

EFFECTS OF BADUANJIN EXERCISE ON STABILITY TRAINER PAD TO IMPROVE VESTIBULAR BALANCE IN OSTEOARTHRITIS PATIENT- A CASE REPORT

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Abstract:

Objective: This study aims to evaluate the effects of Baduanjin exercise on stability trainer pad to improve vestibular balance in osteoarthritis patient.

Methods:

A 60 year old patient came to physiotherapy department with complaint of pain over right and left knee. Patient was assigned for Baduanjin exercise on stability trainer followed by electrotherapeutic modality and strengthening exercise.

Result:

At the end of the therapy there was significant improvement in her balance.

Conclusion:

By using Baduanjin exercise on stability trainer pad are effective in improving patients vestibular balance.

Keywords: *Baduanjin Exercise, Vestibular Balance, Stability Trainer, Balance Training.*

Introduction:

The most common cause of knee pain is osteoarthritis (OA), with osteoarthritic changes affecting ligaments, tendons, muscles, and periarticular tissues. Reduced quadriceps muscle strength and proprioceptive accuracy are two neuromuscular changes linked to knee OA.¹

People with knee OA have lower balance, as evidenced by a higher frequency of falls and increased postural sway. Control deficits are caused by changes in muscle activation patterns, such as increased activity and alignment of the thigh muscle during gait's stance phase. Knee osteoarthritis causes severe pain and impairment, particularly in the elderly, so it is treated in primary care and the incidence of knee osteoarthritis is high enough that simple community-based treatments are required. Falling due to a lack of balance can have serious physical, psychological, and social consequences. Before treating knee OA patients, their balance control must be thoroughly evaluated.¹

With a prevalence of 22 percent to 39 percent in India, OA is the second most common rheumatologic problem and the most common joint disease. Women are more likely than men to develop OA. Nearly 45 percent of women over the age of 65 have symptoms, while radiological evidence is found in 70 percent of those over the age of 65.²

Badaunjin is a traditional Chinese exercise that consists of slow body movement along with musculoskeletal stretching. Badaunjin exercise can help knee OA patients maintain normal life activity by reducing pain and improving functional abilities (postural stability, muscular strength, and

flexibility).³

Case:

A 60 year old female housewife came to Physiotherapy department with the chief complaint of dull aching pain in her right and left knee at medial side. History was narrated by patient herself. Patient was alright 2 months ago. Then she gradually started experiencing pain in her both the knees. she has difficulty in falling asleep because of pain she has trouble due to pain while doing work or other activities as she feels that her suffering will worsen by doing any work and often she felt falling while doing activity and walking. The same type of pain patient experience from near about 4 to 5 years but by taking medications her pain gets relieved temporarily. And therefore now doctor has advised her surgery but patient's family members and patient has decided to take physiotherapy treatment.

Clinical finding:

Tenderness Grade 3 Pain
on 5 on NPRS,
Tinetti Balance Assessment Tool 22, MRC
Grade 3.

Outcome Measures: Tenderness Grading, Kallgren-Lawrence Grading System, Tinetti Balance Assessment Tool, MRC Grading.

Physical examination: The research began with postural assessment showing a slight forward head and slight lumbar lordosis. Range of motion was measured by using uniform goniometry. Knee flexion and extension are both painful but it was complete. Special test such as patellar grind test has been performed and it was positive. The strength was measured using manual muscle testing of knee flexors and extensors and it was grade 3.

Diagnosis assessment:

The diagnosis of OA is based on clinical history, and physical examination and imaging result are also required to assess the exact degree and severity of OA patients. In x-ray finding in OA the presence of an osteophytes was more indicative. And joint space was reduced.

Treatment:

Before starting the physiotherapy treatment, we collected the information the patient about her perspective and knowledge about her pain and current condition. And asked her about her expectation and took her inputs to plan treatment goal for her.

A treatment was delivered for 14 Days. Right, at the beginning of the treatment session, electrotherapy modality was used such as TENS, Strengthening exercise were given. After that balance training was given to patient for improve static balance. Further treatment protocol is given in table No. 1 & table No. 2

Table No.1

	Modality	Strengthening
For 3 Days	TENS Mode: Continuous mode Frequency: 100 Hz Duration: 15 min	Static Quadriceps Static Hamstring 10 Repetitions with 5 Second hold.

Table No.2 Steps for intervention of Badunajin exercise

For 11 Days Badunajin Exercise	1.Holding the hands with palms up to internal organs	3. Raise single arm to regulate body function	5. Swinging the head lowering the body to relieve stress	7. Clench the fist and look with eyes wide open to enhance strength and stamina.
Stability Trainer Pad	2. Posing as than Archer Shooting left and right handed.	4. Look back to treat 5 strains and impairments.	6. Moving the hands down the back and legs and touching the feet to strengthen.	8. Raising and lowering the heels to cure disease.



Step 1



Step 2



Step 3



Step 4



Step 5



Step 6



Results:

After this study we concluded the results in first and second week among the following outcome measures.

Outcome Measures	Pre-treatment	Post treatment
Tenderness Grading Scale	3	1
Kallgren-Lawrence Grading System	1	3
Tinetti Balance Assessment Tool	22	24
MRC Scale	3	4

Table No. 3

Discussion:

Traditional Chinese Medicine doctors have used Baduanjin exercise to accelerate the recovery of knee function for a long time, and have the advantage of simple operation, low price, easy to learn, and convenience.¹ The study shows that 12 week badunajin exercise therapy or mind body exercise therapy improved proprioception at the knee joint and postural stability function.²

The study shows that badunajin exercise had a statistically significant effect on improving three domains (pain, stiffness and physical function) of WOMAC scores compared to health education groups.²

The principal finding of this study is that balance training on Stability Trainer along with conventional physiotherapy was significantly more effective than conventional physiotherapy alone in improving functional balance.⁴

Stability trainer exercise program (STEP) is extremely effective for Balance training and improving the quality of life in the elderly.⁵

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