

Welcome to the health Effects of Obesity and Exercise Guidelines for Co-morbidities presentation. The purpose of this presentation is to provide the health and fitness professional with a brief overview on the health effects of obesity and basic exercise guidelines for certain co-morbidities. After completing this section, the health and fitness professional will be able to define the different co-morbidities that come with obesity and follow basic exercise guidelines when working with a client with certain co-morbidities that can come with obesity.

Obesity is linked to several unfavorable diseases which are often referred to as co-morbidities. Often, these co-morbidities are found in combination, meaning that more than one health problem may be present when working with an overweight or obese client. Some of the most common co-morbidities found in these obese individuals include diabetes, heart disease, hypertension, stroke, respiratory complications, cancer, dyslipidemia, syndrome X, musculoskeletal issues, and depression. In this presentation, we will review some of the most common co-morbidities associated with obesity. Refer to your course text to review other co-morbidities and basic exercise guidelines for each. We'll begin with diabetes.

Diabetes is a disease in which the body does not produce or properly use insulin. The exact cause of diabetes is not fully understood, but some known risk factors include obesity, physical inactivity, poor diet, older age, ethnicity, and family history. There are two types of diabetes-- Type 1 and Type 2.

In Type 1 diabetes, the pancreas does not produce insulin to convert glucose into energy. This form of diabetes is commonly diagnosed in children and young adults. Type 2 diabetes is the most common form of diabetes. In Type 2 diabetes, either the pancreas does not produce enough insulin or the cells ignore the insulin.

Current studies have shown that there is a direct association between obesity, insulin resistance, and diabetes. And it's believed that insulin resistance plays an important role in the development of heart disease. The treatment for Type 2 diabetes includes medication and exercise, where the benefits of exercise have been well-documented. Regular exercise works to improve daily glucose control and improve insulin sensitivity.

The exercise guidelines for many diabetic clients should be to exercise at moderate to vigorous intensity for 20 to 60 minutes per day. As with all exercise programs, sessions should begin with a 5 to 10 minute warm-up, and stretching of the muscles to be exercised, and conclude with a 5 to 10

minute cool-down period. Resistance training can also be beneficial. Resistance training should take a progressive approach, starting with light weights utilizing all major muscle groups.

Heart disease is often a term used to refer to a number of conditions involving a diseased heart, including myocardial infarction and coronary heart disease. Heart disease is the leading cause of death in the United States among men and women. There are several factors that contribute to heart disease, including obesity, physical inactivity, family history, high cholesterol, smoking, hypertension, diabetes, a high fat diet, emotional stress, and Type A personality traits, or a competitive, aggressive, or impatient personality. If a client has a known heart disease, any exercise recommendation needs to be prescribed and monitored by his or her physician. The health and fitness professional should not deviate from these recommendations.

Hypertension is commonly referred to as high blood pressure. Heavier individuals have a greater volume of blood to deliver the necessary oxygen and nutrients to the tissues. As the volume of blood circulated through your blood vessels increase, so does the pressure on your artery walls. Normal blood pressure is a systolic reading of 120 millimeters of mercury and a diastolic reading of 80 millimeters of mercury. A client with a systolic pressure exceeding 140 millimeters of mercury and a diastolic pressure exceeding 90 millimeters of mercury indicates hypertension. Pre-hypertension is when systolic blood pressure is between 130 and 139 and/or diastolic blood pressure is between 80 and 89 on multiple readings.

The exercise guidelines for your heart disease or hypertensive clients should be to exercise at a moderate to vigorous intensity for 30 to 60 minutes per day, three to seven days per week minimum. As with diabetes, resistance training should take a progressive approach, starting with light weights utilizing all major muscle groups.

Similar to the cardiovascular system, obesity also places stress on the respiratory system. Carrying excess fat leads to additional work that has to be done by the muscles while performing activities of daily living and can interfere with breathing mechanics. Respiratory complications can range from shortness of breath during mild exertion to exercise induced asthma to obstructive sleep apnea.

Respiratory complications clients should exercise at an optimal intensity, which may vary from client to client, for 20 to 60 minutes per day, three to five days per week minimum. Resistance training can be performed using light weights, one set of 3 to 20 repetitions. Include exercises that work all of the major muscle groups.

Metabolic syndrome, also called syndrome X, is when several cardiovascular disease risk factors

exist. Metabolic syndrome exists if a person has three or more of the following-- abdominal obesity, high triglycerides, low-high density lipoprotein cholesterol, or HDL-C, elevated blood pressure, elevated fasting glucose, prothrombic state, pro-inflammatory state. Of these components, central obesity and insulin resistance are thought to be the principal traits of the metabolic syndrome. Other factors associated with the syndrome are age, hormone imbalances, genetics, and physical inactivity. Once again, the key to managing metabolic syndrome is lifestyle modifications with exercise and diet playing an integral role.

Syndrome X clients should exercise at a moderate to vigorous intensity, which may vary from client to client, for 20 to 60 minutes per day, five days per week minimum. As with previous conditions, resistance training should take a progressive approach with individuals starting with light weights, one set of 10 to 15 repetitions working up to 20 repetitions, utilizing exercises for all of the major muscle groups.

Musculoskeletal issues can affect the body's muscles, joints, tendons, and ligaments, and can be quite debilitating. Common symptoms of musculoskeletal disorders include pain, weakness, stiffness, and decreased range of motion. Musculoskeletal issues may surface from being overweight due to the additional stresses being placed on the musculoskeletal system.

Poor posture can develop due to weight distribution, leading to muscle imbalances and musculoskeletal injury. Low back pain is the second most common condition treated by primary care physicians today with cardiovascular issues being the first. Overweight and obese individuals, particularly those with abdominal obesity, place an enormous amount of stress on the low back muscles due to the excessive weight pulling the lumbar spine forward, eventually leading to low back pain. Weight loss is often recommended for overweight and obese people with musculoskeletal issues, but care should be taken as certain exercises or exercise in general can be contraindicated.

Clients with musculoskeletal issues should exercise at a low to moderate intensity, which may vary from client to client, for 20 to 30 minutes per day, three days per week minimum. Stretching muscles that may be tight such as the hip flexors will also be important to address in an exercise program. As with the previous exercise guidelines, resistance training should take a progressive approach, starting with light weights 1 to two sets of 10 to 15 repetitions while focusing on the core musculature and enhancing stabilization capabilities.

In summary, overweight and obesity have been readily linked to a number of debilitating conditions and diseases. If an individual does not take steps to improve factors that are in his or her control, not

only will their overall quality of life decline but an early and unnecessary death can result. In many cases, symptoms will improve with the initiation of physical activity even before significant results are realized on the scale or with a measuring tape. This positive and independent effective exercise on the health status of an overweight or obese person is reason enough to start and stick with an exercise program.