A retrolisthesis is a posterior displacement of one vertebral body with respect to adjacent vertebrae.

Typically a vertebra is to be in retrolisthesis position when it translates backward with respect to the vertebra below it.
Retrolisthesis

is found mainly in the **cervical** spine and **lumbar** region but can also be often seen in the **thoracic** spine
Classification

**COMPLETE RETROLISTHESIS:**
The body of one vertebra is posterior to both the body of the segment of the spine above as well as the segment below.

**STAIR STEPPED RETROLISTHESIS:**
The body of one vertebra is posterior to the body of the spinal segment above, but is anterior to the one below.

**PARTIAL RETROLISTHESIS:**
The body of one vertebra is posterior to the body of the spinal segment either above or below.
Retrolisthesis are most easily diagnosed on lateral (side on) x-ray views of the spine. Views where care has been taken to expose for a true lateral view without any rotation offer the best diagnostic quality.
true lateral plain x-ray film revealed a sensitivity and specificity of 100%
There are always 2 vertebrae involved in measuring the magnitude of a retrolisthesis for translation (slippage). The lower segment is considered the position of stability. The upper segment rests on it. The upper segment is considered the segment of mobility and is the one being determined for retrolisthesis.
Evaluation & Measurement

1) A line ① is drawn along the top of the vertebral body of the lower spinal segment.

2) Then at the top-back most portion of the lower vertebral body, draw line ② at 90 degrees to line ①, till it projects well into the body of the vertebra above.

3) Then draw another line ③ parallel to the line just drawn ② this time at the posterior most lower portion of the upper vertebral body.

4) The distance between the upright lines ② and ③ is measured. Any distance of 2mm or greater is a retrolisthesis. This measurement represents the degree of translation (slippage) of the upper of the two segments.
The preferred method of grading, is a measurement of the amount of displacement by measuring the bone displacement in millimeters. This is useful in determining the stability of the joint.
It is however possible at times to divide the anterior to posterior dimension of the intervertebral foramina (IVF) into 4 equal units. A posterior displacement of up to 25% of the IVF is considered as Grade 1

25% to 50% as Grade 2

50% to 75% as Grade 3

75% to 100% occlusion of the IVF is Grade 4
The IVF is difficult to visualize. Therefore this method of evaluation is not universally useful.
There is also always a reduced anterior to posterior dimension of the spinal canal compared to the way it is supposed to be. This leads to nerve signal alteration.

The greater the posterior displacement, the more significant it is for producing nerve root impingement and irritation, a dysfunctional spinal cord even to the point of a cauda equina compression syndrome if present in the lower lumbar spine.
Associated radiological findings include:

Vacuum phenomenon (in the nucleus pulposis of the intervertebral disc below the retrolisthesis)

Reduction of disc height

Marginal sclerosis more dense due to stress of the adjacent vertebral bodies

Osteophyte (spur) formation
The tissues involved in retrolisthesis

**Ligaments**: their function is to prevent excess movement between the bones they are attached to.

**Discs**: (space the vertebrae apart also prevents excess movement similar to ligaments.

**Fascia**: spreads injury impact loading.

**Muscle tone**: is required for correct postural and spinal balance.

**Spinal vertebrae**: when they move far enough, especially backward, can cause direct pressure to nerves.
Symptoms

Retrolisthesis may lead to symptoms of greatly varying intensity and distribution. This is because of the variable nature of the impact on nerve tissue and of the mechanical impact on the spinal joints themselves.
Symptoms

Pain may be experienced as a result of irritation to the sensory nerve roots by bone depending on the degree of displacement and the presence of any rotatory positioning of the individual vertebra.

The soft tissue of the disc is often caused to bulge in retrolistheses. These cannot be determined by plain films, as the x-ray passes through the soft tissue.
The natural progression of injury

Accident or injury to the spine

Subluxations

Add time and wear and tear

Subluxated vertebra moves greater than 2mm

RETROLISTHESIS

BULGED DISC

DISC HERNIATION
By the time you are seeing spinal segment translations of 2mm or more we can assume there is a failure of the disc to resist shearing forces. The most common way in which this happens is a horizontal tear in the annular portion of the disc cartilage. Generally the greater the tear, the greater the instability.
The goal of treating retrolisthesis is to realign the spine, and to do so, a number of things must be accomplished: 1) The joint must be mobilized to move the bone back into alignment; 2) the disc, if degenerating, must be re-hydrated; 3) surrounding soft tissues need to recover their tone in order to provide structural support to the realignment.
TREATMENT

1- NON SURGICAL

2- SURGICAL
NONSURGICAL TREATMENT

A large number of patients with retrolisthesis can be satisfactorily treated by appropriate conservative therapy.
Active rehabilitation in the form of exercise therapy can make the musculature strong and connective tissues more resilient.

The strong and powerful connective tissues around the unstable segment can make it more stable and the patient to remain pain free.
Nutrition

If the required nutrients for the repair of soft tissues that are responsible for maintaining spinal position are not present in the diet, then repair cannot and will not take place.
The required nutrients, include:

Copper
Glucosamine
Manganese
Vitamin C
Vitamin A
Water
Zinc

Other nutrients like proteins and amino acids are also helpful for tissue repair and health.
Weight reduction is often recommended in order to take pressure off of the vertebra.
Microcurrent therapy

Microcurrent therapy is often prescribed by doctors and chiropractors to manage pain and repair tissue. Microcurrent therapy uses small electric currents to produce electrical signals similar to those that naturally occur when the body is repairing damaged tissues in order to enhance the healing process.

Microcurrent therapy can reduce swelling and inflammation, mask acute pain and improve soft tissue regeneration.
Surgical treatment

Surgery is needed less often than spondylolisthesis.

The goal of operative treatment include reduction of back and leg pain, prevention of further slip, stabilization of unstable segment, reversal of neurologic deficit, restoration of posture and gait and improvement in the psychological status of the patient if effected.
Thank You