

**EFFECTIVENESS OF HYDROTHERAPY ON IMPROVING FUNCTIONAL
ABILITY IN CASES OF LOW BACK MECHANICAL PAIN AT
PERDAGANGAN REGIONAL HOSPITAL**

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ABSTRACT

Low Back Pain is one of the symptoms that is often described with pain that occurs in the lumbar or lumbosacral area which attacks 7.3% in 540 million people in 2015. The most common LBP is mechanical LBP with the cause of Hernia Nucleus Pulposus and nonspecific (idiopathic). This condition causes functional and movement disorders so that the patient requires physiotherapy intervention, one of which is hydrotherapy. The research method in writing this article is a literature review through four databases, namely Science Direct, EBSCOhost, Google Scholar, and PubMed on March 26, 2021, in according to the PICO framework and inclusion criteria. The measuring tools that can be used to assess functional ability are ODI, MODI, QBPDS, and RMDQ. Effectiveness of hydrotherapy to improve functional ability in mechanical LBP cases. There is an increase in functional ability in mechanical LBP during the 8-week training period with a training dose of 3 sessions/week, 8-10 repetitions and 60 minutes/session time and the Recommended methods are walking, ROM exercise, stretching exercise, strengthening exercise, squats, lunges., stabilization exercises, US well US pedaling and cycling. The administration of hydrotherapy is effective in increasing functional ability in mechanical LBP patients with various parameters and taking into account various things, such US dosage and exercise methods.

Keywords: Low Back Pain, Mechanical LBP, Hydrotherapy, Functional Ability, Disability

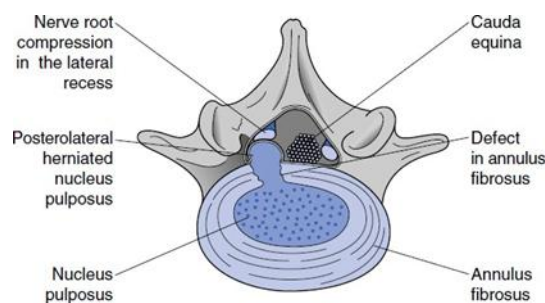
INTRODUCTION

Coronavirus (COVID-19) has been declared by World Health Organization (WHO) COVID-19 has been a pandemic since March 2020. Indonesia is one of the countries affected by COVID-19, prompting the government to impose lockdowns in various regions across the country. The government also advised people to stay at home, including

office workers who were required to work from home (WFH). The impact of WFH is that people become less mobile and develop poor posture due to prolonged sitting in front of devices. Poor posture, such as slouching, can trigger back pain, especially in the lower back, often referred to as low back pain (LBP).

LBP is flavor painful Which happen in between corner ribs bottom behind until buttocks folds lower, that is in area lumbar or lumbosacral, and may be accompanied by pain radiating towards the legs until feet on side which is the same as the global prevalence of LBP in In 2015, it was recorded that 7.3% occurred in 540 million people. And often happen on woman (Dixit, 2021; Susanto, 2020). As for LBP most frequent is a mechanical LBP that arises intrinsically from the bone behind, discus intervertebral, or network soft in surrounding area with LBP classification based on duration painful, that is LBP I and chronic LBP (Dixit, 2021; Will et al., 2018).

LBP mechanical often caused by by presence of Herniated Nucleus Pulposus (HNP) – with movement Which most risky, that is moment flexion movement accompanied by rotation Because will resulting in the nucleus pulposus moving posterolaterally (Figure 1) – and is nonspecific (idiopathic).



Picture 1

HNP Posterolateral (Barr et al., (2021)

Factor risk occurrence LBP, between other factors descendants, factor psychosocial, weight lifting activities, poor posture, period Work, obesity, pregnancy, body weakness, smoking, income low, and status education (Dixit, 2021). The characteristics of LBP are that there is pain that is temporary and sudden, muscle spasms, muscle weakness, limited range of motion of Motion (ROM), as well as decreased postural control, so that result in existence decreased ability functional Which causing the patient difficulty do activity everyday, such as Work, walk Far, stand

for a long time, and so on. Therefore it is necessary the role of physiotherapy in efforts to improve ability functional patients on sufferers LBP. On basically, There are various interventions that can be given, one of which is intervention Which can given is hydrotherapy.

Hydrotherapy is a water-based exercise that will put less pressure on the joints than when exercising on land. The existence of characteristic water, that is buoyancy, hydrostatic pressure, and viscosity which can improve functional ability in mechanical LBP patients (Brody, 2017; Susanto, 2020). Based on the background above, the author is interested in discussing the effectiveness of hydrotherapy in increasing functional ability in cases of mechanical LBP. There are various clinical problems that arise due to mechanical LBP, especially due to HNP and idiopathic so that physiotherapy is an effort to reduce these problems. Choosing the right exercises can help improve functional abilities in patients. Based on this, the following clinical question was asked: "What is the effectiveness of hydrotherapy in increasing functional ability in cases of mechanical LBP?"

LITERATURE REVIEW

Mechanical Low Back Pain (LBP)

Low back pain (LBP) is pain that occurs in the area between the corner of the lower back rib and the lower buttocks (lumbar or lumbosacral region), which can be accompanied by pain radiating down the leg to the foot on the same side. LBP had a global prevalence of 7.3% in 2015 (affecting 540 million people) and is more common in women.

The most common form of LBP is mechanical LBP, which arises intrinsically from the spine, intervertebral discs, or surrounding soft tissue. Mechanical LBP is often caused by a herniated nucleus pulposus (HNP)—especially when flexion movements are accompanied by rotation that causes the nucleus pulposus to move posterolaterally—as well as nonspecific (idiopathic) causes. Risk factors for LBP include heredity, psychosocial factors, heavy lifting, poor posture (such as due to working from home / WFH), work period, obesity, pregnancy, physical weakness, and smoking.

The clinical characteristics of LBP include sudden and transient pain, muscle spasms, muscle weakness, limited Range of Motion (ROM), and decreased postural control

leading to disability or decreased functional ability.

Functional Capabilities and Measurement Instruments

The decline in functional ability due to low back pain (LBP) makes it difficult for sufferers to perform daily activities such as working, walking long distances, and standing for long periods. Several valid measurement instruments are used to assess the level of functional ability or disability in LBP patients, including:

ODI (Oswestry Disability Index): A gold standard instrument containing 10 questions to measure disability and Quality of Life (QoL).

MODI (Modified Oswestry Disability Index): A modification of the ODI in which the sex life indicator is replaced with an employment/homemaking indicator.

QBPDS (Quebec Back Pain Disability Scale): A 20-item questionnaire to assess a patient's level of difficulty in performing certain activities.

RMDQ (Roland Morris Disability Questionnaire): Consists of 24 items that focus on physical functions affected by LBP.

Hydrotherapy (Aquatic Exercise)

Physiological Definitions and Principles:

Hydrotherapy is water-based physical exercise that puts less stress on the joints than land-based exercises. The effectiveness of hydrotherapy is based on three main properties of water:

Buoyancy: Reducing the force of gravity to counteract body weight, thereby reducing pressure on joints, reducing pain, and making movement easier (ROM becomes greater).

Hydrostatic Pressure: Helps prevent and reduce pain, supports the body during exercise repetitions, and improves proprioception.

Viscosity: Provides resistance that is useful for contracting muscles, making it excellent for strengthening exercises.

In addition, hydrotherapy for LBP can reduce intradiscal load, thus facilitating anterior disc mobilization (in cases of HNP), stimulate the diaphragm muscle (improving breathing quality), improve blood circulation, and strengthen core muscles such as the transversus abdominis and multifidus muscles.

Dosage and Methods of Hydrotherapy Exercises

Based on a literature review, the recommended hydrotherapy for mechanical LBP cases has the following parameters:

Dosage: The program lasts 8–12 weeks, with 2–3 sessions per week. Each session lasts 45–60 minutes (including warm-up, core exercises, and cool-down) with 8–15 repetitions of each movement.

Exercise Methods: Walking (walking / jogging in water), ROM exercises, stretching, strengthening exercises, squats, lunges, stabilization exercises (core stability), pedaling, and cycling.

METHOD

The research method used in writing this article is a literature review. Articles or journals were searched using keywords. And Boolean operator (AND, OR NOT or AND NOT) which is used to expand or specify the search so that it makes it easier to determine article or journal Which The search was conducted through Science Direct, EBSCOhost, Google Scholar, and PubMed on March 26, 2021, using inclusion and exclusion criteria as filters.

As for criteria inclusion This covering : (1) Patients with mechanical LBP, (2) Hydrotherapy intervention, (3) Measuring functional ability , (4) Design studies mix methods study, experimental study, survey study, cross-sectional, analysis correlation, comparison and qualitative studies, (5) Year of publication in the last 5 years (2016-2021), and (6) Indonesian language articles And Language English. Criteria exclusion, including : (1) Besides patient LBP mechanical, (2) Intervention besides hydrotherapy, (3) Does not measure functional ability, (4) Systematic/literature review study design, (5) Year of publication before 2016, And (6) Besides Indonesian and English.

Strategy Which used For search for articles use PICO framework, that is Population/problem, that is Low Back Pain (LBP) Mechanical, Intervention, that is Giving hydrotherapy exercises , Comparison No done, Outcome, that is Functional ability

RESULTS AND DISCUSSION

Based on search results through Google Scholar, PubMed, Science Direct, and EBSCOhost publications using keywords “Hydrotherapy OR Aqua Therapy” AND "Functional Disability OR Functional Ability" AND "Low Back Pain OR Low Back Pain Mechanical OR LBP," researchers found 3,848 articles that matched these keywords. The

research journals were then screened by reading the title, abstract, research objectives, and full text of the articles. Based on these results, 3,843 articles met the exclusion criteria. Thus, we obtained 5 article Which done review. Flow search or Preferred Reporting The Items for Systematic Reviews and Meta Analysis (PRISMA) chart can be seen in Figure 2.

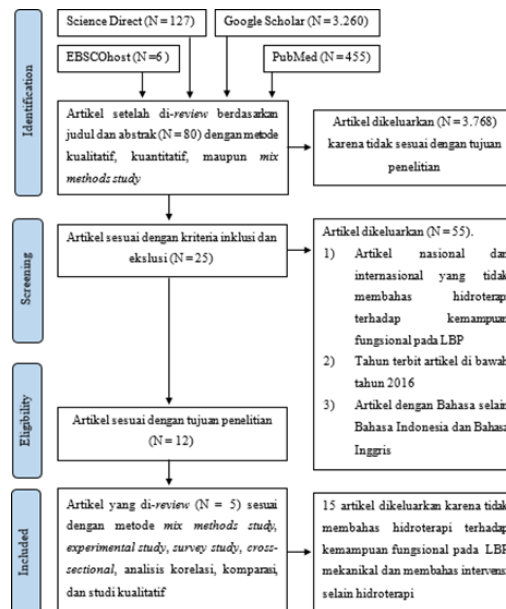


Figure 2 Prism CHART

There is a number of tool measurements in measuring functional ability in LBP patients, including the Oswestry Disability Index (ODI), Modified Oswestry questionnaire, Quebec Back Pain Disability Scale (QBPDS), and Roland Morris Disability Questionnaire (RMDQ). Demographics and parameters used in study can seen in Table 1.

ODI is validation questionnaire patient report results consisting of 10 points. The ODI is considered the 'gold standard' in measuring disability And Quality of Life (QoL) on person mature with LBP (Yates & Shastri-Hurst, 2017). Assessment method Each of the 10 the points are scored from 0 to 5 with score maximum 50. Total score Then changed become percentage with multiply it with . ODI has mark validity construct, that is -0.70 (95% CI = -0.77; -0.61) (Chiarotto et al., 2016; Yates & Shastri-Hurst, 2017). Modified Oswestry questionnaire or commonly known as the MODI. The difference between the ODI and the MODI is that the sex life assessment in the ODI is replaced with employment/homemaking. The MODI is filled out and interpreted in the same way as the ODI. The MODI has a validity value. And reliable with ICC 0.9 (95% CI

= 0.78–0.96) (Eternal et al., 2019).

The QBPDS consists of a 20-item questionnaire. Each item is scored from 0 (no difficulty at all) to 5 (unable to perform). The total score ranges from from 0 until 100, in where the higher the score, the higher the level disability higher. QBPDS own mark validity Good which is correlated with ODI is 0.67 to 0.90 (Speksnijder et al., 2016).

The RMDQ consists of 24 items representing the physical functions affected in LBP sufferers, and then calculates a total score obtained by calculating the number of items examined. The RMDQ has a good construct validity value, namely -0.66 (95% CI = -0.77; -0.60) (Chiarotto et al., 2016).

Table 1 Demographics And Parameter

Studies	Age Range	Type LBP	Duration Onset (Chronic / I / Subacute)	Parameter
Susanto B. (Susanto, (2020)	40-75 year	Discogenic LBP	No explained	ODI
Ansari S, et (Ansari et al., 2020)	50-63 year	LBP nonspecific	Chronic	QBPDS
Abadi FH, et al. (Eternal et et al., 2019)	31-53 year	LBP nonspecific	Chronic (>6 month)	MODI
Goldstein E, et al. (Goldstein et al., 2020)	19-70 year	LBP nonspecific	Chronic (≥ 3 months)	RMDQ
Shadkampung S, et al. (Shadkampung & Rahnama, (2016)	Not explained	LBP consequence disc degeneration or disc herniation	Chronic (>3 month)	ODI

To treat mechanical LBP, hydrotherapy can be a physiotherapy intervention. The properties of water, namely buoyancy, hydrostatic pressure, and viscosity, can reduce pain, reduce gravitational force, thus facilitating movement, increase range of motion (ROM), improve lung function, and reduce intradiscal load, thus facilitating disc mobilization. anterior on LBP mechanical consequence HNP, increases core muscle strength and breathing, improves blood circulation, and increases body stability so that patients can improve functional abilities (Brody, 2017). Hydrotherapy method Which can used, including whirlpools, contrast baths, and pool therapy/aquatic exercise (Eternal et al., 2019; Hayes & Hall, 2015). Data from the reviewed articles (Table 2) show method

(MEGA)
exercise The most commonly given exercises are walking, ROM exercises, stretching exercises, strengthening exercises, squats, lunges, stabilization exercises, as well as pedaling and cycling, with one study not explaining the total exercise, providing a total of exercise during 8 Sunday, two studies give total exercise for 3 month, And One exercise give total training for 6 weeks.

Table 2 Results Study

Studies	Hydrotherapy		Follow -up	Functional Ability
	Method	Dose		
Susanto B. (Susanto, (2020)	No explained	No explained	No There is	reducing Disability
Ansari S, et (Ansari et al., 2020)	Jogging, standing on one leg (20 seconds/foot), stepping sideways, squats, ROM exercises in the hip region, leaps, and arm movements	Total training 8 weeks with intensity 3 sessions/week, 8 repetitions. Each session: 15 minutes warm-up, 35 minutes rest play exercise, and 10 minutes cooling	No There is	Increase
Eternal FH, et al. (Abadi et al., 2019)	Static stretching, jogging, lunges, pedalling, cycling, mobilization and shoulder transverse exercise	walking, 12 Sunday, intensity 2 sessions/week with upper body and 120 cm and 150 cm session : 10 minute warmup, 40 minute aquatic exercise, 5 minutes cool down and relaxation, as well as 5 self-care minutes outside water-activity	After 3 weeks, with 60water depth 150 cm at depth	Increase
Goldstein E, et al. (Goldstein et al., 2020)	Muscle activation of the multifidus muscle, diaphragm muscle, exercise, and maintaining balance with various movements, position, And speed	3 months with intensity 2 sessions/week for 45 minutes stability and various	No There is	Increase
Shadkampung S, et al. (Shadkampung & Rahnama, (2016)	Stabilization exercise, exercise. In the last week aerobics And functional (walking)	Total training 6 weeks with 3 sessions/week. Session exercise during 25-30 minutes and 1 hour at the end of the session. The sessions : 5 minutes warm-up, 10 minute flexibility, 15 minutes stabilization exercise, aerobics, 10 minute cooling	No There is	Increase

The effectiveness of hydrotherapy on increased functional ability

The results of five reviewed articles showed that hydrotherapy was quite effective in improving functional ability in cases of mechanical LBP. The five articles were based on the Levels of Effectiveness Rating Scheme, a study by Susanto B. and Shadkampung S, et al., using a quasi- experimental approach. study with level of The evidence is at level III. Meanwhile, in the study by Ansari S, et al., Abadi FH, et al., Goldstein E, et al use Randomized controlled trial which is at level I.

According to study by Susanto B., year

2020. In his research to 19 People with discogenic LBP were divided into two groups, namely group I (n = 9) with aquatic exercise intervention and group II (n = 10) with Mckenzie intervention. exercise. Tool measuring Which The instrument used was the ODI. There was a change in the mean ODI value in Group I with the Aquatic Exercise intervention, namely from 55.95 (standard deviation 4.6) to 30.02 (standard deviation 7.51). So the difference in the mean in Group I, namely 25.92 (standard deviation 3.98) and mark $P=0.001$ ($p<005$) (Susanto, 2020). Changes in Susanto B.'s ODI research scores can be seen in Table 3.

Table 3 Changes Mark Ability

Parameter	Sebelum	Sesudah	Selisih	P
	Rerata ± SB	Rerata ± SB	Rerata ± SB	
ODI	55,95 ± 4,6	30,02 ± 7,51	25,92 ± 3,98	0,001

Functional with ODI (Susanto, 2020)

Matter This in line with studies by Ansari S, et al., year 2020, On studies This mentioned that there is 20 woman postmenopausal women with chronic non-specific LBP were randomly divided into two groups, namely experimental (n = 10) which was given intervention aquatic exercise And control (n = 10) who were not given intervention, but all participants underwent electromyography (EMG) to record their activity . muscle rectus abdominal, muscle external oblique, muscle longissimus thoracic, And multifidus muscle. The variables studied were functional disability, flexibility, And function muscle trunk through EMG. There is change significant effect on functional ability scores with QBPDS. The change was from 26.1 ± 5.82 become 10.9 ± 2.68 ($P < 0.05$)

which can be seen in Table 4 (Ansari et al., 2020).

The results are comparable to research by Abadi FH, et al., in 2019. In their study of 39 obese female participants ($BMI \geq 27 \text{ kg/m}^2$) with non-significant LBP for more than 6 months without intervention procedures. The 39 participants were randomly divided into two groups, namely the aquatic exercise group ($n = 19$) and the control group ($n = 20$). This study was conducted using a measurement tool using the MODI which consists of 10 assessments. The results of the study stated that there is improvement Which significant on aquatic exercise on 6 evaluation, namely pain intensity ($P < 0.002$), personal care ($P < 0.015$), sitting ($P < 0.004$), standing ($P < 0.006$), sleeping ($P < 0.022$) and employment ($P < 0.014$), as well as total disability score ($P < 0.020$) which can be seen in Table 5 (Abadi et al., 2019).

Table 4 Changes Mark Ability

Parameter	Sebelum	Sesudah	Selisih	P
	Rerata \pm SB	Rerata \pm SB	Rerata \pm SB	
ODI	55,95 \pm 4,6	30,02 \pm 7,51	25,92 \pm 3,98	0,001

Functional with QBPDS (Ansari et al., 2020)

Table 5

Changes in Ability Values

MODI	Aquatic (n = 19)		Nilai P
	Baseline	Minggu ke-12	
Nyeri	2,21 \pm 1,27	0,79 \pm 0,89	0,002
Personal Care	1,37 \pm 0,76	0,32 \pm 0,48	0,015
Lifting	1,53 \pm 0,70	0,68 \pm 0,48	0,931
Berjalan	1,25 \pm 0,99	0,63 \pm 0,50	0,377
Sitting	1,89 \pm 1,10	0,95 \pm 0,75	0,004
Berdiri	1,58 \pm 0,69	0,53 \pm 0,51	0,006
Sleeping	1,21 \pm 0,97	0,26 \pm 0,56	0,022
Social Life	1,26 \pm 0,65	0,26 \pm 0,45	0,071
Traveling	1,47 \pm 0,84	0,53 \pm 0,50	0,869
Employment	1,57 \pm 0,84	0,53 \pm 0,61	0,014
Skor Disabilitas (0-100)	29,4 \pm 9,74	12,42 \pm 5,40	0,020

Functional with MODI (Abadi et al., 2019)

Research by Goldstein E, et al., in 2020. In their study, 124 participants with chronic nonspecific LBP were divided into two groups: the water group (n = 62) and the land group (n = 62). The measurement instrument used was the RMDQ. The results showed a greater improvement (Table 6) in functional status scores. group water, that is from 10.1 (3.8) become 2.9 (2,2) with mark $P < 0.001$ (Goldstein et et al., 2020).

**Table 6 Changes Mark Ability
Water (n=62)**

Parameter	Water (n=62)		P
	Rerata Sebelum	Rerata Sesudah	
RMDQ	10,1 (3,8)	2,9 (2,2)	< 0,001

Functional with RMDQ (Goldstein et al., 2020)

Research comparable to the study by Shadkampung S, et al., in 2016, their research on 24 women with chronic LBP due to disc degeneration or herniation stated that the ODI measuring tool and research results stated that there were changes in the ODI score (Table 7), that is from 39.4 ± 8.3 to 22.5 ± 6.7 with a P value = 0.001 (Shadkampung & Rahnama, 2016).

Table 7 Changes Mark Ability

Parameter	Water (n=62)		P
	Sebelum	Sesudah	
ODI	$39,4 \pm 8,3$	$22,5 \pm 6,7$	0,001

Functional with ODI (Shadkampung & Rahnama, (2016)

So based on the five articles that met inclusion, providing hydrotherapy can effectively improve ability functional on patient LBP mechanical. With existence main principles water : buoyancy, pressure hydrostatics, Research by Goldstein E, et al., 2020. In his research, 124 participants with chronic nonspecific LBP were divided into two groups, namely the water group (n = 62) and the land group. (n = 62). Tool measuring Which used and viscosity own impact positive in the form of physiological effects on LBP sufferers. First, buoyancy can reduce the force of gravity to counteract body weight, thereby reducing pressure on the joints and enabling movement. exercise with business Which less , and can reduce pain, so the resulting ROM will also be greater. Second, hydrostatic pressure will prevent and reduce pain, support the body in doing repetitions in exercises, and improve proprioception. Third, the viscosity of water will contract the

muscles that can increase resilience For strengthening exercises .

Besides That, exercise on deep water can stimulate Work from muscle diaphragm so that beneficial on the quality of the lungs because it can strengthen the muscles And all over system breathing. Diaphragm muscle including muscle breathing main collaborators with other stabilizers – muscle transverse abdominal and muscles multifidus to maintain and improve stability back bottom, as well as repetitive movements during exercise as well can activate muscles related to with movement daily and fix posture body. Hydrotherapy on LBP consequence discogenic can reduce the burden on intradiscal so that it makes it easier mobilization discus to anterior, improving circulation blood so that it provides flavor comfortable, increase strength muscles trunk, And increase body stability.

For dose exercise hydrotherapy on study by Bayraktar D, et al., year 2015 with the title A comparison of water-based and land-based core stability exercises in patients with lumbar disc herniation: a The pilot study stated that the training dose used was 3 sessions/week with a duration of 60 minutes for 8 weeks. The exercise was performed with 10 repetitions and at Sunday fourth done 15 repetition (Bayraktar et al., 2016).

The use of the method used by Sawant RS, et al., in 2019 in the title Effect of hydrotherapy based exercises for chronic nonspecific low back pain, namely walking And strengthening exercise for muscles abdominal, muscle gluteus, muscle trunk, The lumbar and lower extremity muscles. The exercises are performed in two positions: supine (ROM exercises for the hip and knee region, bridging with dumbbells on the knees) and standing (squats, lunges, ball squeezing) in between thigh, reach fingers legs, one leg balance, and leg circles) (Sawant & Shinde, 2019).

Based on presentation the, It can be concluded that the five studies that met the inclusion criteria were effective in improving functional ability in cases of mechanical LBP with the recommended dose, namely 8 weeks with an intensity of 3 sessions/week, each session was carried out 8-10 repetition And time 60-minute training sessions. Recommended methods include walking, ROM exercises, stretching , strengthening exercises , squats, lunges, stabilization exercises, and pedaling and cycling. Several articles have used comparison interventions in cases of mechanical LBP to determine the effectiveness of hydrotherapy on improving functional ability.

Studies First by Susanto B. (Susanto, 2020) which compared two interventions on two

groups, namely the aquatic group exercise with group McKenzie exercise. This study stated that the results of the research analysis showed a significant difference between aquatic exercise and McKenzie exercise in Disability Reduction Score (ODI). Therefore, aquatic exercise is better and more effective than McKenzie exercise in reducing disability in people with discogenic LBP.

Like case in point studies by Shadkampung S, et al., (Shadkampung & Rahnama, (2016)

which compared the stabilization exercise group with the combination group (stabilization + aquatic exercise) against patient LBP chronic with disc degeneration or herniation. Results showed that there was a greater decrease in pain scores (VAS) and disability scores (ODI) in the combination group than in the stabilization group (Shadkampung & Rahnama, 2016).

In a study by Ansari S, et al., (Ansari et al., 2020) they compared the experimental group that received aquatic exercise treatment with the control group. control Which No received intervention treatment, but all participants underwent EMG to record muscle activity. The results showed that there was a significant increase in the experimental group in increasing flexibility And functional ability. Thus, aquatic exercise has a positive effect on functional ability, flexibility, and EMG results in postmenopausal women with chronic low back pain (LBP).

This study is comparable to a study by Abadi FH, et al., (Abadi et al., 2019) which compared an aquatic exercise group with a control group of obese women with LBP. There was a significant increase in pain intensity, personal care, sitting, standing, sleeping, and employment, as well as total disability scores in the aquatic group. Meanwhile, there were no significant changes in lifting, walking, social life, and traveling in either group.

A study conducted by Goldstein E, et al., (Goldstein et al., 2020) also compared two interventions on two groups, namely the water exercise group and the land exercise group, with both groups receiving exercises that combined deep local muscles. On studies the, on water exercise group significantly showed improvement Which relatively bigger compared to with group land exercise to all variables painful and functional status in patients with nonspecific chronic LBP. Based on fifth article Which met inclusion comparing hydrotherapy with intervention comparator others, showed that

hydrotherapy was proven to be effective in improving functional ability in cases of mechanical LBP.

CONCLUSION

The provision of hydrotherapy – several articles compare it with various interventions – is effective in improving functional ability in LBP patients mechanically with various parameters, such as ODI, MODI, QBPDS, and RMDQ. Training can be provided with dose Which recommended that is 8 A week with an intensity of 3 sessions per week, each session consisting of 8-10 repetitions and a training time of 60 minutes per session. Recommended methods include walking, ROM exercises, stretching, strengthening exercises, squats, lunges, stabilization exercises, and pedaling and cycling.

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