

Nadivigyan Therapy for Frozen Shoulder (Adhesive Capsulitis): An Ancient Practice with Modern Relevance

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Abstract

*The etiology of shoulder torment is differing and many disarrange give comparative manifestations and signs. Most shoulder tenderness is exacerbated with arm elevation or overhead actions. Shoulder pain and disable can keep the patients' conventional development and impact the ability to work. The purpose of this study was to assess the effect of Nadivigyan therapy for Frozen Shoulder (Adhesive Capsulitis). Patients fulfilling the criteria for the diagnosis of the disease were registered for the present study. 34 subjects from Uttarakhand, a state in northern India ages (40 to 60) years that had been treated for nonspecific shoulder pain in a primary health care were included in this review. This study is designed as a retrospective cross-sectional study. The subjects from Group-A: Experimental were subjected to a Nadivigyan treatment technique. All data will be analysed using a computerized statistical package with the level of significance set at $P \leq 0.05$. Data is expressed as the mean \pm SD. Effect size will be calculated in all cases where a test of equality of means (and medians) is established as statistically significant. Student *t* test for paired samples was utilized to compare the means of the pre-test and the post-test. Significant between-group differences were noted in experimental group since the *p*-value of experimental group is less than the level of significance $P < 0.05$.*

Keywords: Nadivigyan, Frozen Shoulder, Nadi Pariksha, Tridoshas.

1. INTRODUCTION

The whole universe is made up of five basic elements (Panch-Tatva) namely: Earth, (Prithvi), Water, (Jal), Fire (Agni), Air (Vayu) and Space (Akash). As per our Indian Mythology, it is spiritually believed that our body is also composed of Panch-Tatva called Pinda. These five elements are linked to our five senses which are the senses of smell, taste, hearing, touch and sight. The entire universe is created by these five elements. The composition and combination of these elements in each form - animate or inanimate - varies in degrees depending upon the structure, nature and function of the created object. We, as human beings are also born with the combination of these five elements. Understanding the fundamental attributes of these elements helps us in assessing our own latent power, inherent natural traits and character building:



- Earth (Bhumi): The first element of panchamahabhuta is “Earth” which is translated as Bhumi in Sanskrit. This element is perceived by five senses that are Hearing, Smell, Taste, Touch and Sight. The physical body with muscles and bones refers to Earth.
- Water (Jala): The second most important element is “Water”, jala in Sanskrit. This element has no odor (smell) but can be heard, felt, seen and tasted. In human body, blood and other fluid are referred to Water.
- Fire (Agni): The next higher element in human body is “Fire”, Agni in Sanskrit. In human body the temperature, jatharagni refers to the fire. It can be heard, felt and seen.
- Air (Pavan): The fourth element of panchmahabhuta is “Air”, pavan in Sanskrit. Air can be felt and heard only; one cannot see the air. In human body, the oxygen and carbon dioxide in the body refers to Air. It is considered as one of the most important factors in Pranayama.
- Sky (Akash): The fifth and last element of panchmahabhuta is “Space” which is translated in Sanskrit as aakash. Space is the medium of sound but is inaccessible to all other senses. And as in human body the Athma (Soul) refers to Space. All the energies in the human body are a true manifestation of the energies working in the universe i.e., whatever we see in this universe at macrocosm level is present in the human body at microcosm level and performs the same functions.”

1.2 The Eight Fold Path to Liberation

Over two thousand years before, Patanjali, a prodigious Indian sage, set out the moralities and practices of yoga which he termed the “eight fold path to liberation.” This is acknowledged as Raja yoga, the imperial path, or the path to liberation. A brief summary of the eight paths follows:

1. Yama: (Abstinences) Not doing any physical, verbal or mental violence against yourself or others. Moral restraint and control in thought, word and deed. Social conduct and examples we set for the harmonious functioning of society.
2. Niyama: (Observances) Things to do, such as personal cleanliness or studying. Having purity in thought and deed, contentment, surrender of the ego and directing your life toward truth.
3. Asanas: (Postures) Steady poses for a healthy, functioning body that rid ourselves of physical and psychosomatic tensions, so we may experience stillness; within and without.
4. Pranayama: (Expansion of the breath) Control of vital energy.
5. Pratyahara: (Withdrawal of the sense) Taking away from the body images. Looking within. Being centered and calm.
6. Dharana: (Concentration of the mind) Being focus. The ability to control over energy and harness our imagination.
7. Dhyana: (Meditation) Finding peace in everything we do. The mind is still and no longer wanders. Being at peace.
8. Samadhi: (Enlightenment. Self-realization) Being at one with the universe. Enjoying a concentration to all life.

This eight fold path, identified as the sutras of Patanjali, may be equated to tools or aids, steps along the way, which enable us to understand and develop ourselves. They help us to accept gladly all the adverse circumstances that arise, regarding them as opportunities to learn and develop, rather than lamenting the situation in which we find ourselves.

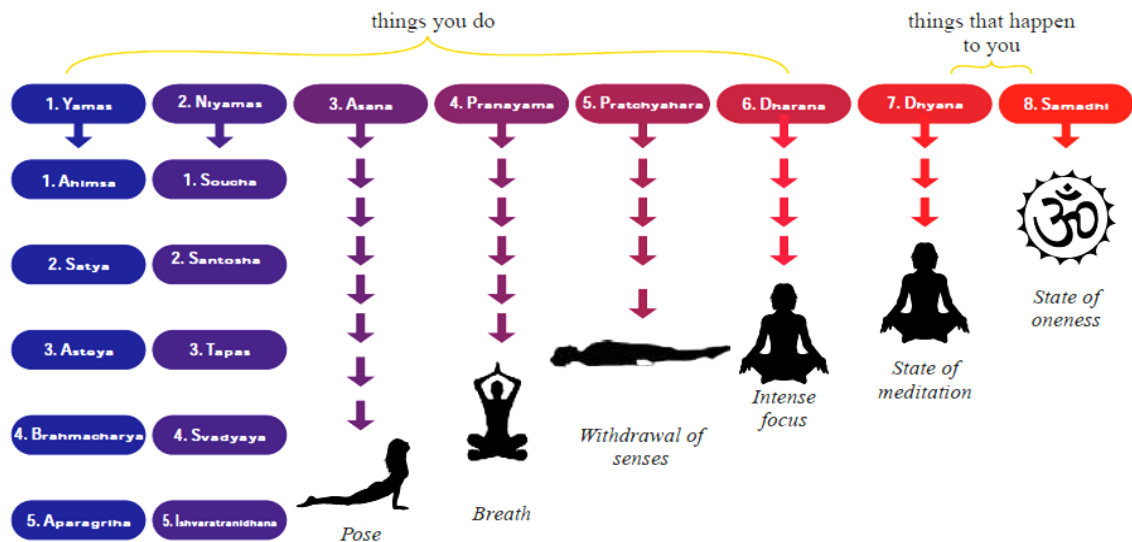


Figure 1: The eight limbs of Yoga.

1.3 Why Pranayama?

Yoga breathing, or Pranayama, is the science of breath control. It consists of series of exercises especially intended to meet the body's needs and keep it in vibrant health. Pranayama comes from the following words:

- Prana - "life force" or "life energy"
- Yama- "discipline" or "control"
- Ayama- "expansion", "non-restraint", or "extension"

Thus, Pranayama means "breathing techniques" or "breath control". Ideally, this practice of opening up the inner life force is not merely to take healthy deep breaths. It is intended for yoga practitioners to help and prepare them in their meditation process.

The important aspects of breathing utilized in pranayama are:

- Puraka - Inhalation
- Rechaka – Exhalation
 - ❖ Antar Kumbhaka - Inhalation Retention (after Inhaling)
 - ❖ Bahir Kumbhaka - Exhalation Retention(after exhaling)

Maharshi Patanjali's Yoga Sutras state (2:49)



तस्मिन्सति श्वासप्रश्वासयोर्गतिविच्छेदः प्राणायामः ।।

“Pranayama is the pause in the movement of inhalation and exhalation when that is secured”.

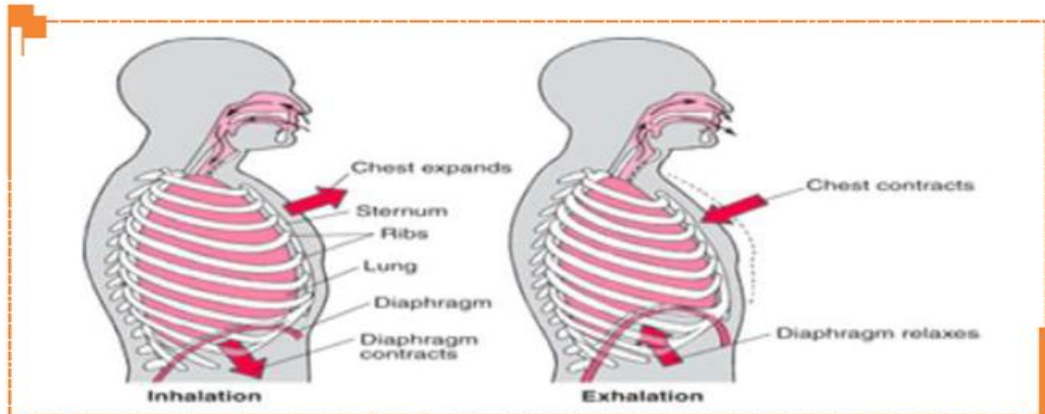


Figure 2: Breathing is thoracoabdominal shape changes between (a) inhalation and (b) exhalation.

Because the lungs occupy a three-dimensional space in the thoracic cavity, when this space changes to cause air movement, it changes shape three-dimensionally. Specifically, an inhalation involves the chest cavity increasing its volume from top to bottom, from side to side, and from front to back, and an exhalation involves a reduction of volumes in those three dimensions (see figure 1.2).

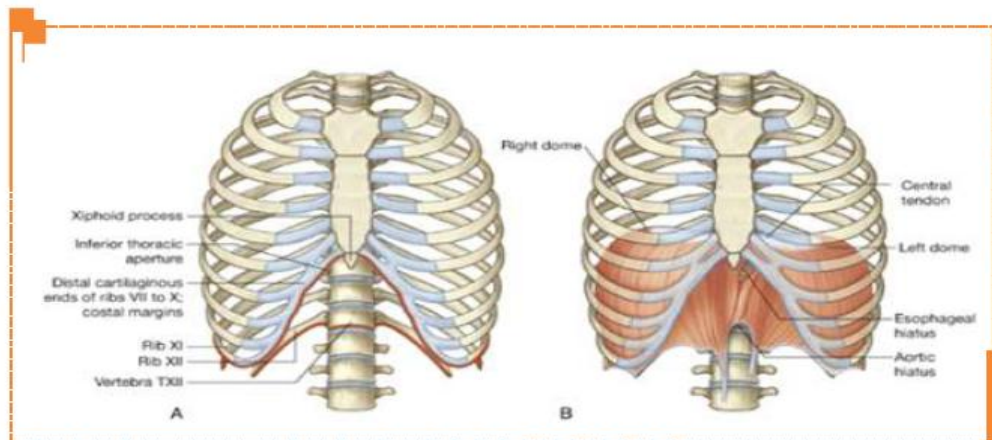


Figure 3: Three – dimensional thoracic shape changes of (a) inhalation and (b) exhalation.

1.4 What is Prana?

What is Prana? Prana is a subtle aspect of the body. It has a visible aspect which is the air we breath and an invisible aspect, which is the energy that flows in the body through various channels and sustains it. It is responsible for our vitality and dynamism (chaitanyam). Without prana beings cannot be alive. Prana also connects the gross body (annamaya kosa) with the mental body (manomaya kosa). Hence, classical yoga recommends controlled breathing (pranayama) to restrain the senses, purify the mind and body and arrest the modifications of the mind. Prana is the support for the body. Hence the Upanishads describe it often as the soul of the gross body and equate it with Atman or the essence of Brahman.

It is said in the Kathopanishad (2:3:2):



यदिदं किं च जगत्सर्वं प्राण एजति निः सूतम् ।

“This whole world - whatever there is - vibrates
having originated from prana”.

Prana controls all physical tasks for example, the breath, the supply of oxygen, digestion, elimination and much more. The function of the human body is much like a transformer, receiving energy from the Universal flow of Prana, distributing that energy, and then eliminating it. As we develop the ability to control Prana, we gain harmony and health, of both body and mind. In addition to this, with long and consistent practice an expansion of consciousness is experienced.

The body's pathways for nutrients and waste are not as simple as those of a cell, but not so complex that we can't easily describe them in terms of prana and apana. Figure 1.3 shows a simplified version of our nutritional and waste pathways. It shows how the human system is open at the top and at the bottom. We take in prana – solid and liquid nourishment – at the top of the system. These solids and liquids enter the alimentary canal, move through the digestive process and after a lot of twist and turns, move down and out as waste matter. This is the only way waste can go, because the exsits are at the bottom. It is clear that the force of apana, when acting on solid and liquid waste, must move down to get out.

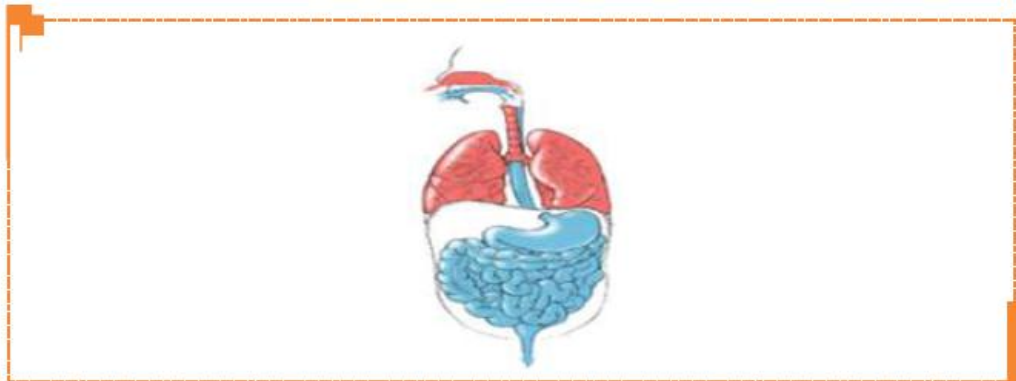


Figure 4: Solid and liquid nutrition (blue) enter at the top of the system and exists as waste at the bottom. Gaseous nutrition and waste (red) enter and exit at the top.

Prana also enters our bodies in gaseous form: the breath. Like solids and liquids, it enters at the top, where it remains above the diaphragm in the lungs (see figure1.4), exchanging gases with the capillaries at the alveoli. The waste gas in the lungs needs to be expelled, but it gets out the same way it came in. The force of apana, when acting on respiratory waste gas, must move up to get out. Apana must be able to operate freely both upward and downward, depending on what type of waste it acts upon.

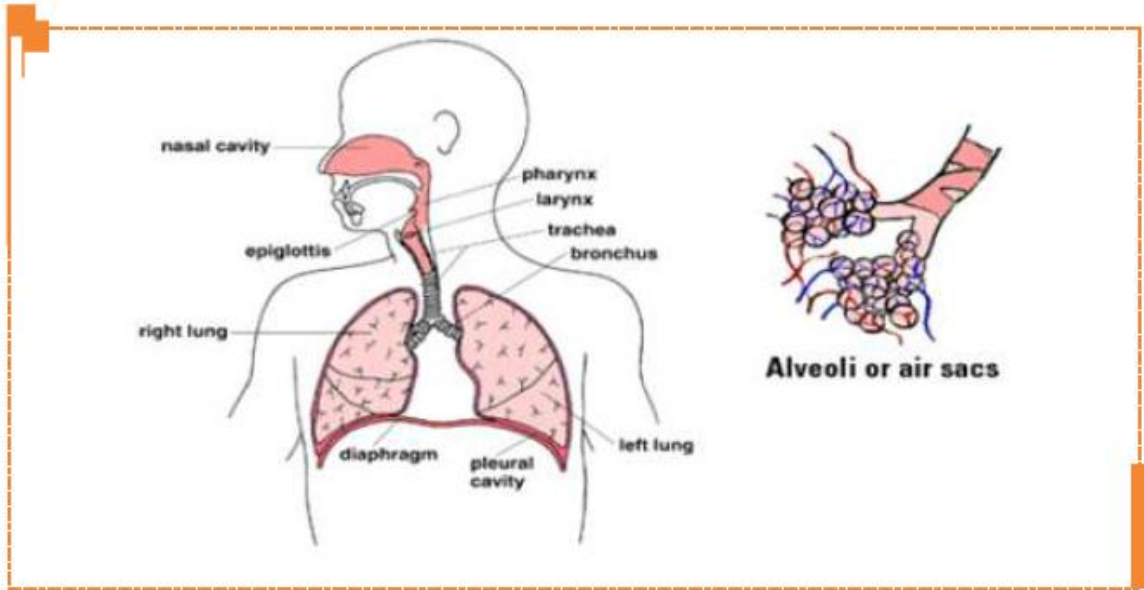


Figure 5: The pathway that air takes into and out of the body.

If one controls the breath or Prana, the mind also is controlled. He who has controlled his mind has also controlled his breath. If one is suspended, the other is also suspended. If the mind and Prana are both controlled one gets liberation from the round of births and deaths and attains immortality. There is intimate connection between the mind, Prana and semen. If one controls the seminal energy, the mind and Prana are also controlled. He who has controlled his seminal energy has also controlled his Prana and mind.



यावद्वायुः स्थितो देहे तावज्जीवनमुच्यते ।
मरणं तस्य निष्क्रान्तिस्ततो वायुं निरोधयेत् ॥

“As long as the vayu (prana) remains in the body, there is life. Death occurs when the vayu leaves the body, therefore, retain the vayu”.

He, who has clutched this Prana, has grasped the very core of cosmic life and activity. He, who has conquered and controlled this very essence, has not only subjected his own body and mind but every other body and mind in this universe. Thus Pranayama or the control of Prana is that means by which the Yogi tries to realize in his little body the whole of cosmic life, and tries to attain perfection by getting all the powers in this universe. His various exercises and trainings are for this one end.

Prana is the active source within everything. Everybody is innate with a certain quantum of prana, but the magnitude and eminence change uninterruptedly, as one drives through life. Affirmative beliefs, developed state of mind and yogic practices engender advanced level of prana. When prana moves, the mind thinks and the senses perceive their respective objects. By developing sensitivity to prana, one becomes more aware of the subtle forces of the mind, which arise in the form of thoughts, feelings, emotions, responses, impressions, symbols and knowledge.

The Hatha Yoga Pradipika (2:42) states:



मारुते मध्यसंचारे मनःस्थैर्यं प्रजायते ।
यो मनःसुस्थिरीभावः सैवावस्था मनोन्मनी ।।

“The movement of the breath in the middle passage makes the mind still.
This steadiness of mind is the state of manonmani (devoid of thought)”.

The yogic practices are able to stream such a quantum of energy and stimulate the prodigy in a normal individual. Sustained practice with deep concentration, acute awareness and unshakeable faith are the requisites of a yogi. There have been numerous studies on pranayama and its effects on physical function.

1.5 Nadi Pariksha

Ayurveda is well known for its pulse based diagnosis which is primarily based on Tridoshas. Tridosha defines the three fundamental energies or principles which govern the function of our bodies on the physical and emotional level. The three energies are known as vata, pitta, and kapha. The classical texts Caraka Samhita [1], Sushruta Samhita [2] and Ashtanga Sangraha [3] have discussed in detail the nature of Tridoshas and its usefulness in disease diagnosis and treatment. Each individual has a unique balance of all three of these energies. Some people will be predominant in one while others are a mixture of two or more.

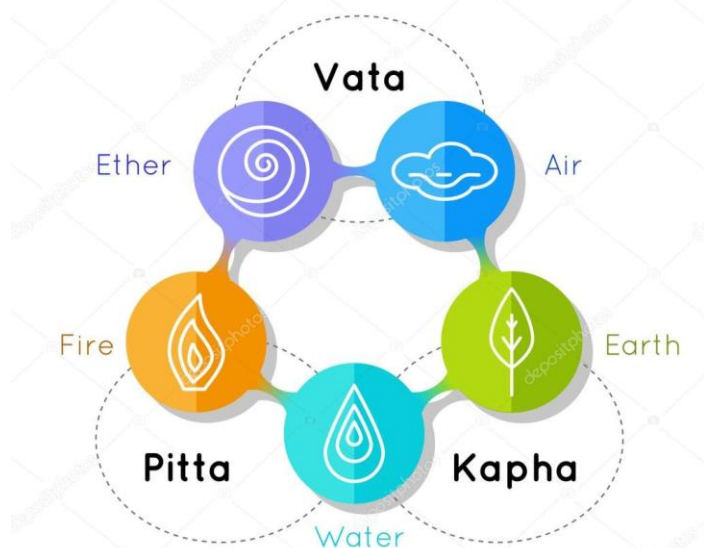


Figure 6: The three fundamental energies or principles (vata, pitta, and kapha).

1.6 Ayurvedic Treatment for Frozen Shoulder

Frozen shoulder, also called adhesive capsulitis, is a condition that causes severe shoulder pain and stiffness making it difficult to move the shoulder. Initially it starts with a shoulder pain that lasts for months and increases in severity with time. Prevalence rate is 2-5% in general population [4]. It is common in age group ranging in the age group 40 to 60, more commonly seen in females. Patients of rheumatoid arthritis, hypothyroidism or hyperthyroidism, patients of rotator cuff injury are at risk of developing frozen shoulder. It is characterised by severe pain in shoulder and restricted movement both active and passive. All types of range of movements are restricted particularly external rotation is more painful to start initially then all movements

become painful and restricted. Pain is particularly worst at night and it disturbs the sleep of patient a lot [5].

Apabahuka is a disease characterized by morbid vata dosha localizing around the shoulder joint and thereby causing loss or dryness of shleshaka kapha as well as constricts the siras at this site leads to loss of movements of the arm. Apabahuka is coined in Sushruta samhita for the first time. In nidan sthana the samprapti and rupa of apabahuka are elaborated. Raktamokshana and Ruksha sweda are cited as treatment of choice for Apabahuka [6].

2. MATERIALS AND METHODS

2.1 Subjects

Patients fulfilling the criteria for the diagnosis of the disease were registered for the present study. 34 subjects from Uttarakhand, a state in northern India ages (40 to 60) years that had been treated for nonspecific shoulder pain in a primary health care were included in this review. Before patients were included in the study, we obtained oral and written informed consent and explained to them the study protocol. Distribution and demographics of subjects are brought forth in Table-1. This study is designed as a retrospective cross-sectional study (Figure 1.6).

Table-1: Distribution and Demographics of Subjects (N=34).

Sample Size (N=34)			
Variables	Total (N=34)	Experimental group (n ₁ =17)	Control group (n ₂ =17)
Age	48.264 ± 5.550	49.117 ± 5.666	47.411 ± 5.466
Body Height	168.117 ± 5.569	167.411 ± 5.884	168.823 ± 5.317
Body Mass	62.423 ± 3.380	63.070 ± 3.805	61.776 ± 2.862

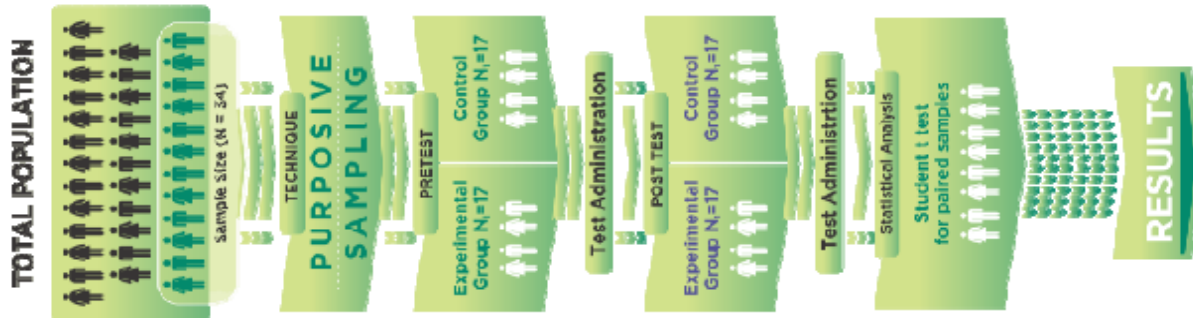


Figure 7: Study Design.

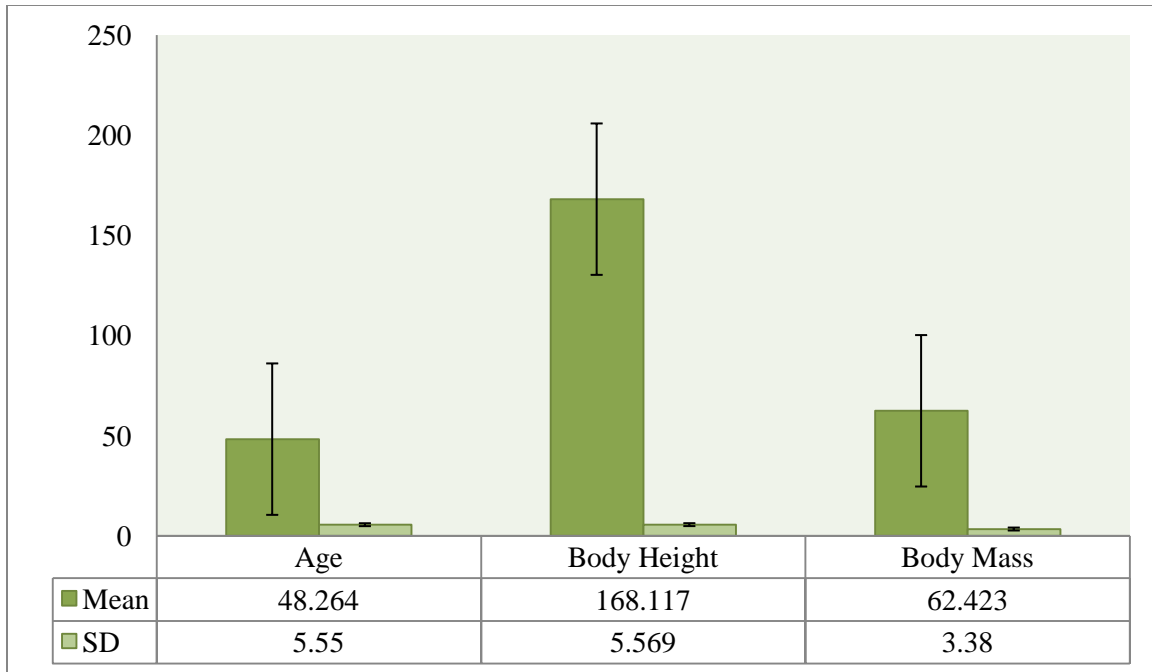


Figure 8: Distribution and Demographics of Subjects (N=34).

2.2 Procedure

This study is designed as a retrospective cross-sectional study. The subjects from Group-A: Experimental were subjected to a Nadivigyan treatment technique. MED-01-100 high quality stainless steel VAS rulers with slider indicator was used. The respondent was asked to place a line perpendicular to the VAS line at the point that represents their pain intensity.



Figure 9: Nadivigyan Treatment Technique.

3. STATISTICAL ANALYSIS

All data will be analysed using a computerized statistical package with the level of significance set at $P \leq 0.05$. Data is expressed as the mean \pm SD. Effect size will be calculated in all cases where a test of equality of means (and medians) is established as statistically significant.

Student t test for paired samples was utilized to compare the means of the pre-test and the post-test.

4. RESULTS

Table-2: Descriptive Statistics (Mean & Standard Deviation) and Paired Sample t-test of Nadivigyan therapy for Shoulder Pain.

Group	Number	Mean	Standard Deviation	Standard Error of the Mean	p-value
Experimental (Pre-test)	17	58.41	9.87	2.39	P < 0.0001
Experimental (Post-test)	17	55.88	9.23	2.24	
Control (Pre-test)	17	60.00	9.16	2.22	P > 0.9195
Control (Post-test)	17	60.11	8.91	2.10	

A glance at Table-2 shows the Mean and Standard Deviation values of Nadivigyan therapy for shoulder pain of pre-test and post-test of experimental group were 58.41 ± 9.87 and 55.88 ± 9.23 respectively. However, the Mean and Standard Deviation values of Nadivigyan therapy of pre-test and post-test of control group were 60.00 ± 9.16 and 60.11 ± 8.91 . Significant between-group differences were noted in experimental group since the p-value of experimental group is less than the level of significance $P < 0.05$.

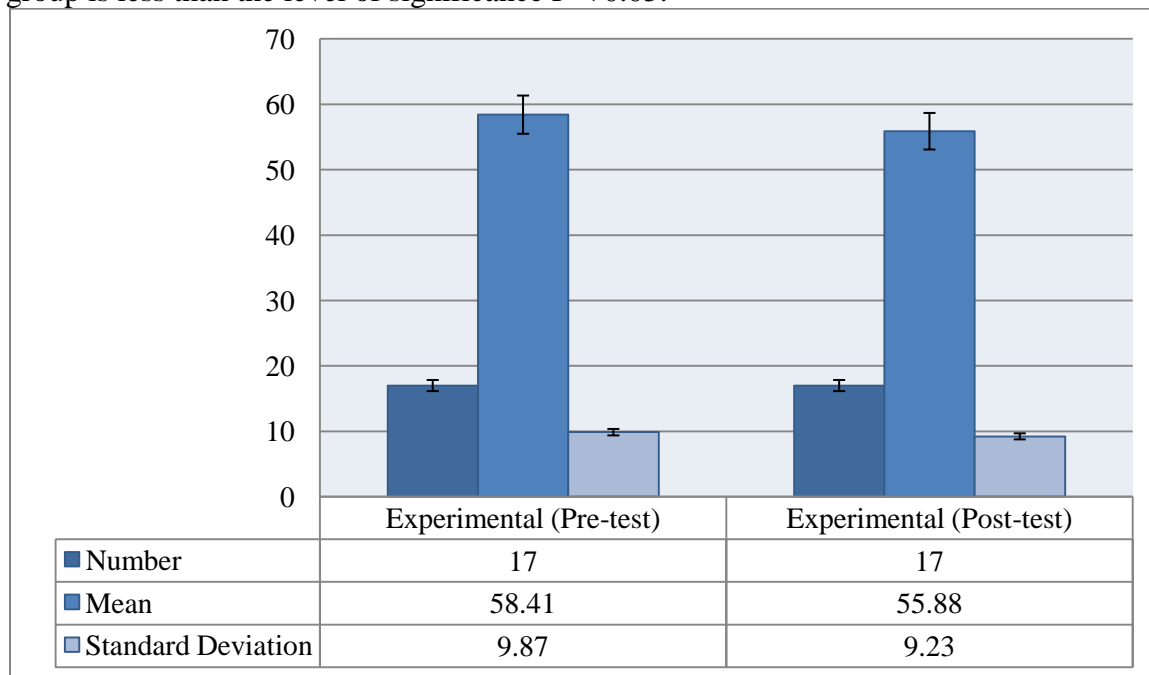


Figure 10: Experimental Group (Pre-Test & Post-Test).

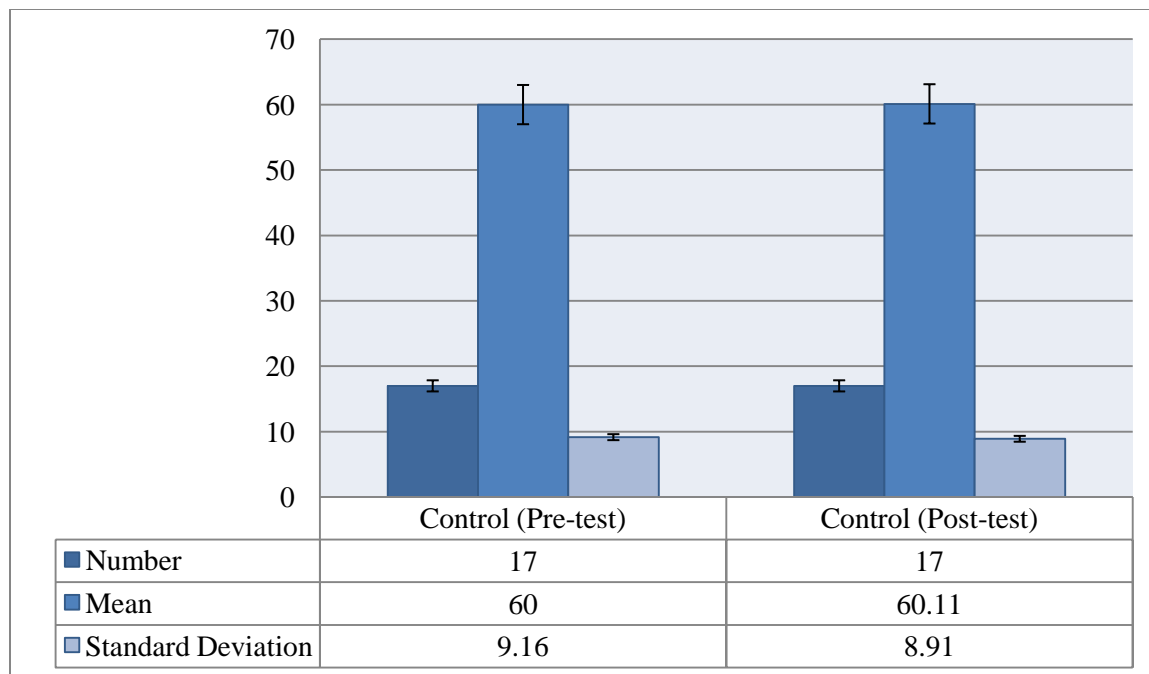


Figure 11: Control Group (Pre-Test & Post-Test).

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