

A prospective single arm open pilot trial to study the antioxidant property of Ayurvedic massage therapy in healthy individuals

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ABSTRACT

Ayurveda, the kernel of the ancient Indian wisdom, reckons abhyanga as a daily regimen owing to its univocal properties like *jaraapaha* (~delaying ageing process) *pushtirit* (nourishing), *shramahara* (removing tiredness) *pushtya-yu* (~ bestowing longevity) etc. Hence, this study was envisioned to show the antioxidant property of abhyanga on healthy individuals. Recruited voluntary healthy individuals both male and female between eighteen to seventy years of age were given Ayurvedic oil massage with simple gingili oil every day in empty stomach for forty five minutes for a period of seven days. The fasting blood samples of the subjects were collected before and after the study. The study was explicated utilizing the method of *Koracevic et al method* for the determination of total antioxidant status (TAS) and *spectrophotometric method* for accomplishing the thiol assay. The mean value with respect to the TAS was 0.88 before the treatment and 0.92 after the treatment and that of thiol was 317.39 and 311.66 before and after the therapy respectively. In TAS, p- value was 0.016 which is < 0.05 and there was a decrease in serum thiols which was not statistically significant. However, the study establishes the antioxidant property of abhyanga and necessitates further comprehension of the same.

Key words: Antioxidant, ayurveda, abhyanga, massage, panchakarma.

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INTRODUCTION

Abhyanga (~ayurvedic oil massage), one among the *bahya snehas* (external oil therapy) described in the Ayurvedic classics^[1] is defined as *taila mardanam*.^[2] Owing to the vitality and the support offered by it in aiding man to lead a healthy and jubilant life, the classics have conceded abhyanga as one among the *dinacharyas*^[3] (daily regimen for healthy individuals). Abhyanga, apart from being implemented in the management of manifold diseases, is put into effect in healthy individuals due to its robust bedrock of inculcated benefits, such as bestowment of admirable vision and

vigor, promotion of the body's texture, tolerance, imparting healthy complexion and sound sleep patterns.^[4] It not only stimulates the internal organs, but also improves circulation.

Abhyanga, when performed on the scalp, is known for facilitation of luxuriant growth of soft and silky hair, invigoration of the senses and voiding off the wrinkles.^[5]

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Paadabhyanga (application of oil to feet) is one of the distinguished procedures described in the classics and is articulated to accord strength, smoothness and firmness to the feet, besides the bestowment of good vision.^[6] In short, *abhyanga* maneuvers an authoritative role in slackening the process of aging and there by conferring longevity to mankind. Antioxidants on the other hand are substances which reduce the oxidative damage in the body, caused by free radicals and thereby delay the process of aging and furthermore, avoid the diseases caused by them.^[7]

Considering the previous studies with similar sets, the study on massage treatment in HIV-1 infected dominican children^[8] has evidently exhibited promising results and furthermore enhanced, encouraged and endorsed the need to study the effect of Abhyanga on healthy individuals, with emphasis on the status of their immunity. The lacuna in the current literature encouraged us to design this study to explore the antioxidant properties of abhyanga.

MATERIALS AND METHODS

Study design

The current study was initiated after procuring the clearance from the Institutional Ethics Committee at Manipal University. It was an open clinical trial, conducted between March 2010 and February 2011 wherein, registered healthy individuals were subjected to Abhyanga before breakfast, for 45 minutes, continuously for 7 days.

Inclusion and exclusion criteria

Healthy individuals, irrespective of their sex, falling in the age group between 18 to 70 years were considered to be eligible for the study and were included for the same. However, those subjects who were suffering from chronic ailments such as diabetes, hypertension, various skin disorders and those from

acute conditions such as fever, respiratory infections were excluded. Children and young adults, less than 18 years of age, were excluded from the study. Furthermore, enlistment of the subjects for the study was systematized, taking into consideration the individuals from the student community who volunteered and those individuals who approached the OPD for rejuvenation therapies, abiding by the inclusion and exclusion criteria.

Written consent was obtained separately from all the subjects in a predesigned proforma, along with their socio-demographic details. And also, after having obtained a brief clinical history, clinical examination was conducted and the vitals were recorded.

Abhyanga procedure

Owing to its beneficial properties, easy availability and cost effectiveness, *Tila taila* (gingili oil) was used for Abhyanga. The process of Abhyanga, using about 100 to 150 ml of luke warm gingili oil was carried out for about 45 minutes, on the subjects who were on empty stomach, during morning hours, continuously for 7 days.

Each patient was made to sit on the massage table with extended legs, while the two therapists deputed to carry out the procedure, stood on either side of the table. The oil heated to the desired temperature was applied on to the head, the ears, the palms and the soles in an orderly manner. Thus, this was followed by gentle, accomplished massage starting from the scalp and further moving down to the head, neck, upper back, shoulders, upper arms, forearms & hands; then chest, abdomen, low back and lower limbs, systematically. However, the patient was also moved, in accordance with the area to be considered for massage, along sitting, supine, right lateral and left lateral positions. And also, the strokes of massage differed according to the region. For

example, the massage strokes of the upper back were in upward and downward direction, while massage to the joints of the limb and the umbilical region were in circular pattern. The strokes of the muscles were in linear manner. After Abhyanga, the patients were made to take complete rest for 15 minutes in comfortable position and advised to take bath in lukewarm water.

Blood collection for antioxidant estimation

Assessment of blood antioxidant level comprised of prior to the first and ulterior to the final procedures, in the form of thiol assay and total antioxidant status (TAS).^[9,10] Fasting blood samples of the subjects were collected during the morning hours, while they were in resting position, both before and after the procedure. The data collected was analysed using student 't' test and $p < 0.05$ was fixed as the significance level.

RESULTS

This trial involved 12 healthy individuals of seven male and five female volunteers in the age group 18 to 25 years. Although there is a slight alteration in mean thiol and mean total antioxidant status after the therapy, only thiol values showed statistically significant ($p < 0.016$) difference (Table 1).

Table 1: Antioxidant levels before and after the Ayurvedic oil massage

	Thiol	Total antioxidant status
Before therapy	317.39 ± 87.37	0.88 ± 0.047
After therapy	311.66 ± 87.37	0.92 ± 0.047
t value	0.227	- 2.832
P value	0.825	0.016

Values are expressed in mean ± SD ($n = 12$)
Student 't' test was performed.

DISCUSSION

After having studied the result of thiol assay of all the samples, the decrease in the values of all of them, even though it is of no significance, may be analysed as due to very small sample size and lack of any absolute restriction on the lifestyle of the subjects, which can influence the study.

It can be thus interpreted that *abhyanga* might have nullified the already existing free radicals in the body with the help of the thiol present. Likewise, the minimal decrease in the values of thiols which is of no statistical significance, is evident. Increase in the duration of the procedure and a larger sample size may bring about significant changes in the values. However, the estimation of TAS favours discernment while that of thiol assay awaits further elucidation.

Previous studies have indicated the immune boosting qualities of massage therapy and explained the same, along with its probable mode of action in terms of:

- ◆ Increase in tryptophan further leading to increase in serotonin (a neurotransmitter)^[11]
- ◆ Changes in pressure; physical, osmotic, hydrostatic; leading to enhanced lymphatic drainage and thereby resulting in expulsion of toxins from the body^[12]
- ◆ Electrophysiological mechanisms triggered in the area of application; piezoelectric phenomenon and streaming potentials^[13]
- ◆ Strong mechanical stimuli resulting in: pain relief, peripheral arterial vasodilatation with increasing venous and lymph drainage, micro traumatization of soft tissues, and cellular stimulation^[14]

It can be inferred that the antioxidant activity of *abhyanga*, the capacity to protect biomolecules from oxidative stress is initially the consequence of *chain breaking* or *stabilization*.

However, abhyanga when followed as a daily regimen, as described in the classics of Ayurveda, may result in *prevention and reduction of chain initiation*.^[15] Thus, the properties of abhyanga delineated in the classics, viz. *jaraapaha* (checks and removes aging) *pushtikrit*, (nourishes) *shramahara*, (relieves tiredness) *pushtyaayu* (enhances the life span) etc. show the aura of Ayurveda.

The result of the determination of total antioxidant status in the study, testifies the antioxidant property of abhyanga while thiol assay demands further elucidation. Normally there is a balance between the amount of free radicals generated in the body and the antioxidant defence systems that scavenge/quench these free radicals preventing them from causing deleterious effects in the body. Environmental factors such as pollution, radiation, cigarette smoke, herbicides and diseased conditions can also spawn free radicals.^[7]

As antioxidants neutralize the free radicals, they block the process of oxidation and there by minimize the wreck caused by them and our body is always in need of a steady source of antioxidants^[16] Having proved *abhyanga* to be a constant source of these antioxidants, implementation of the same as in classics bestows blissful health. In this regard, the study opens up new horizons in the field of Ayurveda, with the aid of modern parameters.

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REFERENCES

1. Acharya JT, Ram AN, editors. commentary Nibandhasangraha of Dalhanacharya on Susruta Samhita of Susruta. 8th ed. Varanasi: Choukhambha Orientalia; 2005.p.507.
2. Rajaradhakanta D. Shabda Kalpa Druma - volume 1 (Sanskrit). New Delhi: Rastriya Sankrita Sanstana; 2002.p.78.
3. Vagbhatta, Astanga Hridayam, with sarvanga sundari and Ayurveda rasayana commentary; collected by Anna Moreswar Kunte and Krisna Ramachandra; Krishnadas Ayurveda series -4 Sutra sthana: Chapter 2 verse 8. Varanasi : Chowkhambha Press Varanasi.
4. Vagbhatta, Astanga Hridayam, with sarvanga sundari and Ayurveda rasayana commentary; collected by Anna Moreswar Kunte and Krisna Ramachandra; Krishnadas Ayurveda series - 4 .sutra sthana . 2/8. Krrishnadas academy Varanasi : chowkamba press Varanasi
5. Agnivesha, Charaka Samhita Sutrassthana, Matrashiteeya, Chapter 5th verse 81; Varanasi: Choukhambha Bharati Academy; 2001.p.157.
6. Vriddha vagbhata, Astanga Sangraha with shashilekha vyakhya : Sus sth. 3/ 28. chowkambha sankritha series office Varanasi.
7. Govindarajan R, Vijayakumar M, Pushpangadan P. Antioxidant approach to disease management and the role of 'Rasayana' herbs of Ayurveda. J of Ethnopharmacol 2005;99:165-78.
8. Shor-posner G, Miguez MJ, Hernandez-Reif M, Perez-Then E, Fletcher M. Massage Treatment in HIV-1 Infected Dominican Children: A Preliminary Report on the Efficacy of Massage Therapy to Preserve the Immune System in Children Without Antiretroviral Medication. J Altern Complement Med 2004;10:1093-5.
9. Koracevic D, Koracevic G, Djordjevic V, Andrejevic S, Cosic V. Method for the measurement of antioxidant activity in human fluids. J Clin Pathol 2001;54:356-61.
10. Motchnik PA, Frei B, Ames BN. Measurement of antioxidants in human blood plasma. Methods Enzymol 1994; 234:269-78.
11. Field T, Diego M, Hernandez-Reif M, Figueiredo B, Deeds O, Ascencio A, et al.

- Prenatal Serotonin and Neonatal Outcome: Brief Report. *Infant Behav Dev* 2008;31: 316-20.
12. Brennan MJ. Lymphedema Following the Surgical Treatment of Breast Cancer : A Review of Pathophysiology and Treatment. *J Pain Symptom Manage* 1992;7:110-6.
 13. Hammer W. Piezoelectricity, a Healing Property of Soft Tissue. *Dynamic Chiropractic* 2002;20:1-3.
 14. Fang YZ, Yang S, Wu G. Free Radicals, Antioxidants and Nutrition. *Nutrition* 2002; 18:872-9.
 15. Singh RP, Sharad S, Kapur S. Free Radicals and Oxidative Stress in Neurodegenerative Diseases: Relevance of Dietary Antioxidants. *Journal of Indian Academy of Clinical Medicine* 2004;5:218-25.
 16. Packer L. Protective role of vitamin E in biological systems. *Am J Clin Nutr* 1991; 53(4 Suppl): 1050S-1055S.
