**Recommendation Title:** Role of Three-Dimensional Computerized Gait Analysis in Treatment Decision‑Making and as an Outcome Measure and its Cost Effectiveness

**Recommendation Code:** C4

**Category:**  Limited Access/Outcomes

**Recommendation**

**Background**

A major barrier to the clinical implementation of gait analysis technologies in some surgical and most rehabilitation settings, and therefore access to these technologies, is the paucity of quantitative research documenting the advantage of computerized gait analysis over traditional clinical evaluations (static physical examination and observational gait analysis) in treatment decision-making, outcome assessments, and cost- effectiveness. Historically, most orthopaedic surgeons and rehabilitation specialists have relied primarily on static examination and observational gait analysis to make treatment decisions. Single level surgeries and other ineffective treatment strategies may have resulted from these diagnostic approaches. Treatment outcomes have either not been performed or have relied on more qualitative methods, that are not as valid or reliable. Furthermore, the costs of ineffective treatments and staged single level surgeries have not been closely scrutinized. Computerized gait analysis can provide valid, reliable, and quantitative information, but it has not been demonstrated to be a superior tool in well controlled studies.

**Objectives**

Test the hypothesis that three-dimensional gait analysis is:

1) Superior to traditional methods of evaluation used by surgeons and rehabilitation specialists in treatment decision‑making for specific diagnoses.

2) It can provide superior quantitative outcome measures of treatment.

3) It is cost effective.

**Recommended Actions**

Provide funding to centers of excellence to design well controlled studies to:

1) Compare the effectiveness of computerized gait analysis to traditional methods of evaluation used for locomotion impairments in treatment decision making.

2) Study the outcomes of treatments of locomotion impairments using computerized gait analysis in order to determine the most appropriate gait measures to be used as outcome measures.

3) Study the cost effectiveness of utilizing computerized gait analysis as an evaluation and outcome measure tool.