Priority Statement Title: Broadening Dissemination: Translating Knowledge Gains Across Disciplines

Priority Statement Code: LF2C

Domain: Cellular, Joint, Limb/Whole Body, Functional Outcomes

Priority Statement

Background and Relevance

To maximize the impact that biomechanics has on clinical care, it is necessary that the findings of scientific study be shared and understood by clinicians. However, each discipline spanned by the field of biomechanics (e.g. engineering, physical medicine and rehabilitation, sports science) has its own culture. These unique cultures have led to discipline-specific differences in vocabulary and language, base knowledge and methodological approach, utilization of tools, and modes of dissemination.

Communication deficiencies between disciplines can hinder knowledge translation within the same institution. The problem can be exacerbated by differences in means of knowledge dissemination; e.g., clinicians in a rural independent practice may not have the means of learning about effective practices identified by a biomechanist team in a large research institution.

These communication deficits are due in large part to the limited mechanisms available for broad dissemination of research findings in a way that maximizes accessibility without overly distilling or inaccurately portraying the science. The problem is compounded in that many of the clinicians who have the potential to be impacted by biomechanics research do not have regular interactions with the biomechanics community. Additional barriers exist such that if the correct knowledge does reach the broader community, not all individual clinical practices have the technical expertise to carry out certain practices. This is particularly true for sophisticated technologies or complex data analyses techniques. Standardization issues related to assessment, intervention methodology, analysis, and reporting also complicate the problem.

As efforts increase to foster collaboration between scientists and clinicians throughout the research process, the opportunity and need for broader dissemination will continue to grow to reflect these more widely relevant works.

Objectives

1. Increase dissemination, understanding, and acceptance of research findings within a broader clinical audience.
2. Increase academic value of transdisciplinary biomechanics research.
3. Establish standardized practices for biomechanical testing methodology, data analysis, and reporting for use in a clinical environment.

Recommended Actions

1. Create opportunities for researchers to personally disseminate their findings to diverse clinical communities via in-services, workshops, or other outreach activities. Criteria for reviewing an investigator's credentials should be broadened to recognize these efforts.
2. In collaboration with relevant professional societies, identify barriers faced by researchers in transdisciplinary biomechanics research. Encourage academic institutions to work towards removing these barriers (e.g. inclusion of publications in non-scientific journals when making promotion and tenure decisions).
3. Coordinate efforts for increased publication and dissemination of up-to-date, topic-specific reviews for clinical practitioners [e.g. formats similar to the physical therapy trade publications *Critically Appraised Topics* (CATs) and *Patient-Oriented Evidence that Matters* (POEMs)].
4. Establish communications forums for the sharing of resources and diverse dialogue across disciplines. These could include regular State of the Science conferences, workshops and web-based consortia.

5. Provide incentives for development of biomechanical standards, including vocabularies, test methods, analyses, and reporting formats (e.g. the C3D standard for motion capture).