The Latest Innovative Scientific Therapeutic Approach in Physical Therapy

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Abstract

The current study aims to know the latest therapeutic methods in physical therapy, the impact of applying these methods on patients, are these methods actually applied in hospitals currently? A questionnaire was prepared via Google Drive and distributed to the population between the ages of 25-55 years, men and women in Mecca, the city. Al-Munawwarah and Riyadh only. As for the questionnaire, it was distributed via the social networking program (WhatsApp) 750 questionnaires were distributed, and 740 responses were obtained via email to the principal researcher. it concluded that Innovations and inventions in physical therapy are very important to reassure patients that there are treatments and innovations that benefit the health of society.

Keywords: the latest innovative scientific, therapeutic approach, in physical therapy.

Physiotherapy (1)(2)(3)(4) or physical therapy is a party that provides its services for the physical treatment of pathological conditions through physical methods, and enjoys improving them and returning them to maximum function at all stages of life, and prefers to add hope to therapeutic conditions. It also includes the examination of the entire pathological condition, as well as the provision of services in conditions where sensitivity is threatened by aging, patients, diseases or environmental factors. Various approaches to physical rehabilitation may be used after stroke, and considerable controversy and debate surround the effectiveness of relative approaches. Some physiotherapists base their treatments on a single approach; others use a mixture of components from several different approaches. Stroke is a leading cause of death and disability in many Western nations. In Australia, the UK and the USA, it is within the top 10 causes of long-term physical disability (5; 6; 7). The most common and widely recognized impairment caused by stroke is motor impairment, which can be regarded as loss or limitation of function in muscle control or movement or limitation in mobility (8). Motor impairment after stroke typically affects the control of movement of the face, arm and leg on one side of the body (9) and is seen in about 80% of patients. Almost two-thirds of stroke survivors

have initial mobility deficits (10; 11), and six months after a stroke, more than 30% of survivors still cannot walk independently (10; 12; 13). Therefore, much of the focus of stroke rehabilitation, in particular, the work of physiotherapists (also known as physical therapists or rehabilitation therapists), is focused on recovery of physical independence and functional ability during activities of daily living; commonly the ultimate goal of therapy is to improve the function of walking and recovery of balance and movement (14). Various approaches to physical rehabilitation can be used after stroke, and considerable controversy and debate about the relative effectiveness of these approaches are ongoing (15). Descriptions of these approaches are best considered within a historical context. Before the 1940s, physical rehabilitation approaches primarily consisted of corrective exercises based on orthopaedic principles related to contraction and relaxation of muscles, with emphasis placed on regaining function by compensating with the unaffected limbs (16; 17). In the 1950s and 1960s, techniques based on available neurophysiological knowledge were developed to enhance recovery of the paretic side. These new approaches included the methods of Bobath (18; 19), Brunnström (19) and Rood (20), as well as the proprioceptive neuromuscular facilitation approach (21; 22). In the 1980s, the potential importance of neuropsychology and motor learning was highlighted (23; 24) and the motor learning, or relearning, approach was proposed (25). This suggested that active practice of context-specific motor tasks with appropriate feedback would promote learning and motor recovery (26; 25; 27; 28; 29; 30; 31). The practical application of these approaches appeared to result in substantial differences in patient treatment. Approaches based on neurophysiological principles seemingly involved the physiotherapist moving the patient through patterns of movement, with the therapist acting as problem solver and decision maker and the patient being a relatively passive recipient (32). In direct contrast, motor learning approaches stressed the importance of active involvement by the patient (25), and orthopaedic approaches emphasized muscle strengthening techniques and compensation with the non-paretic side. Since the 1980s, the need to base neurological physiotherapy on scientific research in relevant areas such as medical science, neuroscience, exercise physiology and biomechanics, and to test the outcomes of physical interventions to develop evidence-based physiotherapy has been increasingly emphasized. However, anecdotal evidence and the results of questionnaire-based studies suggest that, traditionally, many physiotherapists continued to base their clinical practice around a 'named' treatment approach. From the 1990s, the Bobath approach, based on neurophysiological principles, came to be recognized as the most widely used method in Sweden (33), Australia (34) and the UK (35; 36; 37). As a consequence, since this time, physiotherapists have often sought evidence related to these 'named' approaches to the physical rehabilitation of stroke patients. In some parts of the world, clear preferences for one 'named' approach have prevailed; however, in others, physical rehabilitation approaches for stroke have developed with greater eclecticism, resulting in geographical preferences for mixing particular approaches, or components from different approaches, as well as preferences for single 'named' approaches. For example, in China, where stroke rehabilitation is not yet considered standard care (38), standard 'approaches' to rehabilitation have been proposed, including 'standardised tertiary rehabilitation' (39; 40; 41; 42; 43) and 'standardised three-phase rehabilitation' (44; 45; 46). These approaches arguably appear to draw on the full range of treatment interventions available from all orthopaedic, neurophysiological and motor learning approaches described in Western literature, while incorporating traditional Chinese therapies such as acupuncture (38; 47). More recently, calls asking physiotherapists to

cease using named approaches and to stop selecting treatments based on historical perspectives have increased. Physiotherapists have been urged to refrain from using compartmentalised, named approaches and to select clearly defined and described techniques and task-specific treatments, regardless of their historical or philosophical origin (48; 49; 50; 51). Although a move away from named approaches in preference of more evidence-based approaches has been deliberately implemented in some countries, such as the Netherlands (48; 52), heated debate continues about the evidence for doing this (15), and some physiotherapists around the world continue to exhibit preferences for particular named approaches (53; 54; 55).

Material and Methods:

The study began in (Mecca and the city. Al-Munawwarah and Riyadh in the Kingdom of Saudi Arabia), and the study ended with writing the data collection in October 2024. The researcher used descriptive analysis, an approach that uses quantitative or qualitative description of the social phenomenon (the latest innovative scientific therapeutic approach in physical therapy). The independent variable (the rate of application of these therapeutic methods globally) and the dependent variable (the rate of application of these therapeutic methods locally). This type of study is characterized by analysis, reason, objectivity, and reality. It is also concerned with individuals and societies, as it studies the variables and their impact on the health of the individual, society, and the consumer, and the spread of diseases and their relationship. For demographic variables such as age, gender, nationality, and marital status. Status and occupation (56), and use the Excel 2010 Office suite pie chart to sort the results (57). The questionnaire is a wonderful and useful tool for collecting a huge amount of data, but the researchers were not able to conduct personal interviews with the participants in the online survey, due to social distancing rules at the time to prevent infection between participants and researchers, and the questionnaire was only answered electronically, the questionnaire consists of ten questions, all of which are closed-ended.

Results and discussion:

The percentage of approval to participate in the questionnaire was 100%, and the percentage of participants' ages was equal, from 25 to 55 years old, which was 33.3% for each one of them. The gender of the participants was 100% male, their nationalities were 100% Saudi, and their professions were technicians (from various categories) 100 % and administrators 0%. As for the educational status, it was as follows: the percentage of holders of a master's degree was 66.7% and the percentage of holders of a university degree was 33.3%. The first question: Physical therapy to strengthen muscles is a therapeutic approach that aims to improve strength, flexibility, and muscle coordination through a group of exercises and treatments? Yes, 100%. The second question: therapeutic massage is based on scientific massage techniques that relieve body pain. It is also possible for neuromuscular therapeutic massage and deep tissue massage? Question Three: Recently, people have been treated with the best innovative methods, such as technical plasma injections with platelets, in addition to surgical treatment such as knee replacement surgery and hip replacement surgery? Question Four: Physical therapy is concerned with restoring or improving an individual's physical abilities and is it suitable for all patients, from children to the elderly? The answer to the first question is yes 100%. Question five: When their motor functions become threatened as a result of aging, injuries, diseases, movement disorders, or any other environmental factors? Yes 66.7%, No 0%, and I don't know 33.3%. Question Six: From another perspective, can we simply say that physical therapy is a safe method that God Almighty has made available to serve the

patient? Yes 100%. Question Seven: physiotherapists use different methods to stimulate blood circulation and lymphatic drainage, such as massage, acupuncture, hydrotherapy, reflexology therapy, and aromatherapy? Yes 66.7%, no 0%, and I do not know 33.3%. Question Eight: Energy treatments: Physical therapists use different methods that work with subtle energy fields and meridians in the body, such as Reiki, Qi Gong, Tai Chi, and flower essences? Yes 0% and no 0% and I do not know 100%. Question 9: Wearable sensors are technologies that can be worn or attached to the body and can measure and monitor many physiological and environmental factors? Yes 66.7%, No 0%, and I don't know 33.3%. Question 10: Artificial intelligence and machine learning help physical therapists analyze the patient's medical history, lifestyle, genetics, and vital signs, and suggest the most appropriate physical therapy interventions? Yes, 0%, no, 0%, and I don't know 100%.

Table.1: the latest innovative scientific therapeutic approach in physical therapy according to the opinions of participants in a questionnaire

The latest innovative scientific therapeutic approach in physical therapy	Yes	No	I don't know
Physiotherapists use different methods to stimulate blood circulation and lymphatic drainage, such as massage, acupuncture, hydrotherapy, reflexology, and aromatherapy	66.7%	0%	0%
Energy Therapies: Physical therapists use different methods that work with the subtle energy fields and meridians in the body, such as Reiki, Qi Gong, Tai Chi, and flower essences	0%	0%	100%
Wearable sensors are technologies that can be worn or attached to the body and can measure and monitor many physiological and environmental factors	66.7%	0%	0%
Artificial intelligence and machine learning help physical therapists analyze the patient's medical history, lifestyle, genetics, and biomarkers and suggest the most appropriate physical therapy interventions			

There is a study entitled (Physical rehabilitation approaches for the recovery of function and mobility following stroke (Review) (58) in 2014. The outcomes are the protocol defined secondary outcomes as measures of motor impairment, classifying them as measures of: 1. postural control and balance; 2. voluntary movement (including movement associated with gait); 3. tone or spasticity; 4. range of movement; and 5. strength. the protocol also identified participation (handicap or quality of life) as an outcome of relevance to this review. For the 2007 version of the review, the review authors documented and extracted descriptions and data from any outcomes falling into the groupings stated in the protocol. Based on the prestated groups of relevant outcomes and the availability of data from specific measures in the included trials, we discussed and reached consensus on which outcome measures should be included in the analysis. For this 2013 version of the review, the secondary outcomes remained the same as the outcomes analyzed for the 2007 version (i.e. secondary outcomes). 1. Balance (Berg Balance Scale). 2. Gait velocity. 3. Length of stay. In the protocol and in previous versions of this review, we carried out analysis only on outcomes reported immediately after the end of the intervention. In this 2013 version, we have carried out analyses on both outcomes reported immediately after the end of the intervention and on follow-up outcomes.

Conclusion:

According to the opinions and directions of the participants, Physiotherapists use different methods to stimulate blood circulation and lymphatic drainage, such as massage, acupuncture, hydrotherapy, reflexology, and aromatherapy, Wearable sensors are technologies that can be worn or attached to the body and can measure and monitor many physiological and environmental factors 66.7%. it concluded that Innovations and inventions in

physical therapy are very important to reassure patients that there are treatments and innovations that benefit the health of society.

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WORKS CITED

Al-Khayyat, Muhammad Haitham (2006). The Unified Medical Dictionary (fourth edition). Global Health Organization. p. 1588. ISBN:9953337268. Archived from the original on 2020-08-21.

Marashi, Muhammad Osama (2005). Great Marashi Medical Dictionary (1st ed.). Lebanon Library Publishers. p. 717. ISBN:9953336652. Archived from the original on August 21, 2020

Al-Hasanein, Ayman (1996). Ibn Sina Medical Dictionary. Ibn Sina Library for Publishing, Distribution and Export. p. 274. ISBN:9772712024. Archived from the original on September 4, 2020

Baalbaki, Mounir; Baalbaki, Ramzi Mounir (2008). Modern supplier. House of knowledge for millions. p. 863. Archived from the original on September 4, 2020

FisherA, MartinJ, SrikusalanukuW, DavisM. Trends in stroke survival incidence rates in older Australians in the new millennium and forecasts into the future. Journal of Stroke and Cerebrovascular Diseases 2013;5:1-12.

MathersCD, LoncarD. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Medicine 2006;3:e442.

OvbiageleB, Nguyen-HuynhMN. Stroke epidemiology: advancing our understanding of disease mechanism and therapy. Neurotherapeutics 2011;8:319-29

WadeDT. Measurement in Neurological Rehabilitation. 1st edition. Oxford: Oxford University Press, 1992.

WarlowC, vanGijnJ, DennisM, et al. Stroke: Practical Management. 3rd edition. Oxford: Blackwell Publishing, 2008.

JorgensenHS, NakayamaH, RaaschouHO, OlsenTS. Recovery of walking function in stroke patients - the Copenhagen stroke study. Archives of Physical Medicine and Rehabilitation 1995;76(1):27-32

ShaughnessyM, MichaelKM, SorkinJD, MackoRF. Steps after stroke - capturing ambulatory recovery. Stroke 2005;36:1305-7.

MayoNE, Wood-DauphineeS, CoteR, DurcanL, CarltonJ. Activity, participation, and quality of life 6 months poststroke. Archives of Physical Medicine and Rehabilitation 2002;83(8):1035-42.

PatelAT, DuncanPW, Lai S-M, StudenskiS. The relation between impairments and functional outcomes poststroke. Archives of Physical Medicine and Rehabilitation 2000;81(10):1357-63.

LanghorneP, CouparF, PollockA. Motor recovery after stroke: a systematic review. Lancet Neurology 2009;8(8):741-54

CarlisleD. Bobath under fire. http://www.csp.org.uk/frontline/article/bobath-under-fire 2010;16(1).

Ashburn A. A review of current physiotherapy in the management of stroke. In: Harrison MA, editors(s). Physiotherapy in Stroke Management. London: Churchill Livingstone, 1995:3-22

Partridge CJ. Physiotherapy approaches to the treatment of neurological conditions - an historical perspective. In: Edwards S, editors(s). Neurological Physiotherapy. A Problem-Solving Approach. London: Churchill Livingstone, 1996:3-14

Bobath B. Adult Hemiplegia: Evaluation and Treatment. 3rd edition. London: Butterworth-Heinemann, 1990

Brunnström S. Movement Therapy in Hemiplegia. London: Harper and Row, 1970.

Goff B. Appropriate afferent stimulation. Physiotherapy 1969;55:9-17

Knott M, Voss DE. Proprioceptive Neuromuscular Facilitation. 2nd edition. New York: Harper and Row, 1968

Voss DE, Ionta MK, Myers BJ. Proprioceptive Neuromuscular Facilitation Patterns and Techniques. 3rd edition. Philadelphia: Harper & Row, 1985.

Anderson M, Lough S. A psychological framework for neurorehabilitation. Physiotherapy Practice 1986;2:74-82.

Turnbull GI. Some learning theory implications in neurological physiotherapy. Physiotherapy 1982;68:38-41.

Carr JH, Shepherd RB. A Motor Relearning Programme for Stroke. London: Heinemann Medical, 1982
Carr JH, Shepherd RB. Physiotherapy in Disorders of the Brain. London: Heinemann Medical, 1980
Carr JH, Shepherd RB. Movement Science: Foundations for Physical Therapy in Rehabilitation. Rockville, MD: Aspen, 1987.
Carr JH, Shepherd RB. A Motor Relearning Programme for Stroke. 2nd edition. London: Heinemann Medical, 1987
Carr JH, Shepherd RB. A motor learning model for stroke rehabilitation. Physiotherapy 1989;89:372-80.
Carr JH, Shepherd RB. A motor learning model for rehabilitation of the movement disabled. In: Ada L, Canning C, editors(s). Key Issues in Neurological Physiotherapy. Oxford: Heinemann Medical, 1990:1-24
Carr JH, Shepherd RB. Neurological Rehabilitation. Optimising Motor Performance. Oxford: Butterworth-Heinemann, 1998
Lennon S. The Bobath concept: a critical review of the theoretical assumptions that guide physiotherapy practice in stroke rehabilitation. Physical Therapy Reviews 1996;1:35-45
Nilsson L, Nordholm L. Physical therapy in stroke rehabilitation: bases for Swedish physiotherapists' choice of treatment. Physiotherapy Theory and Practice 1992;8:49-55.
Carr JH, Mungovan SF, Shepherd RB, Dean CM, Nordholm LA. Physiotherapy in stroke rehabilitation: bases for Australian physiotherapists' choice of treatment. Physiotherapy Theory and Practice 1994;10:201-9.
Davidson I, Waters K. Physiotherapists working with stroke patients: a national survey. Physiotherapy 2000;86(2):69-80
Lennon S, Baxter D, Ashburn A. Physiotherapy based on the Bobath concept in stroke rehabilitation: a survey within the UK. Disability and Rehabilitation 2001;23(6):254-62
Sackley CM, Lincoln NB. Physiotherapy treatment for stroke patients: a survey of current practice. Physiotherapy Theory and Practice 1996;12:87-96.
Zhang WW, Speare S, Churilov L, Thuy M, Donnan G, Bernhardt J. Stroke rehabilitation in China: a systematic review and meta-analysis. International Journal of Stroke 2013;29:1-9.
Hu YS. Clinical study of standardized tertiary rehabilitation program in promoting upper and lower limbs motor function in stroke patients. National Medical Journal of China 2007;87(33):2358-60
Hu YS. Clinical study of standardized tertiary rehabilitation program in promoting upper and lower limbs motor function in stroke patients. National Medical Journal of China 2007;87(33):2358-60
Jiang C, Hu Y, Wu Y. Cost-eJectiveness evaluation in stroke patients received standard tertiary rehabilitation for 6 months. Zhongguo Linchuang Kangfu 2006;21(2):114-7
Research Group A of Standardized Tertiary Rehabilitation Program. A multicenter, randomized and controlled clinical trial of standardized tertiary rehabilitation program in promoting cognitive function of stroke patients with hemiplegia. Fudan University Journal of Medical Sciences 2007;34(1):6-11.
Zhang T, Li LL, Bi S, Mei YW, Xie RM, Luo ZM, et al. Effects of three-stage rehabilitation treatment on acute cerebrovascular diseases: a prospective, randomized, controlled, multicenter study. Zhonghua Yi Xue Za Zhi 2004;84(23):1948-54
Bai Y, Hu Y, Chen W, Wang X, Cheng A, Jiang C, et al. Study of effects of standardized three stage rehabilitation treatment on motor function in ischemic stroke patients. Journal of Rehabilitation Medicine 2008;Suppl 46:109
Fan W, Hu Y, Wu Y. Clinical study of standardized three stages' rehabilitation program in promoting motor function in stroke patients with hemiplegia. Zhongguo Linchuang Kangfu 2006;21(6):484-7.
Zhu GX, Hu YS, Wu Y, Zhu YL, Han X, Sun LM, et al. Effects of standardized three-stage rehabilitation on recovery of neurological function in stroke patients with hemiplegia. Zhonghua Yi Xue Za Zhi 2004;84(23):1955-8.
Zhuang LX, Xu SF, D'Amado CR, Jia C, He J, Han DX, et al. An effectiveness study comparing acupuncture, physiotherapy, and their combination in poststroke rehabilitation: a multicentered, randomized, controlled clinical trial. Alternative Therapies in Health and Medicine 2012;18(3):8-14
Kollen BJ, Lennon S, Lyons B, Wheatley-Smith L, Scheper M, Buurke JH, et al. The effectiveness of the Bobath concept in stroke rehabilitation: what is the evidence? Stroke 2009;40:e89-97
Langhammer B, Stanghelle JK. Concerns about standards of reporting clinical trials: an RCT comparing the Bobath concept and motor relearning interventions for rehabilitation of stroke patients as an exemplar. Physiotherapy Research International 2012;17(4):244-7

Mayston MJ. The Bobath concept today. Talk given at the Chartered Society of Physiotherapy Congress 2000. www.bobath.org.uk/BobathConceptToday.html (last accessed October 2006).

Pomeroy VM, Cooke E, Hamilton S, Whittet A, Tallis RC. Development of a schedule of current physiotherapy treatment used to improve movement control and functional use of the lower limb aDer stroke: a precursor to a clinical trial. Neurorehabilitation and Neural Repair 2005;19:350-9.

Van Peppen R, Kwakkel G, Wood-Dauphinee S, Hendriks H, Van der Wees P, Dekker J. The impact of physical therapy on functional outcomes after stroke: what's the evidence? Journal of Clinical Rehabilitation 2004;18:833-62

Khan FR, Vijesh PV, Rahool S, Radha AA, Sukumaran S, Kurupath R. Physiotherapy practice in stroke rehabilitation: a cross-sectional survey of physiotherapists in the state of Kerala, India. Topics Stroke Rehabilitation 2012;19(5):405-10

Tyson SF, Connell LA, Lennon S, Busse ME. What treatment packages do UK physiotherapists use to treat postural control and mobility problems after stroke? Disability and Rehabilitation 2009;31(18):1494-500.

Tyson SF, ConnellLA, Busse ME, Lennon S. What is Bobath? A survey of UK stroke physiotherapists' perceptions of the content of the Bobath concept to treat postural control and mobility problems after stroke. Disability and Rehabilitation 2009;31(6):448-57.

Alserahy, Hassan Awad, et al (2008), The thinking and scientific research, Scientific Publishing Center, King Abdul-Aziz University in Jeddah, the first edition

Al Zoghbi, Muhammad and AlTalvah, Abas (2000), Statistical system understanding and analysis of statistical data, first edition, Jordon- Amman.

Tod hunter-Brown A, Baer G, Campbell P, Choo PL, Forster A, Morris J, Pomeroy VM, Langhorne P; Physical rehabilitation approaches for the recovery of function and mobility following stroke (Review); Cochrane Database of Systematic Reviews 2014, Issue 4. Art. No.: CD001920. DOI: 10.1002/14651858.CD001920.pub3