



Research Article

EFFECT OF PRATHIMARSA NASYA AND ABHYANGA ON THE PHYSICAL FITNESS AMONG ATHLETES IN THE SPORTS HOSTEL OF MAR BASIL HIGHER SECONDARY SCHOOL KOTHAMANGALAM

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Article info

Article History:

Received: 27-12-2023

Accepted: 12-01-2024

Published: 04-02-2024

KEYWORDS:

Physical fitness,
Dinacharya,
Abhyangam,
Prathimarsa nasya.

ABSTRACT

Physical fitness has direct influence on athlete's performance level. Sports medicine deals with the physical fitness and the treatment of injury related to sports and exercise by curative, rehabilitative and preventive modalities. Ayurveda the complete science of life can contribute in this field also. *Abhyanga* and *Prathimarsa nasya* are important *Dinacharya* procedures which play a key role in the maintenance of health and fitness of athletes. Regular *Abhyanga* controls *Vata dosas* and improves physical strength. *Prathimarsa nasya* improves the musculature of neck shoulder and chest. Ayurveda classics advice *Abhyanga* with *Thila thailam* and *Prathimarsa Nasya* with *Anuthailam* as a daily regimen for healthy individual. This study is being made to highlight the application of these Ayurveda *Dinacharya* procedures in promoting the physical fitness of sports persons. This study is a single group pre-post study. 47 subjects of age group 12–18 participating in athletic events were selected from the Sports Hostel of Mar Basil Higher Secondary School Kothamangalam as per the inclusion and exclusion criteria. After necessary investigations participants had been advised to follow the daily regimen *Abhyanga* with *Thila Thaila* after work out, half an hour before bath and *Prathimarsa Nasyam* with *Anuthailam* in morning, between 6am-6.30am for 60 days continuously. Assessments were done on 31st day, 61st day and 91st day (follow up). Scores recorded for test items were converted into marks as per formula based on AAHPER fitness test chart and subjected to statistical analysis using repeated measure ANOVA test. Results showed that *Pratimarsha nasya* and *Abhyanga* have statistical significance in improving the physical fitness variables and overall performance level of athletes.

INTRODUCTION

Sports have been a part of human life since ancient times and have undergone various modifications as civilization has progressed. Previously, it was played for the sheer delight of participation. It gradually evolved into a means of expressing quality, power, and superiority. As a result, the sports community recognizes the need for new training techniques, scientific assistance, safety measures, and improved sports equipment, among

other things and the notion of sports medicine was born. Sports medicine has two goals to achieve, the primary goal is the fitness of sportsperson and the second goal is injury management.^[1]

In recent years, young athletes are more exposed to acute and overuse injuries due to intense training and busy competition schedule.^[2] Injuries are often considered an inevitable part of sports. However, like other injuries, sports injuries are potentially avoidable. Sports injury prevention can be classified as being primary, secondary and tertiary. Primary prevention includes health promotion and injury prevention through skills and physical fitness.

Ayurveda the traditional medical system of India act as preventive and curative both sides, is found very practical even in the modern era of medicine due to its unique unbeatable philosophy. So,

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Quick Response Code	
	https://doi.org/10.47070/ijapr.v12i1.3074
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it is best science which play major role in sport medicine. As we go through the Ayurvedic literature there is no direct reference regarding sports medicine. Ayurveda the life science points the importance of daily *Rasayana* for maintaining and promoting health and preventing diseases.

Abhyanga and *Prathimarsa nasya* are two important *Dinacharya* measures which play a key role in the maintenance and promotion of health and physical fitness of sports person. *Abhyanga* wards off exertion and aggravation of *Vata*, bestows good vision and nourishment of body. *Prathimarsa nasya* is good from birth to death and if it is done daily the skin, shoulder, neck, face and chest become thick, well developed and bright, the body parts and the sense organs become strong. Daily practice of these regimens helps to improve the tonicity, flexibility, strength of muscles and clarity of sense organs and help to prevent the injuries.^[3]

According to various *Samhitas* *Thila thaila* is mentioned as the best for strength, energy and unction.^[4] *Anuthailam* is best for *Nasya karma* because the process of heating oil ten times during its preparation gives effective potentiation since its dynamic and curative properties are enhanced.

Present study focuses to identify the possible contributions of Ayurveda to the field of sports medicine by incorporating these *Dinacharya* measures in the life style of young athletes from the beginning of their career itself to increase their endurance and performance level.

AIM

To study the effect of *Prathimarsa Nasya* and *Abhyanga* on the physical fitness of athletes.

OBJECTIVES

Primary objective: To study the effect of *Prathimarsa Nasya* and *Abhyanga* on the physical fitness of athletes by assessing AAHPER fitness test.

Secondary objective: To study the effect of *Prathimarsa Nasya* and *Abhyanga* on the performance level of athletes by assessing AAHPER fitness test.

Study Setting

Participants Attending Training on the Procedures *Abhyanga* and *Prathimarsa Nasya*



Mar Basil Higher Secondary School Kothamangalam

Methodology

Study Design

Pre and Post Interventional study

Sample Size: 47

Study Period: 18 months.

Sampling Technique: Random sampling

Selection of Participants

Inclusion Criteria

- Students participating in athletics events.
- Age from 12 to 18 years
- Students who had provided written consent and assent.

Exclusion Criteria

- Students who were suffering from acute injuries.
- Students who had not given written consents and assents.
- Students who were contra indicated for *Abhyanga* and *Prathimarsa Nasya*.

Data Collection

Data collection was done as per the case proforma and AAHPER fitness test chart included in the study. Data of test items in the AAHPER fitness test were collected.

Outcome Variables

Marks of test items 1) 50M Dash, 2) Pull-ups [boys] and flexed arms hang [girls] 3) Bent knee sit-ups 4) Shuttle run, 5) Standing broad jump, 6) 600m run are the outcome variables were assessed.

Interventions

Awareness classes on the importance of daily regimen, seasonal regimen, and code of conduct mentioned in Ayurveda were given weekly to the participants and their parents and physical education teacher during the study period and participants were given sufficient training of the procedures *Abhyanga* and *Prathimarsa Nasya*.

Prathimarsa Nasya with *Anuthailam*

Dose - 2 drops

Time - Morning, between 6am- 6.30am

Period - 60 days



Abhyanga with Thila thailam

Time: Morning, after work out, half an hour before bath.

Duration: 15 - 20 minutes daily.

Quantity: 30ml/day Period - 60 days

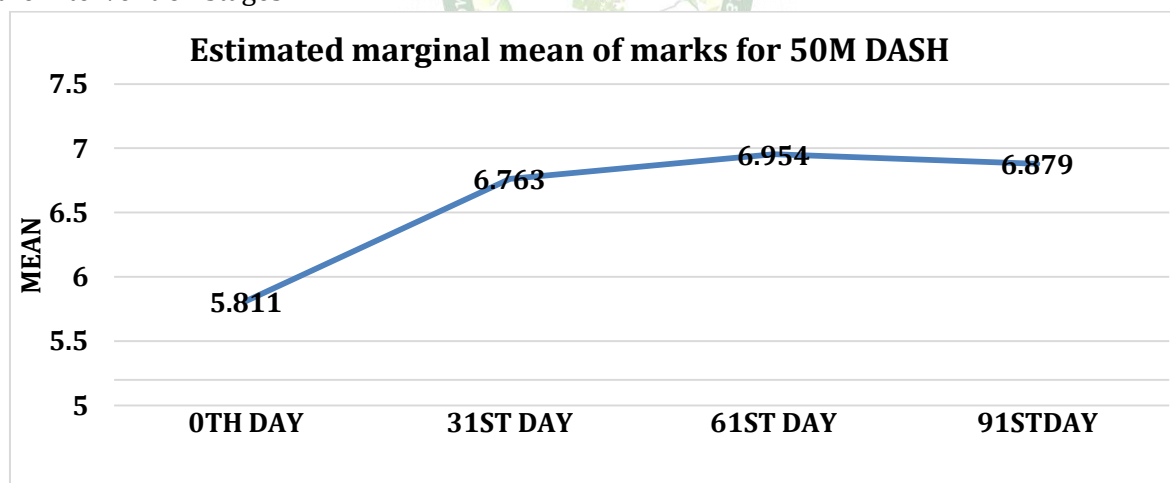
Assessment of Efficacy

A detailed examination was conducted on all the participants on 0th day. After assessing all the parameters, details were recorded in the case record form and pretest was conducted as per the test items in the AAHPER fitness test chart included in the study. On the next day onwards, participants were instructed to follow 60 days continuous *Abhyanga with TilaTaila* and *Pratimarsha nasya with Anu Thaila*. Three assessments were done on 31st day, 61st day and 91st day (follow up).

Analysis on Test Items- 50M Dash

50M Dash	Mean	Std Deviation	Std. Error	F value	P value
0 th day (BT)	5.811	1.842	0.2686	27.47*	<0.001
31 st day (AT-1)	6.763	1.397	0.2038		
61 st day (AT-2)	6.954	1.376	0.2007		
91 st day (AF)	6.879	1.403	0.2047		

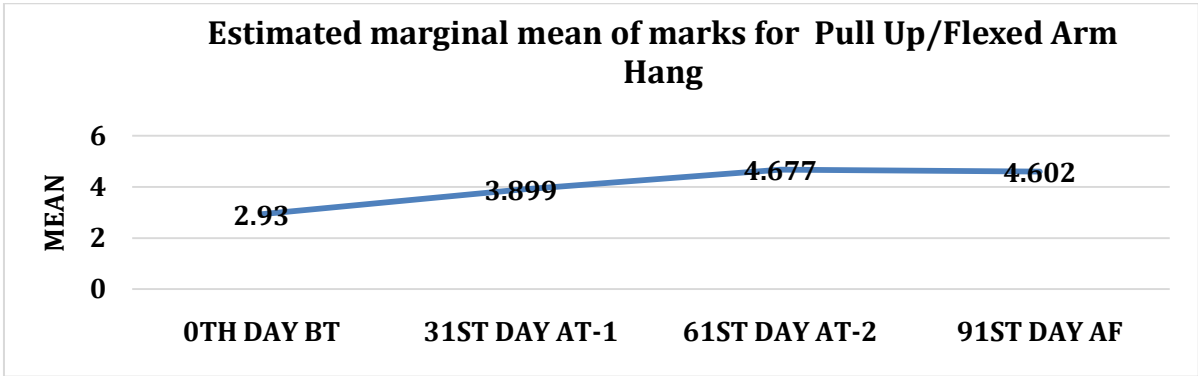
The mean values at 0th day, 31st day, 61st day and 91st day are 5.811, 6.763, 6.954, 6.879 respectively and the corresponding standard deviations are 1.842, 1.397, 1.376 and 1.403 respectively. The calculated F value was 27.47 with p value <0.001. So, we can conclude that there is a significant difference in 50m Dash performance between the intervention stages.



Analysis on Test Items- Pull-Ups [Boys] and Flexed Arms Hang [Girls]

Pull Up/Flexed Arm Hang	Mean	Std Deviation	Std. Error	F value	P value
0 th day	2.930	2.135	0.3114	55.63*	<0.001
31 st day	3.899	2.428	0.3542		
61 st day	4.677	2.651	0.3866		
91 st day	4.602	2.609	0.3805		

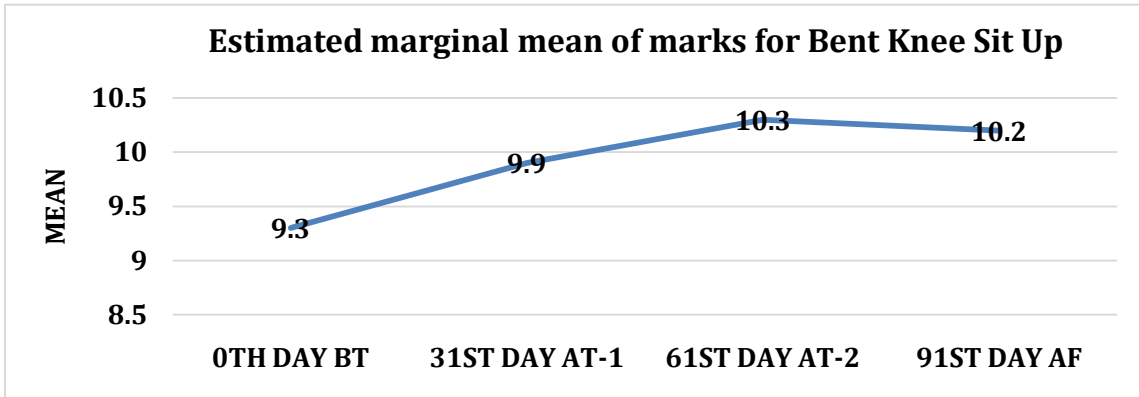
The mean values at 0th day, 31st day, 61st day and 91st day are 2.930, 3.899, 4.677, 4.602 respectively and the corresponding standard deviations are 2.135, 2.428, 2.651, and 2.609 respectively. The calculated F value was 55.63* with p value <0.001. So, we can conclude that there is a significant difference in Inclined pull up/Flexed arm hang performance between the intervention stages.



Analysis on Test Items- Bent Knee Sit Up

Bent Knee Sit Up	Mean	Std Deviation	Std. Error	F value	P value
0 th day	9.3	1.5	0.1895	31.54*	<0.001
31 st day	9.9	1.3	0.1864		
61 st day	10.3	1.3	0.1816		
91 st day	10.2	1.2	0.1816		

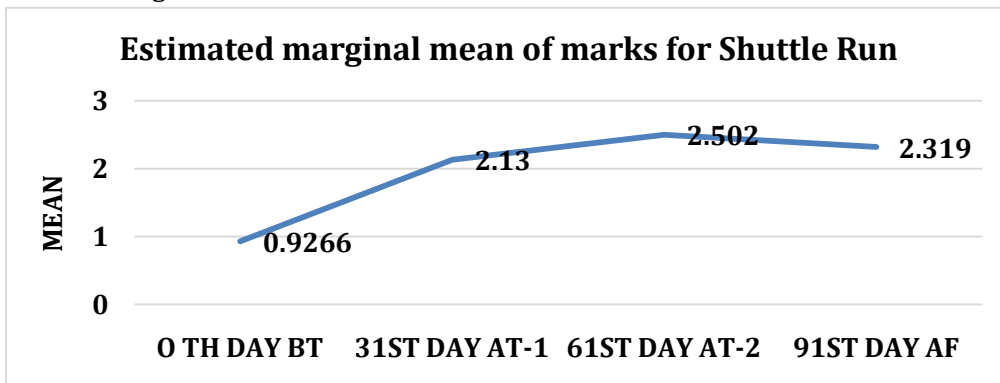
The mean values at 0th day, 31st day, 61st day and 91st day are 9.33, 9.9, 10.3, 10.2 respectively and the corresponding standard deviations are 1.5, 1.3, 1.3 and 1.2 respectively. The calculated F value was 31.54* with p value <0.001. So, we can conclude that there is a significant difference in Bent knee sit up performance between the intervention stages.



Analysis on Test Items- Shuttle Run

Shuttle Run	Mean	Std Deviation	Std. Error	F value	P value
0 th day	0.9266	2.779	0.4053	54.16*	<0.001
31 st day	2.130	2.319	0.3383		
61 st day	2.502	2.324	0.3390		
91 st day	2.319	2.246	0.3276		

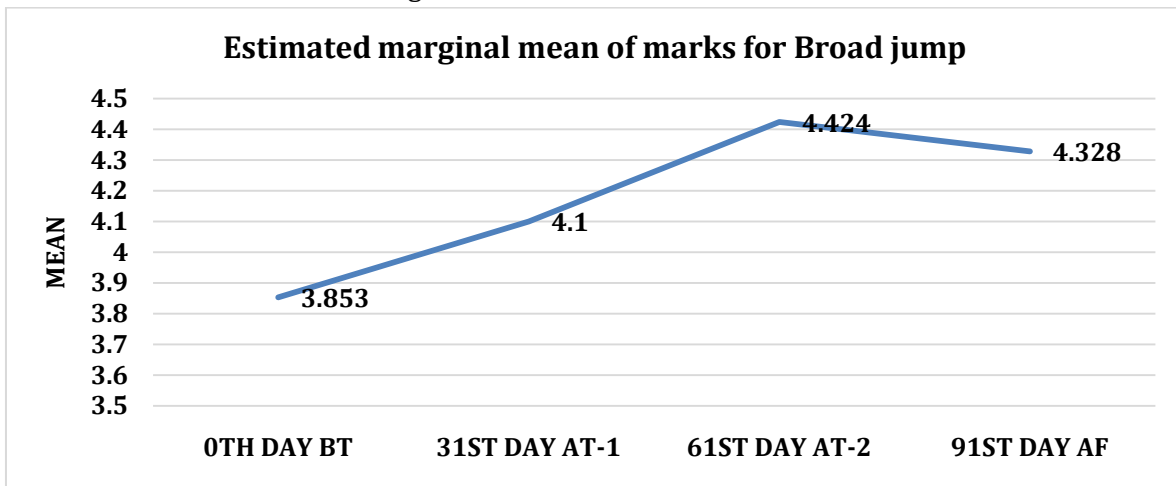
The mean values at 0th day, 31st day, 61st day and 91st day are .9266, 2.130, 2.502, 2.319 respectively and the corresponding standard deviations are 2.779, 2.319, 2.324, and 2.246 respectively. The calculated F value was 54.16* with p value <0.001. So, we can conclude that there is a significant difference in Shuttle run performance between the intervention stages.



Analysis on Test Items- Broad Jump

Broad Jump	Mean	Std Deviation	Std. Error	F value	P value
0 th day	3.853	3.522	0.5137	11.80*	<0.001
31 st day	4.100	3.411	0.4975		
61 st day	4.424	3.322	0.4846		
91 st day	4.328	3.287	0.4795		

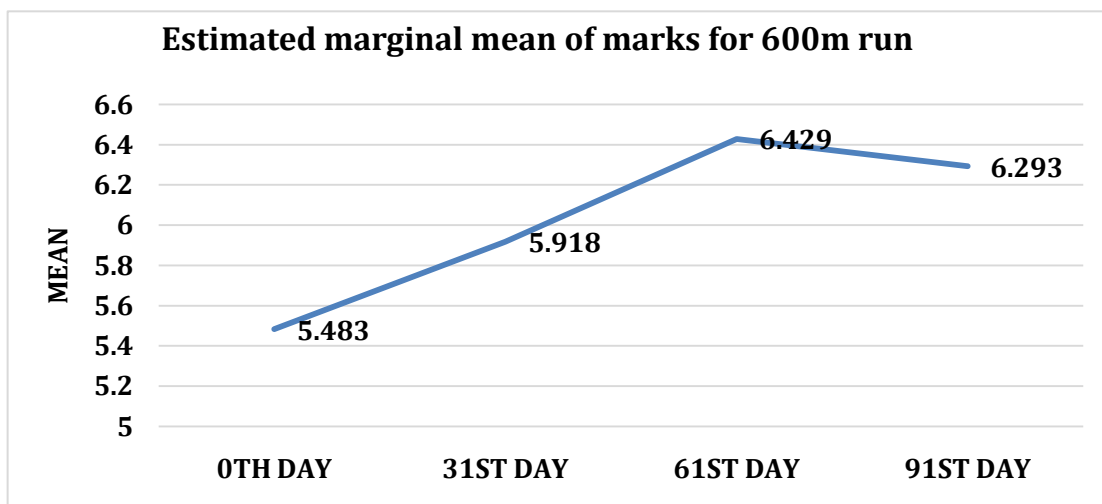
The mean values at 0th day, 31st day, 61st day and 91st day are 3.853, 4.1, 4.424, 4.328 respectively and the corresponding standard deviations are 3.522, 3.411, 3.322 and 3.287 respectively. The calculated F value was 11.80 with p value <0.001. So, we can conclude and that there is a significant difference in Broad jump performance between the intervention stage.



Analysis on Test Items- 600m Run

600M Run	Mean	Std Deviation	Std. Error	F value	P value
0 th day	5.483	2.410	0.3515	46.07*	<0.001
31 st day	5.918	2.261	0.3298		
61 st day	6.429	2.116	0.3086		
91 st day	6.293	2.177	0.3176		

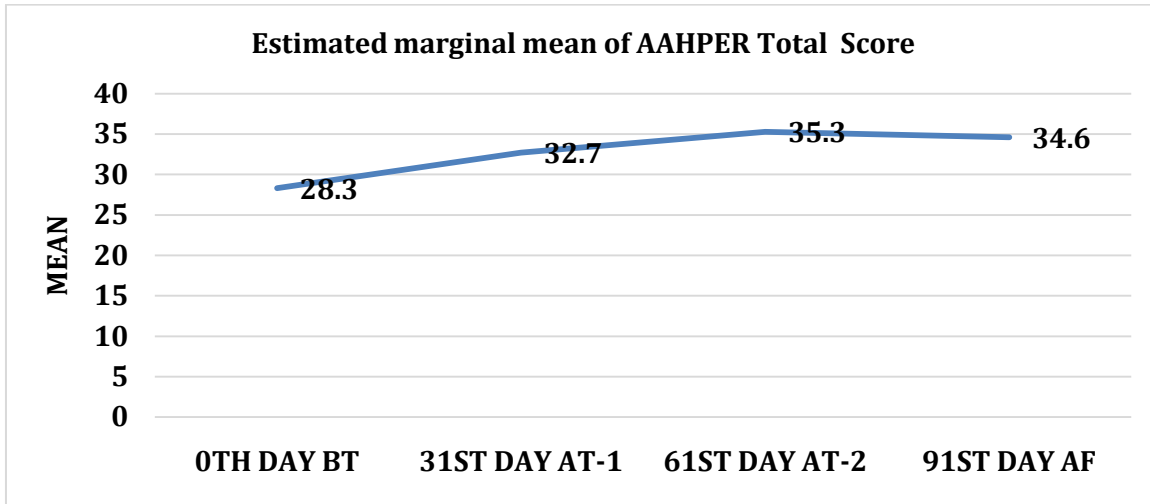
The mean values at 0th day, 31st day, 61st day and 91st day are 5.483, 5.918, 6.429, 6.293 respectively and the corresponding standard deviations are 2.410, 2.261, 2.116 and 2.177 respectively. The calculated F value was 46.07 with p value <0.001. So, we can conclude and that there is a significant difference in 600m Run performance between the intervention stages.



AAHPER Total Score- Difference with Time

AAHPER Total Score	Mean	Std Deviation	P value
0 th day	28.3	7.9	<0.001
31 st day	32.7	6.5	
61 st day	35.3	6.2	
91 st day	34.6	6	

The mean values at 0th day, 31st day, 61st day and 91st day are 28.3,32.7,35.3,34.6 respectively and the corresponding standard deviations are 7.9,6.5,6.2, and 6.2 respectively. The calculated p value is < 0.001. So, we can conclude and that there is a significant difference in overall performance level of participants between the intervention stages.



DISCUSSION

Discussion on Data Related to Outcome Measures

Test items- 50m dash

The aim of this test is to determine acceleration and speed of participating subjects. Speed in the present study after the interventions demonstrated a marked reduction in time taken for 50m dash.

According to a recent study, massage enhances localized pressure, which opens the pores in tissue membranes and promotes fluid exchange. It enhances the elimination of muscular waste products like lactic acid, which accumulates in the muscles during and right after exercise thus relieving the fatigue and may help to increase the speed of athletes.

Lymph possesses a relatively large amount of amino acid tryptophan which increases during *Abhyanga* which in turn causes a parallel increase in the neurotransmitter serotonin, which is made from tryptophan, at motor end plates. Increased serotonin level causes pleasantness and calming effects by the process of massage which may help to improve the speed of athletes.

Athletes need to have quick and reactive strength to increase their speed and agility. During *Abhyanga* with *Thila thaila* the unsaturated fatty acids in the *Thila thaila* ensures the maximum of drug absorption through the skin, nourishing the muscles and making them firm and strong. Massage reduces the muscle tension or tonicity by affecting pressure and

touch nerve endings and results in increased flexibility. These factors may help to improve the speed of athletes.

Tila Taila (sesame seed oil) is *Tikshna, Ushana, Vyavayi* and is quickly absorbed by the skin and it is the best *Taila* for *Brimhana*. The *Brimhana* action may help to improve the recovery from fatigue and may improve speed of athletes. Sesame oil helps to keep balanced functioning by balancing *Vata dosha*. By the application of *Abhyanga* body become resistant to exhaustions and exertions and the benefits like *Sramahara, Klamahara, Klēsha sahatwa, Vyayama sahatwa* helps to reduce easy fatigue and may help to improve the speed.

Abhyanga performed for 600 *Matras* approx. (10 min.) on each part of the body nourishes *Mamsa dhatu* (muscles) as *Brimhana karma* (growth) takes place and may increase the muscle power and strength of athletes and may improve the speed.

Athletes rely on efficient breathing to supply oxygen to their muscles during exercise. Clear nasal passages can enhance oxygen uptake and overall lung function, which can positively impact endurance and speed.

Anutaila is *Vataghna, Brumhana* and *Snehana* in nature. It is *Sukshma srtotogami*. Oil reaches to minute channels and removes the vitiated *Doshas*. The *Sneha* reaches in the *Srotas*, oleation and strengthening

action takes place on ligaments and tendons of upper part of the body and ultimately improves efficiency of *Indriya* which helps to improve the free and fast movements of body parts.

Test items- Pull up

The aim of this test is to determine the arm and shoulder girdle strength. A significant improvement in arm strength and endurance has been observed in the present study after the intervention.

Thila Taila is a polyunsaturated fat which contains large amounts of linoleic acid. Linoleic acids are a well-known anti-inflammatory agent and is also known to inhibit pathogenic bacteria. Thus, the unsaturated fatty acids in the *Thila thaila* ensure the maximum of drug absorption through the skin, nourishes the muscles and makes them firm and strong.

Massage causes increased blood and plasma circulation, stimulate and strengthen lymphatic system and cause relaxation of muscles and deep connective tissue. Increased blood flow supplies muscles with more oxygen which provides them with the energy boost increasing strength and allowing them to work harder and longer without fatigue. Massage has the ability to compress the cells that cause inflammation in the muscle tissue, which can also contribute to muscle repair. All these may contribute to increased arm strength and endurance of athletes.

Tila Taila (sesame oil) is recommended for *abhyanga*, as it can be applied to all *Prakriti* persons and it is *Tridoshaghana* (subsides all the three *Doshas*). These factors may contribute to increased arm and shoulder girdle strength.

Test Items- Bent Knee Sit Up

In this test, the muscular endurance and strength of the participant's abdomen are measured. A significant improvement in abdominal muscle endurance and strength has been observed in the present study after the intervention.

Endurance references how long muscles can sustain continued contractions during resistance exercise. Massage increases the blood supply and nutrition to muscles. It helps to re-establish proper muscular tone, reduce muscle and soft tissue pain, relaxes muscle, effectively reducing spasm, tension and cramping. It supports increased work capacity and encourages metabolism, provide more energy for muscle tissue so that the muscle fibers are able to maintain contractions over an extended period of time, thus attaining an increased level of endurance.

After a muscle is exercised, vital nutrients must be supplied in order for it to be increased in size. Massage maximizes the supply of nutrients and oxygen through increased blood flow, which helped the body

rebuild itself. Waste products such as lactic and carbonic acid build up in muscles after exercise. Increased circulations to these muscles helped to eliminate toxic debris and shorten recovery time. This may be the reason for significant improvement of abdominal muscle endurance after *Thila thaila Abhyanga*.

Tiltaila Abhyanga helps in removal of tissue toxins. *Tila Taila* (sesame seed oil) is *Tikshna*, *Ushana*, *Vyavayi* and is quickly absorbed by the skin. Copper, one of the nutrients found in sesame seed oil, is beneficial for circulation. Copper is required for the production of red blood cells. When a person gets a sesame seed oil massage, the body is doused in the copper nutrient thus contributing to increased nutritional supply to muscles.

Physical work outs and prolonged training sessions of athlete's imbalances the *Vata dosha*. So ultimately it hampers the *Prakruta vata gati*, and *Snayu* loses its *Drudhata* (tone) and due to this some injuries or pain may occur. But by taking *Prathimarsa nasya* we are pacifying *Vikruta vata* and once *Doshas* come in *Saamyavastha*, the pain and injuries can be prevented. This may be the reason for improvement in endurance after the intervention.

Test Items- Shuttle Run

In this test, participant's speed and agility are measured. A significant improvement in agility has been observed in the present study after the intervention. *Abhyanga* with *Tila Taila*, improve flexibility and joint mobility and contribute to improved agility. *Abhyanga* has a calming effect on nervous system, enhancing concentration, focus and mental readiness and reduce stress and anxiety which are essential for agility. This is because *Abhyanga* causes an increase in serotonin level in blood. *Abhyanga* promotes better sleep quality which is crucial for recovery and agility.

Prathimarsa nasya can stimulate higher centres of nervous system which may help the player to improve their agility by making quick directional changes according to the need of the game. Substances which are lipid soluble, have great affinity for absorption through the cell wall of nasal mucosa. The cilia of the olfactory cells contain large quantity of lipid materials. Olfactory nerve is connected with higher centre of the brain i.e., limbic system, consisting mainly of amygdaloidal complex, hypothalamus, epithelium, anterior thalamic nuclei parts of basal ganglia etc. So, the drug administered through nose stimulates the higher centres of brain which shows action on regulation of endocrine and nervous system function.

Test Items- Broad Jump

This test measures leg power in jumping horizontal distances. A significant improvement in explosive power of legs has been observed in the present study after the intervention.

Daily *Abhyanga* helps relax and soothe muscles in the legs after workout. Recovered muscles are more capable of generating power during subsequent workouts or athletic performance. Regular *Abhyanga* enhance flexibility and range of motion in the legs which helps greater muscle engagement during dynamic movements, leading to more powerful leg actions.

Abhyanga has a calming effect on the nervous system, reducing stress and anxiety. Lower stress levels can help optimize the mind-muscle connection, allowing better control and coordination of leg muscles during activities that require power and explosiveness.

According to Acharya Charaka *Pada abhyanga* makes the leg soft, strong and stable. These factors may increase the strength and nourishment of leg muscles contributing to increased leg power in this study.

Test Item- 600m Run

This test measures measure participants cardio vascular endurance. A significant improvement in cardiovascular endurance have been observed in the present study after the intervention

Almost all the drugs of *Anu taila* are *Katu*, *Laghu*, *Snigdha*, *Madhura*, *Ushna* in nature. Hence *Anutaila* shows *Tridosahara* property, but it is mainly affecting on *Vata* and *Kapha dosha*. So almost all ingredients of *Anu taila* are *Vatakapha shamak*, *Vatanuloman* and *Ushna* in nature.

Acharya Charaka says that those medicines which are *Vata kapha shamak*, *Vata anulomana* and *Ushna* are effective in *Shwasa roga* thus improving the respiratory health. Hence *Pratimarsha nasya* with *Anuthaila* may be effective

Massage stimulates the blood flow of the heart; it lengthens the muscles improving breathing and lung function, encourages deeper breathing, calms the nervous system down, loosening the intercostal muscles allowing the rib cage to expand, lowers blood pressure and removes congestion, generates heat to raise the respiratory rate and body temperature, stimulates proprioceptors in the joints and increases respiration. Due to these factors *Abhyanga* may contribute to cardio vascular endurance.

Discussion on AAHPER Total Score

An athlete's performance level is closely related to his physical fitness components. A significant improvement in all the physical fitness variables have been observed in the present study after the intervention which may improve participant's

overall performance level in their respective competitive items.

Discussion on Probable Mode of Action of Intervention

Probable mode of action of *Abhyangam* with *Thila Thailam*

According to Acarya Caraka, by the massage of oil the human body becomes strong and smooth skinned, it is not susceptible to the diseases due to *Vata*; it is resistant to exhaustions and exertions. Of the one who practices oil massage regularly, the body even if subjected to injuries or strenuous work, it is not much injured.^[5] In Ayurveda after doing *Vyayama* massage is advised to compact the mild increase of *Vata dosa*. Also, while explaining *Ativyayama lakshana vatakopa* is mentioned as one of the complications. So Acharya advice to do *Vyayama* only using half the strength of a person.^[6]

The *Taila* used for *Abhyanga* nourishes the tissues, give strength. The effect of *Abhyanga* on different *Dhatus* is based on the duration of how long the *Abhyanga* should be performed as a part of daily routine to maintain a healthy life. According to *Dalhana*, time taken for the *Sneha* to permeate through different tissues by *Abhyanga* is as follows:

Time taken for the *Sneha* to enter up to *Romanta* is 300 *Matrakala* (1 *Matra* = 19/60 seconds so, 300 *Matra* means 95 seconds) to enter up to *Tvaca* is 400 *Matrakala* (133seconds), to enter up to *Rakta* is 500 *Matrakala* (160 seconds), to enter up to *Mamsa* is 600 *Matrakala* (190seconds), to enter up to *Mēdas* is 700 *Matrakala* (228 seconds), to enter up to *Asthi* is 800 *Matrakala* (240 seconds), to enter up to *Majja* is 900 *Matrakala* (280 seconds) which further pacifies the diseases caused by vitiated *Vata*, *Pitta* and *Kaphadosha*. So *Abhyanga* should be done at least 5 minutes in each position if one wants to get its effect in deeper tissues like *Majja*. Therefore, as a daily routine 5-10 minutes is sufficient for desired effects.^[7]

Hypothetically it can be said that the blood amino acids like tryptophan increases after massage. Massaging reduces pain and stress. By *Abhyanga* the nervous system gets stimulated, thus providing stimulation to the muscular system, vessels and glands governed by the particular nerve and keeps human body healthy. Massaging also improves the circulatory system thus reducing the pain. Lukewarm oil is used for massaging it stimulates the *Swedavahasrotas* (perspiring body channels) thus causing dilatation of blood vessels. By doing massage vital points gets stimulated and produce positive energy, thereby protecting, rejuvenating and increasing the immunity towards the environmental changes. It is scientifically proved that massage increases the white blood cell count and antibodies which provide more resistance against disease. The soles of feet have *Marma* points,

which in turn stimulate the Indriyas (sense organs). Thus, massage is very important to lead a healthy life and to improve the physical fitness of athletes. All the benefits of Abhyanga are directly or indirectly related with the stimulation of autonomic nervous system and central nervous system.^[8]

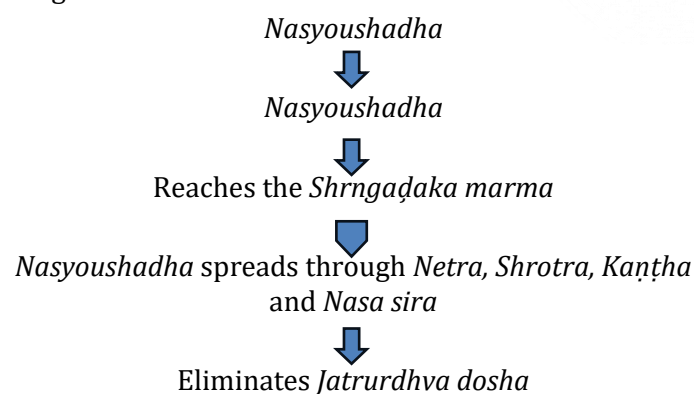
Caraka has also described that *Vayu* dominates in the *Sparshanendriya* and its *Adhishthana* is *Tvaca* i.e., skin. The *Abhyanga* is exceedingly beneficial to the skin.^[9] So one should practice it regularly. *Indriya* are in close contact of mind hence if *Indriya* remain healthy mind automatically remains healthy. Thus, *Abhyanga* keeps body and mind healthy.

In most situations, *Tila Taila* (sesame oil) is recommended for *Abhyanga*, as it can be applied to all *Prakriti* persons and it is one of the best *Taila* mentioned in Ayurvedic texts. It is *Tridoshaghana* (Subsides all the three *Doshas*) and gives nourishment to the body.^[10] *Tila Taila* unique property is that it is a polyunsaturated fat which contains large amounts of linoleic acid. Linoleic acids are a well-known anti-inflammatory agent and is also known to inhibit pathogenic bacteria.^[11]

Probable mode of action of Prathimarsa nasya with Anu Thailam

Long time use of *Pratimarshanasya* will yield the benefits of *Marshanasya*.^[12]

Caraka states that the drug administered through the nose enters the *Uttamanga* and removes the morbid *Dosha* out. The mode of action of action of *Nasya karma* is clearly explained in *Ashtanga sangraha*^[13].



Acharya Susrutha considers *Shringaḍaka* as a *Siramarma* formed by the union of *Siras* from nose, ear, eye and tongue. And may be assumed that the medicines instilled as *Nasya* enters these *Siras* and purify them. Also, in *Gadaircita Lakshana*, he mentions *Mastulungagama* as one of the symptoms and this points a strong relation between brain and nasal pathway^[14]. This suggests that *Nasya* can stimulate the higher centres of nervous system.

Indu, the commentator of *Ashtangasangraha*, opined that *Shringaḍaka* is the inner side of middle part of

head i.e., "*Siraso antar madhyama*". Acharya Charaka has described that *Nasa* (nose) is the only gateway to *Shirah* (head). So, the medicine administered through *Nasa* (nose) can easily spread to *Shira* (head) and get absorbed. According to Acharya Vagbhata, *Nasa* (nose) being gateway to *Shirah* (head), the drug administered through nostril reaches *Shringataka Marma* of head. Sushruta has maintained *Shringataka Marma* as a *Shira-Marma* (vital part of the head) formed by the union of *Siras* (blood vessels) supplying to nose, ear, eyes and tongue. Anatomically nose is connected to the brain through vascular system, nerve plexus of olfactory nerve and ophthalmic and maxillary branches of trigeminal nerves. *Nasya dravya* administered through nasal route → then it reaches *Sringataka Marma* (cavernous venous sinuses) → through cavernous sinuses it enters into *Murdha* (intracranial circulation) → lastly *Nasya* drug reaches junction of *Netra* (eye), *Karna* (ear), *Siraha* (head) by the diffusion method.^[15]

Anutaila is *Vataghna*, *Brumhana* and *Snehana* in nature. It is *Sukshma srototogami*. Oil reaches to minute channels and removes all the *Doshas*. The *Sneha* reaches in the *Srotas*, oleation and strengthening action takes place on ligaments and tendons of upper part of the body. Thus, it is helpful in wry neck, facial palsy, immobilization of jaw, headache, rhinitis, migraine and trembling of neck. It increases the efficiency of *Indriyas* e.g., *Nasa*, *Karna*, *Netra*. Regular practice of *Anutaila* helps avail these benefits as well as clear perception of sense organs and clarity of voice and facial glow. Moreover, disease of the upper part of the body remains no more frequent with the regular use of *Anutaila*.^[16]

According to Charakacharya regular use of *Anutaila* liquefies the *Doshas*, extracts them from the site without destructing it and ultimately improves efficiency of *Indriya*. This is because of oleation action on *Siras* and *Kandaras* (tendons and ligaments) of shoulders, neck and chest. These parts become strong. Thus, *Prathimarsa Nasya* with *Anuthailam* is effective in improving the fitness variables of young athletes.^[17]

Limitation and Scope of Study

There is an inherent lack of control group in this study and the study population was limited to only one sports school due to Covid protocol restriction. There is a scope of studying long-term effects of these interventions. The same procedure may be administered in other competitive sports like Football, basketball, swimming etc.

CONCLUSION

The study was focused on the critical evaluation of the effect of *Prathimarsa Nasya* and *Abhyanga* on the physical fitness among athletes in the

sports hostel of Mar Basil Higher Secondary School Kothamangalam.

Pratimarsha nasya with *Anu taila* and *Abhyanga* with *Thila thaila* gave a significant result in improving the physical fitness components speed, arm and shoulder girdle strength, muscular endurance and strength of the abdomen, agility, leg power and cardio vascular endurance and overall performance of athletes in the sports hostel of Mar Basil Higher Secondary School.

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Cite this article as:

Saritha S, Jyothi R, Nafeesath Beevi. Effect of Prathimarsa Nasya and Abhyanga on the Physical Fitness among Athletes in the Sports Hostel of Mar Basil Higher Secondary School Kothamangalam. International Journal of Ayurveda and Pharma Research. 2024;12(1):1-10.

<https://doi.org/10.47070/ijapr.v12i1.3074>

Source of support: Nil, Conflict of interest: None Declared

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