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When viewed through the lens of the World Health Organization's International Classification of Functioning, Disability and Health, changes in biomechanics due to a health condition would fit into the domain of Body Function/Structure. Inherent to this classification system is the concept that impairments in body function/structure may be related to impairments of activity and participation and vice versa. However, the relationship between biomechanical impairments and activity/participation is often not straight-forward. Only recently have studies investigating the effect of interventions on biomechanical impairments begun to also include measures of the effect on activity/participation.

An important feature of biomechanical impairments is that they are generally modifiable, while many of the other factors influencing activity/participation limitations are not (e.g. - age, race, gender etc). Thus, biomechanical impairments are a potentially important group of factors to target with interventions aimed at improving activity/participation. Rehabilitation interventions are particularly well-suited to address biomechanical impairments. However, it is often the case that rehabilitation interventions that are very good at addressing a particular biomechanical impairment do not have the subsequent desired effect on activity and participation impairments. One reason for this is that biomechanical impairments are just a single factor among a myriad of factors that influence activity and participation. Another reason is that there may be a "threshold" change in a biomechanical impairment that is required in order to see translation of that change into improvements in activity/participation. If that threshold is not met, improvements in activity/participation will not be observed. In addition, there may be a critical group of biomechanical factors that must be affected and influencing any one of that group may not elicit "threshold" changes necessary to see changes in activity/participation. In some persons biomechanical impairments, while present, may play a minor role in activity/participation impairments. For example, for the severely depressed person, the fact that they have no energy to get out of bed may be far more influential on their activity/participation limitations than the fact that they walk with a stiff-knee gait. Finally, co-morbid health conditions, age, gender and other personal factors may interact to influence the relationship between improvements in biomechanical impairments and activity/participation.

Given the complicated relationship between biomechanical impairments and impairments of activity/participation, it is important that we begin to develop a clearer understanding of when improvements in biomechanical impairments can have a positive influence on activity/participation.

Research Recommendations:

1. Achieve consensus regarding the importance of including measures of activity and participation in studies directed at influencing biomechanical impairment.
2. Identify health conditions for which biomechanical impairments are often a major factor in activity/participation impairments.
3. For the identified health conditions in (2), determine the critical biomechanical factor(s) related to activity/participation impairment.