

## Effect of TilaTail Massage Therapy on Tennis Players

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### Abstract

All sporting activities involve muscle activity as a primary motive force, and many sports injuries affect muscles directly. Massage is the best form of treatment of muscle tension. It can be used for the general relaxation of musculo-skeletal system.

Present study was done to study the effect of Tiltaila Abhyanga (Sesame Seed Oil Massage) on the Mamsadhatupushti (Muscular Endurance) in Tennis players. Study trials carried out in two groups of 10 players each between age group 20-30yrs for eight weeks. Assessment criteria were Muscle endurance. Muscle endurance was measured by Sit – ups and Push – ups and modified Push – ups for females.

**Keywords :** Abhyanga, Sport massage, Muscle endurance, Tennis ball

### Introduction

Massage has been utilized in the treatment of illness and injury for thousands of years by health care practitioners. Sports massage has been suggested as a means to help prepare an athlete for competition, as a tool to enhance athletic performance, as a treatment approach to help the athlete recover after exercise or competition, and as a manual therapy intervention for sports-related musculoskeletal injuries<sup>1</sup>. Ayurveda is the science of knowledge of Ayurved. It emphasizes on the importance of maintenance of health of healthy persons and curing the disease of ill<sup>3</sup>. According to Sushrutacharya, Vyayam (Exercise) is defined as work involving exertion of the body. He states that after performing it one should do gentle body massages. It influences the overall personality by causing (stimulating) physical development, eg. Luster, compactness of the body parts, promote strength, growth, stimulation of digestive power, absence of idleness, firmness, lightness, tolerance to fatigue, exhaustion, thirst, heat, cold etc. and provides optimum immunity. Abhyanga (Massage) and Mardana (Pressure/ Deep Tissue Massage) are both type of massage<sup>6</sup>. Abhyanga (Massage) is a gentle massage<sup>7</sup> and Mardana (Pressure / Deep Tissue Massage) is massage done with pressure. Daily oil massage delays ageing, cures tiredness and Vata Dosh, improves vision, nourishes the body, increases longevity (lifespan), promotes sound sleep, improves skin luster and texture and strengthens the body. To measure the effect of Abhyanga on Tennisball player muscle endurance has been

used as a criteria for assessment. Muscle endurance has been measured with the help of sits up and pushes up.

### Need of the study

All sporting activities involve muscle activity as a primary motive force, and many sports injuries are directly muscle injuries. Massage is the best form of treatment of muscle tension. It can be used for the general relaxation of musculo-skeletal system.

### Aim

- To study the effect of Tiltaila Abhyanga (Sesame Seed Oil Massage) on the Mamsadhatupushti (Muscular Endurance) in Tennisball players.

### Objectives:

- To measure muscle endurance with the help of Sit-ups & Push-ups.

### Materials And Methods

**Research design:** Clinical research

### Selection criteria:

#### 1. Inclusion criteria

- Players between age group 18 yr. –35 yr.
- Players participating in competitions
- Players playing Tennisball regularly minimum for 1 yr.

#### 2. Exclusion criteria

- Nawajwara (Acute Fever)
- Ajirna (Indigestion)
- Samata

**Grouping:**

Study trials carried out in two groups of ten players each.

**Group A:** Ten Tennisball players with *Tiltailabhyanga* (Sesame seed Oil Massage) (5 Females, 5 Males in each game)

**Group B:** Ten Handball players without *Tiltailabhyanga*(Sesame seed Oil Massage) (5 Females, 5 Males in each game)

**Sample size:**

- Total sample size was 20 complete units,
- Total of ten individual in each group were included.

**Time and duration of the study:**

Clinical study of eight weeks, *Tiltailabhyanga* (Sesame seed Oil Massage) is performed on group ‘A’ for approx. 45 -60 min. on the whole body after their regular practice in the evening between 5 pm – 6 pm, over the period of one month, at the same time group ‘B’ was also under observation. After one month of *Tiltailabhyanga* (Sesame seed Oil Massage) the players from group ‘A’ received fifteen days gap and again on day 45th the tests were performed in both groups.

- 1st reading - on 0th day
- 2nd reading - on 30th day
- 3rd reading - on 45th day (After giving 15 days gap in gr.A).

**Research techniques:**

**Muscle endurance** is the main assessment criteria, **Muscular Endurance**

It is usually defined as the ability or capacity of a muscle group to perform repeated contractions against a load or sustain a contraction for an extended period of time.

Muscle endurance was measured by **Sit – ups** and **Push – ups**

Modified Push – ups for Females.

**Tools for study:**

**Drug:** *Tiltaila* (Sesame seed Oil) is applied on the whole body of players in group ‘A’

**Analysis method:** Paired T – test, Single tailed was used for analysis. A comparison was done in between the scores of follow – ups using paired single tailed, T – test in each group. The comparison was done in following pattern

- 1st Comparison - D0 – D30
- 2nd Comparison - D30 - D45

H1(Alternative hypothesis): There is significant increase in the observed values in pre and post test.

H0 (Null hypothesis): There is no significant difference between the observed values in pre and post test.

**Observation & Results**

**Observations**

Table 1(a) Muscle Endurance of Female players with <i>Tiltailabhyanga</i> D0 – D30									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	27.4	30.4	5.442894	5.891612	20	4.82E-14			REJECT H0
PUSH – UPS	27.4	48.3	7.862861	7.81343	0.121963	4.13E-06			REJECT H0
MODIFIED									
Table 1(b) Muscle Endurance of Male players with <i>Tiltailabhyanga</i> D0 – D30									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31	43.9	4.878224	4.08134	21.8362	1.05E-14			REJECT H0
PUSH – UPS	28.2	39.2	8.394216	7.912648	16.5652	1.27E-12			REJECT H0
MODIFIED									
Table 2(a) Muscle Endurance of Female Players With <i>Tiltailabhyanga</i> D30 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	30.4	37.6	5.492612	5.331831	4.063786	0.000363			REJECT H0
PUSH – UPS	48.3	67.8	7.81343	7.914544	2.502807	0.01102			REJECT H0
MODIFIED									
Table 2 (b) Muscle Endurance of Male Players With <i>Tiltailabhyanga</i> D30 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	43.9	46.6	4.08134	4.69889	6.014922	5.47E-06			REJECT H0
PUSH – UPS	39.2	37.6	7.912648	8.138796	5.349193	2.19E-01			REJECT H0
MODIFIED									
Table 3 (a) Muscle Endurance of Female Players With <i>Tiltailabhyanga</i> D0 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	27.4	37.6	5.442894	5.321635	14.48203	1.26E-11			REJECT H0
PUSH – UPS	27.4	67.8	7.862861	7.914544	6.520588	5.13E-08			REJECT H0
MODIFIED									
Table 3 (b) Muscle Endurance of Male Players With <i>Tiltailabhyanga</i> D0 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31	46.6	4.878224	4.49889	13.2419	4.96E-11			REJECT H0
PUSH – UPS	28.2	37.6	8.394216	8.138796	14.41294	1.27E-11			REJECT H0
MODIFIED									
Table 4(a) Muscle Endurance of Female Players Without <i>Tiltailabhyanga</i> D0 – D30									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	28.0	31.3	8.562938	7.608813	5.292029	1.1E-02			REJECT H0
PUSH – UPS	43.9	47.7	10.92467	10.81187	3.899673	8.16E-08			REJECT H0
MODIFIED									
Table 4 (b) Muscle Endurance of Male Players Without <i>Tiltailabhyanga</i> D0 – D30									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31.3	33.8	11.01096	12.47123	8.121312	4.17E-06			REJECT H0
PUSH – UPS	28.0	31.8	3.81124	7.248928	7.223178	4.89E-07			REJECT H0
MODIFIED									
Table 5 (a) Muscle Endurance of Female Players Without <i>Tiltailabhyanga</i> D30 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31.3	31.9	7.694816	7.930222	2.871208	0.014322			REJECT H0
PUSH – UPS	47.7	48.3	10.80787	10.8426	3.899673	0.901669			REJECT H0
MODIFIED									
Table 5 (b) Muscle Endurance of Male Players Without <i>Tiltailabhyanga</i> D30 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	33.8	34.7	12.67123	11.31016	3.016607	0.003703			REJECT H0
PUSH – UPS	31.8	32.4	7.248928	7.444238	2.860588	0.981198			REJECT H0
MODIFIED									
Table 6 (a) Muscle Endurance of Female Players Without <i>Tiltailabhyanga</i> D0 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	28.0	31.9	8.562938	7.930222	5.344938	3.4E-05			REJECT H0
PUSH – UPS	43.9	48.3	10.92467	10.8426	7.383584	8.72E-07			REJECT H0
MODIFIED									
Table 6 (b) Muscle Endurance of Male Players Without <i>Tiltailabhyanga</i> D0 – D45									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31.3	34.8	11.02096	11.42222	7.018688	7.48E-07			REJECT H0
PUSH – UPS	28.0	32.4	7.81124	7.244228	5.521276	1.52E-01			REJECT H0
MODIFIED									
Table 7(a) Muscle Endurance of Female Players with (OC) and without (OC) <i>Tiltailabhyanga</i> (Sesame and Oil Massage) Dry 0									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	27.4	28.0	5.442894	5.568938	0.472068	0.327211			ACCEPT H0
PUSH – UPS	27.4	43.9	7.862861	10.80367	1.522891	0.072302			ACCEPT H0
MODIFIED									
Table 7(b) Muscle Endurance of Male Players with and without <i>Tiltailabhyanga</i> (Sesame and Oil Massage) Dry 0									
MUSCLE	ENDURANCE		Mean		S.D.	T.CAL		P.VAL	SIGNIFICANCE
	X1	X2	X1	X2					
SIT – UPS	31	31.2	4.878224	13.02096	0.114432	0.45073			ACCEPT H0
PUSH – UPS	28.2	28.0	8.394216	7.24124	0.807168	0.247957			ACCEPT H0
MODIFIED									

Table 8(a): Muscle Endurance of Female Players with and without *TailaAbhyanga* (Sesame seed Oil Massage) Day 30

MUSCLE	Mean		S.D.		T.CAL	P.VAL	SIGNIFICANCE
	X1	X2	X1	X2			
SIT - UPS	39.4	31.3	5.695612	7.604803	2.577729	0.000889	REJECT H0 MODIFIED
PUSH - UPS	48.3	47.7	7.81345	10.80187	4.205204	0.000287	REJECT H0 MODIFIED

Table 8(b): Muscle Endurance of Male Players with and without *TailaAbhyanga* (Sesame seed Oil Massage) Day 30

MUSCLE	Mean		S.D.		T.CAL	P.VAL	SIGNIFICANCE
	X1	X2	X1	X2			
SIT - UPS	43.9	34.3	4.98134	12.72831	2.110943	0.024126	REJECT H0 MODIFIED
PUSH - UPS	38.3	31.8	7.912648	7.249828	1.042653	0.013933	REJECT H0 MODIFIED

Table 8(c): Muscle Endurance of Female Players with and without *TailaAbhyanga* (Sesame seed Oil Massage) Day 45

MUSCLE	Mean		S.D.		T.CAL	P.VAL	SIGNIFICANCE
	X1	X2	X1	X2			
SIT - UPS	37.6	31.9	3.331635	7.930372	2.961805	0.037713	REJECT H0 MODIFIED
PUSH - UPS	47.6	48.5	7.818244	10.8478	3.801292	0.000573	REJECT H0 MODIFIED

Table 8(d): Muscle Endurance of Male Players with and without *TailaAbhyanga* (Sesame seed Oil Massage) Day 45

MUSCLE	Mean		S.D.		T.CAL	P.VAL	SIGNIFICANCE
	X1	X2	X1	X2			
SIT - UPS	40.6	34.8	4.499889	12.43222	1.310889	0.103187	REJECT H0 MODIFIED
PUSH - UPS	37.6	32.4	8.138796	7.144228	1.321825	0.10139	REJECT H0 MODIFIED

**Results**

**Group A** –Day 30th - Sit-ups, Push-ups were increased by approx.8– 10 in No. i.e.null hypothesis is rejected. Day 45th - (After giving 15 days gap in *TailaAbhyanga*) Sit-ups, Push-ups were decreased by approx.2-3 in No.

**Group B** – Day 30th –Sit-ups, Push-ups were increased by approx.2-3 in No. i.e. null hypothesis is rejected. Day 45th - Sit-ups, Push-ups were increased by approx.1-2 inNo.i.e.null hypothesis is rejected.

**Discussion**

- On Day 30ththe Group A &Group B showed increased in the no. of sits up and pushes up but at the rate Group A responded to *Abhyanga*(Massage) is noteworthy. This is due to the effect of *TiltailaAbhyanga* (Sesame Seed Oil Massage).
- On Day 45thno. of sits up and pushes up in Group A decreased, while Group. B showed improvement.
- Though Group A showed decreased in their no. of sits up and pushes up on day 45, but it was still on higher side than Day 0.
- On Day 30 in GroupA,no. of sits up and pushes up were increased approx. by 10- 12 in no. While in Group B there was increased in approx. by 1-2 in no. Although the diet, exercise, daily routine were same in both group. The extra 10-12 no. improvement in sits up and pushes up in Group A is the effect of *TiltailaAbhyanga*.(Sesame Seed Oil Massage). So there is significant improvement in muscle endurance in Group A due to massage.After giving 15 days gap

of *Abhyanga*(Massage) in Group A, the endurance which was achieved till day 30 could not sustained. As stated in *CharakSamhita* axle of the chariot and leather bottle become durable by oiling same the body become strong after *TailaAbhyanga* (Sesame Seed Oil Massage)

- Dalhana the commentator of Susruta has described the effect of *Abhyanga* according to the duration of it is done[11]. When *Abhyanga* (Massage) is done for;

1. 300 matras: It reaches to root of hair follicles of the skin (roma)(65 sec)
2. 400 matras: It reaches to Skin (Twaka)(133 sec)
3. 500 matras: It reaches to Blood (Rakta)(160 sec)
- 4.600 matras: It reaches to Muscle tissue(Mansa)(190 sec)
5. 700 matras: It reaches to Fat (Meda) (228sec)
6. 800 matras: It reaches to Bone (Asthi)(240 sec)
7. 900 matras: It reaches to Bone marrow (majja)(285sec)1 matra=19/60 sec= 95 sec

Hence, *Abhyanga* must be done minimum 5min to each part of body.According to Vaidya Kastureji approximately 30-40 min of to the whole body and 15 min to a part is required to achieve benefit of *Abhyanga*. According to latest study deep stroking massage techniques create a localized increased in pressure which causes the pores in tissue membranes to open, facilitating the exchange of fluids. It improves the removal of muscle waste like Lactic acid which builds up in the muscles during and immediately after exercise, Lactic acid is main factor which affects the muscle endurance. Fatigue is define as the inability to maintain a given exercise intensity. Tissue Toxins were assumed to be the main cause of Fatigue. Tissue toxins hamper the muscle endurance which causes fatigue. *Tiltaila Abhyanga* (Sesame Seed Oil Massage)helps in removal of tissue toxins. In one study it is found that deep-tissue massage increased the size and number of new mitochondria more than exercising without massage. Increasing mitochondria can improve endurance performance by increasing the rate that muscles utilize oxygen. *Tilataila*(Sesame Seed Oil) is *Tikshna,Ushana,Vyavayi* and is quickly absorbed by the skin and it is the best *Taila* for *Brihan*.Research shows that on the skin, oil soluble toxins are attracted to sesame seed oil molecules which can be washed away with hot water.

**Conclusion**

- Muscle Endurance was increased by *Abhyang*.
- After giving 15 days gap of *Abhyangain gr. A*, the muscle endurance decreased hence "*AbhyangamAcharetNityam*" is proved.
- The significance of *abhyangaduration* specified in *Sushrut* i.e. *abhyangais* performed for 600 *matras* approx. (10 min.) on each part of the body it reaches to *Mamsdhatu* (muscles) & *Brihan karma* (growth) takes place. It also helps to remove tissue toxins is validated.
- '*Tiltaila*(Sesame Seed Oil) is useful in *Brihan Karma* (Growth)& also helps in removal of oil soluble tissue toxins.

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