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Evidence Essentials.

C-Leg microprocessor knee

	Mobility need or deficit of the patient	Evidence for benefits of the C-Leg vs. NMPK
Safety	Patient has a history of fall-related injury Patient stumbles and/or falls repeatedly Patient avoids activities due to fear of falling Patient sustained fall-related injuries	- **Significant 65% reduction of patients who experience injurious falls** (Campbell et al., 2020) - **Significant reduction in falls of up to 80%** (Hafner et al., 2007 and 2009; Highsmith et al., 2010; Kahle et al., 2008; Kannenberg et al., 2014, Kaufman et al., 2018; Davie-Smith et al., 2021) - **Significant reduction in stumbles of up to 57%** (Hafner et al., 2009; Highsmith et al., 2010; Kahle et al., 2008; Kannenberg et al., 2014) - **Significant improvements in balance and indicators for the risk of falling, such as Timed-up-and-go-test, forced gait perturbations in the gait lab, ABC scale, etc.** (Blumentritt et al., 2009; Burnfield et al., 2012; Hafner et al., 2007 and 2009; Kannenberg et al., 2014; Kaufman et al., 2007; Lansade et al., 2018; Davie-Smith et al., 2021)
Mobility	Patient has difficulty negotiating slopes/hills	- **Significant improvement in quality of slope/hill descent towards natural, reciprocal (step-over-step) gait pattern** (Hafner et al.; 2007 and 2009; Highsmith et al., 2013; Kannenberg et al., 2014) - **Significant increase in downhill walking speed of up to 40%** (Burnfield et al., 2012; Hafner et al., 2007 and 2009; Highsmith et al, 2013; Kannenberg et al., 2014)

	Mobility need or deficit of the patient	Evidence for benefits of the C-Leg vs. NMPK
Mobility	Patient has difficulty negotiating uneven terrain and obstacles	- **Significant increase in walking speed on uneven terrain and obstacle courses of up to 21%** (Kahle et al., 2008; Seymour et al., 2007)
Mobility	Patient has difficulty descending stairs with reciprocal (step-over-step) gait	- **Significant improvement in quality of stair descent towards natural, reciprocal (step-over-step) gait pattern** (Hafner et al., 2007 and 2009; Kahle et al., 2008; Kannenberg et al., 2014; Schmalz et al., 2007)
Mobility	Patient has difficulty with dual tasking while walking with the prosthesis	- **Significant reduction in cognitive demand while walking with the prosthesis** (Hafner et al., 2007 and 2009; Seymour et al., 2007; Williams et al., 2006) - **Significant reduction in cortical brain activity and perfusion during dual-tasking** (Möller et al., 2019; Ramstrand et al, 2020) - **Significantly improved capacity and performance in executing a concurrent task while walking with the prosthesis** (Hafner et al., 2007 and 2009; Morgan et al., 2015; Seymour et al., 2007; Williams et al., 2006)
Mobility	Patient is limited in his/her mobility	- **About 50% of K2 patients are able to improve their overall mobility level to K3** (Hafner et al. 2009; Kahle et al., 2008; Kannenberg et al., 2014)
Musculo-skeletal pain	Patient suffers from joint and back pain due to gait asymmetry and excessive loading	- **Significant improvement in gait symmetry and, thus, loading of the locomotor system** (Kaufman et al, 2007 and 2012; Segal 2006) - **Significant stance knee flexion that results in shock absorption to unload proximal joints and the spine** (Kaufman et al., 2007; Segal et al., 2006)

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