2nd INTERNATIONAL CONGRESS

" COLLAGEN IN THE PATHOLOGIES OF THE MUSCULO-SKELETAL APPARATUS - Painful diseases of Joint & Muscle System. Important contribution of Collagen Medical Devices "

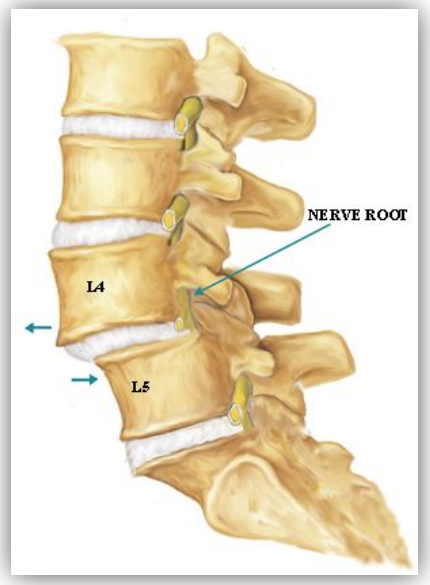
16 NOVEMBRE 2019 MILANO

Sheraton Milan San Siro Hotel
Via Caldera, 21 - 20153 Milano

Collagen medical device lumbar in the combined treatment of lumbar instability-induced pain

Dott. Edoardo Milano
Director S.C. Medicina Fisica e Riabilitazione
Presidio Sanitario San Camillo - Torino

Spondylolisthesis

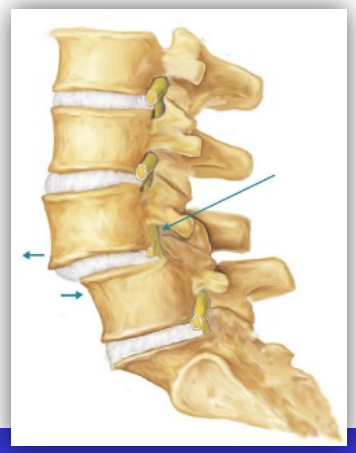


Spondylolisthesis

- ***Complexity of diagnosis***
- ***Complexity of treatment***
- ***Patient unsatisfied***

Authors have estimated the incidence of SL in the general population to be 3-8%

Definition



SPONDYLOLISTHESIS (FROM THE GREEK SPONDILOS (VERTEBRA) AND OLISTESIS (SLIPING)) IS A MECHANICAL ALTERATION IN THE PHYSIOLOGICAL VERTEBRAL STRUCTURE THAT IS PRIMARILY CHARACTERISED BY THE FORWARD DISPLACEMENT (ANTEROLISTHESIS) OF A PART OF OR WHOLE VERTEBRA ON TO THAT BELOW

ALTHOUGH SL CAN AFFECT ANY SEGMENT OF THE SPINE, IT IS LUMBAR SEGMENT THAT IS MOST COMMONLY AFFECTED.
ONE OF THE LEAST RESISTANT POINT OF THE SPINE IS THE LUMBOSACRAL JUNCTION (L5-S1) WHERE THE SLOPE OF THE UPPER SURFACE OF S1 T ENDS TO CAUSE THE BODY OF L1 TO SLIP DOWNWARDS AND FORWARDS.

- ***Anterolisthesis:*** front slipping
- ***Retrolisthesis:*** back slipping

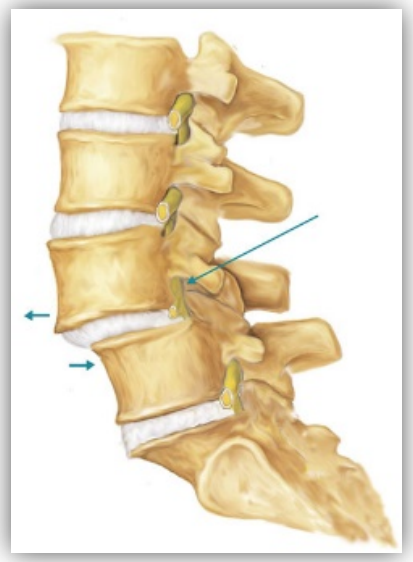
Definition

GRADING:

THE DEGREE OF DISPLACEMENT IS PRIMARILY ASSESSED USING THE TAILLARD-MEYERDING GRADING SYSTEM:

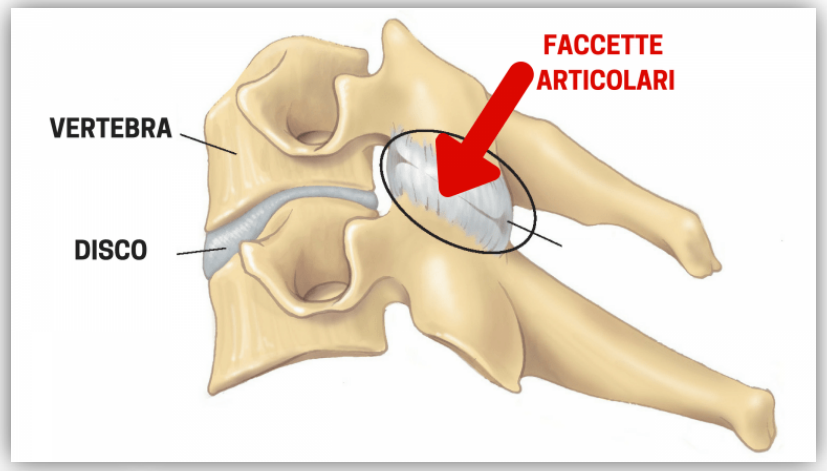
- GRADE 1 - 0%-25%
- GRADE 2 - 25-50%
- GRADE 3 - 50%-75%
- GRADE 4 - 75%-100%
- GRADE 5 (spondlloptosi) - ≥ 100%

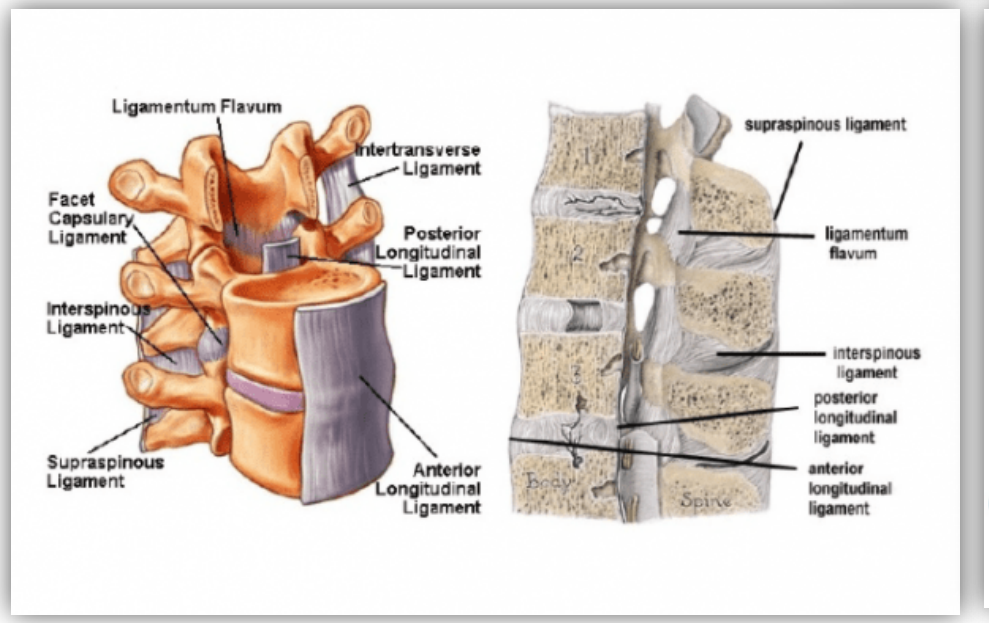
Witse, Newman, McNab classification

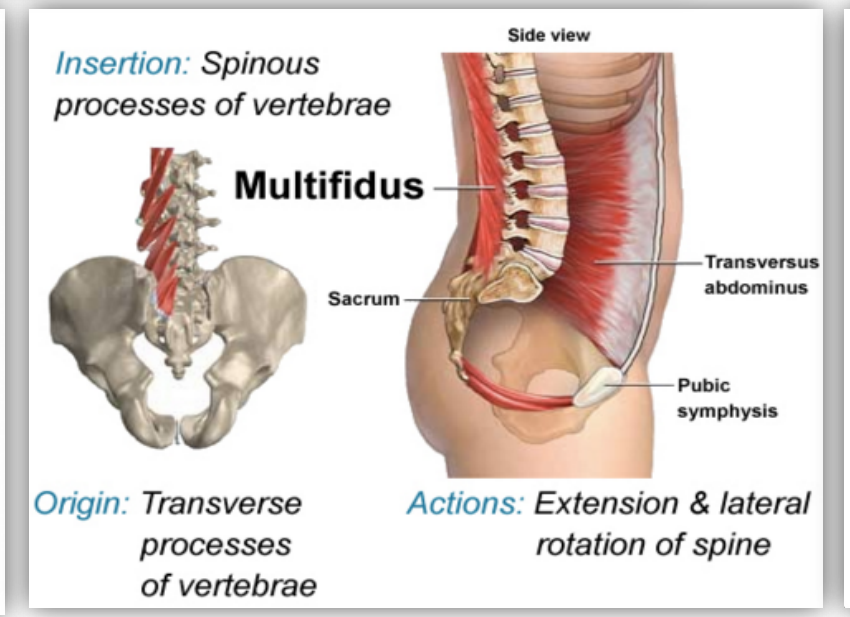


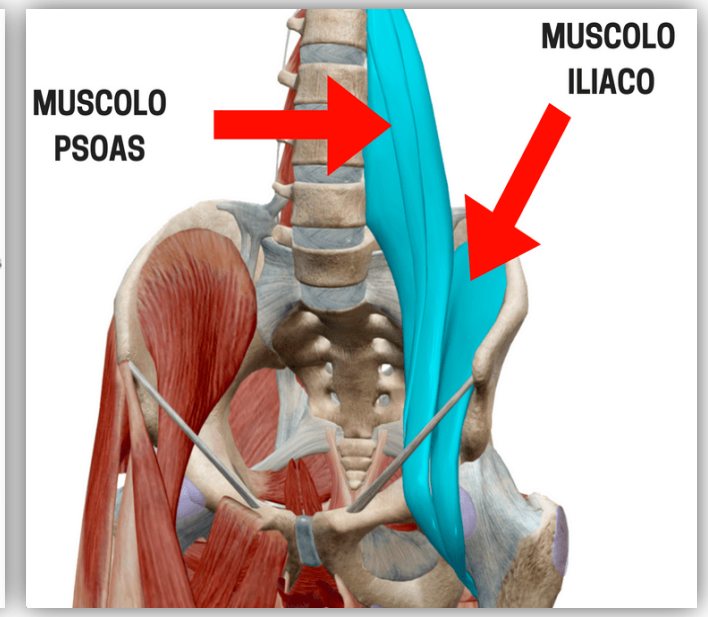
Type	Name	Description
I	Congenital	Dysplastic abnormalities
II	Isthmic	
	A	Lytic (stress fracture)
	B	Healed fracture (elongated, intact)
	C	Acute high energy fracture
III	Degenerative	Segmental instability
IV	Traumatic	Fracture of hook other than pars
V	Pathologic	Underlying pathology
VI	Iatrogenic	Surgical excision of posterior elements

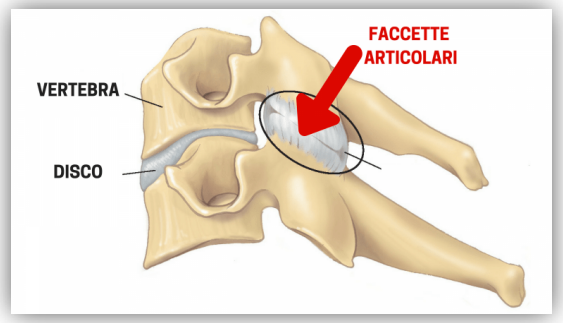
Anatomy


FACCETTE
ARTICOLARI
VERTEBRA
DISCO


Ligamentum Flavum
Intertransverse Ligament
Facet Capsulary Ligament
Posterior Longitudinal Ligament
Interspinous Ligament
Supraspinous Ligament
Anterior Longitudinal Ligament
supraspinous ligament
ligamentum flavum
interspinous ligament
posterior longitudinal ligament
anterior longitudinal ligament
Body
Spine


Insertion: Spinous processes of vertebrae
Multifidus
Side view
Sacrum
Transversus abdominus
Pubic symphysis
Origin: Transverse processes of vertebrae
Actions: Extension & lateral rotation of spine


MUSCOLO PSOAS
MUSCOLO ILIACO

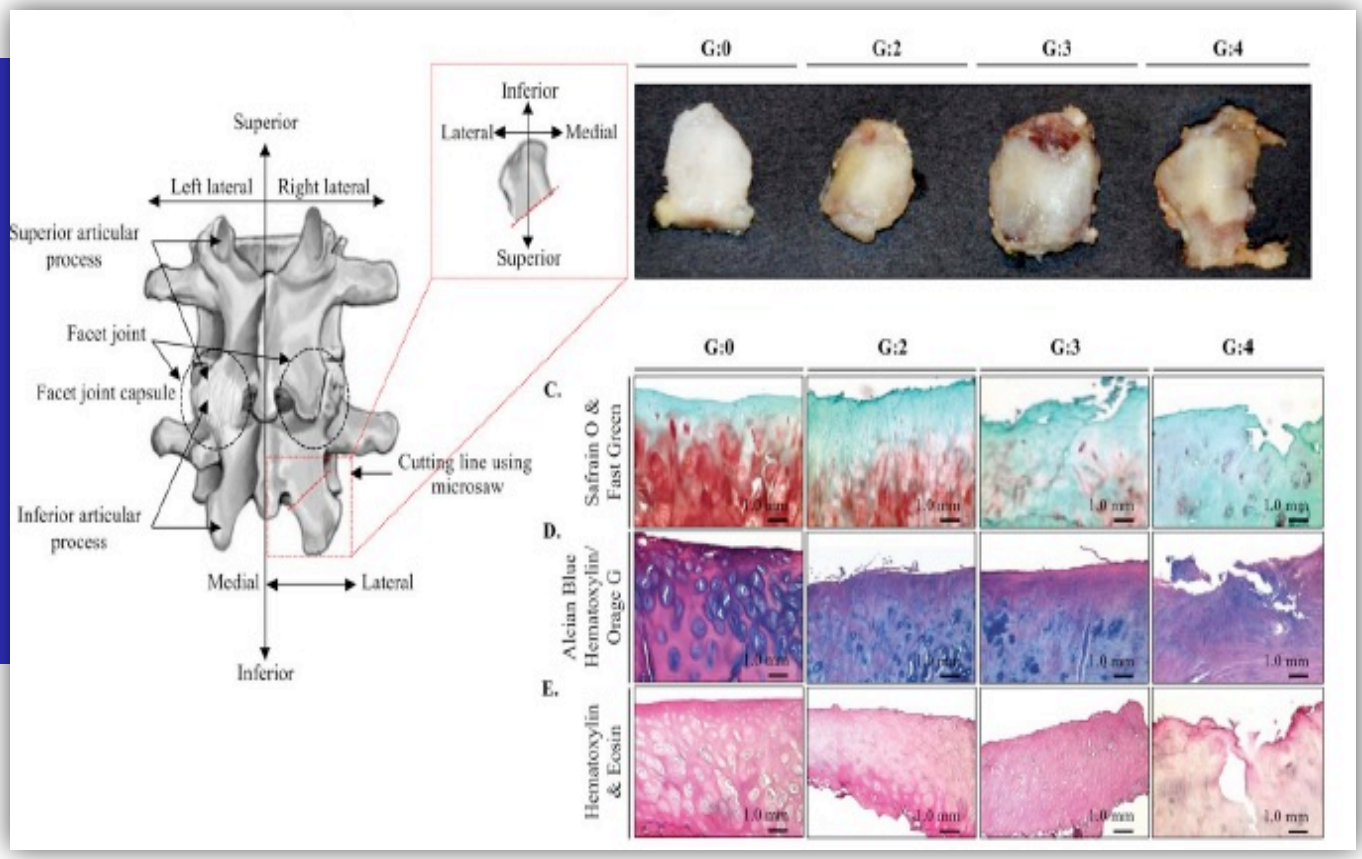


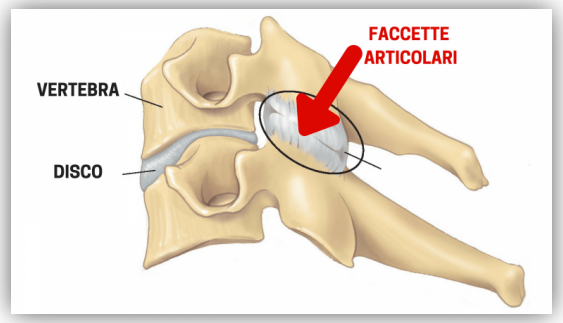
Characterization of degenerative human facet joints and facet joint capsular tissues

Osteoarthritis Cartilage. 2015 December ; 23(12): 2242–2251. doi:10.1016/j.joca.2015.06.009.

Jae-Sung Kim[1,9], Mir H. Ali[2], Frank Wydra[1], Xin Li[1], John L. Hamilton[1], Howard S. An[2], Gabriella Cs-Szabo[1,2], Steven Andrews[3], Mario Moric[4], Guozhi Xiao[1,5], James H-C Wang[6], Di Chen[1], John M. Cavanaugh[7], and Hee-Jeong Im[1,2,8,10,11,*]

Degenerative FJC tissues possess greatly increased inflammatory and angiogenic features, suggesting that these factorsplay an important role in the progression of FJD and serve as a link between joint degeneration and neurological





Correlation between facet tropism and lumbar degenerative disease: a retrospective analysis

Gao *et al. BMC Musculoskeletal Disorders* (2017) 18:483
DOI 10.1186/s12891-017-1849-x

Tian Gao†, Qi Lai†, Song Zhou, Xuqiang Liu, Yuan Liu, Ping Zhan, Xiaolong Yu, Jun Xiao, Min Dai*

Conclusion: At the L4–5 and L5-S1 levels, facet tropism is associated with degenerative spondylolisthesis. In the degenerative lumbar scoliosis group, the number of case with facet tropism was significantly higher than that of the control group. Facet tropism was associated with lumbar disc herniation at the L4–5 and L5-S1 levels. Overall, in these three lumbar degenerative diseases, facet tropism is a common phenomenon.

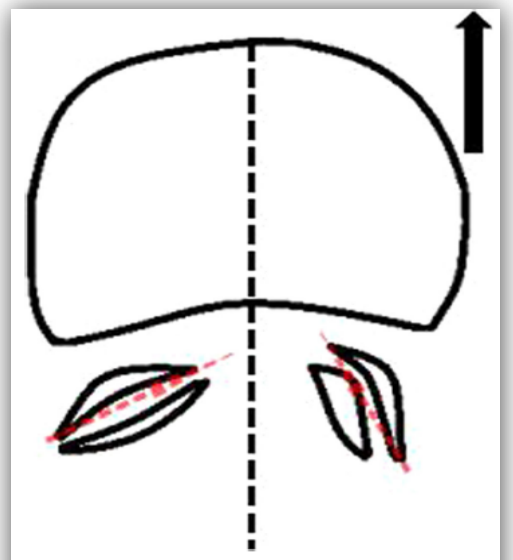


Fig. 3 Schematic diagram of lumbar spondylolisthesis. With lumbar flexion, the vertebral body on the sagittal lateral facet joint and vertebral arch root angle side will more easily slide forward (as shown with the black arrow)

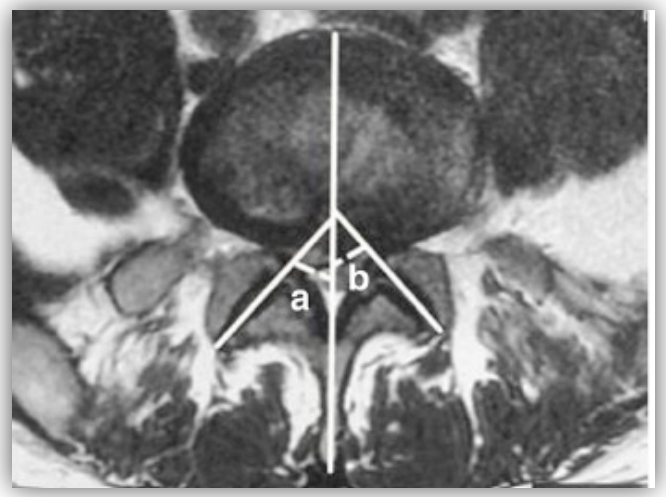
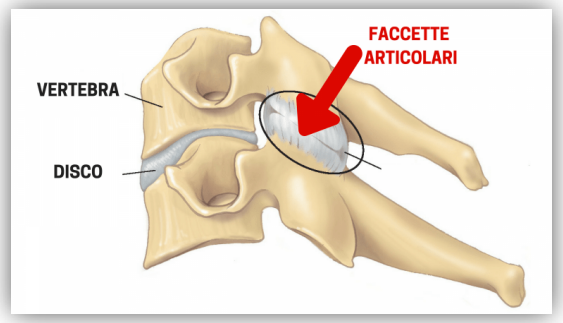


Fig. 1 Lumbar degeneration diseases. The three representative degenerative diseases of the lumbar spine: **a**: L4 segmental degenerative lumbar spondylolisthesis; **b**: L5 segmental degenerative lumbar spondylolisthesis; **c**: Degenerative lumbar scoliosis; **d**: Lumbar disc herniation

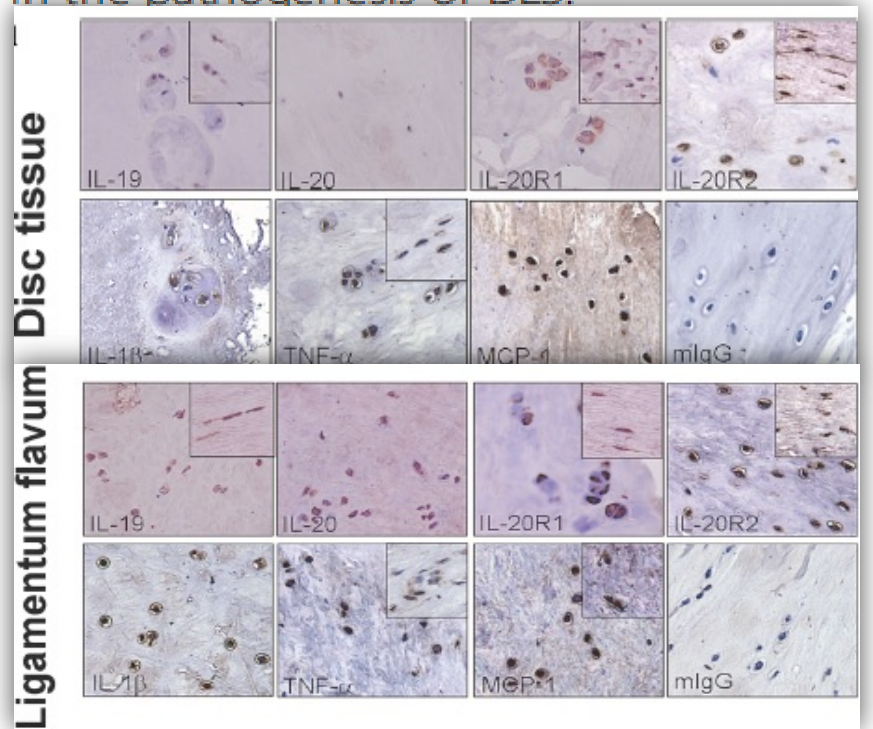


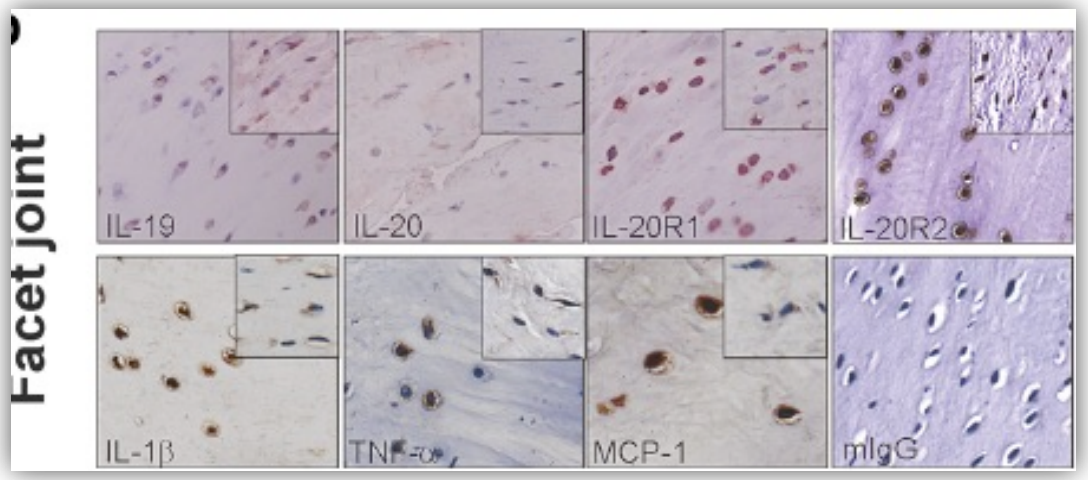
The roles of IL-19 and IL-20 in the inflammation of degenerative lumbar spondylolisthesis

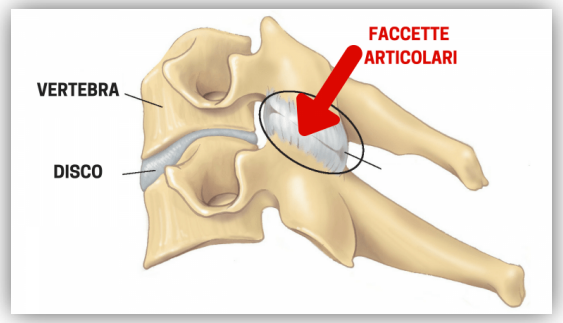
Kuo-Yuan Huang[1,2], Yu-Hsiang Hsu[2,3], Wei-Yu Chen[4], Hui-Ling Tsai[1], Jing-Jou Yan[5], Jung-Der Wang[6], Wen-Lung Liu[1] and Ruey-Mo Lin[7*]

Huang et al. Journal of Inflammation (2018) 15:19
https://doi.org/10.1186/s12950-018-0195-6

Conclusions: IL-19, IL-20, and their receptors as well as proinflammatory cytokines (TNF-α, IL-1β, and MCP-1) were expressed more in facet joints than the other tissues in patients with DLS; therefore, the etiology of inflammation might be more facet-centric. IL-19 and IL-20 induced proinflammatory cytokine expression in disc cells and might play a role in the pathogenesis of DLS.







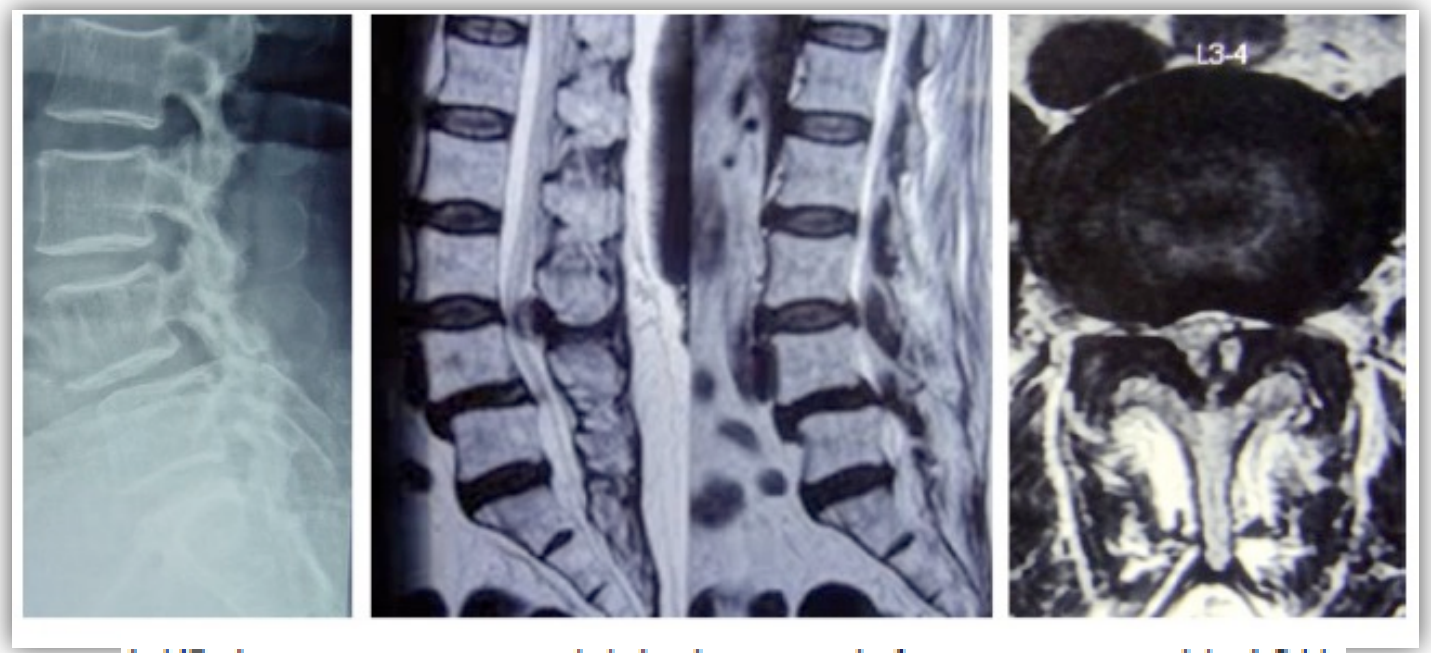
Should We Label All Synovial Cysts as Unstable?

Global Spine Journal
2017, Vol. 7(7) 629-635

DOI: 10.1177/2192568217700103
journals.sagepub.com/home/gsj
SAGE

Arvind G. Kulkarni, MS(Ortho), D'ORTHO, FCPS, Dipl(SICOT)[1],
Shumayou Dutta, MBBS, MS(Ortho), FASSI[1],
Abhilash Dhruv, DNB(Ortho), Dipl(Ortho)[1],
and Anupreet Bassi, MS(Ortho)[1]

Conclusions: The coronal inclination of the facet joints, absence of radiological instability, and poor co-relation with stages of disc degeneration suggests the presence of adequate residual stability. In this study, stand-alone decompression for LISCs without instability had well sustained good/excellent outcomes. Fusion is recommended for LISCs with associated instability.



L4/5 degenerative spondylolisthesis with facet cyst at stable L3/4.

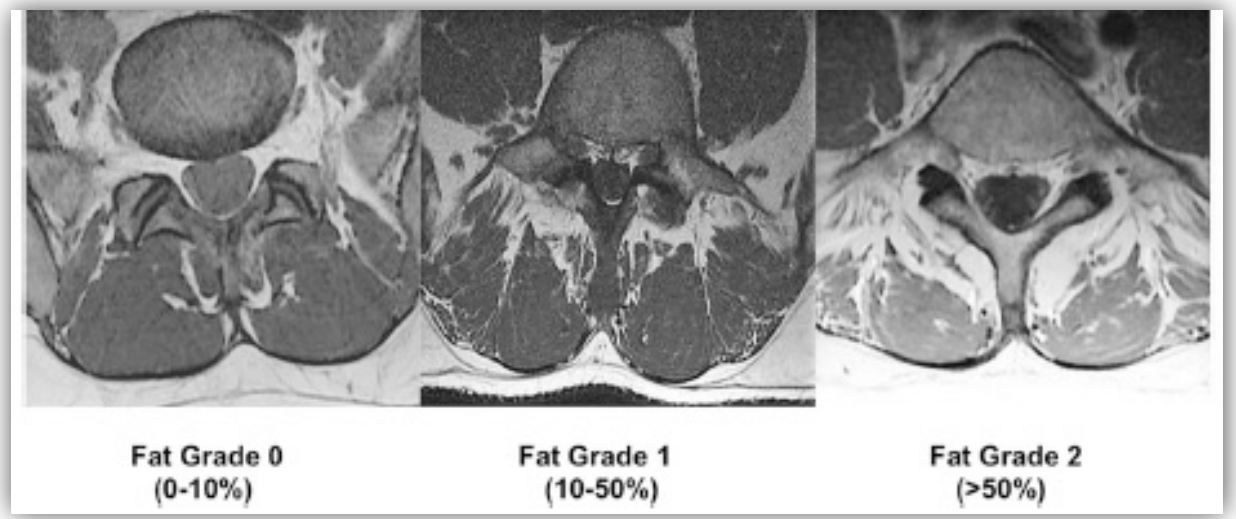
Correlation between lumbar dysfunction and fat infiltration in lumbar multifidus muscles in patients with low back pain

Markus Hildebrandt[1], Gabriela Fankhauser[2], André Meichtry[3] and Hannu Luomajoki[3*]

Hildebrandt *et al. BMC Musculoskeletal Disorders* (2017) 18:12
DOI 10.1186/s12891-016-1376-1

Results: The main result of this study was that increased severity of fat infiltration in the lumbar multifidus muscles correlated significantly with decreased range of motion of lumbar flexion ($p = 0.032$). No significant correlation was found between the severity of fat infiltration in LMM and impaired movement control, posture control, body awareness or self-assessed functional disability.

Conclusion: This is the first study investigating the relationship between the severity of fat infiltration in LMM and the severity of lumbar dysfunction. The results of this study will contribute to the understanding of the mechanisms leading to fat infiltration of LMM and its relation to spinal function. Further studies should investigate whether specific treatment strategies are effective in reducing or preventing fat infiltration of LMM.



Lumbar multifidus muscle degenerates in individuals with chronic degenerative lumbar spine pathology

Bahar Shahidi, PT, PhD[1,2], James C Hubbard, MD[2], Michael C Gibbons, MS[3], Severin Ruoss[4], Vinko Zlomislic, MD[2], R. Todd Allen, MD, PhD[2], Steven R Garfin, MD[2], and Samuel R Ward, PT, PhD[1,2,3]

Published in final edited form as:
J Orthop Res. 2017 December ; 35(12): 2700–2706. doi:10.1002/jor.23597.

High levels of muscle degeneration, inflammation, and decreased vascularity were commonly seen in human multifidus biopsies of individuals with lumbar spine pathology in comparison to normative data.

Evidence of active muscle degeneration suggests that changes in muscle tissue are more complex than simple atrophy.

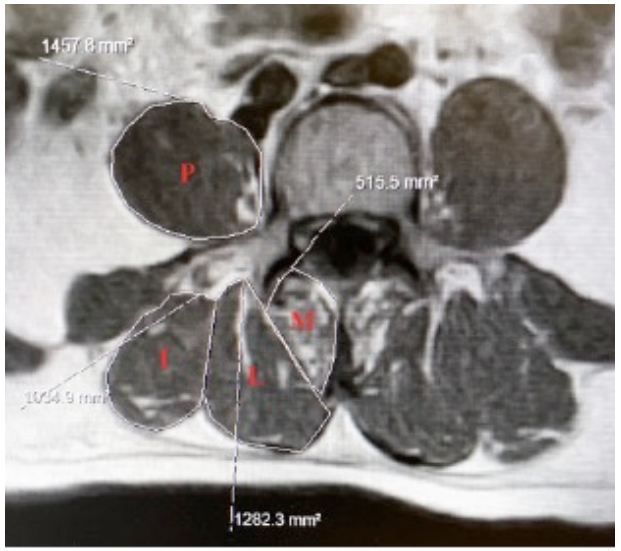
Severe Lumbar Disability Is Associated With Decreased Psoas Cross-Sectional Area in Degenerative Spondylolisthesis

Scott C. Wagner, MD[1], Arjun S. Sebastian, MD[1], James C. McKenzie, MD[1], Joseph S. Butler, MD[1], Ian D. Kaye, MD[1], Patrick B. Morrissey, MD[1], Alexander R. Vaccaro, MD, PhD, MBA[1], and Christopher K. Kepler, MD, MBA[1]

Global Spine Journal
2018, Vol. 8(7) 716-721

DOI: 10.1177/2192568218765399
journals.sagepub.com/home/gsj

We found that patients with severe lumbar disability had no significant differences in posterior lumbar paraspinal CSA when compared with those with mild/moderate disability. However, severely disabled patients had significantly decreased psoas CSA, and larger psoas CSA was strongly protective against severe disability, suggestive of a potential association with psoas atrophy and worsening severity of lumbar pathology.



Altered postural sway during quiet standing in women with clinical lumbar instability

J. Phys. Ther. Sci. 30: 1099–1102, 2018

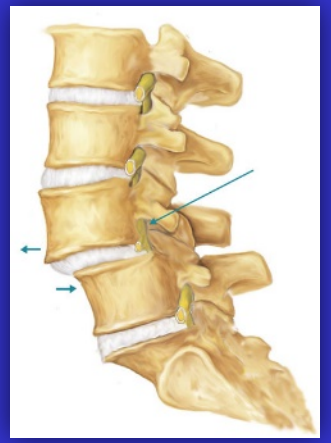
Wantanee Yodchaisarn, PhD Candidate, PT[1)], Rungthip Puntumetakul, PhD, PT[2)*], Alongkot Emasithi, PhD, PT[3)], Rose Boucaut PhD, PT[4)], Uraiwan Chatchawan, PhD, PT[2)]

The findings suggest that chronic low back pain patients with clinical lumbar instability have increased postural sway when vision is deprived. The clinical significance of this has not yet been determined but may provide an opportunity for therapy directed at improving balance control in this patient group.

Epidemiology

INCIDENCE:

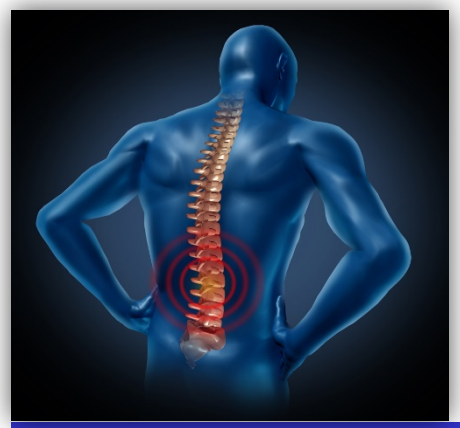
Authors have estimated the incidence of SL in the general population to be 3-8%.



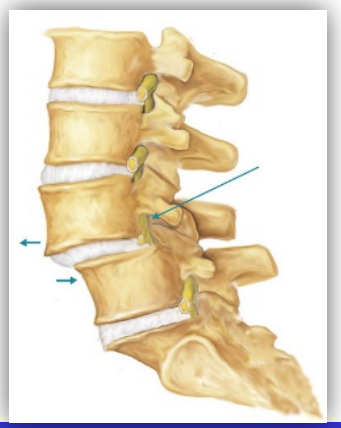
RISK FACTORS:

Age, gender(f), genetic, family e race, symptoms (low back pain), deformity, slipping

- ***L5-S1 80%***
- ***L4-L5 10%***
- ***L3-L4 1%***
- ***L2-L3 <1%***



Clinical



- *The severity of the SL does not often correlate with the intensity of the pain sintoms.*
- *The sintoms of SL are **MECHANICAL LOW BACK PAIN** which is made worse by movement and improves with rest and irradiation of pain to the lower limb.*
- *Patients often experience a worsening of the pain when changing posture (from sitting to stand).*
  The following symptoms are less common: discogenic low back pain, facet joint pain, neurogenic claudicatio.

Often the history of pain lasts several years

Diagnosis

- ***X-RAYS***

Antero-posterior, latero-lateral and oblique projection X-RAYS, in Addition to a DYNAMIC X-RAY STUDY in the position of maximum Anterior flexion and maximum extension are essential for the Diagnosis of SL.

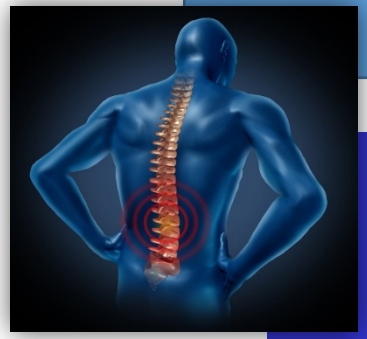
- ***MRI***

MRI is used to evaluate the possible compression of the nerve Roots and any disc degeneration and/or bulging.

- ***TC***

Better visualization pars interarticularis and facet joint with more precise calculation of grade of SL

Treatment



The conservative treatment of SL is essentially.

PHYSIOTERAPY-REHABILITATION BASED:
the aim is not only the strengthen the muscles of the upper body in order to stabilize the spine, but also to improve the neuromotor and propioceptive control of the pelvic girdle muscles, antigravity muscle and respiratory muscles.
It is, of course, essential to re-educate the patient on how to maintain a good static and dynamic posture.

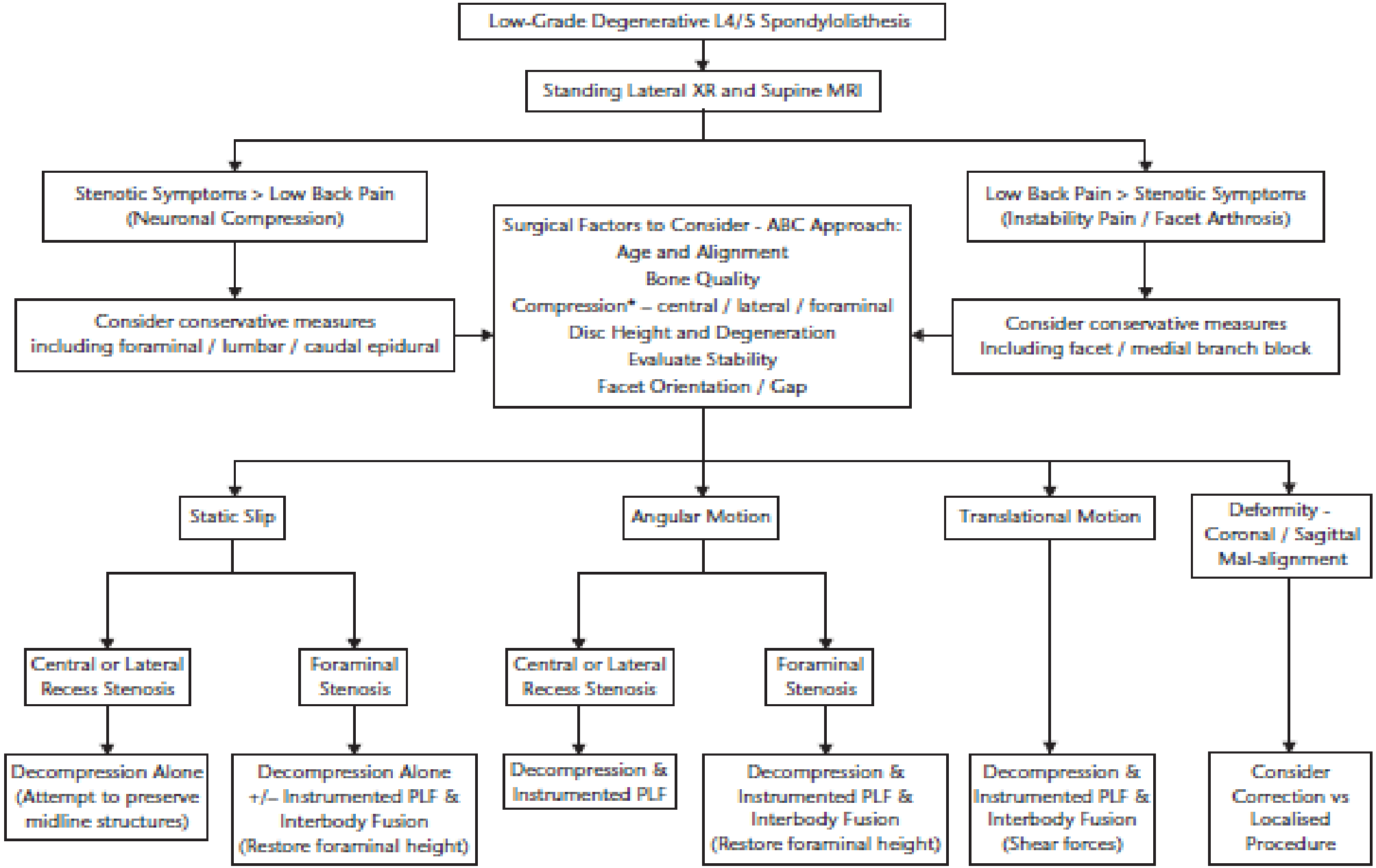
In the acute phase it is necessary to observe a suitable period of bed rest, associated with the administration of conventional and/or low-dose anti-inflammatories and muscle-relaxant

Spine

EOR | VOLUME 3 | DECEMBER 2018
DOI: 10.1302/2058-5241.3.180020
www.efortopenreviews.org

EFORT open reviews

Management of symptomatic degenerative low-grade lumbar spondylolisthesis

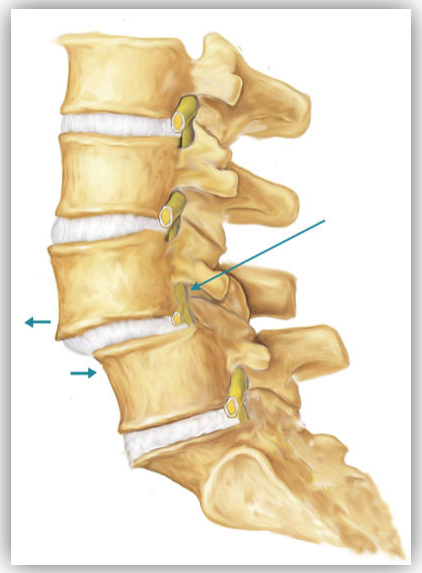


*Is Neuronal Compression Present on MRI?

Yes - Consider Direct versus Indirect Decompression

No - Dynamic Compression - Consider In-situ Fixation Without Direct Decompression

Study



FKT


GUNA
MD-LUMBAR
10 flaconcini • Dispositivo medico a base di Collagene
GUNA
MD-LUMBAR
10 flaconcini • Dispositivo medico a base di Collagene

Study

The use of injectable medical devices (MD) contain porcine collagen allows a more efficacious and specific in loco positioning of the Collagen, with a carrier and stabilisation function.
It makes possible to replace, strengthen, structure and protect the cartilage, tendons, ligaments and joint capsule
thereby optimising the structure of the collagen fibres and of all the extra- and intra-articular structure in which it is present, thereby providing a mechanical support to the district in question.

Study

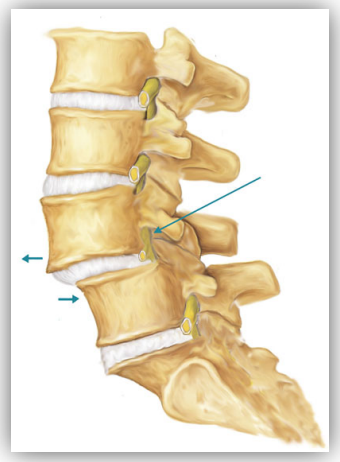
FKT +

❖ *The hypothesis of the study was that a treatment with a specific injectable collagen MD coul RE-CONDITION the anatomical structure/s impaired by SL and improve the stability of the lumbosacral spine.*

❖ *A combined treatment would have been able to improve the functional rehabilitation outcomes and/or provide more efficacious pain control in the subacute end chronic phases.*

❖ *A combined treatment would also have been able to positively Condition the progression of SL with less frequent exacerbations.*

Study



N° 20 patients

Group T
N° 10

GroupNT
N° 10

outcomes
2, 4, 8 e 12
months

Study

Inclusion criteria

- F and M patients aged between 40 and 75 years.
- Clinical and instrumental diagnosis of grade 1 and 2 SL.
- NRS: score > 5 (moderato-severo).

No use of NSAIDs, corticosteroids or opioids.

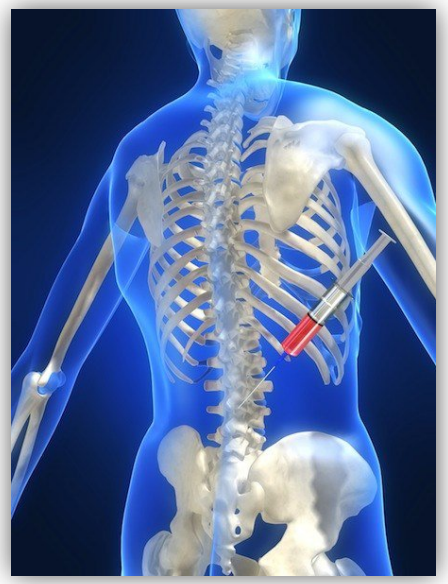
Study

Exclusion criteria

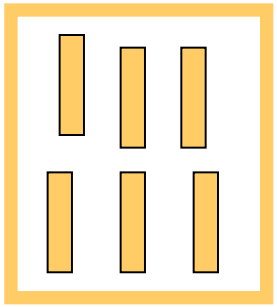
- AR, chondrocalcinosis, psoriasis, metabolic bone disease, gout, active infection.
- Clinical and instrumental diagnosis of grade 3 and 4 spondylolisthesis.
- Polyneuropathy.
- Previous local/epidural corticosteroid injection(< 3 aa).
- Use of oral corticosteroid and/or opioid therapy in past 6 months.
- Use of anticoagulants
- Pregnancy.
- Mental disease.

Study

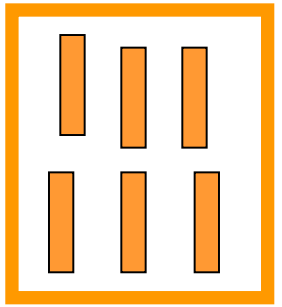
T AND NT GROUPS



T



NT



GROUP T

ULTRASOUND-GUIDED injection Therapy peri-articular.
5 session (1/week for 4 consecutive weeks a 1 after 15 days)
2 vials of MD Lumbar. ½ vials for each facet joint. 2 joints were treated at each treatment alternating the upper and lower facet joint;
At the 5th session the 2 most impaired joints (as shows by MRI) were treated.

☞ **REHABILITATION PROGRAMME**

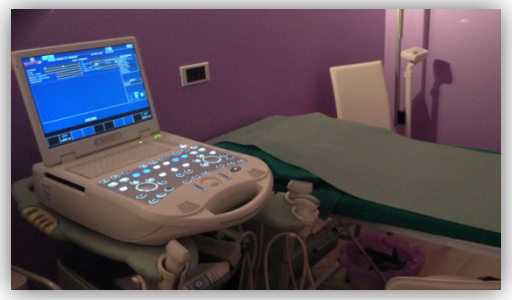
GRUPPO NT

☞REHABILITATION PROGRAMME

Hospital PDTA

FKT

Ultrasound-guided injection



J Orthop Sports Phys Ther. 2017 Dec;47(12):970. doi: 10.2519/jospt.2017.7363.

Spondylolisthesis Identified Using Ultrasound Imaging.

Beneck GJ, Gard AN, Fodran KA.

Abstract

57-year-old woman was recruited for a research study of muscle activation in persons with low back pain. She described a progressive worsening of left lower lumbar pain, which began 5 years prior without any precipitating incident, and intermittent pain at the left gluteal fold (diagnosed as a proximal hamstring tear 2 years prior). Ultrasound revealed marked anterior displacement of the L3-4 and L4-5 facet joints. The subject was recommended for a radiograph using a lateral recumbent view, which demonstrated a grade II spondylolisthesis. J Orthop Sports Phys Ther 2017;47(12):970. doi:10.2519/jospt.2017.7363.

Ultrasound-guided injections in the lumbar spine

Alexander Loizides[1], Siegfried Peer[1], Michaela Plaikner[1], Verena Spiss[1], Klaus Galiano[2], Jochen Obernauer[2], Hannes Gruber[1]

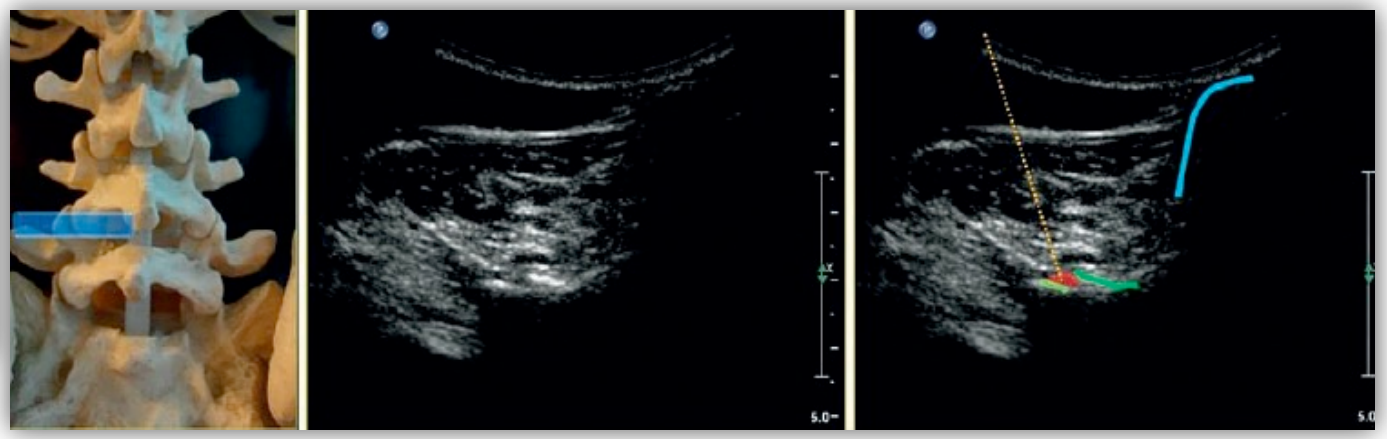
Medical Ultrasonography
2011, Vol. 13, no. 1, 54-58

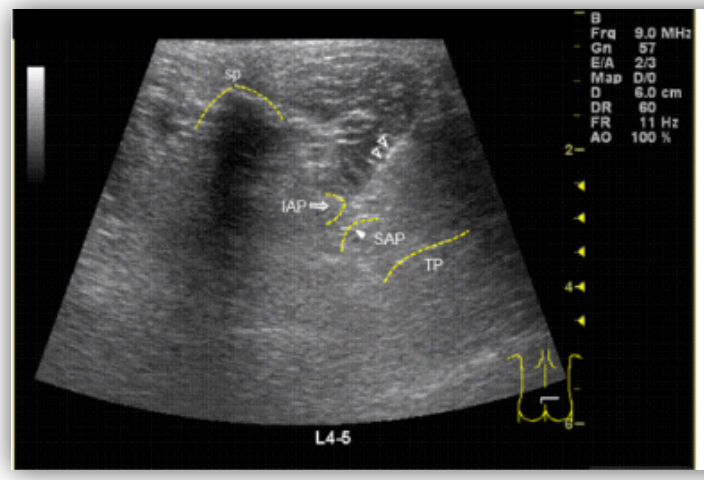
Ultrasound-guided versus low dose computed tomography scanning guidance for lumbar facet joint injections: same accuracy and efficiency

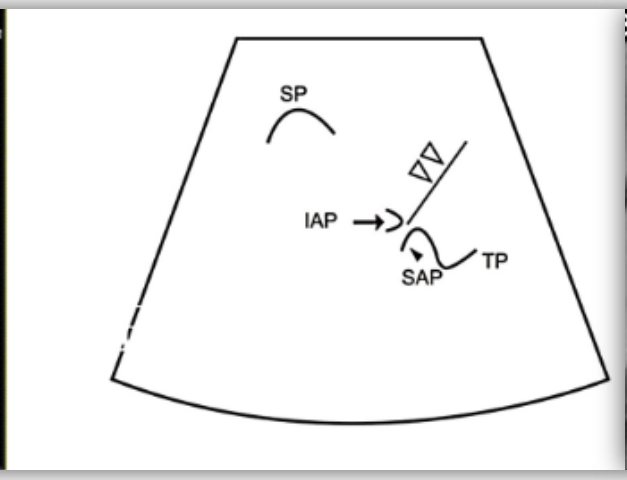
Ling Ye[1], Chuanbing Wen[2*†] and Hui Liu[1*†]

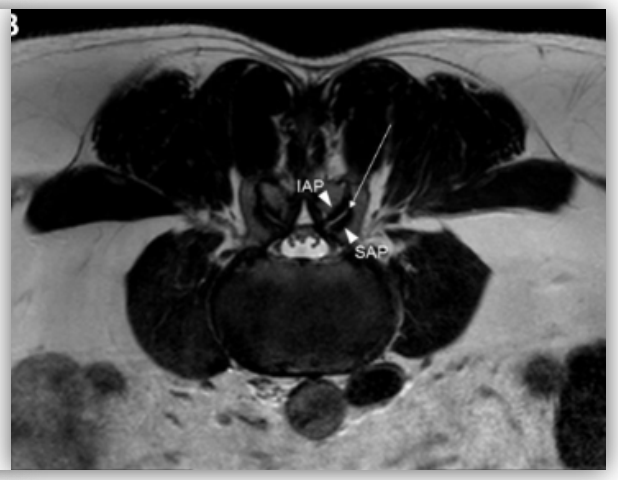
Ye et al. BMC Anesthesiology (2018) 18:160
https://doi.org/10.1186/s12871-018-0620-7

Ultrasound-guided injection









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SNLG ISS

NICE
National Institute for Health and Care Excellence

Rehabilitation Interventions for Pain and Disability in Osteoarthritis

A review of interventions including exercise, manual techniques, and assistive devices. AJN ▾ March 2012 ▾ Vol. 112, No. 3

Instabilità e spondilolistesi

The current management of lumbar spondylolisthesis.
Alfieri A, Gazzeri R, Prell J, Rollinghoff M
J Neurosurg Sci. 2013 Jun;57(2):103-13.

Spine

EOR | VOLUME 3 | DECEMBER 2018
DOI: 10.1302/2058-5241.3.180020
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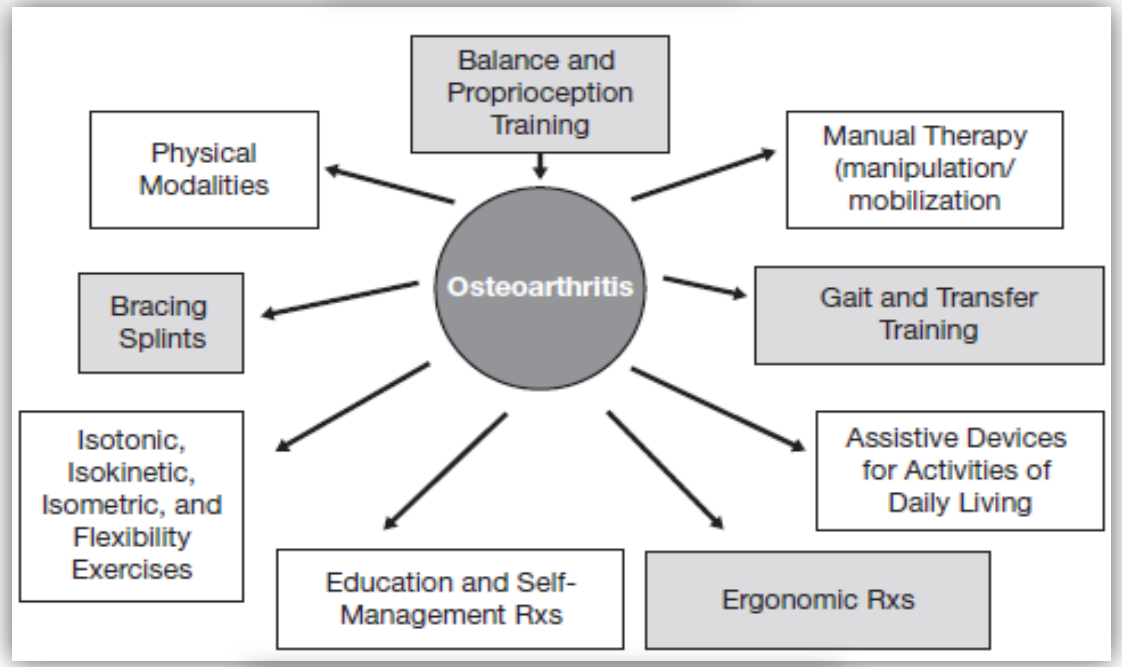
Management of symptomatic degenerative low-grade lumbar spondylolisthesis

HOSPITAL PDTA



HOSPITAL PDTA

- *Daily individual motor rehabilitation treatment for a total of ten 45-minute sessions*
- *Individual assesment by the occupational therapist at the 5th and 10th session*
- *Provision of a brochure illustrating the physiokinesis therapy Exercises o be performed by patients at home and ergonimic advice*
- *Group treatment (max 4 patients) one month after the last Individual session, on 2 consecutive days, in 30 minute session*

Numeric Rating Scale
NRS

Pain Disability Index
PDI

Oswestry Low Back Pain Disability Index
OPDI

Assunzione di FANS durante il periodo di follow up

OUTCOMES

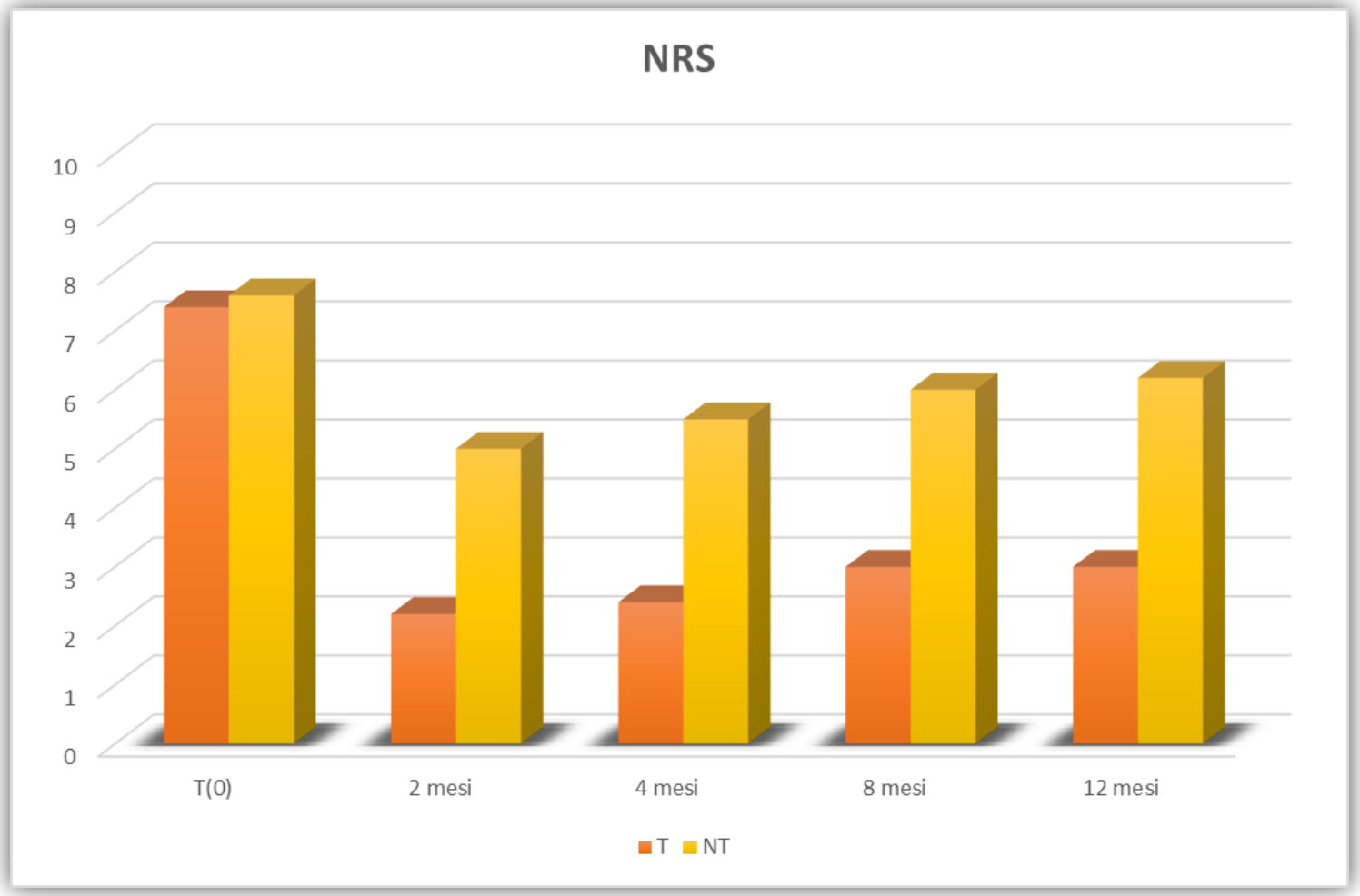
PAIN

MOTOR FUNCTION

REDUCED USE OF NSAIDs

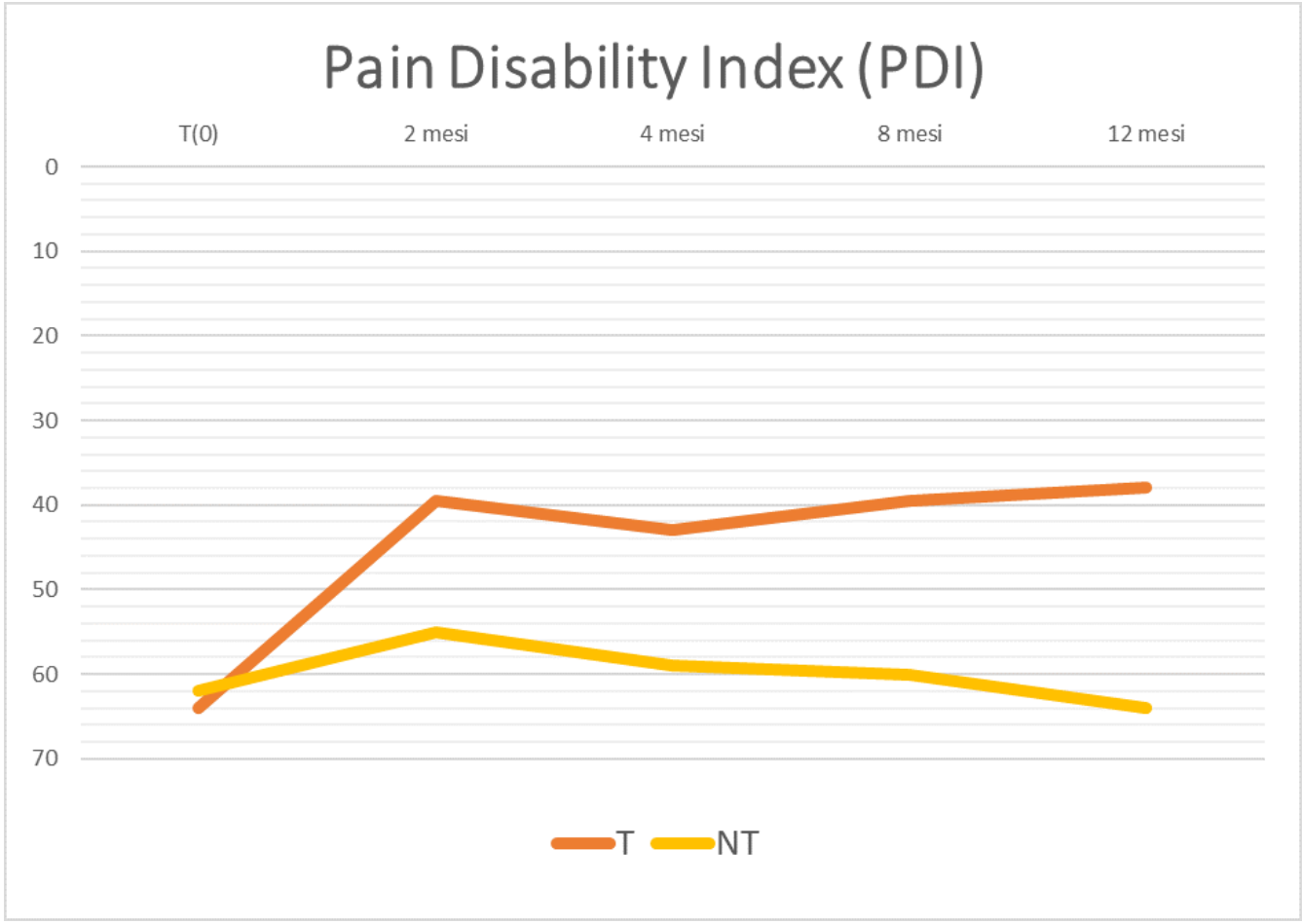
Conclusions

NRS



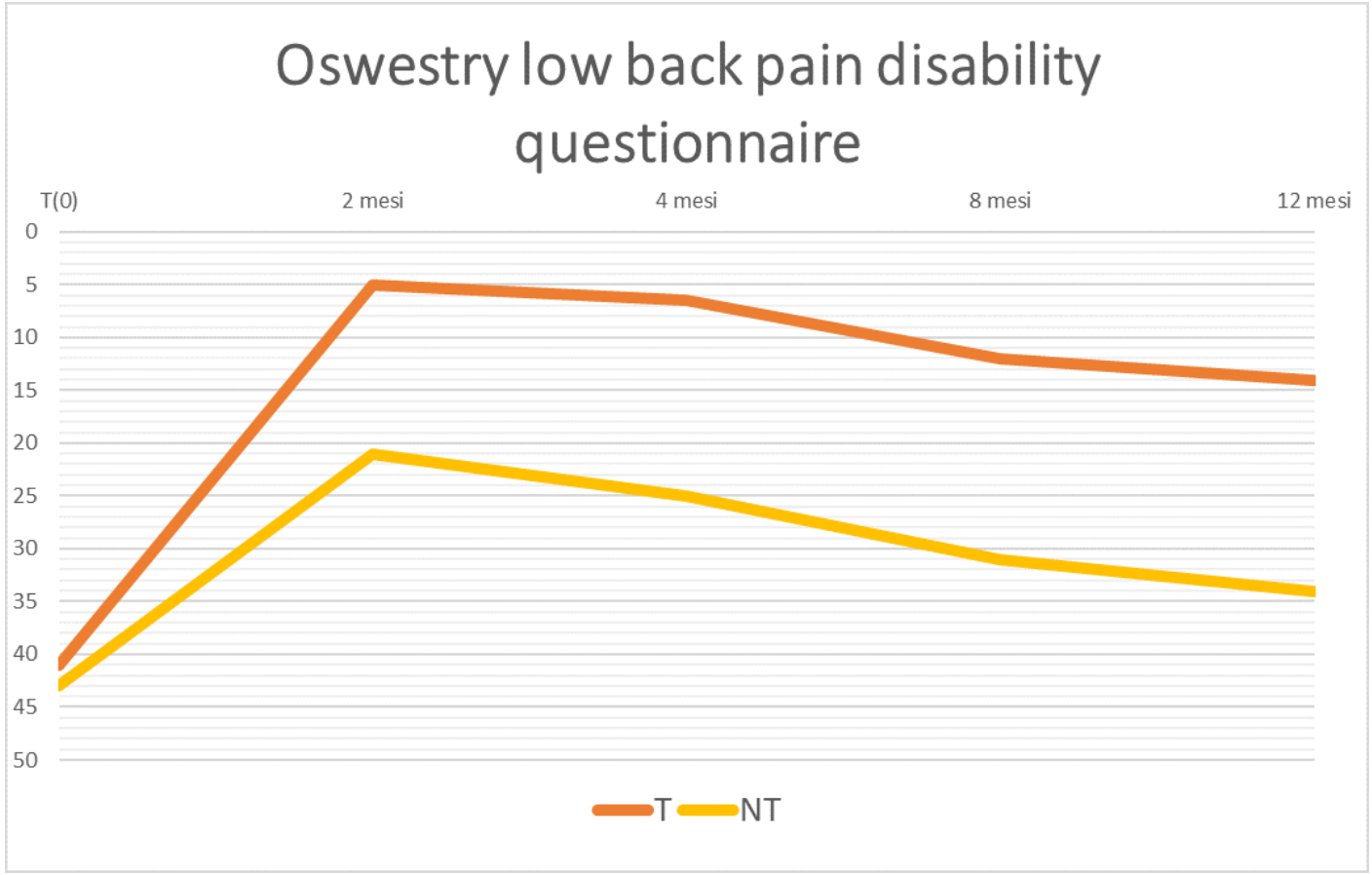
Conclusions

PAIN DISABILITY INDEX



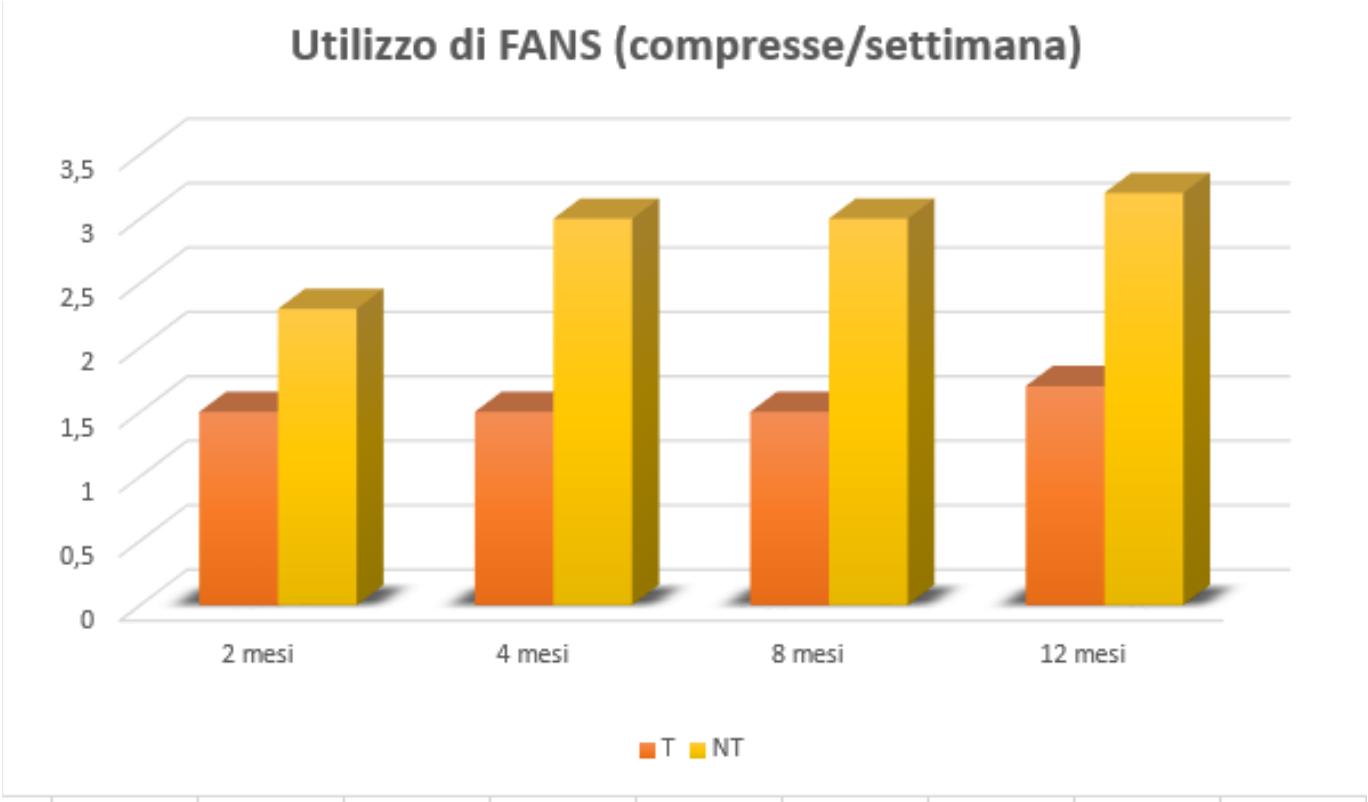
Conclusions

OSWESTRY LOW BACK PAIN DISABILITY



Conclusions

CONSUMO DI FANS



Conclusions

✸ The data obtained allow us to conclude that, in the treatment of Grade 1 and 2 spondylolisthesis combined treatment with physiokinesis therapy + injection of MD-Lumbar makes it possible to obtain a far better and longer-lasting improvement in terms of PAIN, MOTOR FUNCTION, THE IMPAIRMENT CAUSED BY SPINAL INSTABILITY, REDUCED USE OF NSAIDS.

✸ The combined treatment proposed herein, for the first time in the treatment of SL, would appear to allow a better control over disease progression and a reduction in exacerbations over time (pro-inflammatory cytokine network control).

✸ MD-LUMBAR IMPROVES THE STABILITY OF THE LUMBOSACRAL SPINE AND ORGANICALLY RECONDITIONS THE IMPAIRED ANATOMICAL STRUCTURES (JOINY CAPSULES, YELLOW LIGAMENT, ANTIGRAVITY MUSCLES AND CONNECTIVE DEEP FASCIA), THEREBY MAKING A CONSIDERABLE CONTRIBUTION TO THE PROMOTION OF NEUROMOTOR AND PROPIOCEPTIVE CAPACITY.

Future..

- ***Confirm the results obtained by expanding the study.***
- ***Identify the optimum timing for further injection therapy with MD-Lumbar as a part of an individual maintenance rehabilitation programme.***
- ***Base injection therapy with MD-Lumbar in the hospital PDTA.***

Thank you