

## Child's 4-bar knee

Child's 4-bar knee uses a polycentric, four-bar knee mechanism. It has highest weight rating of any children's system at 60 Kg. It has proved to be very tough and durable in use. Swing phase control is achieved using one of three coiled springs (varying stiffnesses) that can be further adjusted, varying the compression.

The concept of polycentric prosthetic knees, using a "four-bar" mechanism has existed since the late 1960s. The multiple pivot points allow the adaptation of the 'instantaneous centre of rotation' (ICR) of the device. During stance phase, the ICR rises, improving stability. At the end of stance phase, the increased moment arm allows easier flexion initiation, compared to monocentric knees. During swing phase, the lowered ICR increases toe clearance.

### Improvements in Clinical Outcomes using four-bar, polycentric knees compared to monoaxial knees

#### Improvement in **SAFETY**

- Increased mean prosthetic minimum toe clearance<sup>2,4</sup>, reducing the likelihood of tripping.
- Fully satisfies stance phase stability<sup>3</sup>

#### Improvement in **USER SATISFACTION**

- Acceptable cosmetics for knee disarticulation amputees and trans-femoral amputees with long residua<sup>1</sup>
- Meets all the design requirements for paediatric patients<sup>3</sup>

### References

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