

PHYSICAL ACTIVITY, FALLS, INJURIES, AND TECHNOLOGY: TOWARD AN ACCESSIBLE BIOMECHANICAL DATA BASE?

In addressing the specific issues of physical activity, falls and injuries, as mentioned in the European Silver Paper¹, technologies currently exist for measuring the biomechanical performance of the muscles and joints of older adults. This is of value in informing the planning of their healthcare, rehabilitation, the design of the built environment, and services to optimise mobility and quality of life. However, the technologies for obtaining data from older adults currently entail screening to determine their fitness for trials participation, cumbersome and slow evaluation processes, large and expensive labs, and the data produced tend to remain in the style and domain of bioengineers, creating a barrier to exploiting their wider value. The data is also generalised and it is difficult to plan immediate and effective healthcare on an individual basis. The challenges here are: (i) to share this data in an accessible format amongst a broad range of key professions to enable more holistic planning, and (ii) to develop approaches and technologies that allow individualised diagnosis and planning.

Steps towards this goal have already been made² where a proof-of-concept trial has highlighted the value of visualisation of biomechanical data obtained from older adults. The method promotes communication between and amongst different disciplines as well as deepening professional understanding, particularly in physiotherapy applications. This has underlined the value of a coordinated multidisciplinary approach to enable biomechanical data to be shared more easily with further disciplines, such as physiotherapy, occu-

pational therapy, and design, as well as allowing commentary from older people themselves. Further investment will assist in the development of not only technologies to the extent that they are portable, cost-effective, and easily usable, but also rethinking processes and protocols to be more inclusive, benefiting to a far greater extent from the valuable experiences and insights of older adults as well as a broad range of professionals. Application of such technology will assist in, for instance, healthcare team diagnosis, prevention, and in the rehabilitation of physical activities compromised by age-related conditions, disease, or falls, such as appropriate exercises to prevent or minimise foreseeable injuries, rebuilding or maintaining strength through rehabilitation in the event of injury, or planning for increased mobility in institutionalised settings.

References

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PHYSICAL ACTIVITY, ELECTRONIC ASSESSMENT AND COACHING

The age-related decline of biological potential, as mentioned in the European Silver Paper¹, is clearly reflected in physical

activity. Doubly labelled water studies show that physical activity induced energy expenditure decreases on average with more than 50% between the age of 20-30 and over 65². Encouraging physical activity,