

Approved: 2009

Due for review: 2012

Telerehabilitation and Physiotherapy

Background

Definition

Telerehabilitation is a term used to describe the provision of rehabilitation across the spectrum of acute, sub-acute and community settings at a distance, using telecommunications technology as the service delivery medium.¹ Telerehabilitation relates to the services delivered by a number of health disciplines including physiotherapy. It may involve the full spectrum of client care including the client interview, physical assessment and diagnosis, treatment, maintenance activities, consultation, education and training.

Telerehabilitation utilises a broad range of technologies to facilitate physiotherapy treatment. These include technologies such as the videophone, hardware videoconferencing systems, personal computer based videoconferencing systems with dedicated software tools, sensor technologies and extensive, fully immersive virtual reality systems with and without client feedback.

Image based technologies can be successfully used for the remote diagnosis and management of clients. Sensor based telerehabilitation utilises sensor technologies such as tilt switches, accelerometers and gyroscopes to sample and quantify movement through three-dimensional space.

Virtual reality based telerehabilitation systems make use of configurable computer-generated threedimensional virtual environments to elicit specific movement and motor responses by the client.

The virtual environment can be displayed to the client via computer screen. Fully immersive environments are possible with the use of head-mounted visual displays and haptic feedback devices. Physiotherapists are able to manipulate these environments to incorporate key rehabilitation concepts such as task repetition, feedback and motivation which have been demonstrated to result in the learning of new motor skills which translate to the real world.^{2 & 3}

Benefits

Telerehabilitation services can help to overcome such barriers to treatment as:

- Physical distance from health facilities
- Physical impairment preventing or restricting attendance at a local service
- Lack of clinicians or specialists in a geographic area⁴
- Lack of transportation.

While telerehabilitation has perhaps the most potential to facilitate the delivery of physiotherapy services in rural and remote areas, its usefulness is not limited to these locations. Telerehabilitation can facilitate the provision of physiotherapy services to people in metropolitan areas where some or all of the barriers listed above may be present.

Other benefits of telerehabilitation include:

- Potential transportation cost and time savings from the perspective of both the healthcare

- system and the client
- Mentoring and professional development opportunities for less experienced clinicians
- participating in telerehabilitation consultations with senior or specialist physiotherapists
- Continuity of client care that can be achieved through the remote provision of services
- Heightened ability to control the timing, intensity and sequencing of the intervention
- Potential environmental impacts of reducing travels⁵
- Rehabilitation of a client in their own social and vocational environment.⁶

Limitations

Given the technological requirements of telerehabilitation and the lack of physical proximity between the clinician and the client, some limitations are evident:

- Adaptive technologies may yet need to be developed to facilitate telerehabilitation with clients who have a severe level of impairment
- As traditional physiotherapy requires significant physical contact between clinician and client, a conceptual shift in thinking and a willingness to adapt some approaches will be required for the successful integration of telerehabilitation into the profession⁷
- Circumstances may sometimes require that a physiotherapist, physiotherapy assistant or other appropriately qualified health professional attends a telerehabilitation consultation with the client in order to adequately compensate for the lack of physical contact between clinician and client
- Further clinical research is needed to set minimum technical specifications and standards, validate clinical protocols, investigate the effectiveness of clinical interventions, report client and clinician satisfaction, and establish the cost-effectiveness of telerehabilitation
- Practitioners should be aware of medico-legal implications in the practice of telerehabilitation.
- Alternative methods of overcoming issues such as informed consent should be considered, and could include such arrangements as the recording of a verbal message of consent to visual or audio recordings and treatment. Risk-management protocols regarding liability and working with assistants or other therapists may also need to be implemented.

Barriers

There are a number of barriers and issues which must be addressed before these technologies can become an integral part of healthcare. These include:

- Third party payers such as private health insurers, Medicare Australia⁸, state and territory Workcover authorities and Motor Accident authorities have not traditionally provided rebates to the clients of physiotherapists for telerehabilitation services
- There is a significant cost involved in establishing telerehabilitation within a service. Wider acceptance and increased incentives are needed to encourage private practitioners to purchase telerehabilitation equipment and invest in new technologies to expand their service delivery capacity⁹
- There are significant logistical and geographical issues around infrastructure in remote and rural regions which constitutes a barrier to the successful implementation of telerehabilitation within these communities. Inequities between remote, rural and metropolitan health services must be addressed in order to ensure that people in rural and

remote areas, who are among the most likely to benefit from telerehabilitation services, have equitable access to relevant technologies¹⁰

- Training at the undergraduate and postgraduate level in the appropriate use of technologies for telerehabilitation practice is generally not included in university course syllabuses.
- With the maturation of telerehabilitation technologies, and the rapid increase in the speed and quality of the telecommunication solutions they rely upon, telerehabilitation consultations are not only feasible, but can be very effective in the remote management of clients.

It is therefore vital that barriers be removed in order to make equitable access to expert physiotherapy services achievable. Inequities between remote, rural and metropolitan health services must be addressed in order to ensure that people in rural and remote areas, who are among the most likely to benefit from telerehabilitation services, have equitable access to relevant technologies¹⁰

The APA position

It is the Australian Physiotherapy Association's (APA) position that:

- Telerehabilitation offers significant benefits to physiotherapists and their clients and can improve access to physiotherapy services
- While there are many benefits to the use of telerehabilitation, care must be taken to ensure client safety and appropriateness of treatment when choosing to deliver physiotherapy services through telerehabilitation
- Appropriate, evidence based technologies should be chosen to deliver telerehabilitation services
- Technical standards, specifications and clinical guidelines on the use of telerehabilitation need to be developed
- Governments and third party payers should provide rebates for telerehabilitation services
- Government assistance should be provided to physiotherapists wishing to invest in telerehabilitation equipment
- Telerehabilitation is a useful complement to local rehabilitation services but should not be considered a substitute for the employment of physiotherapists based in the community
- Inequities between remote, rural and metropolitan health services must be addressed to ensure access to telerehabilitation services.

Clinicians using telerehabilitation for diagnosis and service provision should ensure that they consider the following:

- Physiotherapists should adhere to the APA Code of Conduct at all times regardless of the mode of service delivery
- Physiotherapists should ensure that they recognise the limitations of the technology in use, and employ clinical decision-making skills when considering the most appropriate way to deliver services
- Physiotherapists should ensure that they recognise any limitations of their own scope of practice
- Appropriate privacy and security measures should be taken when using any form of online or
- electronic communication or consultations with clients. Physiotherapists must abide by all state and federal privacy, security and record keeping legislation

- Clinicians must take particular care to ensure that they are aware of interstate legislative requirements when treating clients across state and territory borders
- In order to provide the best possible service and to reduce associated costs, it may be appropriate for physiotherapists in private practice to form partnerships with local public health services and/or public or private corporations.

References

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