

A LITERARY REVIEW OF NAULI KRIYA ONE OF HATHYOGIC PRACTICES IN THE LIGHT OF AYURVEDIC DOSHA SHARIR AND CONTEMPORARY ANATOMY

[Dipakkumar Jayantkumar Shrimali](#)¹, [Jay R Mordhara](#)²

¹B.A.M.S., M.D. (Rachana Sharir), Lecturer, Dept of Rachana Sharir.

Dept Of Rachana Sharir, Government Ayurved College, Panigate, Vadodara, Gujarat - 390019, India

²B.A.M.S., M.D. (Samhita Siddhanta), Lecturer, Dept of Samhita Siddhanta

Dept Of Rachana Sharir, Government Ayurved College, Panigate, Vadodara, Gujarat - 390019, India

Corresponding Author: djshrimali5936@gmail.com

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ABSTRACT

Nauli is one among *Shastrkarma* and in *Hatha Yoga Pradipika* it is first explained. **Aim and Objectives:** According to *Hatha Yoga Pradipika*, *Nauli* is working on gastric fire and can cure all the diseases but its mechanism and relation with the *Dosha* of the body and the anatomy involved, is still unknown. **Methods:** We can understand the mechanism of *Nauli* in the light of *Ayurveda* and contemporary medical science and for that, we have to study anatomy, physiology, and *Doshik* involvement of *Nauli Kriya*. **Conclusion:** Through *Nauli Kriya* we can manipulate almost all the systems of the body as almost all systems have their main organ in the abdominal area. As all diseases have their roots in *Mandagni* through proper *Jatharagni* all *Dhatvagni* and *Bhutagni* can perform at their optimum level and can prevent and cure all the diseases. As *Nauli Kriya* can act on *Mandagni* through the above mechanism it can help to cure all the diseases and hence opt for the highest goal of life.

Keywords: *Nauli*, *Shastrkarma*, the balance of *Dosha*, happiness.

INTRODUCTION

Yoga Darshana explains the pathway to achieve the ultimate goal of Moksha and to achieve that goal they also emphasize the important role of a healthy body. *Shastrkarma* is given to achieve a healthy state of the body. *Nauli* is one among *Shastrkarma*. In *Naulic Kriya*, the rectus abdominis muscle is contracted and isolated. *Swami Kuvalayananda* explained the technique of *Nauli* as “Isolation and rolling manipulation of the abdominal recti”^[1]. Some other opinion describes the Sanskrit word *Nauli* as “to churn”. B.K.S. Iyengar says that “Nau” means “boat” and “li” means “to cling to, lie on, or cover.” According to him “pitching of a boat on a stormy sea conveys some idea of the process of *Nauli*.”^[2]

Literary Review

Hatha Yoga Pradipika, a 15th century *Yoga* text written by an Indian *Yogi* named *Swatmarama* has firstly explained the *Nauli Kriya*. According to *Hatha Yoga*

Pradipika, *Yogi* has to: “Lower the shoulders. Revolve the stomach left and right with the speed of a strong whirlpool. This is called *Nauli* by the masters. This *Nauli* is the crown of Hatha practices. It kindles a weak gastric fire, restores the digestion, always brings happiness, and dries up all defects and diseases.”^[3] *Nauli* is shortly explained in *Gherand Samhita* as “Rapidly move the stomach on both sides. This gets rid of all diseases and increases the bodily fire.”^[4]

Method of doing *Nauli Kriya*: *Nauli* is practiced in the state of *Uddiyana Bandha*. In this type of *Bandh*, the abdomen along with its viscera (organs) is pulled backward (inwards) towards the back or spine. By contracting the abdomen and pulling it backward, the abdominal muscles are activated, and movements are induced. This is called *Nauli*.

Steps to perform *Nauli Kriya*: Stand on your feet keeping them about one foot apart.

Figure 1: Performing *Nauli Kriya*



Bend forwards and place your hands on your knees. Perform *Uddiyan Banda*. For the first few days exhale your breath and do *Kumbhaka* while practicing *Uddiyana Bandha* in this position. Push the abdomen inwards towards the spine as much as possible. Gradually transfer a part of your body weight onto your hands and then onto your knees.

Keep your neck and shoulder straight.

Exhale through nostrils. Bend your neck downwards. Leave your belly and belly muscles loose while stretching them a little towards your chest. In the middle of your abdomen, try to make a tubular shape while

drawing the abdomen and viscera inwards. This tubular shape of the abdomen is called *Nauli* (Elongated boat-shaped).

Regular practice enables you to do this perfectly. Make caution to take light food and keep your stomach clean. Press your right hand over the *Nauli*. The *Nauli* is seen to be moving towards the left of your stomach similarly if the left hand is pressed, the *Nauli* will move towards the right. Thus, the *Nauli* can be moved from left to right and from right to left. Once you have perfect practice tery to move the *Nauli* from side to side in quick succession.

Contraindication of Nauli Kriya:

Persons with no excessive *Kapha* and *Meda*.^[5], Persons with recent laparotomy procedures. Persons with umbilical, inguinal, or hiatus hernia. Persons with ulcerative colitis. Persons with acute appendicitis. Persons having any abdominal cancerous condition. Persons having any cyst or tumor in their abdomen.

Anatomical study of structures involved in Nauli Kriya: -

As described before, in *Nauli Kriya* rectus abdominis muscles are contracted and isolated, and churning of abdominal muscles is done so first of all to understand its mechanism we have to discuss the anatomy of anterior abdominal wall muscle in detail.

Table 1: Anterior abdominal wall Muscles ^[6]

Muscles	Origin	Insertion	Innervation	Action
External Oblique	The external surface of the middle of the shaft of the lower eight ribs.	Xiphoid process, Linea alba, Pubic symphysis, Pubic crest, and anterior half of iliac crest	Lower six thoracic nerves	Compress and support abdominal viscera; flex and rotate the trunk
Internal Oblique	Lateral two-thirds of the inguinal ligament, anterior two third of the intermediate area of iliac crest, thoracolumbar fascia	Lower three or four ribs and their cartilages, Linea alba, and pubis via conjoint tendon	Lower six thoracic nerves and first lumbar nerves	
Transversus abdominis	Internal surface of lower six costal cartilages, thoracolumbar fascia, iliac crest.	Xiphoid process, Linea alba with aponeurosis of internal oblique, pubic crest, and pectin pubis via conjoint tendon		Compresses and supports abdominal viscera
Rectus abdominis	Lateral head from the lateral part of the pubic crest and medial head from the medial part of the pubic crest and anterior public ligament.	Xiphoid process and 5 th ,6 th and7 th costal cartilages	Lower six or seven thoracic nerves.	Flexes trunk (lumbar vertebrae) and compresses abdominal viscera stabilizes and controls tilt of the pelvis (ant lordosis)
Approximately 80% of people have a pyramidalis muscle, which tenses on the linea-albe, it is located in the rectus sheath anterior to the inferior part of the rectus abdominis. It extends from the pubic crest of the hipbone to the linea alba.				
In so doing these muscles act as antagonists and produce expiration.				

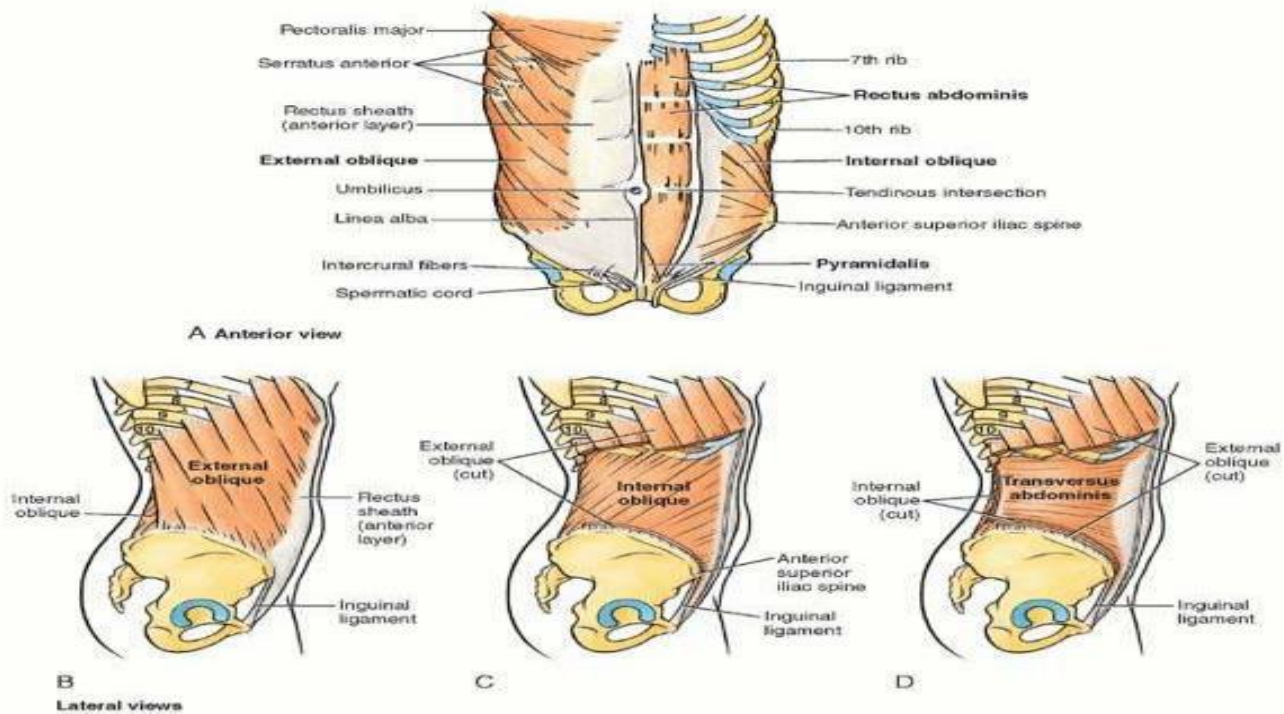


Figure 1: Anterolateral Abdominal wall

Functions and actions of the anterolateral abdominal muscles [7]

1. It is forming strong expandable support.
2. Protect the abdominal viscera.
3. Maintain or increase intra-abdominal pressure and elevates the diaphragm to expel air during respiration, coughing, voluntary eructation (burping), yelling, and so on.
4. Providing force required for defecation (evacuation of faecal material from the rectum), micturition (urination), vomiting, and parturition.
5. Helping to maintain posture by providing anterior and lateral flexion of the trunk and torsional (rotatory) movements of the trunk.

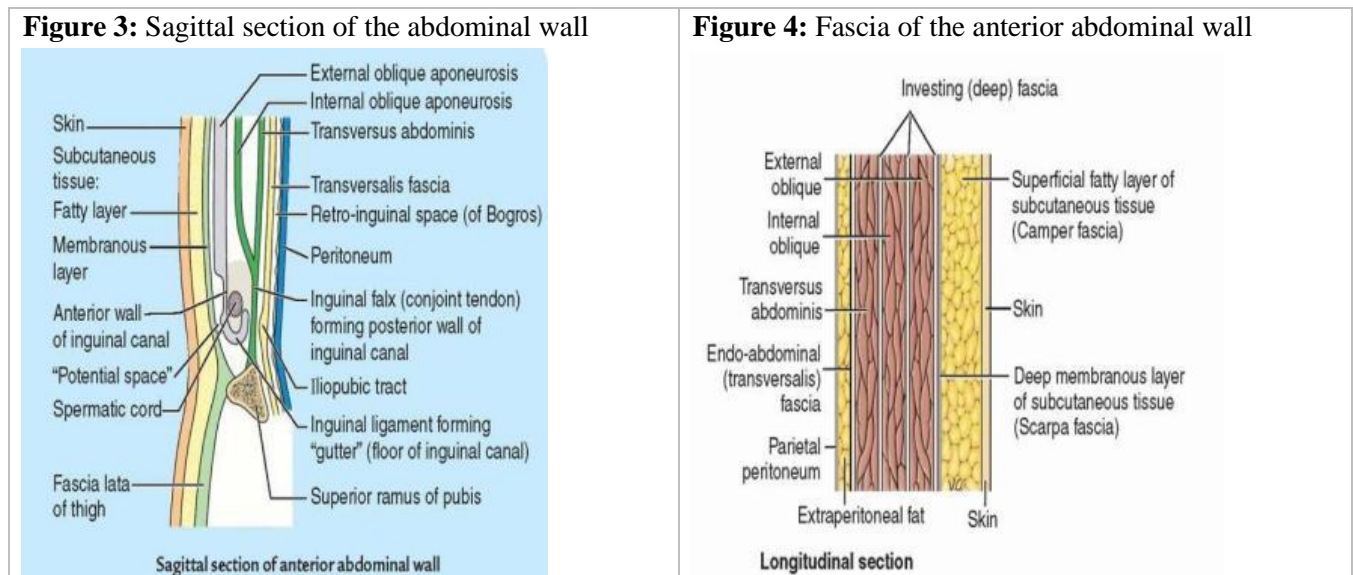
The Rectus Sheath [8]

A Rectus sheath is an aponeurotic sheath covering the rectus abdominis. It has two walls- anterior and posterior. The anterior layer of the rectus sheath is formed by the external oblique aponeurosis and the anterior

lamina of the internal oblique aponeurosis, and a posterior layer of the rectus sheath is formed by the posterior lamina of the internal oblique aponeurosis and the transversus abdominis aponeurosis. The aponeurosis of all three muscles passes anterior to the rectus abdominis to form the anterior rectus sheath and only the transversalis fascia covers the rectus abdominis posteriorly. The arcuate line determines the transition between the posterior rectus sheath wrapping the superior three-quarters of the rectus abdominis proximally and the transversalis fascia wrapping the inferior quarter.

Rectus abdominis and pyramidalis muscles, the anastomosing of superior and inferior epigastric arteries and veins, the lymphatic vessels, and the distal portion of the anterior rami of spinal nerves T7-T12, which supply the muscles and overlying are the contents of the rectus sheath.

Table 2: Nervous innervation of Anterior Abdominal wall [9]



Nerves	Origin	Course	Distribution
Thoraco-abdominal (T7-T11)	They are Continuation of lower intercostal nerves	Running between a second and third layer of abdominal muscles; lateral cutaneous and anterior cutaneous branches enter subcutaneous tissue.	Anterolateral abdominal wall muscles and overlying skin
Subcostal	Anterior ramus of the L1 spinal nerve.	The inferior border of 12 th rib, then onto sub umbilical abdominal wall	Muscles of the anterolateral abdominal wall and overlying skin are superior to the iliac crest and inferior to the umbilicus.
Ilio hypogastric (L1)	Anterior ramus of T12 spinal nerves	Innervates transversus abdominis muscle; branches pierce external oblique aponeurosis of the most inferior abdominal wall	Skin overlying iliac crest, upper inguinal and hypogastric regions; internal oblique and transversus abdominis
Ilio- inguinal (L1)	Anterior ramus of L1 spinal nerve	Between second and third layers of abdominal muscles, then traverses inguinal canal	The skin of scrotum or labium majus, mons pubis, and adjacent medial aspect of the thigh; most inferior internal oblique and transversus abdominis

Anterolateral Abdominal Wall Vessels: Superior epigastric vessels and branches of the musculophrenic vessels. These are branches of internal thoracic vessels. Inferior epigastric and deep circumflex iliac vessels. These are branches of external iliac vessels. Superficial circumflex iliac and superficial epigastric

vessels. These are branches of the femoral artery and great saphenous vein Posterior intercostal vessels in the 11th intercostal space and anterior branches of subcostal vessels.

Table 3: Principal arteries of anterolateral abdominal wall [10]

Arteries	Origin	Course	Distribution
Musculophrenic artery	Internal thoracic artery	Rundown along costal margin	Abdominal wall of the hypochondriac region, anterolateral, diaphragm.

Superior epigastric artery		Rundown in rectus sheath deep to rectus abdominis	Rectus abdominis and superior part of anterolateral abdominal wall
10 th and 11 th posterior intercostal arteries	Aorta	Arteries continue outside ribs to descend in abdominal wall between the internal oblique and transversus abdominis	Abdominal wall, lateral region.
Subcostal artery			
Inferior epigastric artery	External iliac artery	Runs up and enters rectus sheath; runs deep to rectus abdominis	Rectus abdominis and medial part of anterolateral abdominal wall
Deep circumflex iliac artery		Runs deep in the anterior abdominal wall, parallel to the inguinal ligament	Iliacus muscle and inferior part of the anterolateral abdominal wall
Superficial circumflex iliac artery	Femoral artery	Runs in superficial fascia along the inguinal ligament	Superficial abdominal wall of inguinal region and adjacent anterior thigh
Superficial epigastric artery		Runs in the superficial fascia on the way to the umbilicus	Subcutaneous tissue and skin over the pubic and inferior umbilical region.

Peritoneum and its cavity [11]

The peritoneum is large, the glistening, transparent serous membrane lining the abdominal cavity and it is consisting of two continuous layers. It is lining the internal surface of the abdominopelvic wall. Visceral peritoneum, investing viscera (organs) such as the spleen and stomach.

The relationship of the viscera to the peritoneum is as follows:

Table 4

Type of peritoneal organs	Meaning	Examples
Intraperitoneal organs	They are Completely covered by peritoneum	Spleen, stomach
Extraperitoneal organs	Outside the peritoneal cavity/	Kidney, Pancreas
Retroperitoneal organs	Posterior to the peritoneal cavity/	
Sub-peritoneal organs	Partially covered with the peritoneum	

DISCUSSION

Shatkarma is *Hathयोगic* practice, and its main goal is to prepare the body physically and mentally for advanced *Yogic* practices by eliminating *Meda* and *Kapha* as the body is that tool through which one can achieve all his divine purposes. According to *Ayurveda*, *Kapha Dosha* is having properties like *Guru*, *Mand*, *Snigdha*, etc. which are responsible for increasing the feeling of heaviness ultimately leading to *Alasya*. This inactivity and other likewise symptoms are a major hurdle in achieving the divine purpose of *Yoga*, that's why persons having an excess of *Kapha*, and *Meda* must go through *Hathयोगic* practices.

Shatkarma which is directly responsible for the body's health has deep roots in *Tridosha* mechanism because

according to *Ayurveda*, health is a state of *Tridosha-samatva*. That's why physicians can use this *Hathयोगa* as a tool to achieve the status of *Tridoshasamatva*. In other words, it can be said that *Shatkarma* can be used to cure various diseases through *Tridoshasamatva*. As *Ayurveda* is the stream that absorbs the philosophical principles and applies them practically to achieve the state of health. So, it should be taken into consideration that *Shatkarma* can also be used for therapeutic practices through which physicians can achieve normalcy in *Dosha* and also cure diseases.

According to *Ayurveda Pakvashaya* (Large intestine) is a seat of *Vayu*. *Pitta* presents in-between *Aamashaya* and *Pakvashaya* means between the stomach and large intestine, means in the duodenal region and *Kapha* is present in *Aamashaya* [12]. It is also an

important point that *Amashaya* alone is a seat of all three *Dosha* i.e., *Samana Vata*, *Pachaka Pitta*, and *Kledaka Kapha*.

In three *Dosha*, *Vayu* has the power to transport, and it transports the *Pitta*, *Kapha*, *Dhatu*, and *Mala* to their particular places and then these substances can act their functions in the body that's why *Pitta*, *Kapha*, *Dhatu*, and *Mala* are depended on *Vayu* for their functions^[13]. That's why *Vayu* is called *Tantrayantra-dhara*^[14], the one who controls all the functions of the body. *Charak Samhita*, the most popular text of *Ayurveda* describes the function of normal *Vata* indicative of various psychosomatic functions^[15]. *Vata* in its normal state holds command over the complete body and its all systems, *Vata* is termed as *Prana*, *Udana*, *Samana*, *Vyan*, and *Apana* based on their seats and area of function. As it is the motivator of all kinds of activities within the body, it is the regulator and booster of *Mana*, stimulator for all the *Indriya* (sense organs), and the manager of all sensory faculties (helping in the enjoyment of their subjects). Also has an impact on normal *Dhatu* formation. *Vayu* holds the specific connection between body tissues and brings compactness to the body, stimulates speech, and is the origin of *Shabda* and *Sparsh*. *Vayu* is the root cause of auditory and tactile sense organs, it is conducive to happiness and courage, stimulates the digestive system, and helps in the absorption of the *Rasa* and ejection of the excretory products. *Vata* traverses all gross and subtle channels, molds the embryo shape, and is the indicator of continuity of life when it is in its normal state.

As steps of performing *Nauli Kriya* one has to practice for *Uddiyan Bandha* which is a process to control the *Vayu* of the abdominal region and when one becomes master of *Uddiyan Bandh* then he or she can perform *Madhyam Nauli* and after a long practice, he or she can perform *Nauli Chalana* which indicating one's mastery on *Vayu*. And hence when *Vayu* is performing at its optimum level all the above-mentioned functions can be coordinated perfectly and *Pitta*, *Kapha*, *Dhatu*, and *Mala* should also perform their normal functions which will create a happy and disease-free state of one's body.

Ayurveda has emphasized *Agni*, and it believes that the root cause of all diseases is *Mandagni*. The concept of *Agni* in *Ayurveda* is reached up to the transformation of food particles at the cellular level and hence *Acharya* has classified *Agni* or digestive power as *Jatharagni*, *Dhatvagni*, and *Bhutagni*. *Jatharagni* is the Mool of all types of *Agni* and that's why if *Jatharagni* is *Manda* (weak) so the transformation process of taken diet or medicine cannot convert into absorbable form and unstable the three *Dosha* and create various diseases. The main benefit of *Nauli Kriya* as it increases the *Jatharagni*, and this increased *Jatharagni* increases all the *Dhatvagni* and *Bhutagni* and helps to stable *Dosha* at *Dhatu* and *Mala* levels. Thus, *Nauli Kriya* directly helps in the disorders related to the abdomen and indirectly in all diseases through *Dosha* balance.

In the above-described anatomy, *Nauli Kriya* involves the organ components of the abdominal area, but its effect is on every system of the body. The abdomen has a root of the digestive system (main organs like stomach, small and large intestine), Genitourinary system (kidneys, ureters, bladder), reticuloendothelial system (spleen), nervous system (coeliac plexus, lumbar plexus, longest vagus nerve, sympathetic ganglion, autonomic plexuses), main glands of the endocrine system (adrenal glands, pancreas), chief muscle of respiration (diaphragm), involvements of the cardiovascular system (IVC, portal veins, thoracic aorta, and its branches), channels of the lymphatic system (cysterna chyli) and musculoskeletal system. (Muscles of the anterior abdominal wall) all these structures are participating and can manipulate through *Nauli Kriya*. *Nauli Kriya* is creating negative pressure in the abdominal cavity and leads the abdominal arteries to carry more blood to all organs this increased blood supply can help organs to work at their optimal level and this increased blood supply can also help organs in their fast and rapid recovery from daily wear and tear and also help them do fight with the condition of the disease by fast and effective drainage of waste materials.

The gut and brain have a strong relation in the means of emotional behavior of a person. The enteric nervous

system is considered the second brain and communicates with the brain [16]. Anxiety and stress can shout up the digestive problems and good gut health can help to solve anxiety and stress problems alike. The major stress hormones adrenalin, norepinephrine, and cortisone are secreted by the adrenal glands and this gland is located at the upper pole of the kidney in the abdominal cavity. So, by *Nauli Kriya* we can also manipulate all these endocrinal and nervous components as it gives a message to all the internal organs of the abdominal cavity. The coeliac plexus is a component of the enteric nervous system and gives autonomic supply to the stomach, pancreas, liver, and most of the abdominal organs. So, by stimulating the coeliac plexus we can regulate the secretion of digestive enzymes by the stomach, pancreas, and liver and stimulate the digestive fire which regulates the digestion. Hence, *Nauli Kriya* is not only effective on a physical level but also mental level and helps to treat diseases by controlling all the systems of the body.

CONCLUSION

Nauli Kriya is a very beneficial cleansing process of *Hathयोगa* practices which involves mostly all the important organs of all the systems of the body and can balance all three *Dosha* by its regular practice and helps to eliminate diseases.

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