

**ottobock.**

# World's First Orthotronic System

You'll always remember your first step



Quality for life

Information for practitioners

# Orthotronic Mobility System

## Orthotics reinvented

Until now, you and your patients had very few choices for people with indications like incomplete spinal cord injury, weakness or paresis of the quadriceps, and post-polio syndrome. Now, instead of settling for a locking joint, you can fit the Ottobock C-Brace® system.

Among the many benefits, patients most value the ability to change speeds, to walk with controlled knee flexion, and to move more efficiently. In daily life, that means a walk in the park can be just that. A patient can trust their knee to support them on all types of terrain, and they can spend their energy and attention enjoying the day.

This dramatic increase in function is possible through real-time gait analysis and goes far beyond simply locking and unlocking the knee joint. Patients experience support throughout the gait cycle as the system automatically adjusts to prepare for the next movement.

Incomplete paraplegia meant Christin was in a wheelchair for 4 years. Now, after therapy and using the C-Brace, she is enjoying life upright.



## Key features

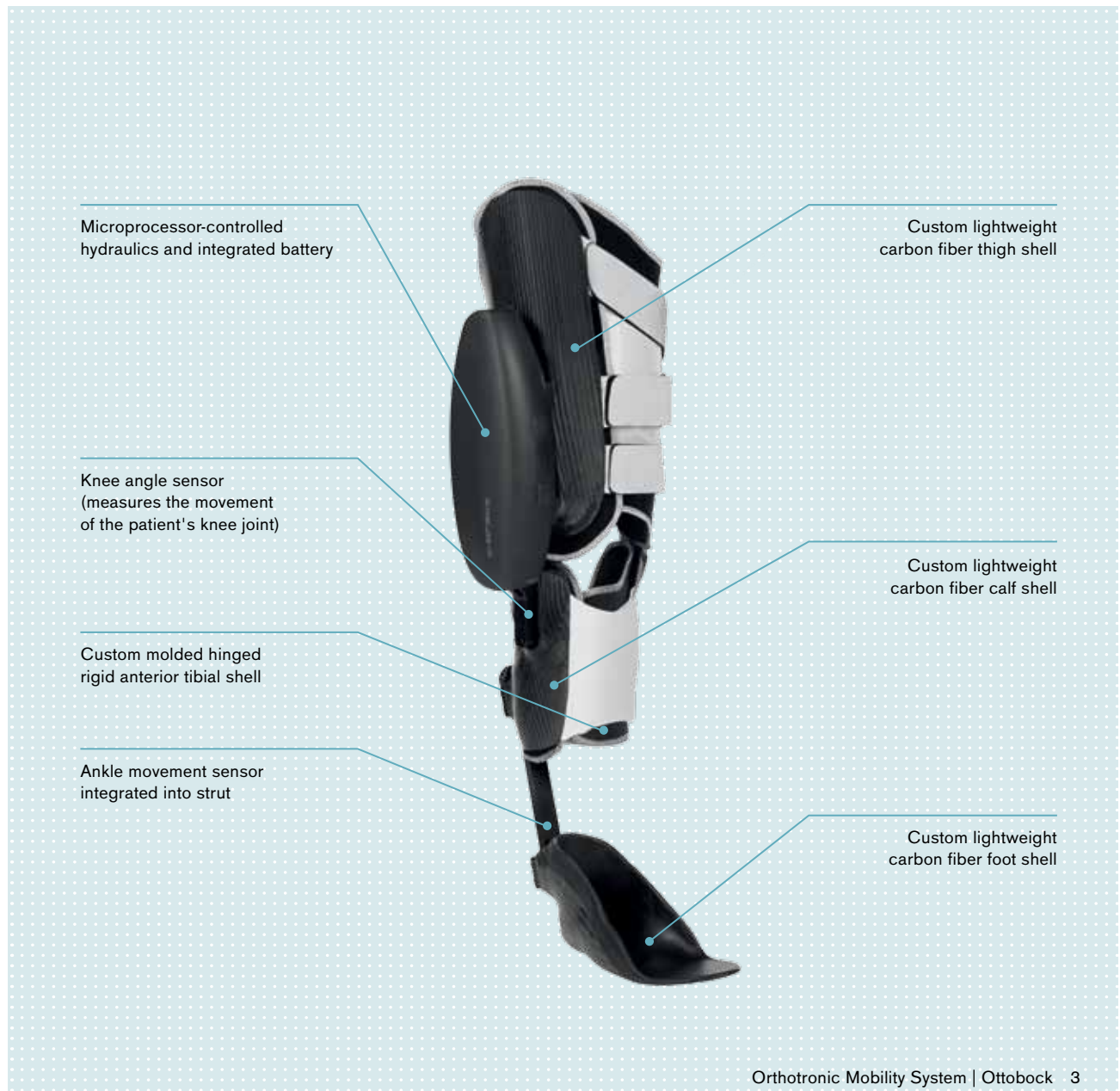
**Stumble Control:** Resistance to uncontrolled knee flexion when sensors read a moment of instability gives the time necessary to recover.

**Real-Time Gait Analysis:** Every period of gait in the gait cycle is controlled dynamically and in real time, allowing the patient to walk with more ease and less concentration – with less compensation of the sound side and torso.

**Standing and 2nd Mode:** Additional modes allow for comfortable static standing and additional settings (for therapy or other activities).

**Stance Extension Damping:** Progressive resistance allows natural movement to occur without uncontrolled and early knee and hip extension at Terminal Stance, resulting in a more natural movement without abrupt changes to the center of gravity, lower back and lower limb joints.

**Stance Flexion Damping:** Controlled, partial knee flexion while weight bearing allows the patient to exhibit knee control when walking down hills and ramps, descending stairs step over step, and while sitting down into a chair.



# Orthotronic Mobility System

## Seizing new opportunities

### **Who benefits from orthotronic technology?**

Combining real-time gait analysis, the energy redistributing properties of carbon fiber, and the ability to use software to customize the knee joints response creates the ideal situation for your patient. The system doesn't walk for your patient — it helps normalize and free your patient to ambulate to their full potential.

Everyday life demands the ability to walk on uneven ground, to descend stairs and ramps, and to tackle slopes. Depending on your patient's abilities, all of these obstacles become surmountable — with less energy expenditure and concentration — all while reducing wear and tear on the sound side.



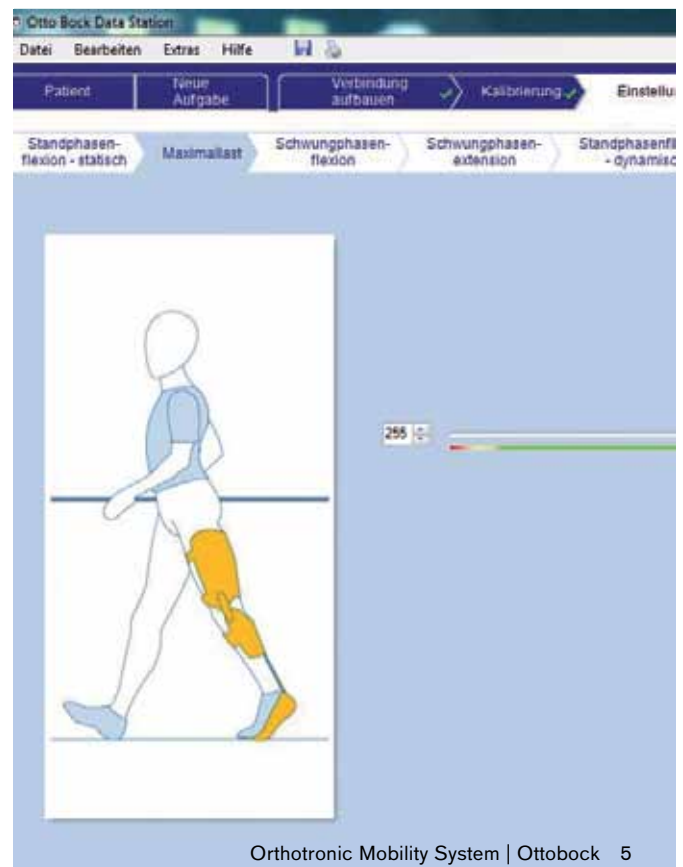
## Indications

The Orthotronic Mobility System can be considered for all neurological indications of the lower limbs. The primary indications include:

- Lower limb involvement with weakness or paresis of the quadriceps muscle or the inability to maintain knee extension during stance phase, e.g. incomplete paraplegia with segmental levels of L1 to L5 or polio, post-polio syndrome

## Contraindications

- Moderate to severe lower limb spasticity
- Hip flexor strength of less than grade 3. Ability to advance the limb by compensatory trunk movement is permitted
- Fixed knee valgus greater than 10 degrees beyond anatomic neutral
- Fixed knee varus
- Less than 2 degrees of relative ankle dorsiflexion
- Body weight over 125 kg/275 lbs



# Orthotronic Mobility System

## Stable walking

### Game-changing science

Orthotronics is the synergy created by applying mechatronics (mechanical, electronic, computer, systems design and other engineering disciplines) to the field of custom orthotics. The C-Brace® is the first system available to utilize this revolutionary approach to dramatically improve patient outcomes.

By assessing the patient's activities in real time, the system is able to manage every period of gait, in any terrain, and deliver unmatched stability and responsiveness.

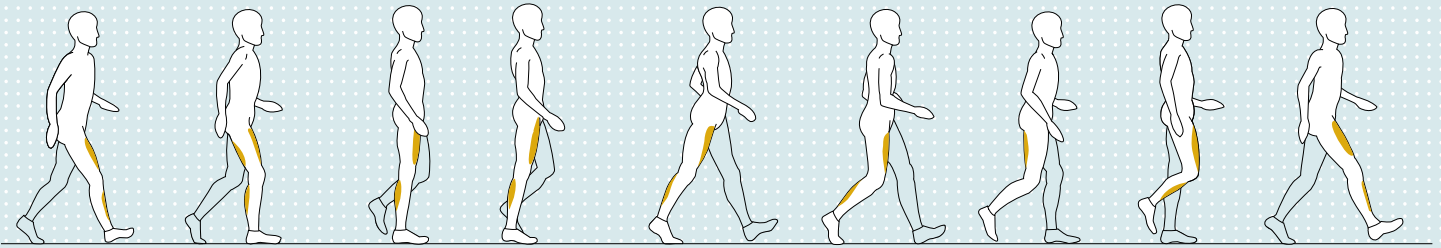
Constant, real-time measurements:

- Knee angle
  - Direction and velocity
  - Acceleration and deceleration
- Ankle flexion/extension
  - Increasing/decreasing



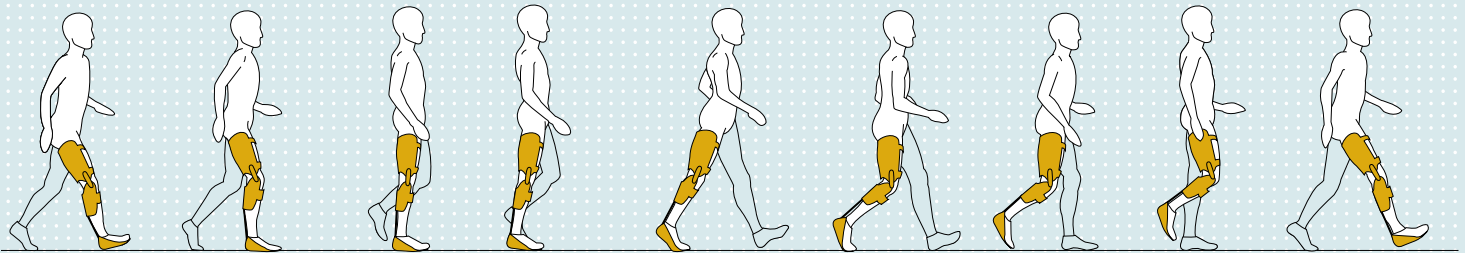
# Phases of Gait: How your patient is freed to walk

Human gait



1. Initial contact
2. Load response
3. Mid-stance
4. Terminal stance
5. Pre-swing
6. Initial swing
7. Mid-swing
8. Terminal swing

Walking with the C-Brace®



1. Stance phase flexion damping: controlled stance phase damping supports the knee extending musculature upon heel strike
2. Stance phase flexion damping plus/time: additional damping option that supports the musculature as needed upon increased load transfer. Time limit on additional stance phase damping
3. Stance phase extension damping: knee extension damping in the stance phase for a natural, smooth movement of the knee joint
4. Maximum toe load: definition of the safe switching point to trigger the swing phase
5. Swing phase initial flexion damping: switching to minimum resistance for optimum initiation of the swing phase
6. Swing phase knee angle threshold/ swing phase dynamic factor: controls the end of swing phase flexion for an optimized gait pattern
7. Swing phase extension resistance: switching to minimum resistance during swing phase extension
8. Swing phase extension damping: final swing phase extension damping for a soft braking movement at changing walking speeds

To provide optimum support, it is key to make software and other adjustments at the time of fitting, then follow up in 4-8 weeks to make further adjustments as your patient readjusts to a more efficient gait cycle.

# Orthotronic Mobility System

## Learn more

Your sales representative is a great starting point to learn the details of how to get the required training to fit and purchase a C-Brace®. Or, they can have a personal conversation with you about how it can expand your business and raise your professional profile, and benefit your patients through improved function and outcomes. Visit [www.ottobockus.com](http://www.ottobockus.com) for more specifications and other details.

