



Exploring the Science of Marma - An Ancient Healing Technique: Marma in Yoga and Other Ancient Indian Traditions

Alka Mishra^{1*}, Vandana Shrivastava¹

¹Department of Ayurveda and Holistic Health, Dev Sanskriti Vishwavidyalaya, Haridwar, India

*Corresponding author email: alka.mishra@dsvv.ac.in

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ABSTRACT. Marma Science is an extremely important branch of Ayurveda. Marma points are important vital places in the body, that are the ‘seats of life’ (Prana - the vital life force). As any injury to these parts may lead to severe pain, disability, loss of function, loss of sensation, or death, therefore, they hold an important place in the science of surgery, wherein they are considered ‘Shalya Vishayardha’ (half of the entire science of surgery). The ancient scriptures have strictly directed against causing any injury to these vital spots. However, recent research have attempted the stimulation of Marma points for therapeutic benefits, with encouraging outcomes. In view of these mutually conflicting, importance applications of Marma Science, the present study was undertaken for its in-depth study. Part-1 of this study presented information about different aspects of Marma Science in various ancient / classical Indian scriptures. Part-2 gave a detailed description of the number of marmas, their location, structures involved, classification, the effect of trauma, etc., as per classical texts, as well as correlation with modern science. The present article, which is part-3 of this study, explores the use of Marma Science in Yoga and other ancient Indian traditions. It is observed that various Yogic practices had been devised with the primary aim of stimulating specific Marma points, with important healing applications. Several ancient Indian traditions used Marma Science both as a martial art for self-defense and inflicting injury on the opponents, and as a therapeutic technique for healing purposes.

Keywords: Ayurveda, Marma Science, Ashtanga Yoga, Chakras, Kalaripayattu, Varma-Kalai, Siddha Medicine, Marma Therapy

INTRODUCTION

Marma Science is an extremely important branch of Ayurveda (1,2). Marma points are important vital places in the body, that are the ‘seats of life’ (Prana) (Ashtanga Hridaya Sharira Sthana 4/2) (2) (Prana is the vital life force that governs all the physical and subtle processes of a living being (3-6). As any injury to these parts may lead to severe pain, disability, loss of function, loss of sensation, or death (7), therefore, they hold an important place in

the science of surgery, wherein they are considered ‘Shalya Vishayardha’ (half of the entire science of surgery) (Sushruta Samhita Sharira Sthana 6/35) (1). Acharya Sushruta states that Marma sthan, a very vital point, should not be injured and should be kept intact even while doing surgeries (Sushruta Samhita Sharira Sthana 6/21) (1).

However, recent researches indicate that if any Marma point is inflamed or painful, then stimulating its nearby Marma points can help in alleviating this pain (8). Several studies and texts have reported the therapeutic benefits of Marma Therapy in treating various physical and mental disorders (7-27).

Looking at the importance of the Marma Science with regards to surgeries, as well as their recent use and future possibilities as an effective therapeutic procedure, the present study has been undertaken for an in-depth study of the Science of Marma.

An account of various ancient / classical Indian scriptures, including the Vedas, Upanishads, Puranas, Samhitas, etc., that mention different aspects of the Science of Marma (1,7-15,26-42), was given in Part-1 of this study (43). Part-2 of this study (44), gave the definition and a detailed description of the properties of Marmas, as stated in the classical texts, mostly written during Samhita kala. The description included information about the number of marmas, their location, structures involved, correlation with Panchamahabhutas, classification, as well as a detailed explanation of marmaghata or viddha lakshanas, i.e., the effect of trauma on Marmas. The anatomical correlation with modern science was also presented.

The present article, which is part-3 of this study, deals with the foundational elements of the Science of Marma with regards to its use in Yoga and other ancient Indian traditions. The correlation between the Marma Science and Yogic Science, including the different limbs of Ashtanga Yoga, has been explored. Its use in various ancient Indian traditions, both as a martial art for self-defense and inflicting injury on the opponents, and as a therapeutic technique for healing purposes, has also been explored.

MARMA IN SOME ANCIENT INDIAN TRADITIONS

Marma Science is known in different ways in different parts, traditions, and languages of the country. In Kerala it is used in Kalaripayattu, in Tamil Nadu it is used in Varma-kalai, in Malayalam it is called Marma kala, in Sinhala it is called Maru kala, and in Telugu it is called Marma vidyaka (14). Siddha system of medicine calls Marma as 'Varma' (14,20). When used for healing applications, for the treatment of various diseases, it is called 'Vaidiyamurai' in Siddha system of medicine (14,20,45). It is called 'Varma adi' or 'Marma adi', when it is used for combat purposes; this term means striking at the vital spots, either by hand or by a blunt weapon, wherein the nerves, veins, tendons, bone joints are the primary targets of the strikes (14). Several ancient Indian martial art traditions including Kalari martial art of Kerala, Dhanurveda (Vedic archery), Malla Purana (wrestling) and Vajra Mushthi (boxing) used energy points (Marmas), both for causing injury to the opponents, as well as in the form of a therapeutic procedure (12).

Further details about the use of Marma Science in some ancient Indian traditions, for which detailed description is readily available, is as follows.

Marma and Kalaripayattu

In Kerala, Kalaripayattu is practiced, which is one of the most ancient Martial Art traditions of India. In Malayalam, "Kalari" literally means - 'practice-ground', and "Payattu" means - 'exercise' (20). The knowledge of Marman (vulnerable pressure points of the body) is employed by the practitioners of Kalaripayattu as a health promoting technique (16,20). When the knowledge of Kalaripayattu went abroad, the concept of marman points was carried along with it as an essential component of martial arts (16).

With regards to its use as a healing technique, some practitioners are known to use thin bamboo sticks, which are applied and held in place on specific body points, in order to heal the patients; this ancient technique is known as 'Shalaka Shastra', and it may be considered as the origin of the modern acupuncture (16). The practitioners found these specific vulnerable points after deep and careful examination of their own body; they experimented on their own bodies by giving themselves violent blows to identify these points, as well as analyze their sensitivity (16).

Kalaripayattu masters refer to three texts regarding the vital spots (46), which are -

1. *Marmmanidanam* (Diagnosis of vital spots)
2. *Granthavarimarmma chikitsa* (gives the method of identification and therapeutic procedures that are to be followed in healing vital spot injuries)
3. *Marmmayogam* (this is the handbook of Kalaripayattu practitioner that contains empty-hand practical fighting applications, as well as the method of emergency revivals for sixty-four most vital spots - *Kulabhyasamarmmam*). The empty-hand techniques would have been useful in cases where either the weapon of the practitioner was lost or broken during the combat, or if the practitioner was unarmed during attack (46).

The texts *Marmmanidanam* and *Marmmarahasyangal* identify a total of 107 vital spots (just like Sushruta Samhita) by using forty-three names (46).

The text *Granthavarimarmma chikitsa* or *Marmmani Chikitsa* lists the medicinal preparations and therapeutic procedures for the treatment of penetrating injuries to the 107 vital spots (as identified by Acharya Sushruta) (46).

Siddha system perspective

Marma Science is an integral part of the Siddha system of medicine, which is mainly practiced in South India; Marma or vital spot is called 'Varmam' in Siddha medicine, which means a protective covering or shield (kavacha or body armor) (14,20,45). 'Varma-kalai' is the common name for this science (14,20). The literal meaning of 'Varmam' is - the 'Science of life force' (45). Varmam has been traditionally practiced in the South Indian state of Tamil Nadu, both as a martial art for self-defense, as well as a therapeutic technique for healing purposes (20,45); from generation to generation, its knowledge has been transferred orally from the masters to the disciples.

As per ancient belief, Lord Shiva (supposed to be the First Siddha) taught Varma-kalai to his wife Parvathi, who in turn taught it to her son Murugan. Later on Murugan taught this skill to sage Agasthiyar and Boghar, from whom it was transferred to their students (45).

Varma-kalai includes 108 Varmam points (vital spots), which are supposed to be the source for healthy long life, as well as diseases and death (45). The Varmam points are classified into two groups as per their effect on the body (45) - (a) Paduvarmam - 12 points, (b) Thoduvarmam - 96 points.

The Paduvarmam points are core Varmam points of Varma-kalai; these points are associated with the pathway of the Saram, that runs alongside the dasanadi (ten types of pulse) and dasavayu (ten types of air) (45). As a result, if a Paduvarmam point is injured, it will not just affect the site of trauma, but the equilibrium of many other locations associated with its path will be disturbed (45).

Each Paduvarmam point is connected to eight Thoduvarmam points, that are affected by the

stimulation of the specific Paduvarmam point (45). All the Thoduvarmam points are not fatal; only a few of these points may lead to disability or death (45).

Varmam points are also categorized according to the Tri-Doshas of an individual, as follows (45) -

- Vata Varmam - 64 points
- Pitta Varmam - 26 points
- Kapha Varmam - 06 points
- Vata thothe Varmam - 04 points
- Pitta thothe Varmam - 05 points
- Kapha thothe Varmam - 03 points

Varmam points are also classified according to the Panchamahabhootas (five elements), as follows (45) -

- Earth - 36 points
- Water - 15 points
- Fire - 32 points
- Air - 13 points
- Sky - 12 points

With regards to the distribution in the body, the Varmam points can be classified as follows (45) -

- Supra-clavicular region - 25 points
- Neck to navel - 45 points
- Navel to anus - 09 points
- Hands - 14 points
- Legs - 15 points

The concept of the occurrence of a disease and its treatment in Varma-kalai, and the Siddha system of medicine, is very similar to that in Marma Science. In Varma-kalai, the vital life force is supposed to flow like a stream from one Varmam point to another, and a disease occurs at a location if there is an obstruction in this flow, leading to the stagnation of the energy at the nearby adangal (reservoir of life energy) (45). In Siddha system of medicine, 'Piraanam' (vital life force or 'Prana') is supposed to circulate through a network of Naati (Nadis) channels (20). Varmam points lie on the Naati channels and are the sites where the Piraanam resides (20). An imbalance in the flow of Piraanam

causes disease, and the Varmam points are stimulated to treat the disease by regaining the balance in the flow of Piraanam (20). In Siddha system of medicine, the use of Varmam points for healing purposes is called 'Vaidiyamurai', their use for combat purposes is called 'Adimurai'; Adimurai means striking these points, where the primary targets are veins, nerves, tendons, organs, and bone joints (45).

Thus, there is a striking similarity between the above mentioned ancient Indian traditional techniques and the Marma Science; all these techniques deal with the stimulation of the vital spots to rectify the flow of Prana in the body, leading to the corresponding healing effect.

MARMA AND YOGA

According to the scriptures, there is a prominent correlation between the Marma Science and the Yoga. In Patanjali Yoga Sutra, Maharshi Patanjali has described the eight limbs of Yoga as 'Ashtanga Yoga' (Patanjali Yoga Sutra, Samadhi Pada 29) (47). In the present section, the correlation between different limbs of Ashtanga Yoga and Marma Science is being presented.

The ancient sages (Rishis) gave a prominent place to the Yogasanas (Yogic postures) in Yoga Sadhana because, besides being extremely useful for the protection of health, they sustain the activity of the 'Havya Vaha' and 'Kavya Vaha' Tadi Shakti (bio-electric power), that reside in the Marma locations (48). The positive electricity named 'Havya Vaha' resides in the Marmas of the head and the torso, while the negative electricity named 'Kavya Vaha' resides in the Marmas of the hands and legs (48). Vayu Purana (49) and Koorma Purana (50) state that the Havya Vahini and Kavya Vahini powers are related to Agni (fire). The fire (Agni) of Devas (deities) is in the form of Havyavahan, and the fire (Agni) of Pitars (ancestors) is in the form of

Kavyavahan (49). Thus, the Marmas can be regarded as a part of the subtle physiology of the body, which is based on subtle power points and energy currents; a knowledge of this subtle physiology can help us attune ourselves to the subtle energy currents prevailing in the cosmos (11).

The ancient sages (Rishis) observed that even after maintaining a healthy diet and routine, proper arrangement of rest and exercise, many a times due to unknown subtle causes, the Marma points are distorted / damaged, which leads to the imbalance of the Havya Vaha and Kavya Vaha Tadat Shakti (bio-electric power) residing in the Marma points, resulting in the occurrence of disease and weakness (48). In order to provide relief from this suffering by regaining this balance, the ancient sages invented Yogasanas (Yogic postures) through long term research and experience (48).

Marma points are not stimulated through common day to day hard work and exercise (48). Yogasanas have a direct influence on the Marma points, and play an important role in their refinement, stability, and nourishment (48). Yogasanas cause the periodic contraction and expansion of the physical and subtle body parts like veins, muscles, vertebrae, etc., resulting in the removal of the toxins stored there; then through regular cleaning action, new toxins are not allowed to get stored there, and a disease-free healthy state is obtained (48).

Yogasanas and Pranayama affect the body and the mind by stimulating the Marma points (8,11). The Marmas are stimulated through the stretching, vibration, rhythmic movement, and pressure caused by these practices; subsequently, the functioning of the respective organs with which the specific Marmas are associated, also gets affected (7). The Marmas of the chest, abdomen and back are

affected by the forward and backward bending Yogasanas (7).

The practice of Yogasanas ensures proper flow of Prana through different Marma locations (11). Marmas serve as primary energy centers for Yogasanas and Dhyana (meditation) (11). The energy of the limbs, joints and spine is affected by Yogasanas; these locations are sites of important Marma points (11). Marmas are connected to the Nadis (subtle nervous system) and Chakras (subtle energy centers) of the subtle body; thus, the stimulation of Marmas affects both the physical and the subtle bodies (feelings, emotions and subtle energy currents), as well as ensures the proper exchange of energy between them, which results in better health and enhanced vitality(11).

As Marmas are the seats of Prana, the vital life force that governs the physical and subtle processes of the body, the stimulation of Marmas can alter the state of Prana at these locations, causing a corresponding effect on the physical and subtle processes, and the flow of energy (11). Therefore, by the proper

stimulation of Marmas, the Prana can be modulated in such a way that it can be used to remove blockages, and decrease or enhance the physical and subtle energy currents within the body, resulting in the corresponding healing effect (11).

Marma and Shatkarma

Shatkarmas are the six cleansing techniques, as devised by Hatha yoga (Hatha Pradipika 2/22) (51). It is supposed that when Shatkarma purifies the different body systems then the energy (prana) can flow freely through the body (51).

Table 1 lists the effect of Yogic Shatkarma practices on Marma points, and the corresponding therapeutic benefits. The affected Marmas were

selected based on the physical region of the body being affected by the activity associated with the specific Shatkarma practices, as well as the therapeutic benefits caused by the same.

Shatkarma	Affected Marmas	Benefits	Reference
Dhauti	Nabhi, Vasti, Kanthagata and Urogata Marmas	Cough, Asthama, Spleen disorders, Skin disorders, all 20 types of Kapha disorders	H.P. 2/ 25
Basti	Guda, Vasti, Nabhi	Gulma (gas pocket in the abdomen), Spleen disorders, Abdominal disorders, Ascites, Disorders of Vata-Pitta-Kapha	H.P. 2/28
Neti	Shringataka, Phana, Sthapni	Disorders of Supraclavicular region, purify Kapal region (brain), clear vision	H.P. 2/31
Trataka	Apanga, Avarta, Shringataka, Sthapni	Eye disorders, Drowsiness	H.P. 2/33
Nauli	Nabhi, Vasti	Digestive disorders and useful for several diseases	H.P. 2/35
Kapalbhati	Shringataka, Sthapni	Kapha disorders, Obesity	H.P. 2/36

Table 1. Effect of Yogic Shatkarma practices on Marma points, and the corresponding therapeutic benefits [Hatha Pradipika - H.P.] (51,52).

Marma and Yogasanas

Table 2 lists the Marma points stimulated by different Yogasanas (Yogic postures), and the corresponding therapeutic benefits.

Marma and Pranayama

चले वाते चले चित्तं निश्चले निश्चलं भवेत् ।

योगी स्थाणुत्वमाप्नोति ततो वायुं निरोधयेत् ॥

(Hatha Pradipika 2/2) (51,52)

Hindi Commentary: वायु के चलायमान होने पर चित्त भी चंचल होता है और वायु के निश्चल हो जाने पर चित्त भी स्थिर हो जाता है, और तब योगी स्थिरता को प्राप्त करता है। अतः प्राणायाम का अभ्यास करना चाहिए।

English Translation: When Vayu (air) freely flows around, then the Chitta (subtle mind) is also unsteady; and when the Vayu halts, Chitta also becomes steady, and then a Yogi (practitioner of Yoga) attains complete steadiness. Therefore, Pranayama must be practiced.

Hatha Pradipika - 2/5 (51,52) states that when all the dirty Nadis (subtle veins and nerves) are purified, then only a Sadhak (practitioner of

spirituality) becomes capable of properly controlling the Prana (Vayu).

Table 3 lists the effects of Pranayama on Marma points, and the corresponding therapeutic benefits.

Marma and Bandhas

Table 4 lists the Marma points stimulated by different Yogic Bandhas and the affected dosha.

Marma, Pratyahara and Dharana (Concentration)

Out of the eight limbs of Yoga, Pratyahara is the fifth limb, which deals with the withdrawal of the sensory perceptions from external pursuits, and making the mind introvert to see within and internalize all forms of energies (Patanjal Yoga Sutra, Sadhana Pad, 54) (47). It helps in internalizing the consciousness and Prana, which in turn can contribute to spiritual upliftment and healing (11); probably, this is the reason why the ancient sages greatly appreciated the practice of Pratyahara on Marma sites, as described below.

As Marmas are the seats of Prana, they can play a vital role in the practice of Pratyahara, as has been

described in Shandilyopanishada (54) and Vashishtha Samhita (55).

Asana	Affected body part/ organ	Stimulated Marma	Benefits	Ref. (Pg.No.)
Siddhasana	Excretory/ Reproductive organs	Guda, Vasti	Nightfall, Leucorrhoea, control over mind, may achieve thoughtless stage of mind	Gh.S. 128
Padmasana	Base of the spine	Vitapa	Physical and mental stability and peace, reduction in internal anxiety	Gh.S. 131,132
Vajrasana	Digestive, Excretory, Reproductive system	Katikataruna, Vitapa	Constipation, hyperacidity, indigestion, peptic ulcer, problems related to reproductive and excretory system - irregular menses, hydrocele, hernia	Gh.S. 140,141
Matsyendrasana	Abdomen region - liver, spleen, pancreas, intestine, urinary bladder, kidney	Nabhi, Vasti, Parshvasandhi	digestive disorders, diabetes, for the flexibility of back and spinal cord, backache, stiffness, osteophytes, urinary disorders, constipation, colitis, irregular menses	Gh.S. 162,163
Simhasana	Neck, throat, brain, spinal cord	Nila, Manya, Matruka, Krukatika	Balance hypothalamic - limbic system, speech related problems - stammering, hoarseness of voice, etc., tonsillitis, mouth ulcer, depressive and introvert person	Gh.S. 145,146
Gomukhasana	Reproductive organs, lungs and other respiratory organs, upper part of back, shoulder	Vitapa, Ansaphalaka, Vruhati, Stanamoola, Stanarohita	Hydrocele, prolapse of uterus, Asthma, Bronchitis, Cervical spondylosis, Frozen shoulder, Writer's cramp	Gh.S. 147,148
Dhanurasana	Whole spinal cord, liver, stomach, lungs, heart, kidney, pancreas, adrenal gland, intestine, upper-extremity, lower-extremity, head	All marmas of abdomen, chest and back	Stiffness of vertebral column, slip disc, sciatica, spondylitis, improve digestion, worms, flatulence, obesity, liver insufficiency, constipation, diabetes, colitis, menstrual disorders, respiratory problems, hormonal disbalance	Gh.S. 152,153
Pashchimottanasana	Abdomen, excretory and reproductive system, kidney, hip region, lower-extremity	All marmas of abdomen, chest and back	Liver insufficiency, diabetes, menstrual disorders, colitis, bronchitis, eosinophilia, scoliosis, obesity, renal disorders, respiratory problems	Gh.S. 168,169
Bhujangasana	Spinal cord, Abdomen, Kidney, Liver, Adrenal gland, Thyroid gland, Reproductive organs, neck	All marmas of abdomen, chest, back and neck	Increase flexibility of spinal cord, slip disc, lumbago, menstrual disorders, constipation, hypothyroidism, Renal disorders, increase appetite	Gh.S. 198,199
Mayurasana	Navel region, stomach, liver, intestine, urinary bladder	Nabhi, Vasti, Manibandha, Kurpara	Constipation, diabetes, liver and renal insufficiency, skin disorders, hormonal disbalance, to balance Tridoshas (Vata, Pitta, Kapha)	Gh.S. 174,175

Table 2. Marma points stimulated by different Yogasanas (Yogic postures), and the corresponding therapeutic benefits [Gherand Samhita - Gh.S.] (53).

Pranayama	Affected Marmas	Benefits	Reference
Suryabhedan	Marmas of Supraclavicular region (Heating effect)	Cleanses the head region, provides relief in Vata disorders, worm infestations	H.P. 2/50
Ujjai	Kanthagata marmas (Nila, Manya, Matrika)	Provides relief in Kapha disorders, throat disorders, nervine disorders, ascites, genital disorders	H.P. 2/52,53
Seetkari	Marmas of Supraclavicular region (Cooling effect)	Able to conquer hunger, thirst, sleep, fatigue	H.P. 2/55
Sheetali	Marmas of Supraclavicular region (Cooling effect)	Provides relief in gulma, spleen disorders, fever, Pitta disorders; able to conquer hunger, thirst; destroys the effect of poison	H.P. 2/58
Bhastrika	Marmas of Chest, Abdomen and Supraclavicular region	Provides relief in Vata, Pitta, Kapha related disorders; enhances the digestive fire	H.P. 2/65
Bhramari	Shiromarma (Head Marmas)	Arousal of immense peace and happiness in the Chitta (inner conscience)	H.P. 2/68

Table 3. Effect of Pranayama on Marma points, and the corresponding therapeutic benefits (Hatha Pradipika - H.P.) (51,52).

Bandha	Affected body part/ organ	Stimulated Marma	Affected Dosha
Moola	Base of the spine	Guda, Vasti	Vata
Uddiyana	Stomach region	Nabhi	Pitta
Jalandhara	Throat region	Nila, Manya	Kapha

Table 4. Marma points stimulated by different Yogic Bandhas and the affected dosha (11)

As Per Shandilyopanishada

Shandilyopanishada discusses the performance of Pratyahara on 18 Marma locations as follows (54).

अष्टादशसु मर्मस्थानेषु क्रमाद्धारणं प्रत्याहारः। (Shandilyopanishada 8/1) (54). Hindi Translation - अष्टारह मर्म स्थलों में क्रमशः धारणा करना (उन स्थानों पर स्थित चेतन दिव्य प्रवाहों के साथ चित्त का तादात्म्य स्थापित करके दिव्यानुभूति प्राप्त करना) ही प्रत्याहार है। (54)

English Translation - Pratyahara is the process of doing Dharana (attaining divine experience by establishing the linkage of the Chitta, inner conscience, with the lively divine currents present at those locations) successively on the eighteen Marma locations.

पादाङ्गुष्ठगुल्फजङ्घाजानूरुपायुमेढ्रनाभिहृदयकण्ठकूपतालुनासाक्षिभ्रूमध्य ललाटमूर्ध्नि स्थानानि । तेषु क्रमादारोहावरोहक्रमेण प्रत्याहरेत् ॥

(Shandilyopanishada 8/2) (54)

Hindi Translation - पैर का अँगूठा, गुल्फ, जंघा, जानु, उरु, गुदा, लिंग, नाभि, हृदय, कण्ठकूप, तालु, नासिका, आँख, भ्रूमध्य, ललाट एवं सिर - इन सभी स्थलों पर उतार चढ़ाव के क्रम से प्रत्याहार करना चाहिए। (54)

English Translation - Toe of the foot, Gulpha (ankle), Jangha (lower leg), Janu (knee), Uru, Guda (anus), Linga (genital), Nabhi (navel), Hridaya (heart), Kanthakooopa (root of neck), Talu (palate), Nasika (nose), Anka (eye), Bhroomadhy (area in between the eyebrows), Lalata (forehead) and Sira (head) - on all these locations Pratyahara should be done in the order of going up and down.

As Per Vashishtha Samhita

Vashishtha Samhita (3/61 to 3/64) (55) also describes the practice of Pratyahara on 18 specific Marma locations, as follows.

प्रत्याहारं प्रशंसन्ति संयुता योगिनः सदा । अष्टादशसु यद्वायोर्मर्मस्थानेषु धारणम् ।
स्थानात् स्थानात् समाकृष्य प्रत्याहारः स चोत्तमः ॥

(Vashishtha Samhita 3/61) (55)

Hindi Translation - अभ्यास में लगे हुए योगी सदा उस प्रत्याहार की प्रशंसा किया करते हैं, जिसमें अष्टारहों मर्म स्थानों में वायु को स्थिर करना, फिर एक एक स्थान से उचित रीति से वायु को खींचना होता है, वही उत्तम प्रत्याहार है (55)

English Translation - The dedicated Yogis (practitioners of Yoga) always praise that Pratyahara, which involves (concentration (Dharana) of / the feeling of) stabilizing the Vayu (Prana - vital life force) in all the eighteen Marma locations, and then pulling / drawing the Vayu (Prana) in proper manner from each of these locations - this is the best form of Pratyahara (11).

पादाङ्गुष्ठौ च गुल्फौ च जङ्घामध्यौ तथैव च । चित्त्योर्मूले च जानू च मध्ये
चोरुद्रयस्य च ॥ पायुमूलं ततः पश्चान्मध्यदेहं च मेढ्रकम् । नाभिं च हृदयं वत्स
कण्ठकूपस्तथैव च ॥ तालुमूलं च नासायाः मूलं चाक्षगोश्च मध्यमम् । भ्रुवोर्मध्ये
ललाटं च मूर्धा च मुनिसत्तम । मर्मस्थानानि चैतानि मानं तेषां पृथक् शृणु ॥

(Vashishtha Samhita 3/62-64) (55)

Hindi Translation - पाँव के अंगूठे, दोनों टखने, जंघाओं के मध्य, दोनों चिति (घुटने के नीचे का भाग) के मूल, दोनों घुटने, उरुओं के मध्य, गुदा का मूल, देह मध्य, लिंग, नाभि, हृदय, कण्ठ कूप, तालुमूल, नासामूल, दोनों आँखों के मध्य बिन्दु, दोनों भौहों के मध्य, मस्तक तथा मूर्धा - ये 18 मर्म स्थान कहलाते हैं । (55)

English Translation - Toes of the foot, both the ankles, middle of the Jangha (lower leg), the root of both the Chiti (the part below the knee), both the knees, middle of the Uru (thigh), root of anus, middle of torso, male genital, navel, heart, root of

neck, top of palate, root of nose, area between both the eyes, area between both the eyebrows, forehead and Murdha (back of palate) - these are called the 18 Marma locations.

The physical distance between these 18 Marma locations has been described in Vashishtha Samhita, as given in Table 5 (Vashishtha Samhita 3/65 to 3/73) (55); the names of the Marma points corresponding to these locations are also given in Table 5 (14).

Vashishtha Samhita (3/74) (55) states that the process of taking the Vayu (Prana) from the mind to these locations, drawing the Vayu through these locations one by one, and stabilizing it there, is considered very good form of Pratyahara. (Hindi Translation - इन स्थानों में मन से वायु को उठाकर, एक एक स्थान से क्रमशः दूसरे स्थान में खींचकर स्थिर करते जाना उत्तम प्रत्याहार माना गया है। (Vashishtha Samhita 3/74) (55).

Marma and Dhyana (Meditation)

If Dhyana (meditation) is practiced on the Marma points, on which the practice of Pratyahara has been suggested by the ancient sages / Rishis, then it can lead to the balancing of the Pranic flow in the body and mind, and thus provide relief in all types of diseases and sufferings (11). With regards to the methodology of this Dhyana, Frawley et al. (2015) (11) state that by using inhalation and exhalation, muscle flexion and relaxation, and the power of attention, the Prana should be drawn to each of these Marma points. The attention may be focused on a specific Marma site as well, in order to heal that specific area (11).

	Marma sthana (Marma region)	Corresponding Marma point [14]	Distance between subsequent Marma sthanas (in Angula, i.e. number of finger width)	Reference [V.S.] [55]
1.	Padangushtha	Kshipra	0	3/65
2.	Gulpha	Gulpha	4.5 fingers above from Padangushtha	3/65
3.	Pindikamadhya	Indravasti	10 fingers above from Gulpha	3/66
4.	Janumoola	---	11 fingers above from Pindikamadhya	3/66
5.	Janu	Janu	2.5 fingers above from Janumoola	3/67
6.	Urumadhya	Urvi	9 fingers above from Janu	3/67
7.	Payumoola	Guda	9 fingers above from Urumadhya	3/68
8.	Dehamadhya	---	2.5 fingers above from Payumoola	3/68
9.	Linga	Vitapa	2.5 fingers above from Dehamadhya	3/69
10.	Nabhi	Nabhi	10.5 fingers above from Linga	3/69
11.	Hridayamadhya	Hridaya	14 fingers above from Nabhi	3/70
12.	Kanthakooapa	Nila, Manyā	6 fingers above from Hridayamadhya	3/70
13.	Jihvamoola	Shringataka	4 fingers above from Kanthakooapa	3/71
14.	Nasamoola	Shringataka	4 fingers above from Jihvamoola	3/71
15.	Netrapradesha	Apanga	1/2 finger above from Nasamoola	3/72
16.	Bhroomadhya	Sthapni	1/2 finger above from Netrapradesha	3/72
17.	Lalaata	---	3 fingers above from Bhroomadhya	3/73
18.	Brahmarandhra	Adhipati	3 fingers above from Lalaata	3/73

Table 5. The physical distance between the 18 Marma locations described in Vashishtha Samhita [V.S.] (55), and the names of the corresponding Marma points (14).

Marma and Chakras

The literal meaning of word 'Chakra' is 'wheel' or 'circle', but in the yogic context it means 'vortex' or 'whirlpool'. The chakras are vortices of pranic energy at specific areas in the body which controls the circulation of Prana permeating the entire human structure. In this regard the chakras may be correlated with the Pranayatana (seats of Prana). Acharya Charaka and Acharya Vagbhatta have mentioned ten Pranayatana in the body (Charaka Sharira 7/9 (42), Ashtanga Sangraha Sharira 5/59 (40,41). Out of these ten Pranayatana, six given by Acharya Charaka (Charaka Sharira 7/9) (42) and seven by Acharya Vagbhatta (Ashtanga Sangraha Sharira 5/60) (40,41) are called as 'Mahamarmas'

(very important marmas), that correspond almost identically with the location of seven chakras, as mentioned in Table 6. The corresponding verses of Ashtanga Sangraha Sharira 5/59,60 (40,41) are as follows:

दश प्राणायतनानि मूर्धा जिह्वाबन्धनं कण्ठो हृदयं नाभिर्बस्तिगुदः शुक्रमोजो रक्तम् ।
। एषामाद्यानि सप्त पुनर्महामर्मसंज्ञानि ॥ (Ashtanga Sangraha, Sharira Sthana 5/59,60) (40,41)

On a physical level, chakras are associated with the major nerve plexus and endocrine glands in the body (56).

Each chakra is a switch which turns on or opens up specific areas of the brain. In most people these psychic centers lie dormant and inactive (56). Marma point stimulation by concentration on the chakras can modulate the flow of energy (prana)

through these chakras and helps to activate them. This in turn awakens the dormant areas in the brain, and the corresponding faculties in the psychic and mental bodies, allowing one to experience higher planes of consciousness, which are normally inaccessible (56).

The major chakras are seven in number, and are located along the pathway of Sushumna, which

flows through the center of the spinal cord (56). The seven major chakras have the role of absorbing energy and channelizing it to body's nerve centers (14).

The role of chakras is very important in Marma Science. Each of the seven major chakras, and their corresponding region of the back is a kind of Marma, and these Marmas or Pranic centers of the subtle body energize all the other Marmas or Pranic centers of the physical body (11,14).

The location of chakras, their anatomical correlation and their corresponding Marma points are described in Table 6.

Chakra	Related Pranayatana*	Related Marma	Location	Anatomical correlation
Muladhara	Guda	Guda	At the Perineum (in males) At the Cervix (in females)	Pelvic plexus
Swadhisthana	Vasti	Vasti	Behind the Genital organs, approximately two fingers above Muladhara Chakra	Hypogastric plexus
Manipura	Nabhi	Nabhi	Behind the Navel	Solar or Epigastric plexus
Anahata	Hridaya	Hridaya	Behind the Sternum, at the level of Heart	Cardiac plexus
Vishuddhi	Kantha	Matrika	Behind the Throat pit (at the back of neck)	Carotid plexus
Agnya	Jihvabandhana	Sthapni	Behind the Eyebrow center (in the mid brain)	Medulla plexus
Sahasrara	Murdha	Adhipati	At the Crown of the head	Cerebral gland

Table 6. Location, anatomical correlation, and the corresponding Marma points and Pranayatana for the seven Chakras (11,14,56).
*Ashtanga Sangraha Sharira Sthana 5/59,60 (40,41)

Thus, it may be understood that by working on marma points, the Prana may be controlled (11). The control over the Prana can in turn lead to control over the autonomic nervous system, sensory and motor organs, as well as the entire mind-body system, which opens the doors for the access of the higher realms of consciousness (3,11).

CONCLUSION

The present article explored the foundational elements of the Science of Marma with regards to its use in Yoga and other ancient Indian traditions.

It is observed that the science of vital spots (Marmas) is an integral part of several ancient Indian traditions including the Kalaripayattu martial art tradition of Kerala, and the Varma-kalai

of Tamil Nadu. This science has been used both as a martial art for self-defense and inflicting injury on the opponents, and as a therapeutic technique for healing purposes. Siddha system of medicine calls Marma as 'Varma', and regularly employs the practice of stimulation of these vital spots for the treatment of various ailments. With regards to the conceptual foundation of their healing application in these traditions, the stimulation of the vital spots is supposed to rectify the flow of Prana in the body, leading to the corresponding healing effect.

According to the ancient scriptures, there is a prominent correlation between the Marma Science and Yogic Science, including the different limbs of Ashtanga Yoga. The Yogasanas (Yogic postures) were invented by the ancient sages, through long term research and experience, to stimulate specific Marmas for desired therapeutic benefits; the Marmas are stimulated through the stretching, vibration, rhythmic movement, and pressure caused by these practices. The correlation between Marma points and the Shatkarmas (the six cleansing techniques), specific Yogasanas (Yogic postures), Pranayamas, and Bandhas, as well as their corresponding therapeutic benefits have been presented in the article. Ancient sages greatly appreciated the practice of Pratyahara on Marma sites. It is suggested that practicing Dhyana (meditation) on the Marma points can lead to the balancing of the Pranic flow in the body and mind, and thus provide relief in all types of diseases and sufferings. Each of the seven major Chakras, and their corresponding region of the back is a kind of Marma, and these Marmas or Pranic centers of the subtle body energize all the other Marmas or Pranic centers of the physical body.

Thus, significant correlation has been observed between Marma Science and Yogic Science, as well as it has been used extensively in several ancient Indian traditions. The use of Marma Science for

therapeutic purposes in these ancient traditions, presents a strong support for the recent attempts at stimulating Marma points for healing applications. The Part-4 of the exploration of the Science of Marma will deal with the foundational elements and current status of Marma Therapy.

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