

Developing Trends of Sports Rehabilitation Programs in New Zealand Higher Education Institutions in the Context of Population Aging

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Abstract: As the world's population is ageing, so too has New Zealand's problem of an aging society. As the proportion of older people in society has been increasing, so too has the demand for health and medical services for older adults. As a scientific way to help people, exercise rehabilitation can boost the physical strength, bone density and other functions of older adults to slow down age-related decline and improve their quality of life. Research on the role of sports rehabilitation programs in New Zealand's universities for older adults has been carried out. Research on the Impact of Digital Technology, Interdisciplinary Cooperation and Future Development Plans in This Area. With the addition of educational content, the integration of disciplines, and the application of new technologies, sports rehabilitation will be able to do more to promote the health of older people and reduce the pressure on the social healthcare system.

Keywords: New Zealand, ageing population, sports rehabilitation, digital technology, interdisciplinary cooperation, higher education

Introduction

With the ageing of the population in New Zealand, more and more older people have various health problems related to ageing, such as skeletal and muscular disorders, cardiovascular diseases, etc. The problem of how to improve the health of older people and slow down the pace of ageing has become a serious problem facing society now. Sports rehabilitation is an effective way to improve the physical condition, enhance the motor skills and mental health of older people, and thus raise their quality of life. Therefore, the sports rehabilitation programmes in the higher education institutions of New Zealand are of considerable importance. As the problems of an ageing population continue to worsen, the current educational system and rehabilitation model need to be improved urgently to meet the rising health demands of older people. Therefore, we need to study how sports rehabilitation programs at higher education institutions in New Zealand can address the problems caused by an aging population and explore their future development directions to improve the overall health of society and promote the development of sports rehabilitation.

1. Alignment with the Current State of Population Ageing in New Zealand and the Sports Rehabilitation Discipline

1.1 Basic Characteristics and Trends of Population Ageing in New Zealand

The problem of an ageing population in New Zealand is gradually becoming more serious and affecting all sectors of society. With the continuous decline in the birth rate and the extension of life expectancy, the proportion of older people in society is gradually increasing, and this trend will be more pronounced in the coming years. Population ageing is altering the structure of society and thus affecting people's health and the system of social security. Older people have many health problems due to ageing, such as musculoskeletal degeneration, heart and blood vessels diseases, cognitive decline and reduced motor function. The problems mentioned above will seriously reduce the living standards of older people and increase the pressure on social medical resources and the economy.

Therefore, in recent years, sports rehabilitation has gradually attracted more attention from the public and experts due to its comprehensive nature and positive effects. Through scientific exercise

programmes, sports rehabilitation can help improve the physical condition of older people, strengthen their muscles, improve balance, flexibility and movement, slow down the process of ageing, and reduce the risk of age-related diseases. A large number of studies have shown that some exercises can help to improve the body's health and also boost people's spirits in later years; thus, they can prevent or reduce many kinds of older persons' diseases. New Zealand is also making progress in the field of sports rehabilitation and is focusing more and more on dealing with an ageing population. With the continuous increase in demand from an ageing society, sports rehabilitation has gradually begun to appear as a new form of health management for older adults and is now attracting much attention.

1.2 The Definition and Development of Sports Rehabilitation

Sports rehabilitation is a type of medicine that uses scientific exercise plans and other therapeutic means to help people recover from damage to their bodies, strengthen their motor skills and improve their overall health. It includes various forms, such as exercise therapy, physical therapy, nutrition, etc., and mental health care. In addition to improving the motor function of older people, it can also help them live more comfortably and healthily.

The foundation of the theory of sports rehabilitation includes many other fields, such as exercise physiology, sports medicine and neuroscience. Design individualised intervention plans according to the physical condition, exercise requirements and health goals of different people. With the progress of modern medicine and sports science, sports rehabilitation has gradually developed into an all-encompassing, individualised and multi-disciplinary system of care. It is widely used in the rehabilitation treatment of various diseases, and it has achieved excellent results in the rehabilitation of bone and joint diseases, sports injuries, cardiovascular diseases and elderly people's conditions^[1].

With the problem of an ageing population, sports rehabilitation has gained much attention. Research by a growing number of people has shown that moderate exercise can help slow down the process of ageing and prevent various diseases in older age. For instance, sports rehabilitation can increase the density of bones, improve the cardiovascular system, enhance muscle strength and coordination, reduce the risk of falls, improve the psychological health of older people, and boost their quality of life. Sports rehabilitation is now widely used around the world to address the problems of ageing populations.

1.3 Current Situation and Problems of Sports Rehabilitation Programs in New Zealand's Higher Education Institutions

New Zealand's higher education system started to develop education and research in sports rehabilitation relatively early and has made considerable achievements since then. Related programs in sports science and sports rehabilitation at top universities have gradually developed and trained a large number of professional talents for society. The above programs offer the basic theories and skills of sports rehabilitation, as well as research materials in the areas of geriatric health, rehabilitation medicine and exercise therapy. In particular, they have excellent academic achievements in research and response to the problem of an ageing population^[2].

Although New Zealand has achieved some success in sports rehabilitation programmes, there are still some problems. First, as the proportion of older people in our society keeps rising, the demand for sports rehabilitation is also increasing; therefore, the current curriculum system and research directions may not meet the demands of an ageing society. Second, collaboration among all departments in the field of sports rehabilitation should be further enhanced, and close cooperation with other disciplines such as geriatric medicine, psychology and sociology should also be promoted to develop more all-encompassing and effective rehabilitation plans. With the rapid development of new technologies (such as telemedicine and smart devices), how to apply them effectively in sports rehabilitation to improve the results of rehabilitation has also become a problem that needs to be solved urgently in current education and research.

Therefore, to meet the problems of an ageing population, the sports rehabilitation courses in New Zealand's universities need to be continuously improved and updated, interdisciplinary cooperation should be strengthened, and at the same time, new technologies should be adopted to meet the demands of an older society.

2. The Functions and Potential of Sports Rehabilitation in Addressing Population Aging

2.1 The Promoting Effect of Sports Rehabilitation on the Health of Older Adults

With the ageing of the population, improving the health of older people and delaying the onset of ageing have become problems for all countries around the world. Scientific exercise intervention helps to improve the physical health of older people through sports rehabilitation. Moderate exercise can help older people strengthen their hearts and lungs, increase the density of their bones and muscles, improve flexibility and balance, and thus reduce the risk of falls and fractures in older age.

Research has shown that, through specific exercise training, sports rehabilitation can reduce the speed of muscle loss and osteoporosis; thus, it is very necessary for older people to maintain their daily living capabilities. Strength training can improve the strength of the muscles in the lower body to help us walk and stand stably; aerobic exercise, such as gait training, can strengthen the heart and lungs, help regulate blood sugar and fat levels, and reduce the risk of diseases such as diabetes and cardiovascular disease^[3].

Sports rehabilitation can also boost the mood of older people and improve their mental health. Prolonged exercise is beneficial for the mind and body; thus, it can help alleviate stress and depression, boost mental health, and reduce the risk of Alzheimer's disease. The process of older adults taking part in sports rehabilitation can help improve their physical condition and maintain a good quality of life and independence. Therefore, sports rehabilitation is not only about restoring physical health but also a way to improve mental health and enhance one's sense of social contribution^[4].

2.2 Preventive and Rehabilitative Modes of Sports Injury

Sports rehabilitation for older people is not only about treating illnesses and helping them recover from sickness; it also includes many other types of prevention. Sports rehabilitation can improve the body's ability to cope with stress and enhance the physical fitness of older people, thus reducing the occurrence of age-related diseases through prevention. For example, regular exercise can help older people prevent chronic diseases such as high blood pressure, diabetes and heart and blood vessels diseases; it can also slow down or even reverse the early stages of some diseases. Personalised training plans and sports rehabilitation programmes can help older people enhance their immunity, increase muscle strength and endurance, and thus better face the pressures of life outside and delay the decline in physical function.

One of the reasons for sports rehabilitation is to help older adults restore the loss of physical function caused by inactivity, illness or injury. Rehabilitation training can help older people regain some of their lost physical functions and live independently. Sports rehabilitation plans many types of treatments for various diseases and injuries. Sports rehabilitation can help older people recover from joint replacement surgery by increasing their range of motion and alleviating pain in the first few days after the operation. Stroke patients can also be trained in some sports rehabilitation exercises to strengthen their muscles, improve motor coordination, and better perform daily life activities.

Therefore, sports rehabilitation is essential for dealing with the problem of an ageing population; it can help slow down the process of ageing and improve the physical health of older people through prevention, and also help them better manage illnesses and injuries and restore lost physical functions via rehabilitation.

2.3 Development Potential of Higher Education Sports Rehabilitation Programs in an Aging Society

With the continuous ageing of our society, the need for sports rehabilitation programmes in higher education has become more urgent. The sports rehabilitation programmes at New Zealand's universities are in their early stages. Firstly, as the number of older people in our country keeps rising, so too has the demand for specialists in sports rehabilitation. To meet the changing health needs of older people today, the curriculum and research topics in higher education sports rehabilitation programs need to be constantly updated and extended, adding more contents related to the health management of older persons, disease prevention and control, functional recovery, etc.

Second, with the continuous development of modern sports rehabilitation technology, new directions for the development of higher education sports rehabilitation programs have emerged. Digital health technology, tele-rehabilitation and smart wearable devices are representative examples of

new technologies that have changed the old model of sports injury rehabilitation. The above technologies can be used by the higher education institutions in New Zealand to cultivate high-quality professionals with good foresight in the field of sports rehabilitation, and teaching models and research directions can be innovated. In the future, it will also have many sides. Deep integration of sports rehabilitation with other fields such as gerontology, psychology, nutrition and sociology can give students a more all-encompassing knowledge system and help them formulate better solutions to the many problems of an aging society.

With the progress of globalisation, education and research in sports rehabilitation have begun to be internationalised gradually. New Zealand's higher education institutions can strengthen cooperation with foreign universities and research institutions to promote the international development of their sports rehabilitation programs and learn about good teaching models and scientific research achievements. This will help boost the academic influence of New Zealand's universities in the area of sports rehabilitation and offer strong academic support for addressing the problem of ageing in society around the world.

In general, the sports rehabilitation programmes of higher education institutions in New Zealand have good prospects for development in light of an aging population. With the continuous development of the demands posed by an aging society, the field of sports rehabilitation will continue to drive educational innovation, technological progress and interdisciplinary cooperation to provide more scientific, all-encompassing and lasting solutions for the health of older adults.

3. Future Trends and Strategic Development Directions of Sports Rehabilitation Programs in New Zealand's Higher Education Institutions

3.1 Application Prospects of Digital Technology and Innovation in Sports Rehabilitation

With the rapid development of technology, many applications of digital technology in the area of sports rehabilitation have begun to emerge. Given that the country is ageing, we should use more digital ways to help older people exercise. With the help of new ideas and ways of organising sports rehabilitation, various innovative tools, intelligent health-monitoring devices, wearable technology and mobile health applications have been introduced. The above technologies can collect all kinds of health data on older people in real time, and according to the analysis of this data, rehabilitation plans will be customised for personalised care^[5].

Now there are many wearable devices that can collect all kinds of health data on older people in their daily lives, such as walking speed, muscle strength and heart rate, and offer rehabilitation assistance. Based on the above data, individualised exercise therapy programmes can be designed to meet the different physical conditions of older adults in terms of intensity and frequency of exercise. A mobile application can be used to connect with the remote-monitoring platform of sports rehabilitation, etc. Older people can be given some remote rehabilitation guidance and training feedback in digital form at home or in their communities. It will be more convenient for the elderly to receive rehabilitation services, and they will not have to stop taking their medicine or other necessary treatments because of mobility problems or other health issues.

Therefore, the use of digital technology in sports rehabilitation can improve the effectiveness of treatment and extend the range of people who can access such services. In light of the problem of an aging population, it is necessary to reduce the demand on medical resources and improve the health of older people. Sports rehabilitation programmes at higher education institutions in New Zealand need to introduce digital technology more actively in their teaching and research to foster professionals who are skilled in using advanced technology and can meet the future needs of sports rehabilitation services for older adults.

3.2 Deep Integration of Interdisciplinary Collaboration and Sports Rehabilitation

With the ongoing appearance of serious health problems in older age, sports rehabilitation now needs to be carried out in cooperation with many different fields. A single-discipline treatment model can no longer meet all the different health demands of older people. Given that sports rehabilitation has been closely linked with medicine, psychology, and sociology, it will be difficult to ignore in the future. Interdisciplinary collaboration can improve the all-roundness of rehabilitation services for older people and ensure that all aspects of their lives, including body, mind and society, are taken into account^[6].

First of all, combining sports rehabilitation with geriatric medicine helps us better understand the specific changes in the body of older people due to ageing, such as osteoporosis and joint degeneration, and develop more scientific and effective rehabilitation plans based on this knowledge. Psychology can also be applied to sports rehabilitation to offer emotional support and psychological assistance for older adults, help them cope with any emotional problems that may arise during the rehabilitation process, and improve the overall situation of therapy. Sociology can help the area of sports rehabilitation better understand the needs of older people in terms of social participation, independence and living environments, so that more focused rehabilitation services can be provided to help older persons integrate into society more smoothly.

Higher education institutions in New Zealand should promote the deepening of interdisciplinary education, have students in sports rehabilitation programs work with peers and experts from different areas, and improve their problem-solving abilities in this process. Students can take courses and participate in research together under the guidance of other teachers to gain all-around knowledge and experience during their studies. It will help to improve the teaching quality of sports rehabilitation programmes and foster new types of talents for society with multidisciplinary integration abilities.

3.3 Future Development Strategies for Sports Rehabilitation Programs in Higher Education Institutions of New Zealand

In the future, the development plan for sports rehabilitation programs at higher education institutions in New Zealand should be based on the needs of an aging society, integrating the latest global trends in sports rehabilitation with the domestic social environment. First, the construction of the curriculum should pay more attention to interdisciplinary integration and application. In addition to the traditional courses in exercise physiology and sports medicine, the future curriculum for sports rehabilitation should also include knowledge from areas such as gerontology, psychology and digital health technology to provide students with all-round professional capabilities in handling the various health problems of older people.

Secondly, the sports rehabilitation programme needs to strengthen cooperation with the community and the healthcare sector to spread the research results and apply them. Given the particular problems faced by older people in New Zealand, universities need to develop new ways and methods of research on sports rehabilitation and apply the results in practice for older adults. In collaboration with hospitals, aged care institutions and community health centres, sports rehabilitation programmes can offer more personalised services for older people and also advance the development of the discipline of sports rehabilitation.

Finally, higher education institutions in New Zealand should keep up with the times by integrating education and application of new technologies into their professional teaching system in the face of digitalisation and intelligent development. We will introduce intelligent wearable devices and remote-monitoring platforms to teach the students how to use digital tools in the Design of rehabilitation and data analysis. At the same time, to build an efficient data-sharing platform, scholars, rehabilitation professionals and health managers can obtain the latest health data and research results in a timely manner to enhance the effectiveness of sports rehabilitation.

In short, the future development of sports rehabilitation programmes at New Zealand's higher education institutions should focus on diversifying the content of the curriculum, deepening interdisciplinary cooperation and innovating in the application of technology. This will help them meet the demands of an aging society better, nurture future-oriented and innovative talents in the field of sports rehabilitation, and contribute to solving the health problems of an aging population.

Conclusion

The sports rehabilitation programs at higher education institutions in New Zealand can help to address the problem of an ageing population. With continuous development of technology, digital technology and smart wearable devices have brought new opportunities to the field, improving the results of rehabilitation and expanding their application. At the same time, cross-sectoral cooperation will offer all-encompassing support for the health of older people and strengthen the joint effort of society in dealing with ageing-related problems. In the future, universities in New Zealand will expand the scope of multidisciplinary integration in their courses, encourage the use of digital technology, strengthen collaboration with the medical and social service industries, and nurture individuals with

innovative abilities and a sense of social responsibility. The above will enable us to address the problems posed by an aging society in terms of sports rehabilitation and provide scientific, all-encompassing and continuous healthy-living support for older people.

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