

International Encyclopedia of Rehabilitation

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Transferring

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Overview

Transferring the body between surfaces or positions is a crucial aspect of daily task performance. Some health professionals and researchers consider the act of standing up from a seated position to be a form of transfer yet others use this term to mean to transfer of the body from one surface to another such as from a wheelchair to a chair or to a toilet.

Within the World Health Organization's International Classification of Functioning Disability and Health (ICF, <http://www.who.int/classifications/icf/en/>) (WHO 2002) transfer is considered an aspect of Mobility within the Activities and Participation section. People with many health conditions are likely to have difficulty with transfers. This International Encyclopedia of Rehabilitation entry aims to provide an overview of transfer task requirements, discuss the place of transfer within the ICF, outline intervention strategies and summarize evidence testing the effect of training to improve transfer performance.

Impaired transfer abilities

Transfer abilities may be impaired for a wide variety of reasons such as pain, muscle weakness or muscle activation difficulties, joint contracture or amputation. People affected by spinal cord injury, brain injury, cerebral palsy or multiple sclerosis may have particular difficulty with transfer tasks. For some people this limitation may be stable or performance may deteriorate over time. For other individuals, transfer problems may be temporary and associated with an acute illness or surgery. Environmental factors have an important impact on transfer performance. Some environmental factors may make transfer tasks difficult or impossible. For example a low chair or small toilet cubicle may mean that a person who would be able to transfer independently and safely in a different environment is not able to do so.

Transferring within the ICF

The World Health Organization's International Classification of Functioning Disability and Health (ICF, <http://www.who.int/classifications/icf/en/>) (WHO 2002) aims to provide a standard language and framework for the description of health and health-related states. In the ICF, disability and functioning are viewed as outcomes of interactions between health conditions and contextual factors. The ICF identifies three levels of human functioning 1) functioning at the level of body or body part (impairments), the whole person (activity limitations) and the whole person in a social context (participation).

Within the ICF, "transferring oneself" is considered an aspect of Mobility (Chapter 4) which is one of the 9 domains within the Activities and Participation section. The mobility chapter described is about "moving by changing body position or location or by transferring from one place to another, by carrying, moving or manipulating objects, by walking, running or climbing, and by using various forms of transportation". Transfer abilities would also impact on Self Care

(Chapter 5) and Domestic Life (Chapter 6). Assistive devices that are used to assist with transfers are classified in the Environmental Factors section of the ICF. The self-care and domestic roles for which the person will use transferring abilities should be considered by the rehabilitation professional who is assessing or training transferring abilities.

The transfer task as a motor skill

The ability to safely transfer the body between surfaces or positions can be viewed as a motor skill like other daily activities such as walking or stair climbing (Carr and Shepherd 1998). Motor skill performance involves the integration of information from the environment about the requirements of a task (e.g. height and stability of surfaces) and activation of muscles with the appropriate level of force and timing to complete the task. Motor skills needed in daily life can be trained just like tasks we more commonly consider to be skills such as playing tennis. Techniques such as practice, the provision of feedback and structuring the environment are crucial to improved motor task performance (Carr and Shepherd 1998).

Interventions to improve transfer

As transfer ability is influenced by the person's physiological and cognitive abilities as well as their environment, interventions which aim to enhance transfer can be addressed at modifying the environment, the person or a combination of both. Interventions may aim to enable the individual to transfer more easily and /or more independently. Or, if this is not realistic, interventions may aim to teach carers/ care givers to safely transfer the person using assistive devices such as a hoist.

In order to implement an intervention to improve transfers, the rehabilitation professional should make an assessment of the factors limiting task performance and make a judgment about, whether the limitations are amenable to intervention. This process should be conducted jointly with the person receiving the intervention and/or their carers. It should ideally involve a visit to the home and/or workplace to assess the requirements of the transfer tasks the person is required to/ wishes to undertake in daily life. This process should be individualized as individuals with similar impairments may have very different environmental contexts and require different interventions.

Interventions at the level of the person may include addressing the impairment underlying the task difficulty (e.g. muscle strengthening) and/or training and practice of the task. Interventions at the level of the environment may include modification of the environment in which transfers need to occur (e.g. raising the height of surfaces and/or the position of objects) and/or the provision of equipment to assist with the transfer task e.g. a transfer board to assist the person to slide from one surface to another.

Interventions to improve transfer at the person and the environmental level should occur concurrently. If they are conducted by different professionals there should be regular communication and joint goal setting which also involves the client and carers if appropriate. It may be that earlier in the rehabilitation process there is more focus on interventions at the level of the person.

Evidence on effectiveness of interventions

To obtain a rapid impression of the current evidence base for interventions to improve transfer a search of the PEDro (Physiotherapy Evidence Database, www.pedro.org.au (Maher et al 2008)) was undertaken in May 2010. The word “transfer” was combined with the subdisciplines “orthopedic”, “neurological” and ‘gerontology”. The findings of identified randomized controlled trials (RCTs) with a PEDro score of 5 or more out of 10 (Maher et al 2003) and systematic reviews of RCTs are briefly summarized below. A number of studies have considered transfer abilities as one component of a broader composite outcome measure (Gill et al 2004). These studies would not have been identified in the search strategy used.

Parkinson’s disease

In a review of evidence about physical therapy intervention for people with Parkinson’s disease, Keus et al (2007) concluded that there was evidence from at least 2 RCTs that “the application of cognitive movement strategies to improve transfers”. In their review of evidence to guide physical therapy in people with Parkinson’s disease, Kwakkel (2007) reported that “moderate” evidence for the value of physical therapy in improving transfer but raised some methodological concerns.

Multiple Sclerosis

An RCT indicated that transfer abilities in people with Multiple Sclerosis can be improved with an individualized rehabilitation program. (Khan et al 2008) Strengthening exercises also appeared to have role in transfer training in people with Multiple Sclerosis (Harvey et al 1999).

Hip and knee surgery

There is some evidence that twice-daily physiotherapy enables people after total hip replacement to reach independence with transfers earlier than once-daily physiotherapy (Stockton and Mengersen 2009). Oldmeadow et al (2006) (2) found that earlier ambulation for people after hip fracture surgery resulted in the need for less assistance with the transfers one week after surgery. Similarly, earlier commencement of rehabilitation (day 3 instead of day 7) resulted in better transfer ability in people after hip or knee replacement (Munin et al 1998). Other studies in people after hip fracture did not find such positive effects (Lauridsen et al 2002, Naglie et al 2002). Education and exercise prior to total hip replacement was useful in recovery of transfer abilities but this difference did not persist with time (Gocen et al 2004).

Conclusion

Transfer tasks are central to daily life Interventions to improve transfer should consider both the person and the environment. There is mounting evidence that transfer abilities can be improved for people with a range of health conditions.

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