Effects of Water-Based Spinal Stability Exercises on Flexibility, Static and Dynamic Spinal Endurance in Chronic Lumbar Disc Herniation Patients

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• Lumbar disc herniation is a common reason for low back pain.



 There are many researches show atrophy in core stabilization muscles and decrements in core stabilization endurance in low back patients.

(Barr 2005, Simmonds 1998)



 Core strengthening has a strong theorotical basis and spinal stability exercises is a method that widely used for treatment of low back pain patients.

(Akuthota 2007)



 In the other hand, aquatic therapy has been used for many years in the management of LDH patients.

(Waller 2009)



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 Therefore our aim was to combine both methods and investigate the effects of spinal stability exercises in water.





Methods

Participants

- 13 chronic LDH patients (7 male, 6 female)
- 52.00 (36.50/59.25) years
- 27.95 (26.13/32.33) kg/m² BMI







Inclusion Criteria

- Having protrusion according to MRI
- Having symptoms (pain, functional loss etc.) related with herniation at least 3 months
- Being referred to physiotherapy
- Being volunteer to participate
 Exclusion Criteria
- Ongoing physiotherapy program
- Back surgery history
- Any restrictions preventing exercising in pool (Allergy to chlorine, incontinence etc.)

Measuring Outcomes

Finger to ground test



Lateral Bridge Test



Sorensen Test



Trunk Flexors Endurance Test

• (McGill 1999)



Sit-Ups Test





Modified Push-Ups Test





Treatment

- All patients underwent water-based stability exercises in a group for 3 days/week for 8 weeks.
- Abdominal hallowing maneuver and breath control were asked to be maintained during all exercises.



Results

 Twelve patients (7 male, 5 female) completed the intervention. One patient was excluded from the study due to lack of attendance to the sessions.

	Before (IQR)	After (IQR)	p<0.05
Finger to Ground (cm)	3.00 (-3.75/7.75)	13.00 (1.25/16.50)	0.002
Lateral Bridge (sec)	28.45 (15.25/61.93)	50.54 (32.48/85.12)	0.003
Sorensen (sec)	36.00 (19.79/54.60)	53.61(28.03/101.43)	0.002
Trunk Flexors Endurance (sec)	17.00 (5.85 /39.27)	42.90 (16.33/59.05)	0.002
Sit- ups (reps/30 sec)	19.50 (12.50/27.00)	28.00 (21.00/33.00)	0.005
Modified Push-ups (reps/30 sec)	15.00 (13.00/19.50)	23.50 (19.00/25.00)	0.002



Conclusions

- According to these findings water-based spinal stability exercise programs may improve physical characteristics such as flexibility, static and dynamic spinal endurance of chronic LDH patients.
- More studies with larger groups are needed.

thanky thankyou hankyo WATER



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