

Yoga therapy in the management of polycystic ovarian disease –

A review

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Abstract:

Yoga is a multi-dimensional approach needed for all sectors of society and community. Yoga is an art and a spiritual science. Yoga is an intervention, a life style, a worship and a healing power. In the past yoga is the way to realize the supreme consciousness (PARAMATHMA), but presently most of the people use it in their life style as therapy for managing various long-term ailments like Asthma, hypertension, diabetes mellitus, eosinophilia, mental retardation, chronic head ache, insomnia, renal problems, liver disorders, cholestremia, hemiplegia, venereal disease, osteo arthritis and gynaec problems. In this article yogic intervention for managing polycystic ovarian disease (PCOD) and its clinical features, etiology, , patho physiological complications will be discussed in detail. Yogic interventions for the management of PCOD are Aasanam, Bandham, Muthrai and Meditation as discussed in sequel. Aasanam are Paschimottanasam (Forward bend posture), Bhujangasanam (Cobra posture), Sarvangasanam (Exercise all system), Setubandhasanam (Bridge posture), Matsyasanam (Fish posture), Vajrasanam (Weapon posture). Bhandham (energy modification practices) are Jalandhara bhandhanam (Throat lock), Moola bhandhanam (Under abdominal lock). Muthirai are Yoni Muthirai, SuriyaMuthirai. Meditation include Breathing meditation and Manthra pronunciation.

Key words:

Polycystic ovarian disease, asanam, Bandham, Muthrai and Meditation.

Introduction:

In *Siddha* system of medicine, **kayakarpams** are holistic healing or curative approaches discovered by Tamil *Siddhars* for the healthy long living of humans. In ancient Tamil, **Kayam** means body and **Karpam** means the process of making stone and hence the medicines that are capable of converting the human body into strong stone like structure are called **kayakarpam**. **Karpam** keeps a human body in healthy condition without any diseases and prevent cellular degeneration, loss of efficiency of internal organs, skin shrinkages and aging [1]. It improves the body health and prevents diseases and also increases the life span of humans. According to *Siddha* medical text namely “*Siddha maruthuva sirappu*”, the author Thiyagarajan R classified the **karpamas** five types they are *Avilthakarpam* (Medicine of **kayakarpam**), **Yogakarpam** (Yoga exercise) *Aathanakarpam* (Meditation exercise), *Vaasikarpam* (Breathing exercise) and *Muppukarpam* (Value addition of **karpam**) [2]. There are eight elements in **Yogakarpam**. *Yamam* (Purity of Mind/Moral code), *Niyamam* (Purity of action), *Asanam* (posture), *Pranayamam* (scientific breathing), *Pratyahara* (restraining the five senses), *Dharana* (fixing the mind on a member of the body), *Dhyanam* (Silent meditation) and *Samadhi* (trance). Yoga is the means by which is a state of **omniscience** (the state of knowing everything), merging with the divine and it is an applied science. *Siddhar's* science declares 64 kinds of Yoga. Generally *Asanam*, *Bhandham*, *Mudrai* and Meditation are under Yoga practicing [3].

For the **Asanam** practicing method rules are mentioned in many *Siddha* literatures like *Bohar karpayogam*, *Pathanjali yoga suthiram*, *Ramadevar karpayogam*, *Sattaimuni karpayogam*...etc. *Asanam* are different kinds of posture and they are classified according to the purpose for which a practice is made. For purpose of yoga practice, these postures are divided into 84 kinds [3]. One research article says asana practicing is most recognized form of exercise, stretching, aerobic exercise and meditation [4].

Bhandham are extensively integrated in *mudrai* as well as breathing techniques. Their locking action, however, reveals them as an essentially important group of practices in their own right. The Sanskrit word “bandha” means to 'hold', 'tighten' or 'lock'. These definitions precisely describe the physical action concerned in the *bandham* practices and their effect on the pranic body. The *bandhams* aim to lock the *pranan* in particular areas and redirect their flow into *Suzhumunainadi* (nerve currents of pranan in the human body originated from the nerve centre at the sacral region up to that at the cerebral region for the purpose of spiritual awakening. *Bandhams* may be practised individually or included with *mudrai* and *pranayamam* practices. When combined in this way, they awaken the psychic faculties and form an adjunct to higher yogic practices *bandhams* and the *granthis*. There are four *bandhams*: *Jalandhara*, *Moola*, *Uddiyana* and *Maha*. The last of these is a combination of the first three [5].

Muthirai are different kinds of adjustment of some of the organs of the body and postures that play an important role for facilitating concentration of the mind in contemplation. These *mudrais* are of five different kinds, each of which is prescribed for different classifications and practice by ordinary men owing to the complicacy and high technique involved there in [5].

Meditation is performed for control of senses. It is one of the eight kinds of yoga (*Attanga yogam*). It is explained as a posture where there is a general relaxation of the mind with drawn from its running course of activity, is left alone in the quiet that stands like an immobile rock at the back of its waves ripples and even throbbing [5]. Meditation based clinical trial conducted for twenty three adult health volunteers revealed that meditation gives brain sharpness and mind relaxation [6].

Polycystic ovarian disease (PCOD) is hyper androgenism (male hormones) with chronic anovulation in women without specific underlying adrenal or pituitary gland disease. Menses may be irregular but later oligomenorrhea develops and then amenorrhea (absence of menstrual cycle), but infrequently ovulation will occur [7]. Infertility is usually persistent but may be treated with clomiphene, gonadotrophins or wedge resection of the ovary. It is otherwise called as Stein – Leventhal syndrome [8]. It is a hormonal disorder in women of reproductive age. The main symptom of PCOD condition is irregular menstrual cycle, infertility, hyper androgenemia. Other symptoms are excessive hair growth on face, acne, pelvic pain, obesity, diabetes etc [9]. In this disease Insulin, Follicular stimulating hormone, Testosterone, Luteinizing hormone and Adrenal hormones are affected [10].

Existing modern line of treatment and its demerits:

In modern medicine they give Insulin sensitizers and oral contraceptive pills. For ovulation induction in infertile PCOS surgical treatment given, for the patients who become resistant to medical treatment laparoscopic ovarian drilling is also recommended. But this treatment gives lot of health problems and unsatisfactory results, besides expensive, disturbs the natural biological system for hormonal production and other systemic disorders also occur. There is a strong relation between obesity, stress and PCOS. On an average 50-60 % of women with PCOS are affected by obese.(?) Obesity and stress disturbs normal hypothalamic - pituitary – ovarian axis leading to insulin resistance, produce stage of hyper androgenism due to which somatic symptoms of PCOS like Hirsutism, Anovulation, Abnormal menstruation, Sub fertility, acne and psychic symptoms like anxiety, depression, insomnia, loss of concentration are produced. A reduction of weight as much as even 7% may dramatically improve endocrine profile of PCOS and restore fertility(?) [10].

Due to Stress cortisol levels becomes high (the stress hormone) and it is one of the major cause of fat storage and weight gain [11]. One review article says that Yoga was found to be more effective than conventional physical exercise in adolescent girls with PCOS [12]. A clinical trial results have proven that **asana practice reduce anxiety and stress level** [13].

Yogic practices recommended for PCOD:

Asanam

Asanams recommended for the treatment of PCOD are *Paschimottanasa* (Forward bend posture), *Bhujangasana* (Cobra posture), *Sarvangasana* (Exercise all system), *Sethubandhasana* (Bridge posture), *Matchyasana* (Fish posture), *Vajrasana* (Weapon posture).

1.1 Paschimottanasam:

Method of practice: Patient must sit on the floor with the legs outstretched, feet together and hands on the knees. This is the starting position. whole body must be in a relaxed position. Slowly body must be bent forward from the hips, sliding the hands down the legs. Big toes to be grabbed. If this is impossible heels, ankles or any part of the legs to be reached comfortably. It is necessary to keep in this position for a few seconds. Back and leg muscles must be relaxed allowing them to gently stretch, knees to be touched with the forehead. This is the final position (Figure.1). To be hold in this position as long as it is comfortable and to be relaxed. Slowly to return to the starting position [5].

Benefits of this asanam in PCOD management: Removes the uro-genetal problems like prolapsed and menstrual disorders. Stimulate all abdomen organs of liver, pancreas, Kidney and genetal organs. Increases hormone secretions [5] and controlls obesity [14]. This is in agreement with the data obtained by *Bhagya shri Mahavir*, 2013 [15].

1.2 *Bhujangasanam*:

Method of practice: The pose starts from a downward facing position with hands flat on the floor below the shoulders. The spine is lengthened and the buttocks firmed as the head and chest is slowly lifted. The elbows stay close to the body and the eyes look up [15]. (Figure.2)

Benefits:Regulates the abdomen organs of liver, pancreas, adrenal and genito – urinary organs[5]. The neck is kept neutralCobra pose exerts pressure on the stomach and helps to stimulate ovarian function. It has many advantages like improves digestion, bust stress, good for chest, lungs, and shoulder [4].

1.3 *Sarvangasanam*:

Method of practice: To lie down on the back on a folded blanket. To be checked that the head and spine are aligned and the legs are straight with the feet together. The hands must be placed beside the body with the palms facing down, entire body and mind to be relaxed. Abdominal muscles to be supported by the arms, slowly legs to be raised to the vertical position, keeping them straight. When the legs are vertical, arms and hands pressed down on the floor. Slowly and smoothly rolled the buttocks and spine off the floor, raising the trunk to a vertical position. Then to turn the palms of the hands upward, bend the elbows and place the hands behind the ribcage, slightly away from the spine and to support the back. The elbows should be about shoulder width apart. Gently chest shouldbe pushed forward so that it presses firmly against the chin. In the final position, the legs are vertical, together and in a straight line with the trunk. The body is supported by the shoulders, nape of the neck and back of the head. The arms provide stability, the chest rests against the chin and the feet are relaxed. Eyes to be closed, the whole body relaxed in the final pose as long as is comfortable. To return to the starting position, the legs brought forward until the feet are above and behind the back of the head. The legs kept straight. Slowly the position of the hands to be relaxed and the arms to be placed on the floor beside the body with the palms down. Gradually lowered each vertebrae of the spine to the floor, followed by the buttocks, so that the legs resume their initial vertical position. Legs lowered to the floor slowly, keeping the knees straight. This action to be performed without using the arms for support. The whole movement should combine balance with control so that the body contacts the floor slowly and gently(Figure.3). Relaxed in shavasana until the respiration and heartbeat return to normal[5].

Benefits: Regulates the endocrine system. The thyroid gland controls the metabolism of the body. Therefore, by improving the efficiency of the thyroid gland through sarvangasana one can maintain the correct body weight. This asana improves the oxygen exchange in the body.Sarvangasana is used in yoga therapy for the treatment of asthma, diabetes, colitis, thyroid disorders, impotence, hydrocele, prolapse, menopause, menstrual disorders and leucorrhoea. Regular practice helps to prevent cough, cold and flu[5].

1.4. Setu Bandhasanam:

The name translates “setu” as bridge, “bandha” means a lock, or formation, asana means pose. Hence this pose is sometimes referred to as the formation of a bridge pose.

Method of practice: For this asanam feet must be pressed down evenly to lift up into the pose. Knees to be kept at the same distance as the feet. Activated pelvis is lifted to be in line between the knees and chest. The pubic bone will be higher than the navel to assure lumbar spine support. The tailbone lengthened towards the back of knees. Back of the shoulders and arms were pressed down into the floor. A smooth consistent breath maintained throughout the duration of the pose (Figure.4).

Benefits of this asana is to maintain the balances of endocrine system (Hormones or ductless system) especially pituitary in brain, thyroid and parathyroid in throat, thymus in chest, adrenals in lower back, testes (men), and ovaries (women), in the sexual organs[16]. Improves spinal flexibility, Increases breathing capacity and Mobilizes shoulder joints[17].

1.5. Matsyasanam:

Method of practice: During this asanam body is lied down straight on the back with the hands at the back of thighs. Pressure is put on the elbows and the stomach portion pulled upwards. This position is hold for thirty seconds and then should come down[18].(Figure.5)

Benefits: This asana strengthens the back, opens the heart, stretches the abdomen, stimulates low abdomen organ's functions, and the intercostal muscles in the ribs and stimulates thyroid[18].

1.6. Vajrasanam:

Method of practice: This Asana is performed after meals also. Following steps should be followed for this Asana. During this, it is necessary to kneel down on the floor in such a way that knees should be close together. When kneeling, the body weight is thrust on the knees, shins, and parts of feet. Kneeling brings the center of gravity closer to the ground and makes certain activities, such as gardening, less stressful for the spine. Kneeling also provides a stable base from which the center of gravity can be raised up. The big toes must be pressed together and heels should be separated. Buttocks should be lowered onto the inside surface of the feet with the heels touching the sides of hips. Hands should be placed on the knees and palms down. The back and head should be straight but not tensed. Excessive backward arching of the spine should be avoided. Eyes should be closed, the arms and the whole body must be relaxed (Figure.6). Breathing should be normal and the attention is fixed on the flow of air passing in and out of the nostrils[5].

It is helpful for the individuals suffering from sciatica and some lower back problems and muscle ache of lower extremities. Improves stability and tone of knee joint, skeletal muscles of thigh, leg, back. If practiced regularly strengthens iliopsoas, erector spine, quadrates lumborum and adductors and calf muscles of leg. So can be clinically recommended in tremors or weakening of muscles. Good for digestive disorders by increasing vascularity of digestive organs (e.g heaviness in the stomach, hyperacidity, constipation, intestinal gas, piles)[19]. One research article also explain that this asana practiced regularly reduce stress level[4].

2. Bandhanam:

2.1. Jalandhara Bandham

Method of practice: For this one should sit on *padmasana* or *siddha/siddha yoni asana* with the head and spine straight. The knees should be in firm contact with the floor. Those who cannot manage this may perform *jalandhara Bandham* in a standing position. Palms of the hands must be placed on the knees. Eyes must be closed and the whole body relaxed. To inhale slowly and deeply, and the breath retained inside. While retaining the breath, the head bends forward and presses the chin tightly against the chest. Straighten the arms and lock them firmly into position, pressing the knees down with the hands. Simultaneously, hunch the shoulders upward and forward. This will ensure that the arms stay locked, thus intensifying the pressure applied to the neck. To stay in the final position as long as the breath can be held comfortably. One should not strain. The shoulders relaxed in the arms, bent slowly releasing the lock, raising the head and then to exhale (Figure.7). Repeated this pose as long as the respiration has returned to normal[5].

2.2. Moolabandhasanam:

Method of practice: It is the perineal contraction pose. For this one should sit with the legs outstretched in front of the body. The knees to be bent and the soles of the feet brought together. Heels were drawn towards the body. The outside of the feet should remain on the floor. The hands were placed behind the buttocks with the fingers pointing backward, raising the buttocks onto the heels, so that the heels press the perineum. The knees remain on the floor. The ankles must not be strained. The hands were placed on the knees in either *chin* or *jnanamudra*. Held in the final position as long as is comfortable. Released the legs and stretched them forward (Figure.8). Repeated till all the tension has left the legs and feet[5].

3.1. Yoni Muthirai:

Yoni Mudra (attitude of the womb or source). During this *muthirai* comfortable meditation posture is assumed with the head and spine straight. The palms of the hands placed together with the fingers and thumbs straightened and pointing away from the body. Keeping the pads of the index fingers together, turned the little, ring and middle fingers inwards so that the backs of the fingers are touching. To interlock the little, ring and middle fingers. The thumbs brought towards the body and to join the pads of the fingers together to form the base of a yoni or womb shape [5] (Figure.9). This concept was proven by Brittany Woodard, 2015[20].

3.2. Surya Muthirai:

For this *muthirai* to stand or sit up straight and hold hands out in front of one. The ring finger of each hand to be bend so that its tip touches the mound of thumb. To press down on ring finger with thumb and ensure that the other fingers are spread out straight. The more pressure on the ring finger, the more inner fire is stoked. The *Surya Muthirai* can be practiced in a seated posture with hands on the knees and palms facing the sky (Figure.10). It is also a great *Muthirai* to do while walking.

Surya means 'Sun' and this Muthirai is known to increase the fire element in the body. This is achieved by covering up the ring finger which represents the earth element with thumb which represents the fire element²¹.

4. Breathing meditation:

Generally, the purpose of breathing meditation is to calm the mind and develop inner peace. A quiet place must be chosen to meditate and to sit in a comfortable position. One should sit with eyes partially closed and turn attention to breathing. One should breathe naturally, preferably through the nostrils, without attempting to control breath, and must try to become aware of the sensation of the breath as it enters and leaves the nostrils. This sensation is the object of meditation. One should try to concentrate on it to the exclusion of everything else.

As it is mind will be very busy, and one might even feel that the meditation is making mind busier; but in reality one is becoming more aware of how busy actually is mind. There will be a great temptation to follow the different thoughts as they arise, but one should resist this and remain focused single-pointedly on the sensation of the breath. If one discovers that the mind has wandered and is following thoughts, one should immediately return it to the breath. One should repeat this as many times as necessary until the mind settles on the breath [22].

5. Mantra pronunciation:

Mantrams often contain syllables like Om, Ah, and Hum (approximately pronounced hoong), which have no literal meaning what so ever. The breathing exercise throw *Mantra* chanting. It Increases the concentration and peace and gives relaxation to mind.

Conclusion:

PCOD is a disorder of hormonal imbalance. Nowadays 40 to 60% of women are affected by this due to stressful and polluted atmosphere, unhygienic artificial foods, breathing impure air and drinking contaminated water. Effective drugless therapies of *yogas anam*, breathing exercise and meditations are available for the management of PCOD. These exercises are therapy and will not produce any side effects. These therapies efficacy is proved by the modern diagnostic tools like ultra sonogram and hormone tests. Continuous practicing of yoga for six months to one year gives an excellent cure.

Conflict of interest

The authors declare no conflict of interest.

Authors' Declaration

The authors hereby declare that the work presented in this review article is original and that any liability for claims relating to the content of this article will be borne by them.

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References:

1. Kuppusamy mudhaliyar KN, Siddha maruthuvam (pothu), 7th edition. Department of Indian Medicine & Homeopathy, Chennai, 2007.
2. Thiyagarajan R, *Siddha maruthuva sirappu*, 2nd edition, Director of Indian Medicine and Homeopathy, Arumbakkam, Madras. 1995.
3. Sambasivam Pillai T.V., Tamil Dictionary Vol.1-5. Fourth edition, Tamilnadu Siddha Medical Council, Chennai. 1994.
4. Balaji Deekshitulu P.V. Stress and Yoga. *Journal of Yoga & Physical Therapy*. 2012;2 (2):1-4.
5. Asana Pranayama Mudra Bandha. Swami Satyananda Saraswati. Third revised edition. Reprint. Yoga Publications Trust, Ganga Darshan, Munger, Bihar, India, 2002.
6. Adrianna Doucas, Jake Pagel, Jordyn Robl, Natalie Olander .Effects of Controlled Meditation on Stress Response Elicited by a Timed Mathematics Test. *Journal of Advanced Student Science*. 2019; 1-35.
7. Das P.C., Text Book of Medicine. 3rd edition, 2nd reprint, Current books International, 60, Lenin saranee, Calcutta, 1991.
8. Clayton L. Thomas. Taber's cyclopedic Medical Dictionary. Jaypee brothers, Medical publishers (p) ltd, New Delhi, India. 18th edition. 1998.
9. Sonia Malik, Kuldeep Jain, Pankaj Talwar, Sudha Prasad, Bharti Dhorepatil, Gouri Devi. Management of Polycystic Ovary Syndrome in India. A Consensus Evidence-based Good Clinical Practice Recommendations. 2015. Vol 1(1): 23 – 43.
10. Christopher R. McCartney and John C. Marshall, M.B. Polycystic Ovary Syndrome. *The new england journal of medicine*. 2016. 375: 54-64.
11. Anjali Verma and Prasooti Tantra, Sarvesh Kumar, Laxmipriya Dei and Kamini Dhiman. Management of PCOS: A Psychosomatic Disorder by Yoga Practice. *International journal of innovative research & development*. 2015. Vol 4 (1): 216- 219
12. Prasanna Venkatesh L and Vandhana S, Insights on Surya namaskar from its origin to application towards health, *J Ayurveda Integr Med*. 2015; 8(1): 15-21

13. Malathi and Damodaran. Stress due to exams in medical students – role of yoga Indian J Physiol Pharmacol. 1999;43(2):218-224.
14. Shukla Ravi, Singh Girish and Gehlot Sangeeta. How obese individuals respond to paschimottan asana and kapalabhati on body fat, visceral fat and lipid profile. World journal of pharmacy and pharmaceutical sciences. 2016. Vol 5(1): 595-607.
15. Bhagyashri Mahavir Khot, Meenal Dipak Lad, Arun Jagannath Patil & Anil Chindhu Kakad. Clinical Efficacy of Ayurveda Treatment On Polycystic Ovarian Syndrome. IOSR Journal of Pharmacy. 2013. Vol 3,(4). 21-25.
16. Web reference from: Gyanunlimited - A hub of Alternative medicine and Holistic health. info@gyanunlimited.com.
17. Adam born stein. Web reference from : www.radiantlightyoga.com. Australian yoga life, adambornstein. 17-21.
18. Web reference from: www.yogainboonton.com
19. Bhavana Tharewal & Milind Aware. Importance of yoga in keshavikar. Journal of Sanskrit Samhita Siddhanta. 2016, Vol 2(3): 10-15.
20. Vikrant Thakur, Vikash Bhatnagar. Vajrasana and its physio anatomical aspect. International Ayurvedic Medical Journal. 2016. Vol 4 (7): 1329-1334.
21. Brittany Woodard. Healing Menstruation Related Disorders Through Yoga. 2015. 1-13.
22. Web reference from: www.kooshoo.com

FIGURES

Figure.1: Paschimottanasam



Figure.2: Bhujangasanam

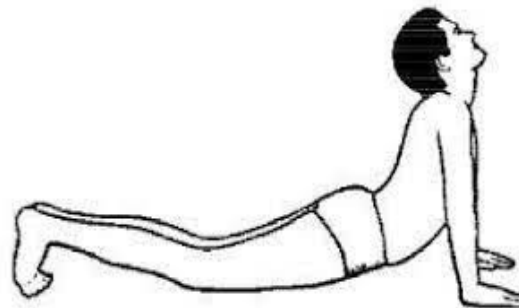


Figure.3: Sarvangasanam



Figure..4:SetuBandhasanam:

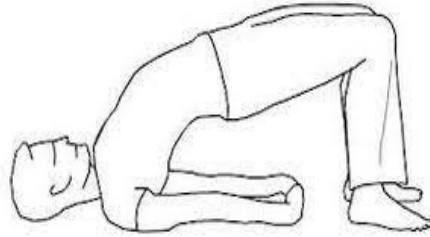


Figure.4:Matsyasanam



Figure.5: Vajrasanam

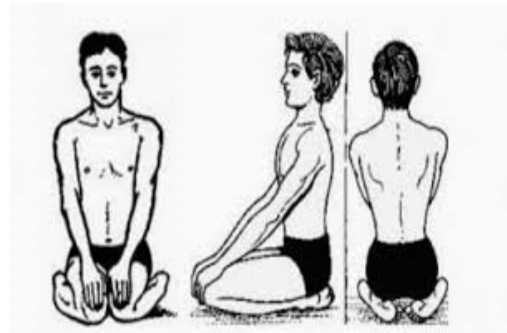


Figure.7:JalandharaBandham



Figure.8:Moolabandhasanam

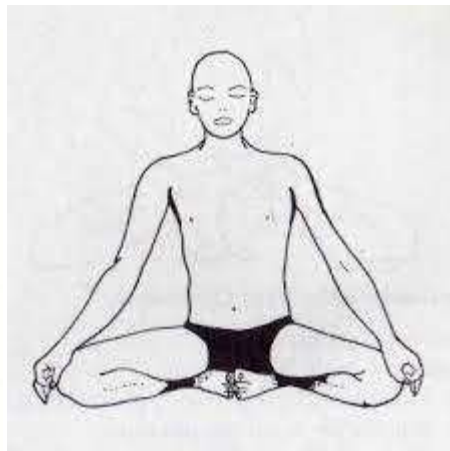


Fig.9: Yoni Muthirai

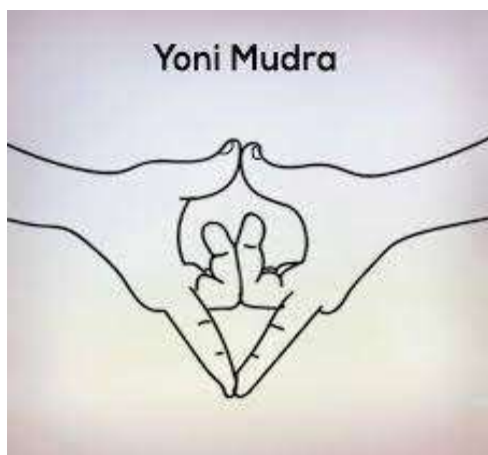


Fig.10:Surya Muthirai

