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Use of the Timed Walk Test, Physiological Cost Index and Prosthesis Evaluation Questionnaire as Outcomes Measurements for the Validation of the LEGS M1 Knee

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Int J Exerc Sci 2(1): S45, 2009. LeTourneau Empowering Global Solutions (LEGS) administered a preliminary study comparing energy cost and patient satisfaction of three different prosthetic knee configurations. The LEGS M1 knee was compared with both a locked LEGS M1 knee and the OrthoEurope 4-bar (OE4bar) knee. Energy cost was measured using the Physiological Cost Index (PCI) and Timed Walk Test (TWT). Patient satisfaction was measured using the Prosthesis Evaluation Questionnaire (PEQ). The TWT and PCI indicated that the LEGS M1 knee was more costly to walk with than the OE4Bar conformation. In the comparison between the LEGS MI knee and the locked configuration, TWT and PCI indicated wide individual variation in energy cost, with some amputees walking consistently using less energy cost in the locked configuration while others walked with less energy cost using the LEGS M1 knee. The PEQ indicated amputee preference for the LEGS M1 knee over the locked conformation in all but two functional parameters, both pertaining to knee stability. Preliminary results indicate that these outcomes measures are collecting usable and pertinent data. Wide individual variation was found, possibly due to habituation issues. Follow-up data and a larger sample size are planned. Improvements to the protocol are ongoing, but overall these tests are robust and reliable for continued research.

