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.<u>https://doi.org/10.4102/sajp.v78i1.1627</u>

Table 1-A2: Characteristics of included studies

Author	Participant s (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*	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								
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)	therapy sessions (3 weeks) 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/wee k 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	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
						both SF-12 and NPRS				

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 \pm 1.10 (95% CI (4.34, 5.55). Between groups difference favouring IG 1.46 (14.6%) SF12 IG 65.57 \pm 12.00 95% CI (58.9659, 72.1741) SF12 CG 54.53 \pm 7.34 95% CI (50.4905, 58.5695) Between groups difference favouring IG 11.04 (11.04%). Only the IG had	0.86 (0.18) 1.31 (0.31) 2.91 (0.69) 1.49 (0.32)	0.001	Aged 20-60, Chronic radicular low back pain and a reproduction of symptoms with slump test	Unclear
						a significant improvement in				

						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 questionnair e	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

Colakovi c (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	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	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
		Mobilisation 3 times with 10 oscillatory movements for improving nerve gliding in intravertebral foramina. Lumbar stabilization Then lumbar exercises.	exercises. Both groups had 4-week therapy program, three times per week.							
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, gastrocnemi us) 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	Multi-specialist examination by an internist, orthopedist, and a neurological examination (not specified), Examination of femoral and sciatic nerve mobility	Unclear

		sciatic, tibial	Movement	2) ROM of						
		nerves.	exercises for	Laseque sign						
		Techniques not	intervertebral	and reverse						
		described	joints without	Laseque sign						
			axial loading	measured						
			8	with						
				inclinometer						
				3) Presence						
				of Bragard						
				sign and						
				reverse						
				Laseque sign						
				4) VAS						
Ferreira	N=60	N=30	N=30	Primary	Baseline,	NPRS (Leg Pain		P Values	Adults aged 18	Definite
et al.	Age:			1) NPRS	Week 2 and	Week 0)		not	to 80 years with	
(2016)	IG:43.9±	1) Advice to	1)Advice to	Leg Pain	4 weeks	Exp:	6.1 (1.6)	provided	chronic	
· /	14.5	remain active.	remain active.	2) ODI		Control:	6.1 (1.9)	1	unilateral nerve-	
	CG:40.3 ±	Including:	Including:	,					related leg pain	
	12.9	prolonged rest,	prolonged rest,	Secondary		NPRS (Leg Pain			(i.e., leg pain for	
	Symptom	avoidance of	avoidance of	1) NPRS		Week 2)			at least 12	
	Duration	daily-life	daily life	LBP		Exp:	4.1 (2.3)		weeks) radiating	
	(years)	activities and	activities and	2) Patient-		Control:	5.1 (2.3)		below the	
	median	excessive	excessive	Specific					gluteal fold	
	(range):	muscle bracing	muscle bracing	Functional		NPRS (Leg Pain			were included.	
	IG:5.8(0.2	during	during	Scale		Week 4)			Participants had	
	5-50)	movement	movement	3) Global		Exp:	3.7 (2.6)		to report a leg	
	CG:2.0(0.2	would have	would have	Perceived		Control:	6.1 (2.4)		pain intensity of	
	5-20)	harmful	harmful effects.	effect					at least 3 on the	
		effects.		4) Location		Oswestry			11-point	
				of symptoms		Disability Index			numeric pain	
		2)				Week 0			rating scale, and	
		Neurodynamic				Exp:	29 (8.1)		their leg	
		treatment, 4 x				Control:	27 (15)		symptoms had	
		25min							to be	
		treatment				Oswestry			reproduced by	
		sessions over				Disability Index			the	
		2 weeks.				Week 2			slump test and	
						Exp:	21 (12)		changed by	
		Grade III				Control:	23 (12)		structural	

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

slump sitting.weeks (MD 4.7, 95% CI 1.7 to3)Home7.8), as well as global perceivedExerciseglobal perceivedProgram,1weeks (MD 2.5, 95% CI 1.6 toand 195% CI 1.6 totension(knee3.5) and 4extension)weeks (MD 2.9, 95% CI 1.9 totechnique95% CI 1.9 toexcreise 1 set3.9). No10 repetitions,2 weekssignificantx a days for 2 weeksbetween-group differences occurred in disability.	an activ sliding techniqu slump s 3)Home Exercise Program sliding(and 1 tension(extensio techniqu exercise 10 repet x a days weeks	e ie in itting. e h,1 slump) knee n) ie 1 set itions,2 for 2		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.		
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(2012) Age: All participants (34.2.6) All p	Jain	N=30	N=15	N=15	1) VAS	Baseline.	VAS (Baseline)			Chief complaint	Unclear
IC:34.26 (15:36) CG:33 (5:68) (5:10)All participants were treated for 9 sessions (3 days/ week and 2 days/ week for next 3 week)All participants were treated for 9 sessions (3 days/ week for 1* week and 2 days/ week for next 3 week)1, 2, 3, 4 and 5 weeks for VASControl Support Datation (Weeks); (1:1.0) CG: 8.266 (e1.10) CG: 8.266 (e1.10)All participants week word next 3 weeks)All participants week and 2 days/ week for PA NODI1, 2, 3, 4 and Sweeks for WASControl State Exp.58.8 (6.46) (6.46)0.489 (0.479)unilateral lower limb extremity pain, positive slump fract (pain reproduction of lumbar spine, exercises1, 2, 3, 4 and Sweeks for WODIControl58.8 (6.46) (6.46)0.489 (0.479)unilateral lower limb extremity pain, positive slump fract (pain reproduction or symptoms or pain (VAS) significant differences were found at the end of 2 ^{2/4} , 3 ^{4, 4h} and 5 th week (p=0.000, or pe0.000 and p=0.000, or perspectively) between the 2 groups, in favour of the 13.60 (4.00)0.479unilateral lower limb extremity pain, positive slump reduced with ectresises1.1.2.3.4 and (e1.1.6)1.1.2.3.4 and significant differences at tree of limb at paine, exercises1.2.3.4 and polo0, polo0, respectively) between the 2 groups, in favour of the 13.60 (4.00)0.479unilateral lower limb at paine, ectrises1.1.2.3.4 and (e1.1.6)1.1.3.10 (4.40)1.1.3.10 (4.40)1.1.3.10 (4.40)1.1.3.10 (4.40)1.1.3.10 (4.40)1	(2012)	Age:			2) MODI	Week:	Exp:	58.93 (7.20)		of LBP.	
(±5.60) CG: 33 (±6.86) (±6.86) (±1.86)were treated for 1° week (3 days' week for 1° week (days' days' days' days' days' days' days' days' days' (days' days' da		IG:34.26	All participants	All participants	,	1, 2, 3, 4 and	Control	58.8 (6.46)	0.489	unilateral lower	
CG: 33 (46.86) Symptom Duration (weeks): (1.10)9 sessions (3 days/week for next 3 weeks) and 2 days/week for next 3 weeks)9 sessions (3 days/week for next 3 weeks) PAVAS PA Baseline, Week: 1, 2, 3 and 4 weeks for differences were found at the end of 2 nd , 3 nd , 4 th and 5 th week (p=0.4175), 2 nd 9 sessions (3 days/week for reproduction of symptom points9 sessions (3 days/week for next 3 weeks) PAVAS passe treatment tumbar spine, exercisesVAS type in the passe in the passe in type in the passe in test in <b< td=""><td></td><td>(± 5.66)</td><td>were treated</td><td>were treated for</td><td></td><td>5 weeks for</td><td></td><td></td><td></td><td>limb extremity</td><td></td></b<>		(± 5.66)	were treated	were treated for		5 weeks for				limb extremity	
(cf6.86) Symptom Uration (weeks) is 8.067 (cf.10)(d ays/week for 1" week and 2 days/week for next 3 weeks)Baseline, Week: 1, 2, 3 and 4Sump Test (Ontrol: 7.47 (2.90)0.479siump Test (prin reproduction or symptoms reduced with cervical extension cervical extension cervical(d1.10) CG: 8.266 (d:1.10)Same treatment as control plus: slump stretching from 2"d weekmobilization of lumbar spine, extrisesBaseline, Week: 1, 2, 3 and 4Exp. Control: Terpoduction of 2"d, 3", 4" and 41 the end of 2"d, 3", 4" and 67 2"d, 4"Sump 7"cst (d) 4" and 67 2"d, 4" and 67 2"d, 4" and 67 2"d, 4"Sump 7"cst (d) 4" and 67 2"d, 4" and 67 2"d, 4" and 67 2"d, 4"Sump 7"cst (d) 4" and 67 2"d, 4" and 67 2"d, 4"Sump 7"cst (d) 4" and 67 2"d, 4"Sump 7"cst (d) 4" and 67 2"d, 4"Image: sup 7"cst (d) and 7"cst (d)		CG: 33	for 9 sessions	9 sessions (3		VAS	VAS (Week 5)			pain, positive	
Symptom Duration (Wetk): (41.10)for 14 week and 2 days/week for next 3 weeks) (41.10)1* week for next 3 weeks) PA PA PA cGi \$2.66 (±1.16)1* weeks pane treatment poblication of lumbar spine, exercisesBaseline, Week: 1, 2, 3 and 4 weeks for MODIControl: For pain (VAS) significant differences were found at the end of 2 nd , 3 ^d , 4 ^{dh} and 5 th week (p-0.0185, p=-0.0 (0, p=-0.000 and p-0.000 and p-0.0000		(± 6.86)	(3 days/ week	days/week for			Exp:	3.00 (2.59)		slump Test	
Duration (weeks) (±1.10)and 2 days/week for next 3 weeks)days/week for next 3 weeks)Week: next 3 weeks)For pain (VAS) significant differences weekFor pai		Symptom	for 1 st week	1 st week and 2		Baseline.	Control:	7.47 (2.90)	0.479	(pain	
(weeks): IG: 8.067 (±1.16)days/week for next 3 weeks) PA Same treatment as control plus: slump stretching from 2 ^m weeknext 3 weeks) PA Mobilization of taxet of the properties of th		Duration	and 2	days/ week for		Week:		()		reproduction or	
IG: 8.067 (±1.10) next 3 weeks) Same treatment stump stretching from 2 nd week PA mobilization of lumbar spine, exercises weeks for MODI significant differences were found at the end of 2 nd , 3 nd , 4 th and 5 th week (p=0.0185,p=0.0 00, p=0.000 and p=0.000, respectively) between the 2 groups, in favour of the IG. reduced with cervical extension component of test) MODI MODI MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) MODI (Week 4) List of the end of 1st week 11.33 (4.45) 13.60 (4.00) 11.33 (4.45) 13.60 (4.00)		(weeks):	days/week for	next 3 weeks)		1. 2. 3 and 4	For pain (VAS)			symptoms	
(±1.10) Same treatment as control plus: shump spine, exercises mobilization of lumbar spine, exercises MODI differences were found at the end of 2 ⁻³ , 3 ⁴ , 4 th and 5 th week (p=0.0185, p=0.000, and p=0.000, p=0.000, p=0.000, respectively) between the 2 groups, in favour or the IG. Component of test) MODI MODI MODI differences were found at the end of 2 ⁻³ , 3 ⁴ , 4 th and 5 th week (p=0.0185, p=0.000, respectively) between the 2 groups, in favour or the IG. MODI MODI Reserve and the spine, exercises MODI MODI MODI MODI MODI Spine treatment and the spine, exercises MODI Spine treatment and the spine, exercises Spine treatment and the spine,		IG: 8.067	next 3 weeks)	PA		weeks for	significant			reduced with	
CG: 8.266 (±1.16) as control plus: slump stretching from 2 nd week lumbar spine, exercises found at the end of 2 nd , 3 nd , 4 th and 5 th week (p=0.0185, p=0.0 00, p=0.000 and p=0.000, respectively) between the 2 groups, in favour of the IG. extension component of test) MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) isster of test) MODI (Week 4) Exp: Control: 11.33 (4.45) Exp: 13.60 (4.00) isster of test)		(± 1.10)	Same treatment	mobilization of		MODI	differences were			cervical	
(±1.16) slump stretching from 2 ^{md} week exercises of 2 nd , 3 nd , 4 th and 5 th week (p=0.0185,p=0.0 00, p=0.000 and p=-0.000, respectively) between the 2 groups, in favour of the IG. component of test) MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) 30 (7.25) 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) MODI between the groups was non-significant differences at the end of 1st week (p=0.4375), 2 nd		CG: 8.266	as control plus:	lumbar spine.			found at the end			extension	
centre and 5 th week (p=0.185,p=0.0 00, p=0.000 and p=0.000, respectively) between the 2 groups, in favour of the IG. test) MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) MODI between the groups was non-significant differences at the end of 1st week 11.33 (4.45) 13.60 (4.00)		(± 1.16)	slump	exercises			of 2^{nd} , 3^{rd} , 4^{th}			component of	
2 nd week (p=0.0185,p=0.0) (0, p=0.000 and p=0.000, and p=0.000, respectively) between the 2 groups, in favour of the IG. (MODI (Baseline) Exp: 29.87 (6.35) MODI (Week 4) 11.33 (4.45) Exp: Control: MODI between the goups was non-significant differences at the end of 1st week (p=0.0185,p=0.0) (p=0.0185,p=0.0) (0, p=0.000 and p=0.000, respectively) between the 2 (groups, in favour of the IG. MODI (Week 4) 11.33 (4.45) Exp: (20, respectively) (p=0.0185, respectively) (p=0.0185, respectiv		(=1110)	stretching from				and 5 th week			test)	
00, p=0.000 and p=0.000, respectively) between the 2 groups, in favour of the IG. 30 (7.25) MODI (Baseline) Exp: Control: 30 (7.25) MODI (Week 4) 11.33 (4.45) Exp: Control: 13.60 (4.00) MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd week			2 nd week				(p=0.0185, p=0.0)				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $							00 p=0.000 and				
respectively) between the 2 groups, in favour of the IG. MODI (Baseline) Exp: Control: 29.87 (6.35) MODI (Week 4) Exp: Control: 13.60 (4.00) MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							p=0.000				
between the 2 groups, in favour of the IG. 30 (7.25) 29.87 (6.35) MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) MODI between the groups was non-significant differences at the end of 1st week (p=0.4375), 2 nd							respectively)				
groups, in favour of the IG. MODI (Baseline) Exp: 30 (7.25) Control: 29.87 (6.35) MODI (Week 4) 11.33 (4.45) Exp: Control: MODI between 13.60 (4.00) MODI between the end of 1st week (p=0.4375), 2 nd							between the 2				
Image: Second							groups in				
IG. MODI (Baseline) Exp: 30 (7.25) Control: 29.87 (6.35) MODI (Week 4) 11.33 (4.45) Exp: Control: MODI between 13.60 (4.00) MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd week							favour of the				
MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) MODI between the groups was non- significant differences at the end of 1st week week							IG				
MODI (Baseline) Exp: Control: 30 (7.25) 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd weak							10.				
In Baseline) Exp: Control:30 (7.25) 29.87 (6.35)MODI (Week 4) Exp: Control:11.33 (4.45) 13.60 (4.00) Control:MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							MODI				
Control: 29.87 (6.35) MODI (Week 4) Exp: Control: 11.33 (4.45) 13.60 (4.00) Control: MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							(Baseline) Exp.	30 (7 25)			
MODI (Week 4) 11.33 (4.45) Exp: 13.60 (4.00) Control: MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							Control:	29.87 (6.35)			
MODI (Week 4) Exp: Control:11.33 (4.45) 13.60 (4.00)MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							Control.	29.07 (0.55)			
Exp: 13.60 (4.00) Control: MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							MODI (Week 4)	11 33 (4 45)			
Image: Control: Image: Control: MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							Exn.	13 60 (4 00)			
MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							Control	13.00 (1.00)			
MODI between the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							2011001				
the groups was non- significant differences at the end of 1st week (p=0.4375), 2 nd							MODI between				
non- significant differences at the end of 1st week (p=0.4375), 2 nd							the groups was				
differences at the end of 1st week (p=0.4375), 2 nd							non- significant				
the end of 1st week (p=0.4375), 2 nd							differences at				
week (p=0.4375), 2 nd							the end of 1st				
(p=0.4375), 2 nd							week				
week							(n=0.4375) 2 nd				
WILL N							week				

			$(p=0.4515), 3^{rd}$ week $(p=0.078)$ and 4 th week (p=0.0865).		

Jeong	N=30	N=15	N=15	SF-36	Once before	PF (Pre) Exp:	17.7 (3.5)		Pain index three	Unclear
(2016)	Age:	-	-		the	Control:	17.3 (5.3)		points or higher.	
	IG:35.1±6.	Lumbar	Lumbar		intervention	PF (Post) Exp:	25.1 (3.3)	< 0.05	Oswestry	
	4	segmental	segmental		and once six	Control:	20.3 (6.5)	< 0.05	Disability	
	CG:41.6±1	stabilization	stabilization		weeks after				indexes were	
	1.1	exercise	exercise.		the	GH (Pre) Exp:	12.6 (3.0)		more than 20%,	
	Symptom	including the	Treatment was		intervention	Control:	15.8 (2.8)		and straight leg	
	Duration:	sciatic nerve	conducted three			GH (Post) Exp:	19.0 (4.1)	< 0.05	raise test (SLR)	
	Not	mobilization	times per week			Control:	16.6 (3.4)	< 0.05	results were	
	Specified	technique.	for six-week.				× ,		between 30 and	
	1	Treatment was							70 degrees.	
		conducted							C	
		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								

vertebra, lied					
completely					
relaxed,					
adjusted the					
pressure gaug	ge				
to 20 mmHg,					
and induced					
coordinated					
contraction of	f				
the multifidus	5				
and transvers	e				
abdominis.					
They increase	ed				
the pressure t	0				
30 mmHg, he	ld				
it there while					
continuing to					
breathe for 10)				
seconds, and					
then decrease	d				
the pressure t	0				
20 mmHg and	f				
rested for 10					
seconds. The					
patient					
repeated this					
motion 20					
times.					

Karthike	N = 40	N = 20 with	N = 20 with	1)NPRS	Baseline and	NPRS (Control)			Subjects must	Unclear
yan	Age: 20-50	non-active	non-active	2)ODI	end of	Pre:	9.10		have symptoms	
(2014)	Symptom	sports subjects	sports subjects		treatment	Post :	3.75		in the lumbo-	
	Duration:				2-week				pelvic region.	
	Not	Mobilization	Slump		intervention				Subjects with a	
	reported	with static	stretching (2			NPRS (Exp)			chief complaint	
		spinal exercise	Min/1 Min			Pre:	8.85		of LBP having	
		Mobilization	Rest. Repeated			Post :	0.85		age between 20	
		Grade III,IV	5 – Times/Day)						-45 years among	
		followed by	followed by			ODI (Control)			non-active	
		static spinal	Mobilization by			Pre:	46.90		sports persons.	
		exercise(15Min	Static			Post :	7.90		Subjects were	
		s)	spinal exercise						required having	
			(15Mins)			ODI (Exp)			symptoms that	
						Pre:	46.00		referred distal to	
			Home Program			Post :	3.45		the buttocks,	
			Self-slumps						reproduction of	
			stretching			After 2 weeks of			patient	
			followed by			a Physiotherapy			symptoms with	
			static spinal			program +/-			slump testing.	
			exercise			slump			Subjects with	
			(15Min)			stretching, the			positive slump	
						slumping group			test with	
						had 47.86 %			absence of	
						greater			radicular	
						improvements			symptoms.	
						over those that			Subjects with no	
						did not slump,			change in	
						as measured on			symptoms with	
						Disability			lumbar flexion	
						Disability			or extension	
						Index.			Mobility testing.	
									disability soore	
									greater than	
									10% Straight	
									log roise (SLD)	
									test at 450 or	
									greater.	

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

						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	N=30	N=15	N=15	1) VAS	Pre and post	VAS (Pre)			Between 18 to	Unclear
(2016)	Age:	D · · ·	D · · ·	2) MODI	6- week	Exp:	6.22 (0.65)	0.525	60 years of age	
	Not	Keceived	Received		intervention	Control:	6.09 (0.43)	0.537	both male and	
	Symptom	stretching in	progressive			VAS (Post)			nositive slump	
	Symptom Duration	addition to the	stabilization			Fxp	1 49 (0 77)		test were	
	Not	conventional	exercise			Control [.]	3.98(0.37)	0.000	included	
	Specified	exercise	protocol			control.	5.50 (0.57)	0.000	monuodu	
	1	program.	received			MODI (Pre)				
			duration 6			Exp:	36.26 (3.45)			
		Slump	weeks and each			Control:	35.73 (3.76)	0.000		
		stretching was	exercise							
		performed with	performed 10			MODI (Post)	0.00 (4.50)			
		the patient	times and 10			Exp:	8.93 (4.52)	0.000		
		sitting on a	repetition for at			Control:	17.60 (3.86)	0.000		
		asked to slump	seconds Pelvic							
		or slag with an	bridging, single							
		overpressure	leg, abdominal							
		applied by the	press, double							
		physiotherapist	leg abdominal							
		to the lumbar	press,							
		and thoracic	segmental							
		flexion.	rotation and							
			quadruped were							
			also performed							

Lee	N=22	N=11	N=11	1)VAS	Baseline and	VAS (Pre)			Aged 20 to 50	Unclear
(2017)	Age:			2) ODI	post- 3-week	Exp:	5.6 (1.0)		who had sought	
× ,	IG:36.8 ±	Nerve	Hamstring	3) PPT	intervention	Control:	5.4 (0.8)		treatment for	
	5.6	Mobilization	stretches	4) Knee			× ,		pain or	
	CG:37.6 ±	Treatment-	The sets took a	Extension		VAS (Post)			paraesthesia of	
	4.4	Slider exercise	total of 40	Angle		Exp:	2.1 (0.7)	p<0.05	the lower limbs	
	Symptom	A single rep	seconds each	C		Control:	1.4 (0.8)	p<0.05	or pelvis due to	
	Duration :	was set to be 2	and five sets					-	a diagnosis of	
	Less than	seconds, and	were executed			ODI (Pre)			radicular lower	
	12 weeks	20 reps for 40	for a subject.			Exp:	26.4 (4.9)		back pain	
		seconds was	After a set, a			Control:	29.7 (8.9)			
		defined as a	break of 20							
		set. After the	seconds was			ODI (Post)				
		execution of a	given, and			Exp:	14.2 (3.8)	p<0.05		
		set, a break of	another set was			Control:	17.8 (5.1)	p<0.05		
		20 seconds was	then executed							
		given, and 5								
		sets were	Both groups							
		executed in	executed basic							
		total	physical			Both treatment				
			therapy, which			techniques				
			included			improved pain				
			superficial			and disability				
			thermal			IG group				
			treatment for 20			improved				
			minutes and			sooner than the				
			interference			CG. VAS (IG:				
			wave treatment			4.6 CG: 6.3)				
			for 15 minutes,			p=0.0133				
			before the			difference 1.7				
			intervention			(17%)				
			Conducted							
			three times a			Slump ROM				
			week for three			(10: 2.4 CG 2.7				
			weeks for both			p=0.0038)				
			groups.			At 4 weeks				
						post-treatment.				

Malik	N=50	Group 3 N=12	Group 1 N=15	1)NPRS	Baseline and	Group 1			Symptoms that	Unclear
(2012)	Age:	1	1	2)PSLR	end of	NPRS (Pre)	5.18 (0.56)		referred distal to	
	Not	Received	The straight leg		treatment	NPRS (Post)	3.47 (0.56)		the buttocks,	
	Specified	lumbar	raise group		3-week				reproduction of	
	Symptom	stabilization	received		intervention	Group 2			the patient's	
	Duration:	exercises only	straight leg			NPRS (Pre)	5.13 (1.10)		symptoms with	
			raise stretching			NPRS (Post)	3.44 (0.99)		straight leg raise	
	Not		and lumbar						testing between	
	Specified		stabilization			Group 3			45° to 70°, mild	
	1		exercises.			NPRS (Pre)	4.92 (1.30)		to moderate	
			Stretches held			NPRS (Post)	3.33 (1.33)		pain (2 to 6 on	
			for 30 seconds						NPRS) and a	
						One way			baseline	
			Group 2 N=13			ANOVA for			Oswestry score	
			The slump			between group			greater than	
			group received			comparison of			10%, and an	
			slump			baseline scores			ability to read	
			stretching 30						and understand	
			s.3-5 repetitions			NPRS(Pre)		0.785	English.	
			and lumbar					0.050		
			stabilization			NPRS(Post)		0.952		
			exercises							
			A 11			Mean reduction				
			All patients			in pain scores				
			received			was nigher in				
			atabilization			une straight log raige				
			stabilization			straight leg raise				
			All the nationts			group as				
			were advised to			slump group				
			avoid bed rest			Post hoc				
			and remain			analysis also				
			active			revealed a				
						significant				
						difference				
						(P<0.05)				
						between all the				
						groups for				
						PSLR (P=.000)				

						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 Questionnair e	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	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				
						26(0.77)			
					10:	5.0(0.77)	0.00		
					CG:	4.7 (0.94)	0.00		
					NPRS week 3				
					IG:	2.1 (0.54)			
					CG:	3.2 (0.95)	0.00		
					NPRS week 6				
						2 36 (0.80)			
						2.30(0.80)	0.00		
					CG:	4.3 (1.12)	0.00		
					Between group				
					difference 1.06				
					95% CI (0.67,				
					1.45) favouring				
					IG				
					FABQ at				
					p<0.01.				
					Significant				
					differences				
					favouring the				
					alumn stratahing				
					stunip stretching				
D 1	21.50	G + 31 05	1) 11.0	D 11 1	group at p<0.01.			1) 0 1	TT 1
Patel	N=50	Group A N=25	I) VAS	Baseline and	GROUP I VAS			1) Subjects in	Unclear
(2014)	Age:		2) SLR	week 4	Pre:	7.32		age group of 30	
	Not	Mulligan bent	ROM		Post:	3.52	0.0004	to 60 year.	
	Specified	leg raise 30							
	Symptom	sec. x 3			GROUP 2 VAS			2) Having	
	Duration:	4 treatments			Pre:	5.76		unilateral	
		for a week/4			Post	2 48	0 2635	limitation of	
		weeks					5.2055	SI R more than	
	Not	WOORD			GROUP 1 SI P			15 degree	
	Specified					67.6		15 degree	
					Pre:	07.0	0.0000		
		Group B N=25			Post:	85	0.0030	3) Both genders	
		Slump						are included	
		stretching			GROUP 2 SLR				

		exercise 30				Pre:	70.4		4) Patient with	
		sec. x 3				Post:	85.68	0.0759	low back pain	
		4 treatments							mainly of	
		for a week/ 4				Results of the			buttock or distal	
		weeks				study shows that			thigh nain	
		() OOKD				both the			ungn punn	
						techniques				
						BLR and Slumn				
						are effective in				
						reducing pain				
						and alter ROM				
						$(n \le 0.05)$ of				
						$(\underline{p} \le 0.05)$ of passive SLR				
						passive SLR.				
						However				
						Group A				
						showed greater				
						showed greater				
						mprovement in				
						of magging SLP				
						of passive SLK				
						than the Group				
						group difference				
						14.0%				
						lavouring Group				
						1, in participants				
DI	NL 22	NT 16	NT 16		D 1'	WITH LBP.			1) A 110 (0	TT 1
Plaza-	N=32	N=16	N=16	I)NPRS	Baseline,	NPKS	50(14)		1) Aged 18-60	Unclear
Manzano	Age:	Nerve	Both groups	C 1	after 4	(Baseline) Exp:	5.9 (1.4)		2) Confirmed	
(2020)	$10:4/.0\pm$	neurodynamic	received 8	Secondary	treatment	Control:	0.0 (1.4)		(VIa MIKI) disc	
	8.0	slider	sessions of a	outcomes	sessions				herniation	
	$CG:45.5 \pm$	intervention	motor control	2) S-LANSS	(mid follow-	NPRS (After 4			between L4-S1	
	0.0	targeting the	exercise	5) KMDQ	up), after the	sessions)	4.2 (1.0)		ievels	
	Symptom	main trunk of	program of 30	4) SLR	treatment	Exp:	4.3 (1.0)		3) exhibit	
	Duration	the sciatic	min duration	5) pressure	program	Control:	4./(1.1)		lumbar radiating	
	(weeks):	nerve of the	for 4 weeks,	pain	(immediate				pain to one	
	IG = 17.2	attected side	twice a week	sensitivity	tollow-up),	NPRS (After 8			lower extremity	
	± 1.5	the slider			and 2	sessions)			including the	
		intervention							toot;	

CG = 17.3	was applied for		months after	Exp:	2.5 (0.8)	4) have had pain
± 1.4	3 sets of 10	The motor	program	Control:	3.4 (0.9)	for at least 3
	repetitions on	control exercise	1 0		Ň Ź	months;
	each treatment	program		NPRS (2		5) increased leg
	session for 8	consisted of a		months)		pain on
	weeks and it	progression		Exp:	2.6 (0.8)	coughing,
	was applied 5	from isolated		Control:	3.2 (0.8)	sneezing, or
	minutes before	contraction of			· · ·	straining; and
	the motor	the transversus		The ANCOVA		6) a positive
	control	abdominis		did not find a		straight leg raise
	exercise	and/or isolated		significant		with symptom
	program (see	contraction of		group * time		reproduction
	control group).	the multifidi to		interaction for		between 40-70
		combined		lower extremity		degrees. All
		contraction of		pain (F=1.269;		participants
		both		Р=0.273; η 2 р:		received a
		transversus		0.043): patients		neurological
		abdominis and		receiving motor		clinical
		multifidi		control		examination
		muscles in		exercises		including
		different		program alone		assessment of
		positions		or combined		muscle
		(supine or		with a		weakness,
		prone to		neurodynamic		cutaneous
		bridging or		intervention		sensitivity and
		four-point		experienced		reflexes by an
		kneeling)		similar		experienced
				decreases in		neurologist for
				lower extremity		evaluating the
				pain. Between-		integrity of the
				groups effect		nervous system
				sizes were small		and avoiding the
				(SMD: 0.2),		presence of
				whereas within-		lumbar
				group effect		radiculopathy.
				sizes were large		Manual muscle
				tor both groups		tests were
				(SMD>1.25).		performed to
				Gender did not		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-	N=40	Group A N=20	1) VAS	Baseline and	GROUP I	8 10 (0 70)		Chronic lumbar	Not tested
(2011)	Age:	Slump group	2) H-reliex	treatment	VAS(PIC): Post:	2.10(0.70) 2.35(1.72)	0.0001*	I 5-S1 their first	
(2011)	43 95	Positive	latency	week 4	1 051.	2.55 (1.72)	0.0001	complain 6	
	(+4.84)	findings of		WCCK 4	GROUP 2 VAS			months ago	
	Group B	electromvograp			Pre:	7.80 (0.69)		Patients all had	
	44.9	hy, prolonged			Post:	2.67 (1.45)	0.0001*	radicular pain in	
	(±4.55)	latency of H-				~ /		the lower limb.	
	Symptom	reflex > 30			GROUP 1 H-			They all had	
	Duration:	msec.			reflex			positive findings	
	Not	Slump to full			Pre:	32.21 (1.04)		of	
	Available	range – held			Post:	27.77 (2.39)	0.0001*	electromyograp	
		for 60 seconds			CROUR 2 H			hy, prolonged	
		3			uкuur 2 п reflex			reflex > 30 msec	
		treatment/week			Pre	31 57 (1 12)		ichex - 50 msec	
		for 4 weeks			Post:	29.67 (1.65)	0.0001*		
		Group B N=20			Significant				
		SLR group.			reduction in				
		SLR to onset			pain and H-				
		of symptoms or			reflex latency in				

		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	N=12 1 dropout Received neural mobilization and conventional treatment 6 sessions on 6	N=12 2 dropouts Received conventional treatment alone.6 sessions on 6 days/week Conventional	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):	2.58 (1.00) 1.45(0.50) 2.42 (1.24) 2.08 (1.00)	0.017	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	Definite
	weeks	days/week	treatment consisted of: hot pack application over low back region for 10 minutes in prone lying position followed by core stabilization exercises. Core stabilization			Mean difference in NPRS during activity within the group NPRS Exp (Pre): Exp (Post): NPRS Control (Pre) : Control (Pre) : Mean difference in MODI within	6.34 (1.16) 3.64 (1.92) 5.83 (1.47) 4.70 (1.13)	0.002 0.004	differentiation positive for neural involvement	

			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		
Tambeka r (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		(Follow Up)	47 33 (7 28)		
after which the		Pre/Post Change	-12.33	0.0	
		Dro/Follow Up	-12.35	0.0	
reg was		Change	0.2	0.08	
returned to a		Change	0.2	0.08	
non-painful		a			
position. This		Significant			
procedure was		difference			
repeated three		between pre-			
times.		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.			

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

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