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LOWER BACK PAIN AND ITS MANAGEMENT THROUGH PHYSICAL ACTIVITY

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Abstract

The term lower back pain refers to discomfort that is localized in the lumbosacral region of the spine, which includes the area starting from the first sacral vertebra. Lower back pain represents a significant health concern. There is still a lot to explore through research regarding the treatment and prevention of lower back pain. The lumbar spine, which acts as the main support structure, absorbs nearly all the stress on your torso when you stand, sit, move, or engage in any activity. Lower back pain problems are usually associated with two areas i.e. life style and physical injury or disease. Exercise can improve strength, flexibility, coordination, and endurance throughout different areas of the body. The purpose of this guideline is to encourage us, as responsible citizens and educators, to adopt a highly effective approach focused on managing, preventing, and restoring healthy back function to improve quality of life.

Introduction

The term lower back pain refers to discomfort that is localized in the lumbosacral region of the spine, which includes the area starting from the first sacral vertebra. This section of the spine is characterized by the formation of the lordotic curve. The fourth and fifth lumbar vertebrae are the most common locations for the occurrence of low back pain.

A research study on lower back pain within the U.S. Armed Forces indicated that during the period from 2010 to 2014, diagnoses of lower back pain were linked to more than six million outpatient visits and over 25,000 hospital admissions among active duty service members. According to Clark LL., in 2014 found that overall yearly occurrence rate of lower back pain stood at 12.0%. Among those diagnosed with lower back pain, 88.3% were categorized with "non-specific low back pain," though many patients received

multiple diagnoses related to lower back pain, including degenerative changes (14.1%), herniated disc (9.7%) and spinal stenosis (1.8%).According to Maher C. in 2017 and Hoy D. in 2014 found approximately 84% of people are expected to experience lower back pain.

Lower back pain represents a significant health concern. There is still a lot to explore through research regarding the treatment and prevention of lower back pain. However, adopting a general approach to overall health and fitness, which includes the connection between the mind and body is essential. As health and physical fitness educators, we must communicate to our students, athletes and the broader community that there is no single exercise or medication that can solve this widespread issue.

The purpose of this guideline is to encourage us, as responsible citizens and educators, to adopt a highly effective approach focused on managing, preventing, and restoring healthy back function to improve quality of life.

Anatomy of spine

The location of low back pain is influenced by its specific site, which is usually found within the lower costal margins and the creases of the hips. (Dionne CE et al. 2008). The human spine consists of 33 vertebrae, categorized into five sections: 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 4 coccygeal vertebrae.

The lumbar spine, which acts as the main support structure, absorbs nearly all the stress on your torso when you stand, sit, move, or engage in any activity. This region is also the common source of lower back pain. Proper alignment of the cervical, thoracic, and lumbar curves makes you less susceptible to injury and pain.

Causes of Lower Back Pain

Lower back pain problems are usually associated with two areas.

1. Life style:

Factors such as stress, insufficient physical activity, and incorrect posture, as well as growth changes, improper footwear, and unsuitable clothing contribute to this issue. Structural abnormalities like lordosis, kyphosis, scoliosis, flat feet, and knock knees, among others, are also relevant. Ineffective sleeping positions can contribute to the problem.

2. Physical injury or disease:

Stress can trigger changes in our nervous system, potentially leading to lower back pain by causing our muscles to spasm. Poor posture may worsen the condition of intervertebral discs, making them more susceptible to damage as we grow older. When discs lose their ability to absorb shock, it can result in irritation and injury to the nerves. Movements such as bending, lifting, and twisting can cause muscle strains and ligament sprains, which are often associated with acute lower back pain. (Dionne CE et al. 2008) is a musculoskeletal condition that leads to the highest level of disability across the globe.

Many studies have been done for causes of low back pain such as (Balague F. in 2012) lower back pain is a prevalent issue affecting individuals of all ages, from children to the elderly. Hoy reported that low back pain is one of the leading causes of disability across the globe. For those with low back pain, only a small percentage can pinpoint the underlying cause (Hartvigsen J, 2018). The significant social and economic ramifications of low back pain are comparable to those of other major and expensive health conditions, including cardiovascular issues, immunological disorders, cancer, and mental health problems (Maniadakis N, 2000).

Physical Activities for low back pain

Exercise can improve strength, flexibility, coordination, and endurance throughout different areas of the body. There are multiple reasons to advocate for exercise as a remedy for back pain, such as enhancing posture, boosting mobility and fitness, stabilizing overly flexible areas, diminishing pain, fortifying muscles, and easing mechanical pressure on spinal components.

In 2015, Angela S. and colleagues assessed the effectiveness of various exercise interventions for adults experiencing chronic low back pain in comparison to other treatments and discovered that strength/resistance and coordination/stabilization exercise programs were more beneficial than alternative interventions for managing chronic low back pain, while cardiorespiratory and combined exercise programs were found to be in effective.

Flexibility and strength-building exercises are essential components of various fitness regimens. According to recommendations from the UK Department of Health, individuals should incorporate flexibility and muscular strength activities a minimum of twice weekly. In contrast, Canadian guidelines suggest engaging in flexibility exercises

four to seven times each week, along with muscle-strengthening activities two to four times weekly (Kesaniemi A, 2010).

Though flexibility and muscular strength

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Foster and Fulton conducted a study in 1991 indicating that adequate flexibility in the muscles of the lower back, hip flexors, hamstrings, and obliques is essential for maintaining a healthy lower back. The flexibility of the lumbar spine provides a functional mechanical advantage, whereas tight and shortened back muscles negatively impact spinal mechanics. Tightness in the hamstrings and hip extensors can diminish the lordotic curve, which may lead to impairments in spinal loading. Sufficient flexibility is crucial for preventing and alleviating low back pain.

Role of aerobic activities in management of back pain

Engaging in aerobic exercise can address various undesirable bodily changes related to spinal inactivity, muscle weakness, neuromuscular health, and the diminished blood supply to intervertebral discs that occurs with age, as well as support the osmosis necessary for disc nutrition. Aerobic activities play a significant role in managing weight and enhancing overall fitness. The specific mechanism by which aerobic exercise alleviates pain remains unclear unless the intensity of muscle contractions is taken into account. A properly functioning circulatory system is crucial for enhancing nutrient transport.

Tips for Managing Lower Back Pain

Based on earlier discussion explains the need for a well-rounded fitness regimen that includes full range of motion exercises targeting the lumbar extensors and flexors, ideally performed twice a week. Flexibility exercises focusing on the lumbar extensors, hip flexors, and hip extensors should occur more frequently than twice weekly. Lower body strengthening activities, such as leg curls for hamstrings and leg extensions for quadriceps, along with upper body workouts, should take place five times a week. Daily yoga sessions

led by an expert are also recommended. Enhancing posture involves aligning the spine properly to alleviate strain on the lower back. Increasing flexibility can aid in improving range of motion and decreasing stiffness in the back. Engaging in regular physical activity to maintain a healthy weight can diminish stress on the spine and lower back, ultimately resulting in less discomfort.

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