



ISOMETRIC EXERCISE IN THE MANAGEMENT OF SANDHIGATA VATA WITH SPECIAL REFERENCE TO OSTEOARTHRITIS

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ABSTRACT

Sandhigata Vata is one of the most prevalent degenerative joint disorders described in Ayurveda. It is characterized by pain, stiffness, swelling, crepitus, and restriction of joint movements due to aggravated Vata Dosha affecting the Sandhi (joints). In modern medicine, Osteoarthritis is considered a comparable condition involving progressive degeneration of articular cartilage and surrounding structures. Physical exercise plays an important role in maintaining joint mobility and muscle strength in Osteoarthritis. Among various therapeutic exercises, isometric exercises are considered safe and effective because they improve muscle strength without producing excessive movement at the affected joint. From an Ayurvedic perspective, regular controlled exercise helps maintain joint stability, improves circulation, reduces stiffness, and supports normal Vata function. The present article reviews the role of isometric exercise in the management of Sandhigata Vata with special reference to Osteoarthritis.

Keywords: Sandhigata Vata, Osteoarthritis, Isometric Exercise, Vatavyadhi, Knee Osteoarthritis, Rehabilitation

INTRODUCTION

Joint disorders are among the leading causes of disability and reduced quality of life in elderly individuals. Osteoarthritis is one of the most common chronic degenerative joint diseases affecting millions of people worldwide. It mainly involves weight-bearing joints such as the knee, hip, and spine. The disease is characterized by progressive degeneration of cartilage, narrowing of joint space, pain, stiffness, and limitation of movement.⁽¹⁾

Ayurveda explains similar clinical features under the disease entity Sandhigata Vata. The condition occurs when aggravated Vata Dosha localizes in the joints and produces symptoms such as Sandhishoola (joint pain), Atopa (crepitus), Stambha (stiffness), and Shotha (swelling).⁽²⁾

Exercise therapy is considered one of the most important non-pharmacological approaches in Osteoarthritis management. Isometric exercise is particularly beneficial because it strengthens muscles without causing excessive joint movement or strain. These exercises are especially useful in elderly patients and those suffering from painful knee Osteoarthritis.⁽³⁾

Ayurveda also emphasizes proper Vyayama (exercise) for maintaining musculoskeletal health and balancing Vata Dosha. Controlled physical activity improves circulation, nourishes tissues, and enhances joint stability. Therefore, isometric exercises can be integrated effectively with Ayurvedic principles in the management of Sandhigata Vata.

CONCEPT OF SANDHIGATA VATA

Sandhigata Vata is a Vata vyadhi described in Ayurvedic classics. The term is formed from two words: “Sandhi” meaning joint and “Gata” meaning localized. Thus, Sandhigata Vata refers to aggravated Vata Dosha affecting the joints.⁽⁴⁾

According to Charaka Samhita:

“सन्धिषु वातपूर्णदृतिस्पर्शः शोफोऽतिवेदनाः”

This indicates symptoms such as pain, swelling, and a sensation similar to an air-filled structure within the joints.⁽⁵⁾

Acharya Sushruta described painful movement and difficulty in flexion and extension as important features of the disease.⁽⁶⁾

OSTEOARTHRITIS: MODERN VIEW

Osteoarthritis is a chronic degenerative disease involving progressive destruction of articular cartilage along with changes in subchondral bone and synovial tissue. It commonly affects elderly individuals and is more prevalent in females after menopause.⁽⁷⁾

Risk Factors

- Aging
- Obesity
- Joint injury
- Sedentary lifestyle
- Repetitive stress over joints
- Genetic predisposition

Clinical Features

- Joint pain
- Morning stiffness
- Crepitus
- Swelling
- Restricted movements
- Muscle weakness

Knee Osteoarthritis is one of the most common forms and significantly affects daily activities such as walking, climbing stairs, and sitting.⁽⁸⁾



ISOMETRIC EXERCISES USED IN SANDHIGATAVATA (OSTEOARTHRITIS)

1. QUADRICEPS SETTING EXERCISE

This exercise helps in strengthening the quadriceps muscle present in the front part of the thigh. Weakness of this muscle is very common in knee Osteoarthritis and contributes to pain and instability.⁽⁹⁾

Method

- Lie comfortably on your back with legs straight.
- Place a towel roll below the knee.
- Tighten the thigh muscles by pressing the knee downward.
- Hold the contraction for 5–10 seconds.
- Relax slowly.
- Repeat 10–15 times.

Benefits

- Improves knee stability
- Reduces pain during walking
- Prevents muscle wasting
- Enhances joint support

2. HAMSTRING SETTING EXERCISE

This exercise strengthens the hamstring muscles located at the back of the thigh. Strong hamstrings help maintain proper balance and reduce stress over the knee joint. ⁽¹⁰⁾

Method

- Lie on your stomach.
- Keep a towel roll under the ankle.
- Press the heel downward gently without moving the knee.
- Tighten the muscles at the back of the thigh.
- Hold for 5–10 seconds.
- Repeat 10–15 times.

Benefits

- Improves muscle balance around the knee
- Enhances joint stability
- Reduces stiffness
- Supports smooth movement

3. STRAIGHT LEG RAISE (ISOMETRIC)

This exercise improves quadriceps strength without excessive bending of the knee joint and is useful in painful Osteoarthritis conditions.⁽¹¹⁾

Method

- Lie on your back.
- Bend one leg and keep the affected leg straight.
- Tighten the thigh muscles.
- Slowly raise the straight leg about 6–8 inches.
- Hold for 5–10 seconds.
- Lower the leg slowly.
- Repeat 10 times.

Benefits

- Strengthens thigh muscles
- Improves mobility
- Reduces pressure on the knee joint
- Helps in daily activities such as walking and climbing stairs

4. GLUTEAL SQUEEZE EXERCISE

This exercise strengthens the gluteal muscles, which support body posture and reduce stress on weight-bearing joints.⁽¹²⁾

Method

- Lie on your back with knees bent.
- Tighten the buttock muscles gently.
- Hold the contraction for 5–10 seconds.
- Relax slowly.
- Repeat 10–15 times.

Benefits

- Improves pelvic stability
- Enhances posture
- Reduces load on knee joints
- Improves walking ability

5. HIP ADDUCTION (PILLOW SQUEEZE)

This exercise strengthens the inner thigh muscles and improves alignment of the lower limbs⁽¹³⁾

Method

- Lie on your back with knees bent.
- Place a pillow between the knees.
- Squeeze the pillow gently using both knees.
- Hold for 5–10 seconds.
- Relax slowly.
- Repeat 10–15 times.

Benefits

- Improves muscle coordination
- Enhances knee alignment
- Reduces instability
- Strengthens supporting muscles

6. CALF MUSCLE CONTRACTION

This exercise improves strength and circulation in the calf muscles and lower limbs⁽¹⁴⁾

Method

- Sit comfortably with legs straight.
- Press the forefoot against a towel or fixed support.
- Tighten the calf muscles without moving the ankle excessively.
- Hold for 5–10 seconds.
- Repeat 10–15 times.

Benefits

- Improves circulation
- Enhances lower limb strength
- Reduces fatigue during walking
- Supports balance and posture

GENERAL GUIDELINES FOR ISOMETRIC EXERCISES

- Perform exercises on a firm and comfortable surface.
- Avoid sudden or forceful movements.
- Breathe normally during exercise.
- Start slowly and increase repetitions gradually.
- Stop exercise if severe pain occurs.
- Perform exercises regularly for better results.
- Combine exercises with Ayurvedic treatment, proper diet, and lifestyle modifications.⁽¹⁵⁾

ROLE OF ISOMETRIC EXERCISE IN SANDHIGATAVATA

Isometric exercises are highly beneficial in Sandhigataavata because they strengthen muscles without producing excessive joint movement. These exercises reduce pain, improve joint stability, enhance mobility, and help prevent further degeneration. Regular practice along with Ayurvedic therapies such as Abhyanga, Swedana, and Basti provides better long-term management of Osteoarthritis.⁽¹⁶⁾

ROLE OF ISOMETRIC EXERCISE IN SANDHIGATA VATA

1. IMPROVES MUSCLE STRENGTH

Weakness of surrounding muscles increases stress over joints. Isometric exercise strengthens periarticular muscles and supports joint stability. Improved muscle tone reduces pressure on articular surfaces and minimizes pain.⁽¹⁷⁾

2. REDUCES JOINT STIFFNESS

Regular exercise improves blood circulation and flexibility around the joints. It helps reduce stiffness and enhances mobility, which is beneficial in Sandhigata Vata where Stambha is a major symptom.⁽¹⁸⁾

3. DECREASES PAIN

Muscle strengthening exercises improve joint biomechanics and reduce excessive load transmission over damaged cartilage. This helps in decreasing pain intensity in Osteoarthritis patients.⁽¹⁹⁾

4. IMPROVES FUNCTIONAL ABILITY

Patients with Sandhigata Vata often experience difficulty in walking, standing, and climbing stairs. Isometric exercises improve endurance and functional capacity, thereby enhancing quality of life.⁽²⁰⁾

5. PREVENTS FURTHER DEGENERATION

Regular controlled exercise improves nourishment to cartilage and surrounding tissues through better circulation. It also prevents muscle wasting and joint instability that may worsen degeneration.⁽²¹⁾

AYURVEDIC PERSPECTIVE OF EXERCISE

Ayurveda considers moderate exercise beneficial for maintaining physical and mental health. Acharya Charaka described that proper exercise enhances body strength, improves digestion, and increases tolerance to physical stress.⁽²²⁾

However, excessive exercise may aggravate Vata Dosha and produce fatigue, weakness, and tissue depletion. Therefore, exercise should be performed according to the individual's strength and disease condition.

In Sandhigata Vata, mild and controlled exercise such as isometric strengthening is more suitable because it avoids excessive strain over affected joints while maintaining mobility and stability.

COMBINED APPROACH OF AYURVEDA AND ISOMETRIC EXERCISE

The management of Sandhigata Vata can be improved by combining Ayurvedic therapies with physiotherapeutic exercises.

Ayurvedic Interventions

- Abhyanga with medicated oils
- Swedana
- Janu Basti
- Basti therapy
- Vatahara medicines

Supportive Measures

- Isometric strengthening exercises
- Weight reduction
- Proper posture
- Lifestyle modification
- Yoga and physiotherapy

This integrated approach helps in reducing pain, improving joint function, and slowing disease progression.⁽²³⁾

CLINICAL IMPORTANCE

Several clinical studies have demonstrated that isometric quadriceps exercises significantly reduce pain and improve physical function in knee Osteoarthritis patients.⁽²⁴⁾

The exercises are:

- Simple to perform
- Economical

- Safe for elderly patients
- Effective in reducing disability
- Useful for long-term rehabilitation

Hence, isometric exercise can be considered an important supportive therapy in Sandhigata Vata management.

CONCLUSION

Sandhigata Vata is a degenerative joint disorder that closely resembles Osteoarthritis. The disease mainly affects elderly individuals and significantly impairs quality of life due to pain and restricted movement. Isometric exercise plays an important role in strengthening muscles, reducing pain, improving stability, and enhancing functional capacity without causing excessive stress over affected joints. From an Ayurvedic perspective, controlled exercise helps maintain normal Vata function and supports musculoskeletal health. Therefore, integration of isometric exercise with Ayurvedic management provides a safe, economical, and effective approach for the management of Sandhigata Vata with special reference to Osteoarthritis.

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