How will patient be able to do it better with the C-Brace?
<p>Prior to the injury, patient was employed as a _____. He would like to return to work, requiring he use public transportation, which entails:</p> <ul style="list-style-type: none"> Walking 700 yd./day Bus access - stairs Busy street with timed crossing light Sidewalk slope 10 degrees Sidewalk cracks - uneven 	<p>Goal: 700 yds. /day (5 days/wk)</p> <p>Approx. 2 miles per week</p>	<p>Without a mobility aid, his knee collapses when he puts weight on it.</p>	<p>He currently uses a locked KAFO and Lofstrand crutches, which is very tedious. He can only walk 100 yards without resting.</p> <p>He would not be able to get on the bus, due to the locked knee. He cannot get across a busy street before the light changes and is at risk of falling on slopes and uneven terrain.</p> <p>While using his locked KAFO, he has fallen 8 times in the past year, broke his wrist, injured his back, and incurred \$9500 of related medical expenses.</p> <p>Recently he started using crutches with the KAFO, and still stumbles frequently and feels unsafe. While using his crutches, he cannot carry objects nor do other activities using his hands. They also cause stress and pain in his wrists and shoulders, which in turn requires pain medication. Already, he has had PT for wrist and shoulder pain.</p>	<p>He trialed the C-Brace for several hours and was able to ambulate on a slope and uneven terrain, walk down stairs step-over-step. He used one crutch during the trial, but should be able to discontinue use within a month.</p> <p>The C-Brace microprocessor always ramps up high stance flexion when the calf swings forward after heel rise and automatically provides the support needed to recover safely, which will help when walking on uneven sidewalks and should increase his overall confidence. Hydraulic resistance against knee flexion (bending) will allow him to safely navigate the slope and bus stairs. The C-Brace analyzes and adjusts the hydraulics in real-time, which will help him to walk faster when crossing the street, and microprocessor-controlled progressive extension resistance during terminal swing will provide shock absorption against impact with faster walking speeds.</p>
<p>Prior to the injury, patient went to the gym 3X per week and walked 2 miles on the tread mill. Realistically, he would like to get back up to 1 mile</p>	<p>Goal: 1 mile @ 3X/wk</p>		<p>He attempted to walk on the treadmill with his locked KAFO. He had to walk at a very slow rate completely supporting himself with the bars. He was afraid of falling and this hurt his shoulders.</p>	<p>The C-Brace will give him the necessary stability to walk on the treadmill using the bars similar to an able-bodied person, without fear of falling.</p>
<p>Prior to the injury, patient went hiking in the mountains on steep and uneven terrain at least 12 times per year. Generally, these would be 5-10 mile hikes. He would like to start slowly doing this again.</p>	<p>Goal: 1-2 miles per month</p>		<p>He has not attempted any hiking with his locked KAFO.</p>	<p>The C-Brace's stumble recovery feature, hydraulic resistance against knee flexion will allow him to safely navigate uneven terrain and slopes. The microprocessor-controlled progressive extension resistance during terminal swing will provide smooth deceleration when coming down off the mountain. No other orthosis has these features.</p>