

MODULE 13

EXERCISE FOR CHRONIC CONDITIONS

Learning Objectives:

1. Discuss exercise recommendations for Hypertension
2. Discuss exercise recommendations for Diabetes Mellitus
3. Discuss exercise recommendations for Osteoporosis
4. Discuss exercise recommendations for Osteoarthritis
5. Describe how to refer clients to healthcare providers

Introduction

In the FATM system, chronic conditions are typically taken into consideration once the functional priorities have been established as a way of modifying the exercise prescription for the individual. However, there are times when the condition is severe enough that it takes precedence over the functional priorities. In this section we will review the exercise recommendations for a number of common chronic conditions as well as when and how to refer a client to a healthcare provider. The information provided here is not intended to be comprehensive or represent any one organization's recommendations. It will also not cover the etiology or pathology of these conditions. Therefore, it is highly recommended that trainers seek out additional knowledge and current evidence-based guidelines regarding these conditions.

Exercise Recommendations for Hypertension

Hypertension is a risk factor for CVD and is a prevalent concern in the older population. Exercise training is recommended for the prevention and management of hypertension. Chronic aerobic exercise has traditionally been the primary mode of exercise that is recommended as it can decrease both systolic and diastolic pressure by approximately 5-7mm Hg (ACSM 2014). However, more recent guidelines also recommend the use of regular resistance training as it can be as, or more, effective than aerobic exercise at reducing blood pressure. Individuals with controlled hypertension can safely exercise if some basic guidelines are followed. They include:

- Individuals with severe or uncontrolled hypertension should be evaluated by a physician prior to initiating an exercise program
- Exercise should be avoided if resting blood pressure is $>200/110$
- Perform an extended warm-up and cool-down and monitor for post-exercise hypotension
- Monitor blood pressure during exercise and discontinue if blood pressure exceeds 220/105
- Avoid performing a prolonged Valsalva maneuver during resistance training
- Avoid high-intensity resistance exercise with high weights and low repetitions

Furthermore, the following tips can be useful:

- Keep a regular log of resting blood pressure that the client can take to their physician
- Since exercise has a hypotensive effect, a person's blood pressure medications may need to be reduced or removed after several weeks to months of training (especially if the person is also losing weight)
- If a client's blood pressure is too high pre-exercise have them sit quietly for 5 minutes and then take it again. If it is still elevated ask them to perform about 5-10 minutes of light aerobic activity and then check it again.
- An unusually high blood pressure is often due to the person failing to take their medications so always ask about medication compliance

Exercise Recommendations for Type 2 Diabetes Mellitus

Type 2, non-insulin-dependent, diabetes mellitus rates has increased considerably in the older adult population over the past decade (Rose 2010). Diabetes is an independent and strong risk factor for developing cardiovascular disease and is the leading cause of adult-onset blindness, non-traumatic lower limb amputations and renal (kidney) failure. Diabetic older adults should engage in regular exercise and follow a heart-healthy diet (such as a whole food plant-based diet) in order to lose body fat, improve glycemic control and reduce their need for medications (Spiriduso et al 2005; Rose 2010). Aerobic exercise training is the most effective method for improving insulin sensitivity and glycemic control but resistance exercise training is also beneficial. Diabetic individuals should adhere to the following guidelines when starting and maintaining an exercise program:

- Monitor blood glucose before, during and after exercise. Exercise should be avoided if pre-exercise blood glucose is less than 100 or greater than 300 mg/dl
- Exercising at the same time of day will allow easier tracking of the exercise effects on blood sugar control
- Keep a quick-acting sugary snack on hand at all times, such as raisins or juice, in case of a hypoglycemic (low blood sugar) episode
- Check feet regularly for cuts and/or ulcers that are not healing properly
- Avoid exercising late at night
- Adopt a low to moderate intensity program and avoid high-intensity exercise if relatively new to exercise
- Exercise has a hypoglycemic effect acutely and chronically which may alter medication dosage or timing

Exercise Recommendations for Osteoporosis

Osteoporosis is a disease that leads to weakened bones that are more susceptible to fracture. It affects many older adults over the age of 50 and its prevalence increases with each decade: 5% of 50-59 y.o.; 8 % of 60-69 y.o.; 16% of 70-79 y.o.; and 26% of 80-89 y.o. (U.S. data). Females are affected more than males. Osteoporosis increases risk of fractures (especially of the hip, spine and wrist) which can lead to severe disability and early death. Exercise is considered a primary defense against bone loss with aging and as a means to improve bone density and decrease fracture risk in those who have been diagnosed with osteoporosis.

Exercise Recommendations include:

- Weight-bearing aerobic exercises such as jogging, dancing, jumping rope, etc.
 - Swimming and bicycling are not good options since they unload the bones
 - Simple plyometric exercises can be effective at improving bone density and does not appear to increase fracture risk as long as clients are taught proper form and supervised appropriately
- Higher-load resistance training using free weights, bands, body weight or machines
 - Focus on the “big” lifts such as deadlift, squat and lunge
 - Upper and lower back exercises are also important
- Include exercises to improve posture and balance
 - For those with kyphosis (forward curvature of the spine) strengthening the muscle of the back and improving posture can help reduce chronic pain and improve mobility
- Avoid movements that require loaded spinal rotation, flexion or extension such as:
 - Sit-ups
 - Bicycle crunches
 - Russian twist
 - Superman
 - Twisting medicine ball throw
 - Golf or tennis
- Avoid activities with a high risk of falling and/or impact such as snow skiing, rollerblading or contact sports
- Teach clients how to find the neutral spine position and how to brace their abdomen in order to maintain spinal neutral
 - Build core strength by first focusing on endurance in static positions such as plank or bird-dog
- Individualize these recommendations based on severity of bone loss, history of fractures, age and other physical characteristics

Exercise Recommendations for Osteoarthritis

Osteoarthritis (OA) is one of the most common conditions among older adults. It is associated with an increased risk of disability and may lead to the need for joint replacement surgery. Regular exercise has been shown to decrease symptoms (pain, swelling, stiffness) and improve function in those with OA.

Recommendations:

- Regularly perform low-impact aerobic exercises such as walking, cycling or swimming
- Resistance training for muscles surrounding the affected joints using lower load and higher repetition schemes is beneficial
 - This may include a combination of isolated and multi-joint (or “functional”) movement patterns
 - Power training has been shown to be safe and effective for individuals with OA
- Use joint mobility and flexibility exercises to restore normal length and tension
- An extended warm-up, including aerobic and joint-specific movements with light loads, is recommended
- Balance exercises for individuals with balance impairments or who are at higher risk of falling should be included
- Manage OA related symptoms through the use of NSAID’s, moist heat and rest
- Exercise should be avoided when the joint is swollen, red and warm

Tips

- Some individuals may be more intolerant to an increased range of motion while others may be more intolerant to increased loading
- Integrate corrective exercises in order to achieve and maintain proper joint alignment
- Build self-efficacy by starting with movements that they can perform successfully with minimal discomfort
- Use a trial and error approach to determine which movements may be more aggravating to the individual

Referral to Healthcare Providers

Since chronic conditions are more common among older adults, it is likely that there will be a time when referring a client to a healthcare provider is necessary. Healthcare providers may include, but are not limited to, physicians, physical therapists (physiotherapists), Registered Dietitians or nurses. There are several different scenarios when this may be necessary including:

- During the screening and health assessment process
- When a client becomes injured (or an injury is suspected) during or outside of a training session
- When a client reports new or a change in the signs and symptoms of a disease or condition
- After 8-12 weeks of initiating a training program for the purpose of reducing or removing medication(s)
- Following a serious injury, illness or treatment when the client needs medical approval to return to exercise

The referral process can be as simple as telling your client they need to see their healthcare provider or sending supportive documentation (either with the client or directly) to their healthcare provider. Be sure to communicate what specific information you need from them in order to best serve the client. For example, if a client is experiencing low back pain and is referred to a physical therapist then you would want to know: 1- What exercises to avoid; 2- What exercises to include; 3- If, and how long, exercise should be avoided altogether; 4 – What is the diagnose, prognosis and treatment plan?; etc. Given laws concerning the privacy of health information, the provider may need to communicate directly with their patient and let them pass the appropriate information on to you.

Supportive documentation could include any information that might be beneficial for the healthcare provider to make a diagnosis or treatment plan. This could include any information as to how they were injured or what signs and symptoms you recognized as well as some detail about the exercise program they have been performing with you. Any specific values that you recorded,

such heart rate, blood pressure, etc., should also be included. As part of your emergency response plan you should carefully and accurately document any adverse events that occur within the facility and your team's response to them.

Know the regulations for referrals in your location. Laws and guidelines vary widely between countries due to significant differences in the healthcare systems. Variations also exist between different areas of a country. For example, in the United States some states allow physical therapists to diagnose and treat a patient without a physician's orders (referred to as direct access) while others require a physician's referral to the therapist before they can treat them.

Referrals help you to best serve your clients but they can also help you and your business as well.

Referrals allow you to connect with local healthcare providers and demonstrate your expertise. This helps to build recognition and trust which may result in the healthcare providers referring their patients to you. Therefore, be sure to send information regarding your program or facility to the providers through your clients and provide easy ways for the providers to contact you if necessary.