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Capstone outline

PHYT 854

**Learning Objectives:**

1. **Understand the reasons why we have LBP**
2. **Become aware of positions in sitting, standing, and lying that cause LBP and ways to correct them**
3. **Understand how to lift a heavy loads with correct posture in order to prevent LBP**

Script (English)

Low back pain affects nearly everyone at some stage of our active adult life. To most people, LBP is a mystery and no direct cause can be found in some individuals. We do know that poor posture and poor lifting habits can increase the likelihood of you experiencing LBP. LBP can interfere with activities in our daily life. Often it starts with no warning sign and for no obvious reason. When the pain has started (acute pain) the first thing most aim to do is to get relief. Once our pain has gone away, we often forget about the causes and go about our routine until the pain comes back. Instead of waiting for LBP to occur there are things you can do to prevent the pain from starting. Listen to the next portion in order to learn more about the causes of LBP. Topics covered will include; sitting and standing postures that cause LBP and ways to correct them. We will also cover correct ways to lift heavy objects from the ground without injury to the LB. Finally we will talk about lying and resting positions that cause back pains and simple ways to correct them.

The spine- Our backs contain vertebrae which make up each individual segment of the vertebral column. In between each vertebra there are discs; discs are all linked together through small joints to the vertebra. Muscles of the LB lie on top of these vertebrae, discs, and joints; muscle contractions occur and allow us to move our spine in different directions in order to work, play, and perform any other activity. Ligaments and tendons help to hold our spine together and work with our muscles to move the spine as needed. Between each vertebra there is a small opening where nerves leave the spinal canal to go to our muscles and skin. These nerves are necessary for movement of muscles, and allow us to have feeling throughout our bodies.

The low back withstands a great deal of stress throughout our daily routines. Pain in the LB can be caused by excessive stress to the muscles and sometimes can affect the deeper structures such as the vertebral column, ligaments, tendons, discs, or vertebral bodies. The most common causes of LBP are due to postural stress caused by sitting for long periods, prolonged bending of the back in bad working positions such as heavy lifting, prolonged standing and lying on certain surfaces.

In order to talk about how to prevent LBP first we must discuss posture in more detail. Lumbar lordosis is referred to as the hollow of the low back. This position is normal to humans and when in standing it should be present. Lordosis is lost whenever the low back is rounded during sitting, and bending forward. If this curve is lost during movements back problems can result. Muscles, ligaments, and tendons in the back become stretched placing them in a weakened position. In this position muscles also have to work harder to help the person move. On the other hand, if the lordosis is to great the abdominal muscles in the front become weaker which may lead to decreased stability and ultimately to injury. A good balance must be achieved to prevent injury. Therefore, by maintaining the lordosis at the right amount will help our back be stronger for activities that need back support.

When sitting for prolonged periods our low back tends to relax causing us to “sag” or “slouch”. If we stay like this for extended periods of time we can overstretch our ligaments or affect other parts of the LB which can lead to pain. Correction of bad sitting posture is needed to prevent development of/or avoid aggravating existing pain. In order to sit correctly you must first form a lordosis or normal cuvrve in your back in sitting. . Once you have achieved this you must maintain this position while in the sitting position. First you must learn how to attain good sitting posture:

1. Sit down on a chair with no back and slouch completely
2. Now draw yourself up and sit with an accentuated lordosis in the LB
3. Remain here when sitting
4. Sit this way in chairs with no backs as well as with chairs with back support.
5. Always avoid slouching!

In sitting we also need to assure that our feet are also flat on the ground to help ensure no slouching. Placing our feet on the ground give us an extra support to ensure good sitting posture. Be sure to use a chair that is at a height that allows your feet to be flat on the ground. If sitting on a stool or chair that is too high off the ground for you, it will be helpful to place something under the feet to ensure that you have extra support. If you do not have the option of the chair to sit in then try keep the lordotic posture and stand from time to time in order to give your back and chance to relax.

Just like sitting for long periods, standing for long periods can cause pain. When we stand for long periods the muscles of the back tire and relax. When we stand relaxed the lordosis in our back may become excessive or the back can rounded losing the lordotic curve which can cause strains to the tissues resulting in pain. Correction of relaxed standing is needed by performing the following:

1. First relax and allow the abdomen to protrude and the chest to sag slightly
2. Next, stand up as tall as you can pulling the chest out and tightening the buttocks
3. Once in this position allow the muscular force to help you stand
4. At first this will be difficult but with practice it will become easier
5. Although you should be comfortable to move, try and always stand in a position that maintains balance in your curve in your back

Some people have LBP when they are lying or resting in certain positions. A few people have LBP only when lying down. Sometimes back pain can cause us to lose sleep and wake up tired and stiff. If you have LBP only when lying down, or if you wake up with a stiff and painful back that was not present the night before, then there is more than likely something wrong with the surface where you sleep or rest. You might be able to change the surface you sleep on, but once asleep we can toss and turn without knowing making the position we sleep in a little difficult to figure out.

One way to correct the strain to the LB in the lying position is to lie with a support around your waist. The roll will help to support the LB and allow you to rest on your side or back. Use a towel that is of medium size in order to not create a roll that places you in lordosis. Trial and error with different towels will be needed to find one of adequate size that does not place you in too much lordosis or to little. Once you have a good towel follow the next steps:

1. Take a beach towel or bath towel
2. Roll it from end to end into a nice roll
3. Wrap the roll around your waist and use a safety pin to hold it into place (if not it will move during the night)
4. The roll should give you moderate support of the lordosis in your back

Lifting objects with the low back rounded can raise pressure in the discs of our back. The weight of the body adds to this pressure as well as the weight of the object on the ground. The result can cause damage to not only the discs in our back, but the muscles, ligaments, and joints. If your job requires you to lift objects repeatedly throughout the day you might be at risk for an injury. In order to minimize the risk of injury follow these steps to lift a load safely from the ground.

1. Stand close to the load with a wide, firm foot stance
2. Accentuate the lordosis in your low back
3. Bend at the hips first then the knees second to lower yourself to the load and keep the back curves normal, never rounded or hunched over
4. Secure the load with your hands and keep the load as close to you as possible
5. Lean back to stay in balance and lift with the legs by straightening the knees; never pull up with the back
6. Lift the load steadily with no jerking motion from the back
7. When upright, always turn the feet to turn and never twist the low back as this can lead to injury

Back pain can make ir hard to work and care for your family. You can do things to prevent your back pain. Remember to sit and stand with good posture, lie down in a way that is good for your back, and always lift objects from the ground safely. If you still have back pain make sure to tell your doctor so they can help you identify your specific causes of pain and help you determine how you can best manage your condition and stay active.