Mechanical friction

Description

Mechanical friction knees are lightweight and relatively inexpensive due to their simplicity.

The friction (resistance to bending) in the knee joint is typically adjusted by tightening a screw or bolt. The same amount of friction is applied to the knee regardless of whether it is flexing or extending.

A spring is often used to overcome some of the friction when the knee extends (straighten). This speeds up the knee in the swing phase of gait.

Advantages

- Simplicity
- Durable & robust
- Can be made lighter and smaller.
- May be used over one axis of rotation (monocentric knees) or multiple axes (polycentric knees).
- Inexpensive.

Disadvantages

- Friction reduces with wear & may need frequent adjustment.
- Constant friction design does not adapt to different walking speeds.
- May become noisy when wearing.