Pediatric/Adolescent Spine Pain

Summary

1. Spine (Including Neck & Back)
    A. Pathology
    B. Risk Factors
    C. Posture and Body Mechanics
    D. Return to Function & Prevention

A. Pathology

50-80% of the adult population will experience spine pain at some point in their life. The adolescent and pediatric population experience spine pain at a high rate as well. The prevalence of pain in the spine for individuals under 18 years at any given point is about 12.0%. In a 12-month span, the average prevalence of spine pain in individuals under 18 years is 33.6%. Less than 20% of kids under 18 with pain seek healthcare. Common classifications of spine pain include nerve root problems, stenosis, scoliosis, inflammatory, fracture, mechanical, chronic pain, etc. The pediatric/adolescent population is more likely to be classified under mechanical nature of pain including muscle strain, scoliosis, and postural-related pain. Over the past few decades, MDT (McKenzie Method of Mechanical Diagnosis and Therapy) has been one of the leading treatment options in reducing and maintaining spine pain in both the adult and pediatric/adolescent population. Qualified physical therapists lead the front in educating and instructing individuals in self-treatment that is effective and typically revolves around repetitive movements of the spine.

B. Risk Factors

-Individual and lifestyle (sedentary versus on the move).

-Center for disease control and prevention recommend 60 minutes of exercise per day; many kids today do not meet this standard. With introduction of technology such as the iPad and iPhone, video games, electronics, the incentive for kids to move is much less.

-History of spine pain, genetic conditions such as laxity of ligaments

-Physical or biomechanical.

-Inappropriate lifting, carrying books, backpack long distances during school

-Strain of muscles as indicated by injury in sports, lack of warm up before gym, poor body mechanics while performing physical activity.

-Sustained stationary position, generally in sitting, as seen with sitting at a desk in school or sitting on soft furniture for prolonged periods.

-Sustained looking down at phone, while studying, in class with slouched posture

-Psychosocial (poor perception of pain, communicating symptoms)

-Upper extremity and scapular pain, numbness, tingling and weakness, whether all the way down the arm or even in just a localized region, can be referred from the neck. The low back can refer pain across the waistline, buttocks, hips, thighs, lower leg, and your feet. Almost 50% of shoulder pain and hip pain are referred from the neck and back respectively, particularly with insidious onset of pain. Health care providers should always screen the spine initially to treat the basis of the problem.

C. Posture and Body Mechanics

Poor Sitting Posture

-Slouched sitting places the lumbar spine in flexion and the neck in protrusion; therefore, creating unequal load and pressure in the spine.

-The head weighs about 14 kilograms. With slouched sitting, the cervical spine has to endure excessive load from the head in a protruded position.

-The low back can increase pressure on the disc by up to 40% by slouched posture

-The slouched sitting position also causes overstretching of posterior spinal ligaments at end range, with the neck being much smaller than that of the thoracic and lumbar spine and thus less supportive of spine.

**Some spine pain is caused and nearly all pain is aggravated and perpetuated by poor sitting. Maintaining an unequal distribution of pressure in the spine due to poor posturing can result in pain due to movement of material onto a nerve or poor blood flow to the tissue. Sometimes, as with postural syndrome, all it takes is normalizing your posture in order to abolish spine pain.

-The pediatric/adolescent population sit very frequently throughout the day, with classroom sitting during lecture, homework and studying after school, and relaxing at home. Increased stress is placed on the spine as a result of increased sitting and inactivity. Many teens and youth have fixed chairs or seats without back support in schools, which can lead to or perpetuate pain.

Body Mechanics

-Frequency of flexion

-From rising in the morning until returning to bed at night people are predominantly in flexed spinal postures and rarely extend. Frequent and sustained flexion stresses of the back are present during school and during daily activities. In addition, teenagers tend to slouch for long periods particularly with driving, sitting at a computer or desk, and when using cell phones.

-School-aged children tend to sustain injury at a higher rate than the adult population as a result of sport activities. Many times, injuries can be avoided by proper warm up and stretching.

D. Return to function/Prevention

-Practicing sitting and standing or walking with good posture can limit the amount of postural stress on the spine. Avoid sitting for long periods, particularly at home when kids have every opportunity to move.
-Avoid carrying heavy bookbags to and from class, wear appropriately so that equal pressure is placed on the spine.
-Be active! Exercise daily, in spurts if needed. A reasonable approach to exercise is 20 minutes at a time for play, athletic activity, etc. for young individuals.
-When participating in sports and gym, proper warm up and stretching can help reduce risk of injury considerably.
-Communication is key! Always express symptoms when they happen as evidence suggests that individuals tend to get better faster with immediate treatment and avoidance of aggravating activities.
-Typically, extension exercises for the spine help reduce pain. Seek out a physical therapist certified in MDT for clear direction and safe application, as well as to see if it is right for you.