ONLINE APPENDIX 2

Note: This is Online Appendix 2 of Murape, T., Ainslie, T.R., Basson, C.A. & Schmid, A.B., 2022, 'Does the efficacy of neurodynamic treatments depend on the presence and type of criteria used to define neural mechanosensitivity in spinally-referred leg pain? A systematic review and meta-analysis', *South African Journal of Physiotherapy* 78(1), a1627.https://doi.org/10.4102/sajp.v78i1.1627

Table 1-A2: Characteristics of included studies

Author	Participants (Number) Mean Age Symptom Duration	Intervention Group (IG)	Control Group (CG)	Outcome Measure (Method)	Outcome Measure (Time Interval) Pain and Disability	Results	Mean (SD)	P Value	Inclusion-criteria	Neural Mechano-sensitivity subgroup
Adel (2011)	N = 60 Age: IG= 42.93±5.73 CG= 44.2±6.16 Symptom Duration(weeks):	N = 30 Received lumbar spine mobilization and completed a standardized exercise regimen Standardized exercise program consisting of pelvic tilts, bridging, wall squats, quadruped alternate arms/legs activities 2 sets of 10	N = 30 Same treatment has control plus SLR stretch with gentle oscillations toward ankle dorsiflexion and then reassessed the effect. Position held for 30 secs.5 repetitions 6 physical therapy sessions (3 weeks)	1)Health scale device 2) NPRS 3) ODI 4) Hoffmann reflex 5) Location of symptoms 6) MRI	Baseline and end of treatment 3-week intervention	NPRS (Post) Exp: Control: ODI (Post) Exp: Control:	 1.83 (1.83) 3.03 (1.88) 23.9 (4.9) 28.4 (6.87)	 0.006* 0.001*	Symptoms that referred distal to the buttocks, reproduction of the patient's symptoms with straight leg raise testing, no change in symptoms with lumbar flexion or extension, and a baseline Oswestry score greater than 10%.	Unclear

		repetitions of each exercise. 6 physical therapy sessions (3 weeks)								
Ahmed (2013)	N=30 **Age:** IG=53.00 (±1.91) CG= 52.60 (±1.60) **Symptom Duration (weeks:** IG=4.87 (±1.50) CG=5.26 (±1.75)	N=15 Participants with sciatica Same treatment as control plus: SLR tibial and peroneal bias; 2 sets of 20 mobilisation of each bias. 3 treatments/week for 2 weeks	N=15 Participants with sciatica Flexion and extension exercises 2-3 sets TENS Home exercises 3 treatments per week for 2 weeks	1) NPRS 2) SF12	Baseline and end of treatment -2-week intervention	NPRS (Pre) Exp: Control: NPRS (Post) Exp: Control: SF-12 (Pre) Exp: Control: SF-12 (Post) Exp: Control: No Baseline differences. Improvement in both measures in both groups, but significantly more and clinically relevant in the IG group. Between groups difference favouring IG for both SF-12 and NPRS	 7.67 (0.9) 7.33 (12.9) 3.47 (1.12) 4.93 (1.10) 36.48 (8.68) 36.82 (7.56) 65.57 (12.00) 54.53 (7.34)	 0.437 0.002 0.480 0.014	Aged 45-64, sciatica with or without low back pain, duration of symptoms from two weeks to three months with leg pain greater than back pain in a radicular distribution. Positive findings (reproduction of symptoms) were exhibited from the nerve tension test i.e. Straight leg raise (SLR) of more than 35°, with Persistent pain radiating to the lower limb.	Unclear

Ali et al. (2015)	N=40 **Age:** IG: 34.32 (±8.94) CG:33.22 (±7.16) **Symptom Duration (weeks:** IG:4.87 ± 1.50 CG: 5.26 ± 1.75	N=22 Participants with chronic radicular LBP Same treatment as control plus: Slump slider mobilization 5 days per week for 3 weeks	N=18 Participants with chronic radicular LBP Lumbar stabilization exercises Shortwave diathermy 5 days/week for 3 weeks	1) MODI 2) VAS	Baseline and end of treatment of 3-week intervention	VAS (change in score) Exp: Control: MODI (change in score) Exp: Control: Both groups had a significant improvement in pain (VAS) 95% CI; 2.85, 4.09) NRS CG 4.93 ± 1.10 (95% CI (4.34, 5.55). Between groups difference favouring IG 1.46 (14.6%) SF12 IG 65.57 ± 12.00 95% CI (58.9659, 72.1741) SF12 CG 54.53 ± 7.34 95% CI (50.4905, 58.5695) Between groups difference favouring IG 11.04 (11.04%). Only the IG had a significant improvement in	 0.86 (0.18) 1.31 (0.31) 2.91 (0.69) 1.49 (0.32)	 0.001 0.163	Aged 20-60, Chronic radicular low back pain and a reproduction of symptoms with slump test	Unclear

						disability (MODI) (IG p=0.003; 2.91±0.69; CG p=0.163; 1.49±0.32).				
Cleland (2006)	N=30 **Age:** IG: 40.0 (±12.2) CG:39.4 (±11.3) **Symptom Duration (weeks)** IG: 14.5 (±8.0) CG:18.5 (±12.5)	N=16 Participants with LBP Same treatment as control plus: Slumped stretching exercise (position held 30 seconds, 5 repetitions) Home exercise slump stretches (2 repetitions for 30 seconds) 2x per week for 3 weeks	N=14 Participants with LBP 5 min cycle warm up Lumbar spine mobilization (PA mobilizations to hypo mobile lumbar segments, grade 3-4) Standardized exercise program (pelvic tilts, bridging, squats, quadruped alternate arm/leg activities; 2 sets 10 repetitions each) 2 x week for 3 weeks	1) Body Diagram (for distribution of symptoms) 2) NPRS 3) MODI 4) Fear avoidance beliefs questionnaire	Baseline and end of 3-week intervention	NPRS (Pre) Exp: Control: NPRS (Post) Exp: Control: MODI (Pre) Exp: Control: MODI (Post) Exp: Control: No baseline differences between groups (p>0.05). Participants who received slump stretching had significantly greater improvements in disability.	 3.1 (1.00) 4.0 (0.98) 1.7 (0.42) 2.7 (1.00) 24.4 (6.30) 26.2 (6.70) 17.6 (6.10) 18.2 (5.30)	 0.90 0.001 0.47 -0.01	Symptoms that refer distal to the buttocks, reproduction of the patient's symptoms with slump testing, no change in symptoms with lumbar flexion or extension, and a baseline Oswestry score greater than 10%.	Unclear

Colakovic (2013)	N=60 **Age:** IG:42.3 (5.9) CG:43.1 (6.4) **Symptom Duration:** Not Specified	N=30 Group A was treated with neural mobilization in position on side with oscillatory movements: knee extension, hip flexion and ankle dorsiflexion. Mobilisation 3 times with 10 oscillatory movements for improving nerve gliding in intravertebral foramina. Lumbar stabilization Then lumbar exercises.	N=30 Group B was treated with active ROM exercises for back and distal extremities, for improving range of motion in back and legs, and lumbar stabilization exercises. Both groups had 4-week therapy program, three times per week.	1)VAS 2) SLR	Baseline and after treatment - 4week intervention	VAS (Pre) Exp: Control: VAS (Post) Exp: Control:	 8.78 (0.86) 8.95 (0.85) 1.16 (1.54) 2.25 (2.23)	 <0001	Reproduction of their symptoms with straight leg raise testing. VAS scale score and positive SLR test (< 45 degrees) were recorded.	Unclear
Dwornik et al. (2009)	N=108 **Age:** IG: 43 (±10) CG:43 (±10) **Symptom Duration:** Not Specified	N=56 5 did not complete treatment. Receiving 10 treatments over 2 weeks. NM techniques according to Butler (1991) of femoral,	N=52 participants 2 dropouts Receiving 10 treatments over 2 weeks. 10x TENS 10-15 min 10x laser over painful area.	1) Resting muscle tone (quadriceps femoris, biceps femoris, Tibialis anterior, gastrocnemius) measured by EMG	Outcomes measured at baseline and end of treatment week 3	VAS (Pre) Exp: Control: VAS (Post) Exp: Control:	 4.7 (3.2) 4.4 (1.8) 3.2 (2.1) 4.2 (1.2)	 0.000014 0.61	Multi-specialist examination by an internist, orthopedist, and a neurological examination (not specified), Examination of femoral and sciatic nerve mobility	Unclear

		sciatic, tibial nerves. Techniques not described	Movement exercises for intervertebral joints without axial loading	2) ROM of Laseque sign and reverse Laseque sign measured with inclinometer 3) Presence of Bragard sign and reverse Laseque sign 4) VAS						
Ferreira et al. (2016)	N=60 **Age:** IG:43.9± 14.5 CG:40.3 ± 12.9 **Symptom Duration (years) median (range):** IG:5.8(0.25-50) CG:2.0(0.25-20)	N=30 1) Advice to remain active. Including: prolonged rest, avoidance of daily-life activities and excessive muscle bracing during movement would have harmful effects. 2) Neurodynamic treatment, 4 x 25min treatment sessions over 2 weeks. Grade III	N=30 1)Advice to remain active. Including: prolonged rest, avoidance of daily life activities and excessive muscle bracing during movement would have harmful effects.	Primary 1) NPRS Leg Pain 2) ODI Secondary 1) NPRS LBP 2) Patient-Specific Functional Scale 3) Global Perceived effect 4) Location of symptoms	Baseline, Week 2 and 4 weeks	NPRS (Leg Pain Week 0) Exp: Control: NPRS (Leg Pain Week 2) Exp: Control: NPRS (Leg Pain Week 4) Exp: Control: Oswestry Disability Index Week 0 Exp: Control: Oswestry Disability Index Week 2 Exp: Control:	 6.1 (1.6) 6.1 (1.9) 4.1 (2.3) 5.1 (2.3) 3.7 (2.6) 6.1 (2.4) 29 (8.1) 27 (15) 21 (12) 23 (12)	P Values not provided	Adults aged 18 to 80 years with chronic unilateral nerve-related leg pain (i.e., leg pain for at least 12 weeks) radiating below the gluteal fold were included. Participants had to report a leg pain intensity of at least 3 on the 11-point numeric pain rating scale, and their leg symptoms had to be reproduced by the slump test and changed by structural	Definite

		lumbar foramen opening mobilisations two sets of 30 oscillations at 0.5 Hz, with the participants in side lying (painful side uppermost) and hips flexed. If the participant's symptoms did not worsen, one extra set of 30 oscillations. Neurodynamic sliders, positioned in side lying (painful side uppermost) and a combination of hip and knee flexion followed by hip and knee extension, two sets of 30 repetitions. If symptoms did not worsen,1 set of 30 repetitions of				Oswestry Disability Index Week 4 Exp: Control: At 2 weeks, the experimental group did not have significantly greater improvement than the control group in leg pain (MD –1.1, 95% CI –2.3 to 0.1) or disability (MD –3.3, 95% CI –9.6 to 2.9). At 4 weeks, the experimental group experienced a significantly greater reduction in leg pain (MD –2.4, 95% CI –3.6 to –1.2) and low back pain (MD –1.5, 95% CI –2.8 to –0.2). The experimental group also improved significantly more in function	20 (12) 23 (12)		differentiation. (i.e. releasing of cervical flexion of ankle dorsiflexion)	

		an active sliding technique in slump sitting. 3)Home Exercise Program,1 sliding(slump) and 1 tension(knee extension) technique exercise 1 set 10 repetitions,2 x a days for 2 weeks				at 2 weeks (MD 5.2, 95% CI 2.2 to 8.2) and 4 weeks (MD 4.7, 95% CI 1.7 to 7.8), as well as global perceived effect at 2 weeks (MD 2.5, 95% CI 1.6 to 3.5) and 4 weeks (MD 2.9, 95% CI 1.9 to 3.9). No significant between-group differences occurred in disability.				

Jain (2012)	N=30 **Age:** IG:34.26 (±5.66) CG: 33 (±6.86) **Symptom Duration (weeks):** IG: 8.067 (±1.10) CG: 8.266 (±1.16)	N=15 All participants were treated for 9 sessions (3 days/ week for 1st week and 2 days/week for next 3 weeks) Same treatment as control plus: slump stretching from 2nd week	N=15 All participants were treated for 9 sessions (3 days/week for 1st week and 2 days/ week for next 3 weeks) PA mobilization of lumbar spine, exercises	1) VAS 2) MODI	Baseline, Week: 1, 2, 3, 4 and 5 weeks for VAS Baseline, Week: 1, 2, 3 and 4 weeks for MODI	VAS (Baseline) Exp: Control VAS (Week 5) Exp: Control: For pain (VAS) significant differences were found at the end of 2nd, 3rd, 4th and 5th week (p=0.0185,p=0.000, p=0.000 and p=0.000, respectively) between the 2 groups, in favour of the IG. MODI (Baseline) Exp: Control: MODI (Week 4) Exp: Control: MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2nd week	58.93 (7.20) 58.8 (6.46) 3.00 (2.59) 7.47 (2.90) 30 (7.25) 29.87 (6.35) 11.33 (4.45) 13.60 (4.00)	0.489 0.479	Chief complaint of LBP, unilateral lower limb extremity pain, positive slump Test (pain reproduction or symptoms reduced with cervical extension component of test)	Unclear

						(p=0.4515), 3rd week (p=0.078) and 4th week (p=0.0865).				

Jeong (2016)	N=30 **Age:** IG:35.1±6.4 CG:41.6±11.1 **Symptom Duration:** Not Specified	N=15 Lumbar segmental stabilization exercise including the sciatic nerve mobilization technique. Treatment was conducted three times per week for six-weeks. Neural mobilization technique for "relaxation of the sciatic nerves" was additionally applied using the three-step methods used by Butler. Lumbar Segmental Stabilization Exercise: The patient flexed the hip and knee joints, placed the pressure biofeedback unit under the lumbar	N=15 Lumbar segmental stabilization exercise. Treatment was conducted three times per week for six-week.	SF-36	Once before the intervention and once six weeks after the intervention	PF (Pre) Exp: Control: PF (Post) Exp: Control: GH (Pre) Exp: Control: GH (Post) Exp: Control:	17.7 (3.5) 17.3 (5.3) 25.1 (3.3) 20.3 (6.5) 12.6 (3.0) 15.8 (2.8) 19.0 (4.1) 16.6 (3.4)	 <0.05 <0.05 <0.05 <0.05	Pain index three points or higher, Oswestry Disability indexes were more than 20%, and straight leg raise test (SLR) results were between 30 and 70 degrees.	Unclear

		vertebra, lied completely relaxed, adjusted the pressure gauge to 20 mmHg, and induced coordinated contraction of the multifidus and transverse abdominis. They increased the pressure to 30 mmHg, held it there while continuing to breathe for 10 seconds, and then decreased the pressure to 20 mmHg and rested for 10 seconds. The patient repeated this motion 20 times.								

Karthikeyan (2014)	**N = 40** **Age:** 20-50 **Symptom Duration:** Not reported	N = 20 with non-active sports subjects Mobilization with static spinal exercise Mobilization Grade III,IV followed by static spinal exercise(15Mins)	N = 20 with non-active sports subjects Slump stretching (2 Min/1 Min Rest. Repeated 5 –Times/Day) followed by Mobilization by Static spinal exercise (15Mins) Home Program Self-slumps stretching followed by static spinal exercise (15Min)	1)NPRS 2)ODI	Baseline and end of treatment 2-week intervention	NPRS (Control) Pre: Post : NPRS (Exp) Pre: Post : ODI (Control) Pre: Post : ODI (Exp) Pre: Post : After 2 weeks of a Physiotherapy program +/- slump stretching, the slumping group had 47.86 % greater improvements over those that did not slump, as measured on the Oswestry Disability Index.	 9.10 3.75 8.85 0.85 46.90 7.90 46.00 3.45		Subjects must have symptoms in the lumbo-pelvic region. Subjects with a chief complaint of LBP having age between 20 -45 years among non-active sports persons. Subjects were required having symptoms that referred distal to the buttocks, reproduction of patient symptoms with slump testing. Subjects with positive slump test with absence of radicular symptoms. Subjects with no change in symptoms with lumbar flexion or extension mobility testing. Oswestry disability score greater than 10%.Straight leg raise (SLR) test at 45o or greater.	**Unclear**

Kaur & Sharma (2011)	N=27 **Age:** IG median=35 CG median=29 **Symptom Duration:** Not Specified	N=12 1) Passive SLR-neural mobilisation 10 sessions over 2 weeks	N=15 1) Advice on exercise, posture, and activities for daily living 2) Exercises (Pelvic tilting exercise, Back extension exercise and Cat and Camel excises) 10 sessions over 2 weeks	1) VAS 2) Hip flexion ROM 3) Werneke overlay template 4) MODI	Pre-Intervention (Day1) and Post-Intervention (Day 10)	MEDIAN VAS (Pre) Exp: Control: VAS (Post) Exp: Control: MODI (Pre) Exp: Control: MODI (Post) Exp: Control: Post-intervention difference ($p<0.05$) in VAS scores (mean change of 3 (30%) favouring IG; IG 2, 95% CI (0.74, 3.26) CG; 4, 95% CI (2.74, 5.26)), Hip Flexion ROM (74.6° for IG and 60° for the CG) MODI- IG -6 and CG – 2 A stati–tically significant	MEDIAN 5.00 5.00 2.00 4.00 19.5 20 10 19 No interquartile ranges provided in study		Aged between 18-45 years, with a history of mild to moderate pain (VASd”6) and disability (Modified Oswestry Disability Index score d” 40%) presenting in sub-acute (2 to 12 weeks) phase of neurogenic low back pain. Neurogenic low back pain was defined as pain in lower lumbar region with or without radiation to lower limb (buttocks or posterior thigh or calf); pain and paraesthesia being referred to sciatic nerve distribution; without any neurological deficits (altered/absent reflexes, reduced muscle strength, and loss of	Definite

						reduction in the area of reported symptoms for NM within the IG (50.3%) but not for the CG (25.1%).			sensations). To be included, the patients should report a positive Straight Leg Raise test, with dorsiflexion acting as a sensitizing manoeuvre	
Kirthika (2016)	N=30 **Age:** Not reported **Symptom Duration:** Not Specified	N=15 Received Slump stretching in addition to the conventional exercise program. Slump stretching was performed with the patient sitting on a high couch and asked to slump or slag with an overpressure applied by the physiotherapist to the lumbar and thoracic flexion.	N=15 Received progressive core-stabilization exercise protocol received duration 6 weeks and each exercise performed 10 times and 10 repetition for at least 10 seconds. Pelvic bridging, single leg, abdominal press, double leg abdominal press, segmental rotation and quadruped were also performed	1) VAS 2) MODI	Pre and post 6- week intervention	VAS (Pre) Exp: Control: VAS (Post) Exp: Control: MODI (Pre) Exp: Control: MODI (Post) Exp: Control:	 6.22 (0.65) 6.09 (0.43) 1.49 (0.77) 3.98 (0.37) 36.26 (3.45) 35.73 (3.76) 8.93 (4.52) 17.60 (3.86)	 0.537 0.000 0.000 0.000	Between 18 to 60 years of age both male and female with positive slump test were included	Unclear

Lee (2017)	N=22 **Age:** IG:36.8 ± 5.6 CG:37.6 ± 4.4 **Symptom Duration:** Less than 12 weeks	N=11 Nerve Mobilization Treatment- Slider exercise A single rep was set to be 2 seconds, and 20 reps for 40 seconds was defined as a set. After the execution of a set, a break of 20 seconds was given, and 5 sets were executed in total	N=11 Hamstring stretches The sets took a total of 40 seconds each and five sets were executed for a subject. After a set, a break of 20 seconds was given, and another set was then executed Both groups executed basic physical therapy, which included superficial thermal treatment for 20 minutes and interference wave treatment for 15 minutes, before the intervention Conducted three times a week for three weeks for both groups.	1)VAS 2) ODI 3) PPT 4) Knee Extension Angle	Baseline and post- 3-week intervention	VAS (Pre) Exp: Control: VAS (Post) Exp: Control: ODI (Pre) Exp: Control: ODI (Post) Exp: Control: Both treatment techniques improved pain and disability IG group improved sooner than the CG. VAS (IG: 4.6 CG: 6.3) p=0.0133 difference 1.7 (17%) Slump ROM (IG: 2.4 CG 2.7 p=0.0038) At 4 weeks post-treatment.	 5.6 (1.0) 5.4 (0.8) 2.1 (0.7) 1.4 (0.8) 26.4 (4.9) 29.7 (8.9) 14.2 (3.8) 17.8 (5.1)	 p<0.05 p<0.05 p<0.05 p<0.05	Aged 20 to 50 who had sought treatment for pain or paraesthesia of the lower limbs or pelvis due to a diagnosis of radicular lower back pain	Unclear

Malik (2012)	N=50 **Age:** Not Specified **Symptom Duration:** Not Specified	Group 3 N=12 Received lumbar stabilization exercises only	Group 1 N=15 The straight leg raise group received straight leg raise stretching and lumbar stabilization exercises. Stretches held for 30 seconds Group 2 N=13 The slump group received slump stretching 30 s.3-5 repetitions and lumbar stabilization exercises All patients received lumbar stabilization exercises. All the patients were advised to avoid bed rest and remain active.	1)NPRS 2)PSLR	Baseline and end of treatment 3-week intervention	Group 1 NPRS (Pre) NPRS (Post) Group 2 NPRS (Pre) NPRS (Post) Group 3 NPRS (Pre) NPRS (Post) One way ANOVA for between group comparison of baseline scores NPRS(Pre) NPRS(Post) Mean reduction in pain scores was higher in the straight leg raise group as compared to the slump group. Post hoc analysis also revealed a significant difference (P<0.05) between all the groups for PSLR (P=.000)	 5.18 (0.56) 3.47 (0.56) 5.13 (1.10) 3.44 (0.99) 4.92 (1.30) 3.33 (1.33)	 0.785 0.952	Symptoms that referred distal to the buttocks, reproduction of the patient's symptoms with straight leg raise testing between 45° to 70°, mild to moderate pain (2 to 6 on NPRS) and a baseline Oswestry score greater than 10%, and an ability to read and understand English.	Unclear

						with the maximum improvement shown by the slump group and least by the control group				
Nagrale (2012)	N=60 **Age:** IG: 38.2 (±3.47) CG:37.76 (±4.70) **Symptom Duration (weeks):** IG:15.26 (±2.57) CG:14.76 (±1.79)	N=30 PA mobilization of lumbar spine Stabilization exercises according to Childs et al (2004) Slump stretching 5x 30 second hold Six total treatment sessions over 3 weeks	N=30 3 weeks treatment PA mobilization of lumbar spine Stabilization exercises according to Childs et al (2004) Six total treatment sessions over 3 weeks	1) MODI 2) NPRS 3) Fear Avoidance Beliefs Questionnaire	Baseline, Week: 1, 2, 3 and 6.	There were large within-group changes for all outcomes with p<0.01 and large between group differences at weeks 3 and 6 MODI week 3 IG: Control MODI week 6 IG: CG: Between group difference favouring IG 11.5 95% CI (8.51, 14.4) NPRS week 1 IG: Control:	 28 (3.93) 39.5 (7.25) 28.2 (4.11) 44.1 (6.40) 5.4 (0.93) 6.1 (1.09)	 0.00 0.00 0.01	Aged 18 and 60 years of age, with acute non-radicular LBP that referred distal to the buttocks with reproduction of their symptoms during slump testing.	Unclear

						NPRS week 2 IG: CG: NPRS week 3 IG: CG: NPRS week 6 IG: CG: Between group difference 1.06 95% CI (0.67, 1.45) favouring IG FABQ at p<0.01. Significant differences favouring the slump stretching group at p<0.01.	 3.6 (0.77) 4.7 (0.94) 2.1 (0.54) 3.2 (0.95) 2.36 (0.80) 4.3 (1.12)	 0.00 0.00 0.00		
Patel (2014)	N=50 **Age:** Not Specified **Symptom Duration:** Not Specified	Group A N=25 Mulligan bent leg raise 30 sec. x 3 4 treatments for a week/ 4 weeks Group B N=25 Slump stretching		1) VAS 2) SLR ROM	Baseline and week 4	GROUP 1 VAS Pre: Post: GROUP 2 VAS Pre: Post: GROUP 1 SLR Pre: Post: GROUP 2 SLR	 7.32 3.52 5.76 2.48 67.6 85	 0.0004 0.2635 0.0030	1) Subjects in age group of 30 to 60 year. 2) Having unilateral limitation of SLR more than 15 degree 3) Both genders are included	Unclear

		exercise 30 sec. x 3 4 treatments for a week/ 4 weeks				Pre: Post: Results of the study shows that both the techniques BLR and Slump are effective in reducing pain and alter ROM ($p \leq 0.05$) of passive SLR. However Group A showed greater improvement in pain and ROM of passive SLR than the Group B between group difference 14.6% favouring Group 1, in participants with LBP.	70.4 85.68	0.0759	4) Patient with low back pain mainly of buttock or distal thigh pain.	
Plaza-Manzano (2020)	N=32 **Age:** IG: 47.0 ± 8.0 CG:45.5 ± 6.0 **Symptom Duration (weeks):** IG = 17.2 ± 1.5	N=16 Nerve neurodynamic slider intervention targeting the main trunk of the sciatic nerve of the affected side the slider intervention	N=16 Both groups received 8 sessions of a motor control exercise program of 30 min duration for 4 weeks, twice a week	1)NPRS Secondary outcomes 2) S-LANSS 3) RMDQ 4) SLR 5) pressure pain sensitivity	Baseline, after 4 treatment sessions (mid follow-up), after the treatment program (immediate follow-up), and 2	NPRS (Baseline) Exp: Control: NPRS (After 4 sessions) Exp: Control: NPRS (After 8 sessions)	 5.9 (1.4) 6.0 (1.4) 4.3 (1.0) 4.7 (1.1)		1) Aged 18-60 2) Confirmed (via MRI) disc herniation between L4-S1 levels 3) exhibit lumbar radiating pain to one lower extremity including the foot;	Unclear

	CG = 17.3 ± 1.4	was applied for 3 sets of 10 repetitions on each treatment session for 8 weeks and it was applied 5 minutes before the motor control exercise program (see control group).	The motor control exercise program consisted of a progression from isolated contraction of the transversus abdominis and/or isolated contraction of the multifidi to combined contraction of both transversus abdominis and multifidi muscles in different positions (supine or prone to bridging or four-point kneeling)		months after program	Exp: Control: NPRS (2 months) Exp: Control: The ANCOVA did not find a significant group * time interaction for lower extremity pain (F=1.269; P=0.273; η 2 p: 0.043): patients receiving motor control exercises program alone or combined with a neurodynamic intervention experienced similar decreases in lower extremity pain. Between-groups effect sizes were small (SMD: 0.2), whereas within-group effect sizes were large for both groups (SMD>1.25). Gender did not	2.5 (0.8) 3.4 (0.9) 2.6 (0.8) 3.2 (0.8)		4) have had pain for at least 3 months; 5) increased leg pain on coughing, sneezing, or straining; and 6) a positive straight leg raise with symptom reproduction between 40-70 degrees. All participants received a neurological clinical examination including assessment of muscle weakness, cutaneous sensitivity and reflexes by an experienced neurologist for evaluating the integrity of the nervous system and avoiding the presence of lumbar radiculopathy. Manual muscle tests were performed to identify the	

						influence the effect in the main analysis (F=0.895; P=0.355). The addition of neurodynamic mobilization to a motor control exercise program leads to reductions in neuropathic symptoms and mechanical sensitivity (SLR)			presence of weakness along L4-S1 myotome distribution by using the grading of MRC M0 to M5	
Rezk-Allah (2011)	N=40 **Age:** Group A 43.95 (±4.84) Group B 44.9 (±4.55) **Symptom Duration:** Not Available	Group A N=20 Slump group. Positive findings of electromyography, prolonged latency of H-reflex > 30 msec. Slump to full range – held for 60 seconds x 5 3 treatment/week for 4 weeks Group B N=20 SLR group. SLR to onset of symptoms or		1) VAS 2) H-reflex latency	Baseline and end of treatment week 4	GROUP 1 VAS(Pre): Post: GROUP 2 VAS Pre: Post: GROUP 1 H-reflex Pre: Post: GROUP 2 H reflex Pre: Post: Significant reduction in pain and H-reflex latency in	8.10 (0.70) 2.35 (1.72) 7.80 (0.69) 2.67 (1.45) 32.21 (1.04) 27.77 (2.39) 31.57 (1.12) 29.67 (1.65)	0.0001* 0.0001* 0.0001* 0.0001*	Chronic lumbar disc herniation L5-S1, their first complain 6 months ago. Patients all had radicular pain in the lower limb. They all had positive findings of electromyography, prolonged latency of H-reflex > 30 msec	Not tested

		resistance- held for 60 seconds x 5 3treatments/ week for 4 weeks				comparison to pre-treatment values, no significant difference in pain intensity (VAS) between groups post-treatment. NM significantly improved symptoms and decreased nerve root compression.				
Sharma (2017)	N=24 **Age:** IG:38.50 + 5.73 CG:37.55+ 7.59 **Symptom Duration:** Greater than 3 weeks	N=12 1 dropout Received neural mobilization and conventional treatment 6 sessions on 6 days/week	N=12 2 dropouts Received conventional treatment alone.6 sessions on 6 days/week Conventional treatment consisted of: hot pack application over low back region for 10 minutes in prone lying position followed by core stabilization exercises. Core stabilization	1)NPRS 2) MODI	Baseline and 1 week	Mean difference in NPRS at rest within the group NPRS Exp (Pre): Exp (Post): NPRS Control (Pre): Control (Post): Mean difference in NPRS during activity within the group NPRS Exp (Pre): Exp (Post): NPRS Control (Pre) : Control (Post): Mean difference in MODI within	 2.58 (1.00) 1.45(0.50) 2.42 (1.24) 2.08 (1.00) 6.34 (1.16) 3.64 (1.92) 5.83 (1.47) 4.70 (1.13)	 0.017 0.046 0.002 0.004	25-50 years of age having low back pain radiating to any one lower limb since more than 3 weeks, Straight Leg Raise (SLR) test with structural differentiation positive for neural involvement	Definite

			exercises sets of 10 repetitions was performed and Isometric back exercises were also performed in a set of 10 repetitions each			the group MODI Exp (Pre): Exp (Post): MODI Control (Pre): Control (Post):	 41.67 (2.67) 39.27 (3.74) 41.33 (5.86) 40.67 (2.57)	 0.020* 0.461		
Tambekar (2015)	N=31 **Age:** Group A= 16 Group B= 15 **Symptom Duration:** Group A=34.06± 8.28 Group B=32.26 ± 4.81	Group A N=16 Mulligan bent leg raise technique Sustained stretch for several seconds was given and leg lowered down to the bed. This technique was repeated 3 times. Group B N=15 Butler's neural tissue mobilization technique Slow oscillations or sustained stretch was given by the therapist for 10 s depending on the grade of		1)VAS 2) SLR	Pre, Post intervention and after 24 hour (follow up).	VAS Group A (Pre): (Post): (Follow Up) Pre/Post Change Pre/Follow Up Change VAS Group B (Pre): (Post): (Follow Up) Pre/Post Change Pre/Follow Up Change SLR Group A (Pre): (Post): (Follow Up) Pre/Post Change Pre/Follow Up Change SLR Group B (Pre): (Post):	 3.68 (1.25) 2.37 (1.14) 3.43 (1.20) 1.31 0.25 4.00 (0.75) 2.13 (0.63) 3.80 (0.86) 1.86 0.20 50.93 (7.35) 66.25 (10.24) 52.81 (9.65) -15.31 -1.87 45.33 (5.49) 57.66 (6.51)	 0.0 0.38 0.0 0.18 0.0 0.28	Patients with low back pain radiating to lower limb (above knee), Unilateral SLR positive between 35° and 70°, onset of pain within 1 month.	Unclear

		mobilization after which the leg was returned to a non-painful position. This procedure was repeated three times.				(Follow Up) Pre/Post Change Pre/Follow Up Change Significant difference between pre-treatment and post-treatment VAS and ROM score ($p < 0.05$). However, no difference was seen between pre-treatment and follow up ($p > 0.05$). The study showed that both techniques produce immediate improvement in pain and SLR range, but this effect was not maintained during the follow up period.	47.33 (7.28) -12.33 0.2	 0.0 0.08		

Waleed Salah El-din (2015)	N=60 **Age:** IG=44.2 (±6.16) CG=42.93 (±5.73) **Symptom Duration:** Pain for longer than 3 months	Group A N=30 Neural mobilization techniques (SLR and Slump mobilization to onset of symptoms) 3 treatments per week for 6 weeks. Group B N=30 Lumbar manipulation techniques (Posterior-anterior mobilization 3-4 repetitions (Maitland) Lumbar rotation with SLR 3-4 repetitions) 3 days/week for 6 weeks	NOTE – used rot SLR (Maitland) in Comparison Group described as mobilization group	1) VAS 2) ODI 3) MRI	Outcomes measured at baseline and end of treatment	GROUP 1 VAS Pre: Post: GROUP 2 VAS Pre: Post: GROUP 1 ODI Pre: Post: GROUP 2 ODI Pre: Post: The lumbar manipulation was more effective than neural mobilization Post VAS difference 1.2 (12%) favouring group 2. ODI post difference of 5.5% favouring Group B	 7.96 (1.42) 3.03 (1.88) 8.00 (1.08) 1.83 (1.31) 42.7 (4.94) 23.9 (4.97) 40.6 (4.50) 18.46 (6.87)	 0.000 0.000 0.000 0.000	The patients needed to be diagnosed by magnetic resonance imaging (MRI) confirming lumbar disc herniation (posterior-lateral herniation) at L5-S1 disc level by a physician (neurologist, orthopaedist).	Not tested

Abbreviations: IG – Intervention group : CG – Control group: N - Number : ANCOVA - Analysis of covariance : Pre – Previous : CI - Confidence Interval : SLR – Straight leg raise : BLR – Bent leg raise : TENS – Transcutaneous electrical nerve stimulation: NPRS – Numeric pain rating scale: SF – Short form: LBP – Low back pain: MODI – Modified Oswestry Disability Index: ODI - Oswestry Disability Index: EMG – Electromyography: VAS – Visual analogue scale: ROM – Range of motion: PA – posterior-anterior; MRI – Magnetic Resonance Imaging: SD – Standard deviation: SMD - Standardised mean difference: MRC – Medical research scale : PF – physical functioning: GH – general health : S-LANSS - Self-report Leeds Assessment of Neuropathic Symptoms and Signs Scale: RMDQ – Roland Morris Disability Questionnaire