

# Levitation<sup>®</sup>

Tri-compartment Unloader

Levitation<sup>®</sup> is the world's first compact and powerful bionic knee brace. It is designed to enhance mobility, while reducing joint forces throughout the whole knee. Levitation<sup>®</sup> stores kinetic energy generated during knee flexion and restores that energy upon extension. The result is a revolutionary knee brace that not only stabilizes the joint, but also enhances strength and endurance while reducing impact in the most commonly injured joint in the body.

## INDICATIONS:

- Multi-compartmental Knee Osteoarthritis
- Uni-compartmental Knee Osteoarthritis
- Meniscus injury
- Extensor mechanism deficiency
- Tibial plateau fracture
- Joint overuse injuries

## KEY BENEFITS:

- Multi-compartment unloading technology
- Unloads the joint by up to 64%<sup>4</sup>
- Knee extension assist braces can help:<sup>1,2,3</sup>
  - ✓ rebuild natural strength
  - ✓ reduce pain
  - ✓ improve gait
  - ✓ improve function in activities of daily living
- Augments quadricep function
- Provides functional stabilization
- Helps reduce pain
- Helps prevent injury

## KEY FEATURES:

- Spring-loaded hinge
- Instant spring disengage
- Adjustable force-output
- Quick-release strapping
- Customizable force-response
- No-slip suspension system



Levitation® augments the strength and endurance of your knee joint and leg muscles, giving you the confidence to work harder, play longer, and do more of what you love.

## ENHANCED STRENGTH

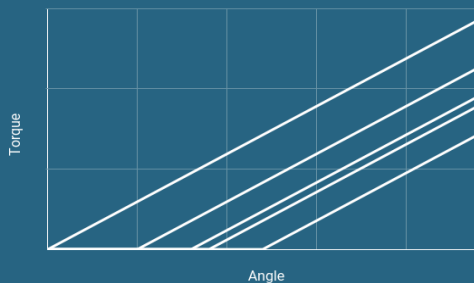
Levitation® stores energy in a compact spring-loaded hinge mechanism as the knee is bent. The stored energy is released as the leg is straightened, thereby augmenting the output of the quadriceps muscles and assisting knee extension. The maximum force-output and range of motion assisted can be adjusted by the patient or clinician as rehabilitation progresses, helping the user to get back to their activities sooner. As patients' needs change, assistance from the brace can be increased, reduced, or turned off.

## TRI-COMPARTMENT UNLOADING

Tibiofemoral and patellofemoral joint stress increases with greater levels of knee flexion. Although weight-bearing exercise is essential for strength training and injury rehabilitation, limiting joint compression is equally important for the successful management of symptoms. Levitation® is the only brace that can simultaneously reduce tibiofemoral and patellofemoral joint forces by up to 64% during weight bearing flexion. <sup>4</sup>

## ADJUSTABLE EXTENSION ASSIST

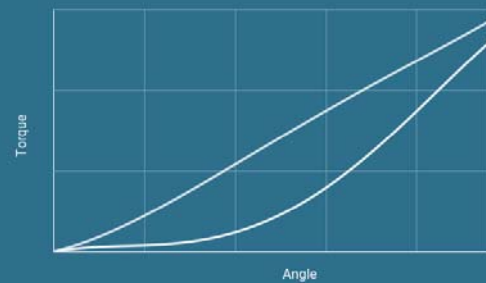
The maximum force-output and unassisted range of motion can be adjusted by the user over time to meet their changing needs.



For example, a user may choose to reduce the force output and unassisted range of motion as their confidence and natural strength rebuild through the rehabilitation process.

## CUSTOMIZABLE FORCE RESPONSE

The shape of the force-response curve can be customized across the range of motion of



The lower curve provides enhanced support in deeper levels of flexion, while the upper curve provides consistent support through all levels of knee flexion.

## References

1. Cherian, J. J. et al. Strength and Functional Improvement Using Pneumatic Brace with Extension Assist for End-Stage Knee Osteoarthritis: A Prospective, Randomized trial. *J. Arthroplasty* 30, 747–753 (2015).
2. Johnson, A. J., Starr, R., Kapadia, B. H., Bhave, A. & Mont, M. A. Gait and Clinical Improvements with a Novel Knee Brace for Knee OA. *J Knee Surg* 26, 173–178 (2013).
3. Kapadia, B. et al. Gait Using Pneumatic Brace for End-Stage Knee Osteoarthritis. *J. Knee Surg.* 29, 218–223 (2016).
4. C. McGibbon, A. Mohamed, A. Knee load reduction from an energy storing mechanical brace. *Canadian Society for Biomechanics* (2018).



1.877.209.8780

[springloadedtechnology.com](http://springloadedtechnology.com)

[twitter.com/springloadedtec](https://twitter.com/springloadedtec)

[facebook.com/springloadedtechnology](https://facebook.com/springloadedtechnology)