

# Disfunkcija sakroilijačnog zgloba kao uzrok bola u leđima

## Sacroiliac Joint Dysfunction as a Cause of Back Pain

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### Apstrakt

Kada govorimo o bolu u donjem delu leđa i lumbosakralnoj, najčešće to povezujemo sa degenerativnim oboljenjem kičmenog stuba i lumbalnom diskus hernijom, na osnovu obrasca i lokalizacije bola i kliničkih simptoma koji odgovaraju iritaciji ili kompresiji korena nerva. U tom slučaju se zanemaruje uloga disfunkcije sakroilijačnog zgloba, kao mogućeg izvora bola u donjem delu leđa, čija je prevalenca oko 15–30 % od ukupnog broja pacijenata sa lumbalnim bolom.

Sakroilijačni (SI) zglob je parni sinovijalni zglob koga obrazuje sakrum sa ilijačnim kostima, čineći tako celinu karličnog prstena i temelj na kome je postavljen kičmeni stub. Zglobne površine su oblika uha sa individualnim i polnim razlikama u veličini i obliku. Ilijačne su prekrivene fibroznom, a sakralne hijalinom hrskavicom koja je tri puta deblja. Zglobna kapsula je ispunjena sinovijalnom tečnošću, a njena vlakna se mešaju sa vlaknima sakroilijačnih ligamenata, koji je pojačavaju i daju zglobu stabilnost. Ligamenti su jako snažni i dozvoljavaju minimalnu pokretljivost zgloba u vidu klizanja, prednjeg i zadnjeg naginjanja (inklinacije, nutacije), rotacije i translacije. Pokretljivost je ograničena na jedan do tri stepena rotacije i oko 1,6 mm translacije.

Ligamenti nisu samo pasivni stabilizatori zgloba, već predstavljaju i receptivne organe zbog prisustva mnoštva mehanoreceptora i nociceptora. Inervacija zadnjeg aspekta zgloba potiče od dorzalnih grana L4-S3, a prednji aspekt zgloba inerviše zadnje grane L1-S2, kao i direktne grane obturatornog, glutealnog nerva i lumbosakralnog stabla.

Disfunkcija SI zgloba može biti ekstraartikularne i intraartikularne etiologije, izazvana traumom (fraktura, disrupcija ligamenata, prenaprezanje kapsule, tetiva, mišića, fascije, enteza), oštećenjem hrskavice u sklopu degenerativnih, zapaljenjskih i metaboličkih reumatskih bolesti ili infekcije, dislokacijom zgloba usled prekomernog podizanja tereta, torzionog naprezanja, produženog naprezanja kod atletskih aktivnosti, pogotovu asimetričnih hipomobilnosti ili hiperomobilnosti zgloba nastalih sekundarno zbog skolioze, razlike u dužini DE, spinalne fuzije, trudnoće (usled povećanog nivoa estrogena i relaksina), a može biti i posledica primarnih tumora SI zgloba ili metastaza u karlici.

Kriterijume za dijagnostiku i evaluaciju disfunkcije SI zgloba definisalo je Međunarodno udruženje za proučavanje bola, i to su: lokalizovani bol u SI zglobu koji se izaziva provokativnim testovima i maneuvima (Patrickov test, test distrakcije SIPS, test kompresije, PA spring test sakruma) i smanjenje ili prestanak bola nakon infiltracije zgloba lokalnim anestetikom.

### Abstract

When we talk about lower back pain and sciatica, we most often associate it with degenerative diseases of the spinal column and lumbar disc herniation, based on the pattern and localization of pain and clinical symptoms that correspond to nerve root irritation or compression. In this case, the role of dysfunction of the sacroiliac joint, as a possible source of pain in the lower back, whose prevalence is around 15–30% of the total number of patients with lumbar pain, is ignored.

The sacroiliac (SI) joint is a paired synovial joint formed by the sacrum with the iliac bones, thus forming the entirety of the pelvic ring and the foundation on which the spinal column is placed. The articular surfaces are ear-shaped with individual and gender differences in size and shape. The iliac ones are covered with fibrous cartilage, and the sacral ones with hyaline cartilage, which is three times thicker. The joint capsule is filled with synovial fluid, and its fibers mix with the fibers of the sacroiliac ligaments, which strengthen it and give the joint stability. The ligaments are very strong and allow minimal joint mobility in the form of sliding, anterior and posterior tilting (inclination, nutation), rotation, and translation. Mobility is limited to one to three degrees of rotation and about 1.6 mm of translation.

Ligaments are not only passive stabilizers of the joint but also represent receptive organs due to the presence of many mechanoreceptors and nociceptors. Innervation of the posterior aspect of the joint originates from the dorsal branches of L4-S3, and the anterior aspect of the joint is innervated by the posterior branches of L1-S2, as well as direct branches of the obturator, gluteal nerve, and lumbosacral trunk.

Dysfunction of the SI joint can be of extra-articular and intra-articular etiology, caused by trauma (fracture, disruption of ligaments, overstrain of the capsule, tendons, muscles, fascia, entheses), cartilage damage as part of degenerative, inflammatory, and metabolic rheumatic diseases or infection, joint dislocation due to excessive lifting of loads, torsion stress, prolonged stress during athletic activities, especially asymmetric joint hypomobility or hypermobility secondary to scoliosis, DE length difference, spinal fusion, pregnancy (due to increased levels of estrogen and relaxin), and may also be the result of primary SI joint tumors or metastases in the pelvis.

The criteria for the diagnosis and evaluation of SI joint dysfunction have been defined by the International Association for the Study of Pain, and they are localized pain in the SI joint that is provoked by provocative tests and maneuvers (Patrick's test, SIPS distraction test, compression test, PA spring test of the sacrum) and reduction or cessation of pain after infiltration of the

Lokalizovani bol nastaje u predelu SIPS i ograničen je na površinu do 10 x 3 cm. Odraženi bol nastaje usled intimnog kontakta zgloba sa L5 korenom i lumbosakralnim pleksusom. To objašnjava preklapanje simptoma sa L5/S1 radikulopatijom.

Disfunkcija SI zgloba dovodi do inhibicije mišićne aktivnosti gluteusa maximusa i spazma ilijakusa, piriformisa i kvadratus lumborum na aficiranoj strani, pomeranja karlice ka suprotnoj strani i slabosti gluteus medijusa suprotne strane. Ovakav disbalans mišićne snage dovodi do poremećaja tajminga aktivacije mišića tokom aktivnosti i lumbosakralne nestabilnosti.

Terapijski pristup treba biti prilagođen etiologiji disfunkcije i kliničkom nalazu. U fizioterapiji se primenjuju analgetske elektroprocedure, laser, magnet, termoterapija, hidroterapija i hidrokineziterapija, kineziotejping, manuelna terapija (ishemična kompresija triger tačaka, mobilizacije i manipulativne tehnike) kineziterapija, u cilju uspostavljanja mišićnog balansa (vežbe istezanja, snage i koordinacije), korekcije posture.

joint with a local anesthetic. Localized pain occurs in the SIPS area and is limited to an area of up to 10 x 3 cm. Reflected pain occurs due to the intimate contact of the joint with the L5 root and the lumbosacral plexus. This explains the overlap of symptoms with L5/S1 radiculopathy.

Dysfunction of the SI joint leads to inhibition of gluteus maximus muscle activity and spasms of the iliacus, piriformis, and quadratus lumborum on the affected side, movement of the pelvis to the opposite side, and weakness of the gluteus medius of the opposite side. This imbalance of muscle strength leads to disruption of the timing of muscle activation during activity and lumbosacral instability.

The therapeutic approach should be adapted to the etiology of the dysfunction and the clinical findings. Physiotherapy uses analgesic electro procedures, laser, magnet, thermotherapy, hydrotherapy and hydro kinesitherapy, Kinesio taping, and manual therapy (ischemic compression of trigger points, mobilization, and manipulative techniques), kinesitherapy, in order to establish muscle balance (stretching, strength and coordination exercises), posture correction.