

Polycentric (multi axial) knees



Description

This type of knee is more complex than the monocentric design, having as many as seven pivot points. These extra axes of rotation allow the knee to bend with a more anatomically correct gliding motion.

Advantages

- May feature mechanical, pneumatic or hydraulic control.
- Gliding motion mimics anatomical action and flexes further than monocentric knees.
- Become more stable as they wear.
- Geometric lock offers stance control and enhanced stability up to 15 degrees of flexion.
- May feature a manual lock
- Geometry reduces the shin length during swing, reducing the risk of stumbling.
- Reduces thigh length inequality when used with a very long residual limb.
- Lower wear coefficient for full length cosmetic covers.

Disadvantages

- Constant friction design does not adapt to different walking speeds.
- May become noisy when wearing.
- Smaller articulating surfaces are prone to higher wear factor.
- Generally heavier than comparable monocentric knees.
- Larger than similar monocentric knees.
- More expensive comparable monocentric knees.
- Do not tolerate corrosive environments as well as monocentric knees.