

Journal of
Nigeria Association of
**SPORTS
SCIENCE
& MEDICINE**



THEME:

**Exercise, Sports &
Wellness for Special People**

EDITED BY:

VERONICA IGBANUGO & ADEMOLA O. ABASS



VOLUME XIII
August, 2012

Published by:
©Nigeria Association of Sports
Science and Medicine (NASSM)

Printed by:
PrintWizard
0805 057 4187
rarecommunications@yahoo.com

Published 2012

All Rights Reserved

ISSN 0794 - 7682 - 8

UNIVERSITY OF IBADAN LIBRARY

CONTENT

EXERCISE, SPORTS AND WELLNESS FOR SPECIAL PEOPLE

A Keynote Paper presented during the 19th National Conference of Nigerian Association of Sports Science and Medicine (NASSM)

PROF. E.B. OKUNROTIFA

Department of Physical, Health Education, Obafemi Awolowo University, Ile-Ife

1

CARDIOVASCULAR ADAPTATIONS OF THE VISUALLY IMPAIRED STUDENTS TO 6 WEEKS CYCLE ERGOMETER EXERCISE

Abdullahi Ibrahim Darki ,Dr. Rabi'umuhammed ,Dr. Sadiq Isma'il

&Shehu Aliyu Abba

Bayero University Kano

8

AEROBIC EXERCISE AS A TOOL FOR IMPROVING CARDIO-RESPIRATORY ENDURANCE IN INTELLECTUALLY DISABLED CHILDREN.

Abass A.O (Ph.D.) *Exercise physiology Unit, Department of Human Kinetics and Health Education University of Ibadan, Ibadan*

Angba T.O (Ph.D.) *National University Commission, Abuja*

13

ATHLETES PERCEPTION OF MOTIVATING FACTORS AS THE DRIVING FORCE IN SPECIAL OLYMPICS.

OMOREGIE Philip Osamende (Ph.D) Email: osaphil@yahoo.com

JAIYEGBA Mercy (Ph.D) Email: oizajaiyeyahoo.com

OLADEJO Esther M. Email: mojiski@yahoo.com

Department of Human Kinetics and Health Education University of Ibadan, Ibadan

18

AN INVESTIGATION INTO SPORTS PARTICIPATION INTEREST AMONG SPECIAL PEOPLE ON SELECTED LAGOS MAJOR ROADS.

Wahab F. Ibrahim & Tony Dansu (Ph.D)

folabrimo@yahoo.com/+234-805 5654 495

Department of Physical and Health Education, Lagos State University, Ojo

24

HEALTH AND SAFETY IN EXERCISE FOR SPECIAL PEOPLE: CAN DISABILITY, CHRONIC CONDITION AND WELLNESS COEXIST?

Dr. Ruth Ochanya Adio- Moses and Onawola Risikat Motunrayo

e-mail:ogboochanya@yahoo.com

08077077906, 08023438038 *Department of Human Kinetics and Health Education, University of Ibadan.*

28

EXERCISE FOR HEALTH AND WELLNESS IN PREGNANCY: A REVIEW

Akeredolu, O. A. (PH.D) (Correspondence) akeredoluoa@yahoo.com, ,

+2348033010130 (Nigeria) *Department Of Physical and Health Education, Faculty of Education, Lagos State University*

Akeredolu, I. A. (PH.D) Favours94@yahoo.co.uk,

+2348035753907 (Nigeria) *Yaba College of Technology Lagos &*

Adefuye, M.A *Department of Physical and Health Education,, Michael Otedola College of Primary Education, Noforija, Epe*

37

TESTING HEALTH SEEKING BEHAVIOUR OF ADOLESCENTS AND YOUNG ADULTS WITH SICKLE CELL DISORDER IN RURAL AREAS OF LAGOS STATE.

Idowu, B.B. (Ph.D) & Abiola, Molayoto J.

Department of Physical and Health Education, Lagos State University, Ojo

43

FACILITIES AND EQUIPMENT AS DETERMINANTS OF SPORTS PARTICIPATION BY PERSONS WITH DISABILITY IN SOUTH WESTERN NIGERIA.

Dr. OYENIYI, Oladepo Patrick

+2348067199741 e-mail: patoyeniyi1@yahoo.com

Department of Human Kinetics and Health Education, Faculty of Education, Ekiti State University, Ado-Ekiti, Nigeria.

49

AETIOLOGY AND DEMOGRAPHIC INDICES OF CEREBRAL PALSY OCCURRENCE IN FEDERAL MEDICAL CENTRE ABEOKUTA

Davis Abigail O. (PT)

53

PHYSICAL EDUCATION AND SPORTS FOR SPECIAL PEOPLE IN THE 9-3-4 SYSTEM

NNEBE, Chukwuemeka Harrison

Tai Solarin University of Education, Ijebu-Ode, Ogun State, Nigeria e-mail:emyharineb@yahoo.com

56

INCLUSIVE PHYSICAL EDUCATION THROUGH EXERCISE AND SPORTS FOR PSYCHOLOGICAL WELLNESS OF PEOPLE WITH SPECIAL NEEDS.

PROF. OKONKWOR OBY. C. N. PH.D

*Department of Human Kinetics and Health Education Nnamdi Azikiwe University, Awka Nigeria
+234(0)8034936434 e-mail:drobyokonkwo@yahoo.com*

61

**THE IMPACT OF MUNICIPAL SOLID WASTE DISPOSAL PRACTICES:
A CHALLENGE FOR THE DISABLED.**

DR. C.O. OLOKOR

Department Of Physical And Health Education, Delta State University, Abraka, Delta State, Nigeria.e-mailolokorchris@yahoo.com Phone no: +234805612385

65

ACHIEVING FITNESS AND WELLNESS IN PHYSICALLY DISABLED THROUGH EXERCISE AND SPORTS

Perpetua Chinyere Ofili Mrs. (Ph.D) Imo State Sports Council, Owerri.

73

**ROLE OF SPORT AND ADAPTED PHYSICAL EDUCATION
FOR SPECIAL PEOPLE WITH SPECIAL NEEDS.**

Gloria A. OBAJIMI Email: *globa56@yahoo.com*

OMOREGIE Philip Osamende Email: *osaphil@yahoo.com*

Bello, O.H.N (Mrs)

Department of Human Kinetics and Health Education University of Ibadan, Ibadan

80

THERAPEUTIC EXERCISE: AN ISSUE FOR SPECIAL PEOPLE.

Dr Osigwe Cyril Abel.

University of Abeokuta , Abeokuta .

88

FACTORS INFLUENCING OBESE COLLEGE WORKERS IN TURNING BACK THE AGING CLOCK THROUGH PARTICIPATING IN AEROBICS FITNESS PROGRAMMES.

AJAYI, O.A E-mail: *ajayisegurwale@yahoo.com.*08059556131

Department Of Physical And Health Education, Emmanuel Alayande College Of Education, Oyo.

98

HEALTH AND SAFETY ISSUES IN EXERCISE, WELLNESS AND SPORTS FOR SPECIAL PEOPLE.

Dr. Francisca C Anyanwu

Department of Human Kinetics and Health Education, University of Ibadan e-mail:docfrankan@yahoo.com 08036535742

Dr. G. A. Adelodun

Department of Special Education, University of Ibadan e-mail:dradelodun1@yahoo.com 08164358664

103

FACILITIES AND EQUIPMENT AS DETERMINANTS OF SPORTS PARTICIPATION AND DEVELOPMENT OF SPECIAL ATHLETES IN LAGOS

Joyi, Sonayon Jijoho, Adesanya, Adeyemi

& Sunmonu, Mathew, Sonayon Adeniran *Ogusanya College Of Education ,Otto/Ijanikin, Lagos*

108

EXERCISE MODALITY FOR ENHANCING FITNESS AND WELLNESS AMONG PEOPLE LIVING WITH HIV

Ahmad Makama Getso PH.D

Department of Physical and Health Education, Bayero University Kano

113

**FUNCTIONAL HEALTH SERVICES AND SAFETY GUIDES ON
WELLNESS OF SPECIAL PEOPLE AND SPORTS PARTICIPATION**

DR. OKUNDARE, AYO ALADE *ayokundare@yahoo.com*

*Department of Sports Science and Health Education Faculty of Education,
Olabisi Onabanjo University, Ago-Iwoye, Ogun State.*

120

PROMOTING WELLNESS IN THE PHYSICALLY CHALLENGED THROUGH PHYSICAL ACTIVITY

OZIYI, HELEN MODUPE (MRS) *Lagos State Ministry of Education, Education District I.*

124

**EXERCISE AS AN ALTERNATIVE TREATMENT MODALITY IN THE
MANAGEMENT OF TYPE 2 DIABETIC PATIENTS**

KA'ABU MU'AZU (Ph.D),

*Department of Physical and Health Education, Jigawa State College of Education, P.M.B. 1002, Gumel,
Nigeria. Email: kaabmuaz@gmail.com or kaabmuaz@yahoo.com Phone number: 07030976033 or 08057935757*

IMPACT OF EIGHT WEEK AEROBIC DANCE ON SELECTED CARDIOVASCULAR VARIABLES OF ASTHMATIC MALE ADULTS

PROF. OKUNEYE R.O & WILLIAMS JOHNSON

Department of PHE, Lagos State University, Ojo.

139

**PROMOTING PHYSICAL ACTIVITY BENEFITS AS ANTIDOTE FOR
SEDENTARY LIVING RISKS AMONG PERSONS WITH DISABILITIES.**

Dr. (Mrs.) Emily Oluremi Adeloye

*Department of Sports and Recreation Management Lead City University,
Ibadan. Oyo State. Nigeria e-mail:remiadeloye@yahoo.com 08034754551*

& Ajao, Adewale. G

Adenirain Ogunsaya College of Education, Otto-ijanikin, Lagos-Nigeria

144

SPORTS INJURY PATTERNS AMONG NIGERIAN ELITE PARA-SPORTS ATHLETES

Rafiu O. Okuneye [PhD] & Tony Dansu [PhD]

Department of Physical and Health Education, Lagos State University, Ojo Lagos

**CAPACITY OF FITNESS CENTRES FOR MANAGING PHYSICAL FITNESS
AMONG PERSONS WITH DISABILITIES**

Ochuko Nabofa, PhD.

*Department of Physical and Health Education, Delta State University, Abraka
+2348036687464 coachnabofa@yahoo.com*

153

THE ADOLESCENCE WITH SPECIAL NEEDS: ISSUES AND PERSPECTIVE

E. J. Ibeagha Ph.D, G. O. Emeahara Ph.D, & Prof. E. C. Agbanusi Ph.D

158

UNIVERSITY OF IBADAN LIBRARY

HEALTH AND SAFETY IN EXERCISE FOR SPECIAL PEOPLE: CAN DISABILITY, CHRONIC CONDITION AND WELLNESS COEXIST?

Dr. Ruth Ochanya Adio- Moses and Onawola Risikat Motunrayo

e-mail:ogboochanya@yahoo.com

08077077906, 08023438038

Department of Human Kinetics and Health Education, University of Ibadan.

Abstract

Despite the presence of a disability, special persons have the potential for health, safety and wellness to the same extent as those without disability. The near-normal lifespan of many people with disabilities and their involvement in family and community activities provide strong rationale for addressing their long-term health and wellness. This paper therefore seeks to review the question: "Can Disability, Chronic Conditions and Wellness Coexist?" The need for and importance of exercise to people with disabilities and chronic health conditions towards maintaining the highest possible levels of wellness in spite of their chronic condition and disability status are stressed. Recommendations were made for people with chronic health conditions and disabilities on the general guidelines for developing exercises and sports.

Introduction

Individuals with disabilities are interested in attaining and maintaining a healthy lifestyle. Participating in physical exercise and activity, maintaining good nutrition, managing stress, and creating social supports are important to promote health and wellness. Finding appropriate activity, wellness, and health promotion information that pertains to their unique needs can be challenging for individuals with disabilities, their families, and service providers.

While disability and long-term conditions can involve pain or poor health, disability and health can and do coexist. Most people with disabilities are not sick. They are indeed healthy, when health is defined as the absence of illness and disease beyond disability. The assumption that health, wellness and disability cannot coexist is a myth. Providers who understand that people with disabilities can be healthy, active, and assertive participants and co-managers of their health and health care, can be of tremendous

assistance in helping people select and practice tailored health promotion behaviors and activities directed at increasing a person's level of well-being

Over 650 million people across the globe, representing 10 percent of the world's population have one form of disability or another (United Nations, 2008). Disability is more common in developing countries than the developed ones, thereby increasing pressures and strains on these countries' social structures and health services (WHO, 2007). The number of people with disabilities is growing rapidly. Factors contributing to growth in population of people with disabilities include advances in health care and technology, survival of children and adults with acute and chronic illnesses and traumatic injuries including those associated with political, religious and ethnic conflicts around the world, and aging of the population (WHO, 2009). Many individuals with disabilities including those with severe disabilities are living normal or near-normal life spans (Vandenakker & Glass, 2001). It is therefore important to ensure that people with disabilities have the highest level of health and wellness.

Individuals with disabilities are interested in attaining and maintaining a healthy lifestyle. Participating in physical exercises and activities, maintaining good nutrition, managing stress, and creating social supports are important to promote their health and wellness. Finding appropriate activity, wellness, and health promotion information that pertains to their unique needs can be challenging for individuals with disabilities, their families, and service (Johnson, 2007).

Parks (2005) defined disability as "any restriction or lack (resulting from an impairment) of ability to perform an activity in a manner or within the range considered normal for a human being". The term disability reflects the consequences of impairment in terms of

functional performance and activity by the individual and disability thus represents disturbances at the level of the person. While disability and long-term conditions can sometimes involve pain or poor health, disability and health can and do coexist. Health is defined as the absence of illness and disease beyond disability. It therefore follows that most people with disabilities are not sick; they are indeed healthy. The assumption that health, wellness and disability cannot coexist is a myth. Providers who understand that people with disabilities can be healthy, active, and assertive participants and co-managers of their health and health care, can be of tremendous assistance in helping people select and practice tailored health promotion behaviours and activities directed at increasing a person's level of well-being (Kailes, 2005).

June Kailes (2005), a disability advocate, posed an intriguing question: can disability, chronic conditions, health and wellness coexist? Newer models and definitions, however, view health as multidimensional with optimal health located within the context of a person's unique circumstances. Thus, the ability to practice healthy behaviours even in the presence of a disability has led to a recent emphasis on the health and wellness of people with disabilities. Health and wellness must be recognized as important for those with a disability as for those without disability. Thus, efforts should focus on assisting people with disabilities to meet their individual potential for physical, social, emotional, and intellectual health.

Understanding Human Behaviour

The importance of being in possession of correct information relating to health and well being is not in doubt. We also know that the possession of correct information on health issues will not always lead a person to adopt healthful behaviours. We as humans are impelled to action for a variety of reason. The awareness of the reason or motive is of prime importance for the health care specialist, especially the health educator. It is therefore not enough that health educators are knowledgeable about matters that influence an individual's level of health at any given point in time. One of their primary responsibilities is to encourage behaviour patterns that will enhance the level of well being of an individual as well as discourage those patterns of behaviour that are destructive to his

well being. Incidentally, the health educator must understand what motivates human behaviour. Alcohol, drug addiction, smoking, obesity, venereal disease, unwanted pregnancy, sedentary life style are just a few of the hundreds of the pathological states which result from human responses (behaviour), (Udoh, 2002)

Chronic conditions and disability

Chronic conditions are persistent or recurring health consequences lasting for years. They are illnesses or impairments that cannot be easily cured. Chronic conditions can be major causes of illness, disability and even death. Some prevalent chronic conditions, such as sinusitis or hay fever, are generally not disabling; however, others such as heart disease, arthritis and poliomyelitis can cause significant limitations in people's ability to perform certain basic activities of daily living. In addition to medical services, people who have chronic conditions often need personal, social, or rehabilitative care over a prolonged period of time (National academy on an aging society, 1999). On the other hand, disability is an umbrella term that covers impairments, activity limitations, and participation restrictions. Impairments are problems in body function or structure; activity limitations are difficulties encountered by an individual in carrying out a task or function while participation restrictions are problems experienced by an individual in involvement in life situations. Disability is a complex phenomenon, reflecting an interaction between an individual and features of the society in which he or she lives (WHO, 2009).

Definitions of Health, Safety and Wellness

The American Heritage Dictionary defines health as the overall condition of an organism at a given time. The eleventh edition of Merriam-Webster's Collegiate Dictionary defines health as "the condition of being sound in body, mind, or spirit; especially: freedom from physical disease or pain." In 1948, the Constitution of the World Health Organization (WHO) defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity." This still widely used definition is broader and more positive than simply defining health as the absence of illness or disability. However, health also may be viewed as the active process used by individuals

and communities to adapt to ever-changing environments. Health, like love or happiness is a quality of life that is difficult to define and virtually impossible to measure. Health is defined differently among experts, but all definitions have a common theme: self responsibility and adopting a healthy life style.

The ability to practice healthy behaviours, even in the presence of disability, has led to newer models of health. These newer definitions view health as multidimensional and see optimal health as defined within a given person's unique circumstances. Health is viewed as of one's potentials along various dimensions. Health includes a dynamic balance of physical, social, emotional, spiritual and intellectual factors. When this definition is used, disability poses no obstacle to maximizing health and one's potentials (Baltimore, Williams & Wilkins 1997).

When health is viewed not as the absence of disability or chronic conditions, but as the ability to function effectively in given environments, to fulfill needs and to adapt to major stresses, then, by definition, most people with disabilities is healthy.

The scope of health and safety of a worker includes protection of the worker's well-being, social and psychological as well as physical. Social well-being may be affected by the organization of work, such as space, working time patterns, isolation; psychological well-being (psychosocial hazards). It may also be affected by factors such as workload and speed, stress at work, monotony, lack of social contacts, absence of collective representation and unfair remuneration. This definition is adaptable for the individual's situation in the home and in the community. Invariably, health and safety in the home and community can as well be defined as "a state of complete psychic, mental and social well-being and it does not merely consist of an absence of disease or infirmity within the home or community.

The International Labour Organization (ILO) and the World Health Organization (WHO) view health and safety in a working environment as the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention among workers of having to leave work as a result of health problems caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and

maintenance of worker in an occupational environment adapted to his or her physiological and psychological capabilities; and in summary, the adaptation of work to the worker and of each person to his job. Health and safety is given a wider definition in the European Union context, thus going beyond the avoidance of accidents and prevention of diseases to include all aspects of the worker's well-being (Euro found 2010).

Various researches have been conducted in the area of health and wellness behaviour of people living with disability. Ajala (2005) described wellness as any approach to health that focuses on balancing the many aspects, or dimensions, of a person's life through increasing the adaptation of health enhancing conditions and behaviours rather than attempting to minimize conditions of illness

Wellness has been defined as an approach to personal health that emphasizes individual's responsibility for well being through the practice of health promoting lifestyle behaviours (Hurley and Schlaadt, 1992). It is many times referred to in a broader context than health which sometimes means only physical health. Expanding on the WHO (2009) definition of health and the commonly understood idea of well-being, the concept of wellness has been defined by the National Wellness Association as "an active process of becoming aware of and making choices towards a more successful existence." Wellness encompasses how people feel about various aspects of their lives. Six interrelated aspects of human life are commonly known to comprise wellness:

- Emotional wellness refers to awareness, sensitivity, and acceptance of feelings and the ability to successfully express and manage one's feelings. Emotional wellness enables people to cope with stress, maintain satisfying relationships with family and friends, and assume responsibility for their actions.
- Intellectual wellness emphasizes knowledge, learning, creativity, problem solving, and lifelong interest in learning and new ideas.
- Occupational wellness relates to preparing for and pursuing work that is meaningful, satisfying, and consistent with one's interests, aptitudes, and personal beliefs.
- Physical wellness is more than simply

freedom from disease. The physical dimension of wellness concentrates on prevention of illness and encourages exercise, healthy diet, and knowledgeable, appropriate use of the health care system. Physical wellness requires individuals to take personal responsibility for actions and choices that affect their health. Examples of healthy choices include wearing a seatbelt in automobiles, wearing a helmet when cycling.

Social wellness is acting in harmony with nature, family, and others in the community. The pursuit of social wellness may involve actions to protect or preserve the environment or contribute to the health and well-being of the community by performing volunteer work.

Spiritual wellness involves finding meaning in life and acting purposefully in a manner that is consistent with one's deeply held values and beliefs.

The concept of wellness is broader and includes more facets of human life than the traditional definition of health, and the two differ in an important way. When defined as the absence of disease, health may be measured and assessed objectively. For example, a physical examination and the results of laboratory testing enable a physician to determine that a patient is free of disease and thereby healthy. In comparison, wellness is a more subjective quantity and is more difficult to measure. The determination of wellness relies on self-assessment and self-reports. Furthermore, it is not necessarily essential that individuals satisfy the traditional definition of good health to rate themselves high in terms of wellness. For instance, many people with chronic (ongoing or long-term) conditions—such as diabetes, heart disease, or asthma—or disabilities report high levels of satisfaction with each of the six dimensions of wellness. Similarly, people in apparently good health may not necessarily give themselves high scores in all the six aspects of wellness.

Can Disability, Chronic Conditions, Health and Wellness Coexist?

This question has broad and significant implications on the quality of life for people with

chronic conditions and disabilities. Depending on personal beliefs, values and current experience, people often emphasize one aspect over another in their own perceptions of health. Traditional definitions describe health and disability at opposite ends of a single health continuum. Such definitions lead many people to view health and disability as mutually exclusive of each other, an either/or proposition. This view must be examined, as it has damaging and lasting effects on people who live with disability and chronic conditions. Many people with disabilities have unfortunately learned to be passive, if not completely disengaged, where questions of their own health and well being are concerned. Many see health as just one more thing beyond their control, something they cannot change or influence (Kailes, 2005).

The assumption that persons with chronic health conditions or disabilities cannot “function well” within the community or are unhealthy, leads to feelings of despondency and resignation to “cruel fate” not only on the part of the persons living with the disabilities but more on the parts of their immediate family members as well as people in their communities. Experience has shown that this is largely responsible for parents of children living with disabilities or other chronic health conditions resigning to fate, hopelessly abandoning the children and therefore denying them the opportunities available for their physical, psychological and intellectual development. This condition is further helplessly accepted by persons living with disabilities and chronic health conditions not because they are comfortable with it but because they have been conditioned by their environment to believe that is their lot.

Health care providers, like many others, are not free of the common disability stereotypes which cause discrimination and environmental and attitudinal barriers that people with disabilities encounter daily. Health providers, like society at large, have the same, if not stronger, misunderstandings about the health of people with disabilities. People working in medical settings constantly have these stereotypes reinforced, often because they are only exposed to people with disabilities and chronic conditions who are indeed sick. People with disabilities often get asked by health providers or curious new acquaintances, “when did you

first get sick?" Instead of, "how are you doing?" Even in those situations where people are experiencing poor health, chronic fatigue or pain, they don't want to be asked how they feel all the time as often asked people with disabilities (Nosek, 1992).

Physical exercise, good nutrition, stress-management and social support are important for everyone, but they are actually more critical for people with disabilities who sometimes have been described as having "thinner margin of health" (Becker and Mauro, 1994). This does not imply that people with disabilities are sick. It means that people with disabilities are more vulnerable and more susceptible to certain health and secondary conditions depending on their disability. For instance, some people with spinal cord injuries are more likely to have to deal with pressure sores, urinary tract infections and kidney conditions.

Health promotion activities are critical for people with disabilities who are prone to have a more sedentary lifestyle and have a tendency for under, over, or misuse of various muscle groups. Although we cannot yet replace the cells we lose as we age, research shows us that we can improve the efficiency of the remaining cells by staying as flexible as possible and by challenging our heart, lungs, and muscles to maximize in strength and endurance through exercise (Ontario federation for cerebral palsy, 2011)

Healthcare workers and other professionals supporting persons with disabilities need to tailor exercises and sports to the specific needs of their clients rather than employing a one-size-fits-all approach for all clients with disabilities. Whatever resistance training programmes are being developed for persons with disabilities, there is the need to identify the specific and general needs of the beneficiaries of such programme. People with disabilities particularly need exercises and sports.

Planning Exercises and Sports for Special People

Maintaining a high level of fitness among persons with physical disabilities has even greater importance than in the general population, because a loss in strength could erode a person's ability to care for himself, work, recreate or engage in community events (i.e.,

attend worship services, socialize with friends). Persons with physical disability would benefit greatly from participation in resistance training programmes and would have a greater likelihood of maintaining their physical function and independence (Ferketish, Kirby, & Alaways, 1998)

As persons with physical disabilities age, the interaction between the natural aging process and the disability creates a demanding physical environment. Tasks that could be accomplished in younger adulthood become major barriers in middle and later adulthood. Climbing stairs, walking with a cane or walker, carrying packages, transferring from a wheelchair to a bed, commode, chair or car, pushing a wheelchair up a ramp or over a curb cut, standing for long periods of time, become difficult or impossible tasks.

Many persons with physical disabilities are de-conditioned and lack adequate muscular strength and endurance (Rimmer, 1994; Rimmer, Rubin, Braddock, and Hedman, 1999). Fitness professionals can play an important role in improving the health of persons with physical disabilities by developing resistance training programmes that will assist them in maintaining adequate levels of muscular strength and endurance (Rimmer, Pitetti, & Braddock, 1996). The physical challenges that many people with disabilities are faced with on a daily basis are exacerbated by poor strength levels. If persons with physical disabilities are unable to transfer from their wheelchair to their car, or walk from their home to the bus stop or train station, they will have difficulty working and participating in social and community events. This will impose a substantial physical and psychological hardship and will reduce the person's overall quality of life (Rimmer, Braddock, & Pitetti, 1996).

Improving strength levels in persons with physical disabilities is, to some extent, even more important than in the general population. A comprehensive strength training programme could provide persons with physical disabilities greater confidence in accomplishing more physically demanding tasks, and greatly improve their ability to overcome physical barriers in their environment. Strength improvements will ultimately result in greater freedom and physical independence.

Healthcare workers need to develop resistance training guidelines for persons with physical disabilities. Apart from focusing on associated conditions and general resistance training guidelines, they also need to develop guidelines for specific disability groups. There are five main disabilities that need to be addressed - spinal cord injury, multiple sclerosis, post-polio syndrome, cerebral palsy, and stroke - the guidelines may also be useful for other types of physical disabilities that have similar movement limitations (spina bifida, amputations and brain injury).

There are several factors that must be considered when prescribing resistance exercise to persons with physical disabilities. Resistance exercise is designed to achieve maximum muscular involvement. Inherent in the effectiveness of resistance exercise, is the relationship between the intensity required of the athlete and the volume of resistance work involved. Resistance exercises are typically carried out through the use of specialized machines that are designed to permit control of the entire force-generating movement. Most importantly, the resistance training programme will depend on the severity of the disability and its associated conditions. Some clients will be able to train at very high intensity levels, while others will only be able to perform at minimal levels of resistance (i.e., lifting a body part against gravity). The training load (number of sets and repetitions, frequency, rest interval between sets) will also vary in persons with similar and different types of physical disabilities. For example, two individuals with multiple sclerosis may require a completely different training regimen because of the type of multiple sclerosis, length of time they have had the condition, and their age. On the contrary, two individuals with stroke and cerebral palsy may have a similar programme, because they exhibit the same associated conditions (i.e., non-progressive hemiplegia, spasticity) and are at the same baseline level of strength.

A major determinant of training volume is the amount of muscle mass that is still functional. Persons with paralysis, hemiplegia, impaired motor control, or limited joint mobility have less functional muscle mass and will therefore require a lower training volume. For individuals who cannot lift the minimal weight, certain

resistance machines, resistance bands or cuff weights are recommended. If bands and cuff weights are too difficult, use the person's own body weight as the initial resistance. For example, lifting an arm or leg for 5 to 10 seconds may be the initial starting point for clients with very low levels of strength. The training load will also depend on the type of disability. In general, individuals who do not have a progressive disorder (i.e., spinal cord injury, cerebral palsy) will be able to work at higher intensity levels than persons with progressive disorders (i.e., multiple sclerosis, post polio).

Training volume will also depend on the person's health status. For example, a person with stroke and hypertension should not perform high intensity exercise. Individuals who are seizure-prone or fatigue easily require a reduction in training volume. Many individuals with physical disabilities who have been inactive for much of their lives need only a small amount of resistance exercise during the initial stage of the programme to obtain a training effect. How quickly a person is able to progress during the conditioning stage will depend on the person's health status. For individuals who start out at very low levels of strength, significant improvements can be made with very light resistance.

Modes of resistance exercise

Modes of resistance exercise consist of three general categories: free weights, portable equipment (i.e., elastic bands, tubing), and machines. Any of these modalities is acceptable for improving strength levels except in cases where the individual is at risk of injury. For example, persons with multiple sclerosis and cerebral palsy often have impaired motor control and may have a higher risk of dropping a free weight or having an elastic band snap back too quickly. When an instructor feels that the resistance mode presents a danger to the client, the exercise routine should be either adapted (i.e., securing the weight to the hand, changing the movement) or substituted with a safer piece of equipment.

Some experts argue that free-weight exercises have greater value for persons with physical disabilities because the resistance can be tailored to resemble a functional daily activity (Lockette, 1994). Free weights also require the action of stabilizing muscles around the torso and joints

while lifting and lowering the resistance, which are muscle groups that need strengthening in persons with physical disabilities in order to maintain the ability to perform ADL and IADL. However, free weights require good trunk stability and may be difficult to perform in individuals who have severe limitations in motor control and coordination.

In clients with very low strength levels, gravity-resistance exercise may be all that the person is capable of doing. Performing 8-12 repetitions of a certain movement, such as abducting an arm or extending a leg, may be a good entry point. These exercises can be used with extremely weak musculature while other modes of resistance exercise can be used with stronger muscle groups. Once an individual is able to complete 8-12 reps of a gravity-resistance exercise, the person could progress to free weight, bands or machines. If a client is unable to move a limb against gravity because of extreme weakness (often seen in the late stages of multiple sclerosis or in person with high-level quadriplegia), the instructor could place the limb in a certain position (i.e., should abduction) and have the client hold the position isometrically for a few seconds or longer.

Active-Assistive exercise may be required for certain individuals who do not have enough strength to overcome the force of gravity. The instructor can assist the client in performing the movement by providing as much physical assistance as necessary to complete the repetition. At various points in the concentric phase (against gravity), the instructor may have to help the client maintain the resistance. During the eccentric phase (with gravity), the instructor controls the movement so that the weight is not lowered too quickly. In many instances, active-assistive exercise can be used with severely weak musculature while active resistance exercise (performed without assistance) can be used with stronger muscle groups.

Finally, it is important to summarize major components of Resistance Training Guidelines for Persons with Physical disabilities thus:

- Know and understand the pathology of each condition and how it may interact with a resistance training program (i.e., progressive disorders often result in increased weakness and high levels of fatigue).
- Determine which muscle groups are still functional (neurological innervations)

and which muscle groups are weak (paresis) or paralyzed (paralysis).

- Determine the progression of resistance exercise through consultation with the client's physician, physical therapist or qualified health provider. With certain individuals, the progression may vary regularly because of exacerbations that occur throughout the person's lifetime. Periods of exacerbation may require the instructor to return to baseline or below baseline levels of strength.
- Focus on muscle groups that are essential for performing activities of daily living (ADL) (i.e., dressing, showering) and instrumental activities of daily living (IADL) (i.e., ambulation, doing laundry, and grocery shopping) at a much earlier rate than the general population (Freedman and Martin, 1999; Sherwood, 1999). For ADL (i.e., shoulder abductors for combing hair and dressing) and IADL (i.e., triceps and forearm and shoulder stabilizers for wheelchair transfer).
- Make sure that blood pressure and heart rate responses remain in a safe zone.
- Make sure that associated conditions (i.e., autonomic dysreflexia, hypertension) are dealt with properly.
- Make sure that exercise facility is accessible for wheelchair users. Guidelines can be obtained from the Americans with Disabilities Act.

Health and Safety Issues to Consider

Certain health and safety issues must be addressed in all exercise activities.

- Participants should drink plenty of water before, during, and after exercise. The exact amount will depend upon a number of factors including temperature, humidity, and length of the workout.
- Clothing and footwear appropriate for each specific exercise program should be worn at all times. Apparel that could cause an accident and/or injury should be avoided (e.g.: loose gowns or trousers that could get caught in the chain of a bicycle). Head gear and knee and elbow pads may be needed in some activities.
- Extra precautions should be taken for strenuous outdoor activity during times of extreme heat or cold. The amount of time exercising often must be adjusted

*Health And Safety In Exercise For Special People:
Can Disability, Chronic Condition And Wellness Coexist?*

for extremes of heat, cold and high humidity. The length and intensity of the workout should decrease as the temperature and humidity increase.

- If exercising outdoors, care should be taken to wear the appropriate clothing depending upon the weather. Clothing should be layered so that items can be removed or replaced if the participant becomes too warm or too cold.
- If exercising outdoors at night or in poor visibility, use brightly colored clothing and/or reflectors on shoes, bicycles or wheelchairs.
- Medications can alter the body's response to an exercise programme. Individuals should be familiar with how their medication affects their participation in an exercise program or they need to consult their physician or health care provider about this.
- Weight bearing and joint flexing exercises must be done with caution by persons with significant contractures and/or loss of bone density.

Conclusion

When health care providers take the time to explore and understand negative misconceptions and stereotypes surrounding disability, many will be discarded. Providers who invest time in understanding issues related to the health, wellness, and health care needs of people with disabilities can be strong supporters and advocates. Providers need to encourage people with disabilities to be healthy and active, as well as ensure participants and co-managers of their health and health care. The ability to practice healthy behaviours, even in the presence of disability, has led to the conclusion that Disability, Chronic Condition and Wellness can actually co-exist.

Unfortunately health promotion and preventive health care has received little attention, in part due to the strong perception that health and disability are mutually exclusive. As a person with disability puts it, "The lack of knowledge and understanding on the part of health care professionals concerning my disability and how it is affecting me as I age is extremely frightening to me. We are tired of reacting to pain and stiffness rather than preventing them."

The inability of people with disabilities to get

helpful information regarding what types of exercises is best suited to their specific limitations is exasperating. This information gap is extremely troubling given the vast amount of existing evidence that indicates that many physical difficulties which accompany aging in people without disabilities can be prevented or lessened by exercise. Although good health habits, including exercise, do not guarantee a long life, they do greatly increase chances for a good quality of life.

Everyone agrees that exercise and good nutrition is important, but helpful and specific information for people with disabilities is difficult to find. Although scarce, scientific and practical information does exist, it is poorly organized and spread over a wide range of disciplines. Answers that will help people with disabilities deal with these issues are needed. It's up to you to help fill these research, service and information gaps! The ball is in our court!

Recommendations

The following recommendations were made:

- a) Physical activity guidelines apply to all people although those with disabilities may need to work with their health care providers to understand the types and amounts of physical activity appropriate for them.
- b) Healthcare providers should determine adaptations needed to ensure safe participation in activities and use of exercise equipment.
- c) If fitness centers, formal exercise programme, or formal physical activity programme for people with disabilities do not exist or are not available, alternative approaches can be used successfully.
- d) Importance of healthy food intake and need for adequate fluid intake should be stressed.
- e) In monitoring of weight, blood glucose and lipid levels should be encouraged.
- f) Health information in accessible formats preferred by the individual with a disability should be provided.
- g) People with disabilities to identify, locate, and evaluate accessibility of screening sites or imaging centers should be assisted.

References

Ajayi, J.I. (2005). Health Education in wellness

- and sickness: This Day, This AGE. An Inaugural lecture delivered at the University of Ibadan, Ibadan. Print marks limited.pg 11
- Baltimore, M .D: Williams & Wilkins, A.(1997). Exercise and sport sciences. Reviews: Physical activity among persons with disabilities: a public health perspective. and Sport Sciences Reviews: Physical activity among persons with disabilities—a public health perspective. J. O. Holloszy (Eds.)
- Ferketich, A. K., Kirby, T. E., Alway, S. E. (1998). Cardiovascular and muscular adaptations to combined endurance and strength training in elderly women. *Acta Physiologica Scandanavica*, 164(3), 259-267.
- Johnson, C.C. (2007). Graduate Trainee Leadership Education in Neuro developmental Disabilities Georgetown University Center for Child and Human Development Washington, DC
- Kailes J .I. (2005). Can disability, chronic conditions, health and wellness coexist? NCPAD Newsletter.
- 2010europa.eu/areas/industrialrelations/dictionary/definitions/healthandsafety.htm
- Lockette, K.F. & Keyes, A.M. (1994). Conditioning with physical Disabilities National academy on an aging society, (1999). Chronic conditions.challenges for 21st century.<http://www.nc pad. Org/books>. (retrieved on 4th aAugust,2012).
- Nosek, P. (1992). Point of view: Primary care issue for women with severe disabilities. *Journal of Women's Health*, <http://www.ncpad.org/organizations/index.php?id=1074&state=Ontario&city=Toronto>.
- Parks .K (2002) MBBS.M .S. preventive and social medicine, Park's Textbooks (17th ed) .m/s Banarsidas Bhanot publications.
- Rimmer JH, Braddock D; and Pitetti KII. (1996).Research on physical activity and disability: an emerging National priority. *Medicine and science in sports and exercise*, 28(11), 1366- 1372.
- Rimmer J .H. (1999) Health promotion for people with disabilities: the emerging paradigm shift From disability prevention to prevention of secondary conditions *Physical Therapy*, 79(5), 495-502.
- Sherwood, A. M. (1999). Aging in America. *Journal of Rehabilitation Research and development*, 36(2), vii-viii.
- United Nations.(2008). Right and dignity of persons with disabilities. Factsheet on persons with disabilities. <http://www.libraryindex.com/pages/2951/Defining-Health-Wellness.html> <http://www.un.org/disabilities>. (Retrieved 7/6/2011)
- Udoh, C.O.(2002). Understanding Human Behaviour. Health and Illness behaviour. Ibadan. Chris Rose Ventures publication.
- Vandenakker C, Glass D. (2001). Menopause and aging with a disability. *Physical Medicine and Rehabilitation Clinics of North America* 12(1):133-151
- World Health Organization, (2007). WHO World Report on Disability and Rehabilitation. Geneva: World Health Organization Press.
- World Health Organization, (2009a). Milestones in Health Promotion. Statements from Global Conferences. Geneva: World Health Organization Press.
- World Health Organization, (2009b). Milestones in Health Promotion. Statements from Global Conferences. Geneva: World Health Organization Press.