

Back pain causes and effects biology essay



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According to the National Institute of Neurological Disorder and Stroke (NINDS) back pain is considered one of the most common disabling conditions, being the second most common neurological disorder after headache in the USA and affecting almost 60% of the general population. The essay discusses in details and aided by the latest studies, the various causes of this disease including obesity, occupational hazards, pregnancy, sports and the natural aging process. Also, utilizing the best diagnostic approaches to reach to the proper cause of the back pain and therefore the appropriate modality of treatment. Finally and to sum the issue, I would like to emphasize on the best line of treatment in back pain which is the prevention, elimination of the potential causes, risk factors and the need of more research and for better management of back pain.

Back Pain: Causes and Effects

Back pain is considered to be the second most common neurological disorder after headache in the United States of America (USA) according to the National Institute of Neurological Disorder and Stroke (NINDS) in USA (2003). Nearly everybody had experienced the episode of back pain in different severity, timing, age and with variety of associated causes.

Prevalence estimates suggests that 70-85 % of adults will experience low back pain during a given year and 30% will seek treatment for this problem. The health institutions are paying a large number of money treating back pain all over the world because of the high incidence of the complains and the various degree of disabilities caused by acute and chronic back pain (Andersson, 1999).

To fully understand back pain, a glance of the back anatomy will be of great help. The back is a complex structure consisting of 24 small bones (vertebrae) that support the weight of your upper body and form a protective canal for the spinal cord which carries nerve signals from the brain to the rest of the body. Between each consecutive vertebra are found the shock-absorbing discs (intervertebral discs) that cushion the bones and allow the spines to bend, held all together by Ligaments, Tendons and Muscles. The lower part of the back is known as the lumbar region, which is made up of five vertebrae, known as L1, L2, L3, L4 and L5. The lumbar supports the entire weight of the upper body (plus any extra weight that you are carrying), and it is under constant pressure, particularly when bending, twisting and lifting (Smeltzer, S & Bare, B, 2000).

Though the presence of huge number of literatures and researches has been conducted to discuss the causes and effects of back pain, there has still been a matter of controversy among medical researchers. However, the causes of back pain were categorized according to the effects with the associated signs and symptoms the victims describe, as well as the physical fitness of the targets. In fact, most back problems are probably the result of a combination of factors. Some factors, such as family history, aren't preventable. You can control other factors, such as weight, fitness and flexibility, by changing your lifestyle. This essay will discuss the main causes and effects of back pain, but it will also put on the light on the associated signs and symptoms, as well as the most common treatments used.

Obesity is one of the leading causes of back pain. According to the American Obesity Association (AOA), 64.5% of adult Americans (about 127 million) are

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categorized as being overweight or obese. The unfortunate truth is that obesity is becoming an epidemic affecting adults and children (Silveri). Extra abdominal fat and weight on the pelvis pulls the body forward and puts strain on the lower back muscles. Over time, obesity causes the spine to carry the body's weight and distribute the loads encountered during rest and activity. When excess weight is carried, the spine is forced to take in the burden, which may lead to structural injuries. Hence, this burden on the spine may lead to poor flexibility and weak muscles in the back, pelvis, and thighs, as well as pain over other regions of the spine for example, the neck. Being overweight poses a lot of health risks associated with back pain. It puts added stress on muscles and joints pain and causes degenerative disc disease, spinal stenosis, osteoporosis, rheumatoid arthritis, hernia, ruptured disc, heavy burden on the spine and unhealthy posture.

Many occupations " such as nursing, construction and industrial work " may place significant demands on the back. Even routine office work can worsen back pain. The associated factors that may contribute with work load related back pain may be caused by three elements. The first element is the strain and exerting too much force on the back may cause injury. If the job is physical in nature, a person might face injury with frequent lifting or moving of heavy objects. The second element is the posture and position of the employee when sitting, standing or performing a task at work. Sitting for prolonged hours in front of a computer, for example, usually causes occasional pains from sitting still. The third and last element is stress. Pressures at work will increase stress level and lead to muscle tension and tightness, which eventually leads to back pain.

The third main cause of back pain is pregnancy. Back pain, unfortunately, is an expected symptom during pregnancy in most of women. In most cases, back pain in pregnancy will cause disturbance of daily living activities, as well as resting time and sleep disturbance. (Palmer, 2001) stated that there are a number of physical reasons for back pain in pregnancy, some of which include: increase of hormones – hormones released during pregnancy allow ligaments in the pelvic area to soften and the joints to become looser in preparation for the birthing process of your baby; this shift in joints and loosening of ligaments may affect the support your back normally experiences. The center of gravity associated with pregnancy will gradually move forward as the uterus and baby grow, which causes the posture of pregnant women to change. Furthermore, additional weight during pregnancy and baby will create additional weight that back must support. Poor posture, excessive standing, and bending over can trigger or escalate the pain. Lastly, stress usually finds the weak spot in the body, and because of the changes in the pelvic area, pregnant women may experience an increase in back pain during stressful periods of pregnancy.

“ Back pain can be a natural part of getting older” (Hainline, 2007). Getting older always has degenerative effects on the body. Aging causes minor as well as major backaches. Some pain can be tolerable to some extent, where it causes disabilities in other conditions. Thus, getting older cannot be prevented, but being prepared on the consequences of aging is the key in controlling the age-related back pain. Osteoporosis creates weak and porous bones. Vertebral fractures are a common result of osteoporosis in elderly patients. On the other hand, osteoarthritis can create pain in many areas of

the body including the spine. Degenerative disc disease is a normal part of aging. It is often asymptomatic but can create pain in some patients. Spinal Stenosis is common in elderly people. Stenosis may or may not cause pain. Spinal stenosis can also cause neurological impairment.

CompressedHYPERLINK “ <http://www.cure-back-pain.org/pinched-nerve.html>” nerves can be caused by spinal stenosis, spondylolisthesis, bone spurs, or spinal curvature. Adult scoliosis is often a result of aging and osteoporosis. Cauda Equina Syndrome the compression of a bundle of nerve roots that serve the lower back, legs and vital pelvic structures e. g. bowel and bladder, can cause weakness in the legs, numbness in the “ saddle” or groin area, and loss of bowel or bladder control. This syndrome should be recognized due to its devastating neurological impact if not identified and treated promptly. All those factors can be a natural part of getting older.

The last main cause is the sport related back pain. Up to 20% of all injuries that occur in sports involve the lower back or neck. Sports that use repetitive impact e. g., running, or weight loading at the end of a range-of-motion e. g., weightlifting are commonly cause damage to the lumbar spine or lower back. Sports that involve contact like football, place the spine at risk of injury, (Hyde, 2000). Thus, Injuries to the lower back can be the result of improper conditioning and warm-up, repetitive loading patterns, excessive sudden loads and twisting activities.

With all those causes and effects, the end result pain comes with the classical signs and symptoms. The pain might be intermittent, sudden, gradual, or sometimes without reason. Pain is classified accordingly to severe pain that last for more than a few days without improvement and <https://assignbuster.com/back-pain-causes-and-effects-biology-essay/>

may require medical attention. Severe pain comes with difficulty passing urine; numbness in the back or genital area; numbness, pins, or weakness and pain in the legs; or unsteadiness when standing. Another type of pain is the localized pain which is often described as aching, tight, stiff, sore, burning, throbbing, or pulling. Localized pain may worsen while bending, sitting, walking, or standing too long in one position. Other signs and symptoms of pain may be accompanied with a compressed nerve that causes numbness and weakness in the muscle associated with the nerve. The muscle may atrophy if the compression is not relieved.

Diagnostic tests aren't usually necessary to confirm the cause of back pain. However, after a thorough physical exam including the range of movements, ability to carry on simple daily tasks and testing reflexes with a reflex hammer, it is the decision of the doctor to either treat conservatively or the need of further investigation to rule out more serious causes of back pain in the form of X-Rays, MRI, Bone scan and Nerve studies..

The NINDS and other institutes of the National Institutes of Health (NIH) conduct pain research in laboratories at the NIH. Currently, researchers are examining the use of different drugs to effectively treat back pain, in particular, chronic pain that has lasted at least 6 months. Other studies are comparing different health care approaches to the management of acute low back pain (Standard medical care versus chiropractic, acupuncture, and acupressure or massage therapy). These studies are measuring symptom relief, restoration of function, and patient satisfaction. Another research is comparing standard surgical treatments to the most commonly used

standard nonsurgical treatments to measure changes in health-related quality of life among patients suffering from spinal back pain.

In the treatment of back pain, people may decide to choose the alternative treatments than to see a doctor. In many cases, doctors may advise their client to seek for those alternative resources. Acupuncture or acupressure is a type of therapy developed in China. Practitioners believe that people have an energy force. When this force is blocked, person can develop physical illness, such as back pain. Other therapy is using the herbal remedies which may be having side effects that could interfere with a prescribed medicine. Other alternative option of medicine is massage. A massage can help release muscle tension and relieve muscle inflammation and pain. Medical treatment will be focusing on the relive of the pain and treat the possible inflammation, as well as reducing the side effects of this pain. Acetaminophen is a type of medication that has proven to be a good pain reliever. Over-the-counter NSAIDs (non-steroidal anti-inflammatory drugs) will help reduce swelling (or inflammation) while relieving the pain; that's how NSAIDs differ from acetaminophen other prescription medications like muscle relaxants if the cause of pain was muscle spasm and opioids in the extreme cases, and only under careful supervision. Lastly the treatment may be by eliminating the causes of the pain, like loosing of extra weight, exercising, physiotherapy and surgery for severe cases.

In conclusion, back pain is still considered to be a rich topic for study. Americans spend at least 50 billion dollars each year on low back pain, the most common cause of job-related disability and a leading contributor to missed work (NINDS). Luckily, most types back pain relived within a few

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days, where other conditions needs more time to cure and may lead to more serious conditions. Most of back pain causes cannot be completely prevented, but thought they can be modified in order to decrease the severity of the effects. Obesity can be modified with regular exercise and consumption of healthy food. Work related back pain as well as sport injuries can be prevented by accurate posturing and stretching of spine and muscles. Good back-strengthening exercises may include walking, swimming, bike riding and yoga could be beneficial to overcome aging back pain, where careful lifting, housekeeping and relaxing exercises will help pregnant women in controlling the incidence of lower back pain. Signs and symptoms of back pain differ from person to another according to the severity of the injury to the spin and in the most of the cases, seeking for medical advice is important. The type of treatment to choose may be optional for people suffering of pain. Many people may seek to alternative therapy like Acupuncture, herbal medication and massage. On the other hand, many patients will seek for medical treatment for the severe pain by using prescribed pain killers and regular physiotherapy, exercise and weight reduction. Unfortunately, most of the literatures stated that attempts to prevent the occurrence of back pain have been unsuccessful. Proper health education can increase the health awareness of population regarding back pain and its prevention tips might be the key to solve this problem.