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Aerobic Exercise Prescription Considerations for Veterans with Complex Health Problems in a Recreation Therapy Fitness Program

John mikula*

Department of Physical Medicine and Rehabilitation, Malcom Randall Veterans Affairs Medical Center, USA

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Correspondence:
John Mikula,
Physical Medicine and Rehabilitation Service, Recreation Therapy Section, Malcom Randall Veterans Affairs Medical Center, 1601 SW Archer Road, Gainesville, FL 32608, USA,
Email: john.mikula@va.gov

ABSTRACT

Although American veterans suffer from health problems on the same level as non-veterans, the nature of their service may also add the potential for other health problems in their lives. The myriad of Complex Health Problems (CHP) presents certain challenges for therapeutic-fitness health professionals like Recreation Therapists (RT) in prescribing aerobic exercise for US military veterans participating in therapeutic fitness programs. This article will examine some of the challenges and considerations for prescribing aerobic exercise to veterans with CHP.

Introduction

It is well documented that sedentary behavior, including a lack of aerobic exercise, is a significant factor in the onset of many known health problems in the United States [1].

American military veterans or those who have served previously on active duty military status are twice as likely to suffer from heart disease as the average population [2]. It's estimated that between 10-20% of veterans who served in military campaigns in the Middle East suffer from PTSD and other mental health problems [2]. About 43% of American veterans are likely to have sleep problems which can also raise their risk for diabetes, stroke, and obesity [2].

Putting the veteran population aside, as of 2014 data, the top causes of death among the general population in the United States are heart disease, cancer, and respiratory disease [3].In this regard, there is good support in the literature that improving overall physical fitness reduces the likelihood of many health problems including heart disease, metabolic conditions, respiratory diseases, some forms of cancer, in addition to, promoting sleep and improving mental health [1]. Although the present data is very sparse, current literature suggests that American veterans struggle with health problems and physical inactivity post-military service on the same level as non-veterans [4].

The most recent estimates suggest that about half of the U.S. adult population accumulates less than the target range of 150 to 300 minutes of leisure-time moderate-intensity physical activity each week to include both aerobic and anaerobic exercise [1]. This is an important piece of data in relation to the cumulative and complex nature of health problems. As the body becomes challenged in one area of human systems function, for example, metabolically,

due to a decline in physical activity, human movement can be more problematic due to the likelihood of weight gain. In addition, with inactivity and weight gain, chronic pain may settle in a joint region. All of this in turn creates a cycle involving a pain-lack of movement response and a potential for the development of Complex Health Problems (CHP).The scenario further plays out with the onset of other problems such as diabetes, high blood pressure, hypercholesterolemia, or even depression which ultimately requires medicinal solutions to deal with the health problems both individually and collectively [5]. Perhaps, this scenario further plays out with the use of opioid medications to help deal with chronic pain which has become an addictive epidemic engulfing many veterans in American society [6].

From a fitness perspective, in many cases, health improvement simply begins with developing and improving aerobic fitness and related leisure behavior. However, for therapeutic-based fitness professionals, such as Recreation Therapists (RT), individuals with CHP present significant challenges with aerobic exercise evaluation and prescription. For the veteran population, this notion is further advanced with the increased possibility of other comorbidities in addition to primary health-related problems as previously mentioned. Although there are many resources available regarding Chronic Health Problems (CRHP) and exercise, there is very little available information regarding the topic of aerobic exercise prescription and CHP.

It is very important to note the difference between CRHP and CHP. A CRHP is one that has a lasting nature, such as Type-II Diabetes. In contrast, CHP refers to a collection of serious, chronic, and/or disabling health and medical conditions that potentially affect life function and ability to thrive.CHP may be life threatening, require supportive care, have severe life consequences, require medication management, carry risk of serious complications, or require environmental re-adjustment [7].This article examines some of the challenges and considerations for prescribing aerobic exercise to veterans with CHP within a recreation therapy fitness program.

Benefits of Aerobic Fitness for Health Maintenance

There is immense value in aerobic fitness for improving and maintaining health. Aerobic exercise improves cardio-pulmonary function, strengthens muscles, increases brain function, reduces stress, promotes calmness, and improves immune functioning [8]. The American College of Sports Medicine (ACSM) defines aerobic exercise as any activity that uses large muscle groups, can be maintained continuously, and is rhythmic in nature [9]. For exercise to be beneficial here, a prescription of engaging in aerobic exercise at least three times per week for 20-60 minutes at a moderate pace fits into the norm [10]. Obviously, those activities that involve moving more body parts and incorporating more human systems to produce movement, such as running, swimming, or playing sports such as basketball and soccer, have higher aerobic value and metabolic equivalent values [11]. However, quality is based on both the intensity and duration of movement.

Issue of Complex Health Problems

In terms of RT fitness programs for veterans, patients are often referred for a variety of health-related reasons such as to facilitate weight loss, to help cope with pain or stress, to increase one's level of functional physical fitness, or to develop healthy leisure-fitness pursuits. Different than the make-up of traditional diagnostic-specific fitness programs such as those for cardiac rehabilitation for example, RT fitness programs for veterans often are generally much more open-ended in terms of diagnostic populations served within the same group context including veterans with CHP or those with multiple chronic and/or disabling conditions.

In cases of fostering aerobic fitness in veterans with CHP, challenges arise in terms of both how to screen and evaluate aerobic fitness and then prescribe a realistic path to exercise and accomplish fitness goals [12]. Great consideration should be given to the extent of complexity of health problems, availability of equipment and staff, and how the dynamics of health complexities and functional abilities play-in to prescribing exercise. Another factor is to consider at what functional level the

veteran will be able to exercise within the continuum of participation from dependent to more independent and to what extent functional need plays a role in a group therapeutic context which is the case in most RT fitness programs for veterans.

Aerobic Evaluation Considerations

Veterans with CHP may not be able to be evaluated for aerobic fitness in a traditional manner. For example, a more conventional approach to fitness evaluation may consist simply of facilitating a six or twelve-minute walk test to measure distance covered orto evaluate resting and finish heart rate in order to determine one's level of aerobic fitness or maximal oxygen consumption [10].However, for veterans with CHP standardized fitness testing constructs are often not practical [12].

For those veterans with extensive co-morbidities to include morbid obesity, extreme deconditioning, spinal cord injuries, head injuries and brain function pathologies, fibromyalgia, chronic pain, or pharmaceutically-controlled heart response, standardized fitness tests, such as walk tests, are not often prudent choices because these tests don't lend themselves to participants being able to functionally perform the tests or complete them as indicated. Hence, a sub-maximal, more individualized approach may prove a better approach [12].

For veterans with CHP, a more prudent paradigm for aerobic fitness evaluation might focus on leisure "ability" in conjunction with physiological and psycho-social parameters rather than solely trying to determine a standardized physiological or physical response to a single bout of exercise. In addition, a testing construct for veterans with CHP might incorporate niche fitness equipment such as the recumbent elliptical or make use of a warm-water therapy pool. These applications often make better sense and increase the likelihood of test completion by fostering greater participation especially where equipment allows for easier functional biomechanics or where environmental properties allow for more independent, pain-free movement [12].

An aerobic fitness test using a leisure-ability pathway may include a six-minute construct with parameters such as allowing veterans to be able to choose their fitness modality, to select their own pace for movement, to be able to rest or slow-down during testing, and to be able to complete all six minutes using these types of guidelines. Standard testing dynamics should remain a vital part of the process, such as heart rate, oxygen consumption, blood pressure, and perceived exertion, but these elements may better serve as informational and precautionary barometers rather than solely defining aerobic fitness for those with CHP. Ultimately, it may be issues of leisure freedom and choice in exercise that better define future aerobic exercise participation than pure quantitative measurements of physical fitness [13].

Exercise Prescription Considerations

Once the initial evaluation process has been completed, some understanding of how and in what manner to best proceed with aerobic exercise participation should be evident especially if the fitness evaluation helped determine what setting and exercise equipment might lend itself to more successful participation. As previously mentioned, having access to more niche fitness equipment and/or use of a warm water pool is invaluable in promoting fitness success among veterans with CHP, but it is also understood that many times these assets are just not viable options. In these cases, fitness prescription might have to be creative in conceptual design.

Basic aerobic exercise fitness guidelines prevail regarding the FITT principle of frequency, intensity, time, and type and careful consideration needs to be given to each of these components as modifications may be needed to meet both functional ability and practicality. More significantly is the fact that as health problems become increasingly complex, so does the likelihood of difficulty with exercising and challenges with recovering from exercise. Here, a "one size fits all" approach to exercise is not prudent.

Regarding exercise frequency, veterans with CHP may benefit from exercising even just one day a week if that is all that can be physically and/or psycho-socially tolerated [14]. At least this provides some regular

exercise and is better than none during the week. Certainly, from here, there is much room to add frequency as tolerated.

Intensity is a key dynamic and should to be monitored closely. In some cases, intensity may be low in terms of visual exertion, but rate high physiologically or in terms of perceived exertion. In other cases, exertion may be reported as high, but physiologically measure at near baseline. In either case, it is important to note that successful aerobic exercise for veterans with CHP may not always be reflected by standardized heart rate formulas. Perceived exertion, in addition to physiological dynamics, may be a better descriptor of intensity more so than relying purely on physiological measurements. Furthermore, having a very good understanding of individual medication regimens and their effects on the human body is absolutely necessary in this area.

Time or duration is another key component for improving aerobic fitness. Work time may be best broken down into intervals such as 3, 6, 12, or 15-minute segments. Often, these smaller bouts with time to rest in between and to process vital sign information, leisure-fitness skill applications, or pain/fatigue response are highly beneficial towards improving aerobic fitness in a small-increment pathway. These smaller segments may represent building blocks for a future aerobic fitness foundation, and in many cases, help rebuild self-confidence, self-esteem, and self-efficacy as they relate to fitness success.

Lastly, the specific type or modality of aerobic exercise engaged in fosters participation success and fitness outcomes. In a leisure-freedom sense, participation is greatly increased by one's ability to successfully participate in an activity at the highest level of independence [13].This could include using a recumbent elliptical bike, pedaling an arm ergometer, or walking in a warm water pool to help develop positive leisure-fitness behavior and improve aerobic fitness. Finding successful exercise types for veterans with CHP is vital as far as enhancing the frequency, intensity, and time of exercise; these ingredients are necessary to improving aerobic fitness. The key to future exercise participation may likely hinge on the dynamics of the FITT inter-relationships both in an individual sense and how these dynamics also factor-into facilitating group exercise for veterans with CHP.

Conclusion

The goals of this article were to raise awareness to some of the challenges with aerobic exercise prescription for veterans with CHP participating in a RT fitness program for veterans and to provide some considerations. Although there are many resources available to clinicians for prescribing aerobic exercise for individuals with CRHP, the current literature regarding CHP and aerobic exercise prescription is extremely sparse. More work needs to be done to better understand the fitness prescriptions challenges and participation barriers for veterans with CHP and how to best facilitate aerobic fitness programs for this population. In addition, a more collaborative body of evidence is needed from a wholistic perspective regarding CHP and related physical fitness solutions. Lastly, there appears to be quickly growing potential need for diversely skilled therapeutic-based fitness professionals like RT's to help treat veterans with CHP in addition to enhancing the clinical competencies of these professionals in the field to meet the needs of consumers.

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