Chapter 3

NARRATIVE REVIEW OF SCIENTIFIC STUDIES

3.0	**NARRAATIVE REVIEW**	**18-37**
3.1	Scientific Evidence of Yoga Cleansing technique - *Dhauti*	18-21
3.2	Scientific Evidence of Yoga Cleansing technique - *Neti*	22-26
3.3	Scientific Evidence of Yoga Cleansing technique - *Trāṭaka*	27-29
3.4	Scientific Evidence of Yoga Cleansing technique - *Kapālabhāti*	20-35
3.5	Scientific Evidence of Yoga Cleansing technique - *Basti*	36
3.6	Scientific Evidence of Yoga Cleansing technique - *Nauli*	36
3.7	Summary	36-37

3.0. NARRATIVE REVIEW OF SCIENTIFIC STUDIES ON SHATKRIYAS:

3.1. SCIENTIFIC EVIDENCE ON YOGIC CLEANSING TECHNIQUES ON DHAUTI

A literal meaning of *dhauti* is internal cleansing. Four major forms of *dhauti krīya* as described in the *Ġhereṇḍa Saṁhitā* viz. *antar* (internal), *danta* (teeth), *hrid* (cardiac) and *moola shodhana* (purification of the anus). (Muktibodhananda, 1999; Saraswati, 2012) The most popular forms of *dhauti* include *vamana dhauti,* also known as *kunjala krīya, vastra dhauti* and *śankha prakshalana*. *Kunjala krīya* includes drinking warm saline water and voluntarily inducing vomiting to clear the contents of stomach. In *vastra dhauti,* the practitioner swallows a soft cotton cloth of about 2-meter length and 4 cm in width and removes the same. The practice of *śankha prakshalana* includes drinking warm saline water and passing it in the bowels by inducing peristalsis through certain postures (Muktibodhananda, 1999). It aids in reducing ailments of the digestive system like constipation, biliousness, indigestion, chronic gastritis, and reflux acts. It even helps to reduce accessory organ ailments of digestive systems like torpid liver, sluggish pancreas, urinary elimination, renal complaints, and dyspeptic condition. Indirectly it strengthens the heart and respiratory systems like cough, asthma, tonsillitis, and teeth problems. It even benefits arthritis, diabetes, and the loosening of weight (Yogeshwar, 1992).

3.1.1. Effects of *Dhauti* on Respiratory system: A study was conducted to assess the effect of *kunjala krīya* on pulmonary functions in healthy volunteers. The authors found the practice to play a role in enhancing pulmonary functions along with increased vagal tone. These findings were based on the increase in Slow Vital Capacity, and Forced Inspiratory Volume along with

a reduction in Expiratory Reserve Volume and Respiratory Rate. The findings also indicate a possible increase in the endurance of the respiratory muscles, decreased airway resistance, and better emptying of lungs, which may play a role in restrictive lung disorders (Balakrishnan et al., 2018).

3.1.2. Effect of *dhauti* on Bowel health: A recent randomized controlled study done on 60 healthy individuals, demonstrated the beneficial effects of *laghu śankha prakshalana* on bowel health. thirty volunteers who received the intervention once a week for 4 weeks demonstrated better scores on the Cleveland clinic constipation scale. The control group showed no significant change during the follow-up period (Kiran et al., 2019).

3.1.3. Effect of *dhauti* in chronic low back pain:

A self as controlled study was conducted on 40 in-patients, randomly assigned to receive *laghu śankha prakshalana* and back pain yogic special technique on specific days. Assessments were performed before and immediately after the sessions. Pain and disability were assessed using the Oswestry disability index, state anxiety using the state subscale of Spieldberger's state and trait anxiety inventory, spinal flexibility, and straight leg raising tests using Leighton type goniometer and caliper type goniometer respectively. Both Yoga sessions were found to be beneficial to the patients, but the magnitude of change was higher following the *laghu śankha prakshalana* session. Thus, *laghu śankha prakshalana* practice was found to reduce pain, disability, and anxiety, and help to increase flexibility (Tekur et al., 2014).

3.1.4. A complication of *dhauti:* Practice of *dhauti* is generally considered safe when it is done under the guidance of a teacher. One case study was found to report the adverse effect of

dhauti during the literature review. A case of dental erosion diagnosed using the Tooth Wear Index was reported by Meshramkar and Patil (2007) which they attributed to the regular practice of *kunjala krīya* for 12 years (Meshramkar et al., 2007).

Thus, from the limited evidence available on *dhauti krīya,* it was found useful as a therapeutic modality in the management of respiratory and digestive disorders. The practice should be done under the guidance of a trained teacher, which may help to avoid possible complications. Further large-scale clinical trials are required to establish the usefulness of *dhauti* as a therapeutic modality. We have summarized the studies on *dhauti* in Table 1.

Table – 1: Evidence summary on *Dhauti*

Author	**Sample size**	**Variables studied**	**Findings**
(Kiran et al., 2019)	60	Cleveland Clinic Constipation Score	Four sessions of *laghu shanka prakshalana* reduced the constipation score
(Balakrishnan et al., 2018)	18	Slow & forced vital capacity, Inspiratory & expiratory reserve volume, Respiratory rate & tidal volume	Improved respiratory functions were observed after *Kunjal krīya* practice.
(Tekur et al., 2014)	40	Pain & disability, state anxiety, spine flexibility, and straight leg raising	A single session of *Laghu shanka prakshalana* was found better than back pain specific yoga session in reducing disability, anxiety & improved spine flexibility in patients with chronic low back
(Meshramkar et al., 2007)	1	Tooth wear index of Smith & Knight	The regular practice of *kunjal kriya* for a prolonged time led to dental erosion

3.2. SCIENTIFIC EVIDENCE ON YOGIC CLEANSING TECHNIQUES ON *NETI*:

The practice of *Neti* is advised in *Hatha Yoga* to clean the nasal passage. In classical reference of *Haṭhayogapradīpikā* only *sutra neti* is explained however in general four variations of *Neti* practiced, which includes *jala* (water), *sutra* (thread), *dugdha* (milk), and *ghritha* (ghee). (Muktibodhananda, 1999; SanjibKumar Patra, 2017) The most popular forms of *Neti* practice are *jala* and *sutra neti*. In *Jala neti*, saline warm water is passed from one nostril to another using a specially designed pot. The classical practice of *sutra neti* involves inserting a thread in the nostril and removing it from the mouth. In modern times instead of thread, a sterile catheter is used.

3.2.2. Use of *Neti* for Rhino-Sinusitis:

A study done on 150 subjects with chronic sinusitis assigned them to 3 treatment groups: nasal irrigation with a bulb syringe or *jala neti*, or reflexology massage. The follow-up duration was for 2 weeks. All three groups demonstrated improvement in rhinosinusitis outcome measures (Heatley et al., 2001). More than 70 percent of the participants wanted to continue practicing nasal irrigation even after the completion of the study. The study also depicted that the improvements in the symptoms were better in the male population. Smokers in the study did not show improvement in the symptoms.

Sinusitis is a common problem among children. Shoseyov et. al. (1998) conducted a double-blind RCT to illustrate the efficacy of normal water versus *jala neti* in children with chronic sinusitis. The outcome measures used were cough, nasal secretion, and radiological assessment tools. They found significant improvements in four weeks in the group which used *jala neti,* when compared to normal saline. The effects were sustained for a follow-up period of one month after the conclusion of the trial (Shoseyov et al., 1998).

A case series was conducted to report the effects of *jala neti* in 10 cases of sinusitis among children (age range: 3-9 years). The authors found improvement in the disease-related Quality of life and symptom management (Lin et al., 2015).

An early study assessed the inflammatory markers in thirty symptomatic patients with active perennial allergic rhinitis. The three interventions compared were nasal heated water particles at 43 degrees C for 20 min, heated molecular water vapor at 41 degrees C for 20 min, and simple *jala neti* at 39 degrees' solution for 15min at weekly intervals. Nasal washes were done before and immediately after the treatments, at 30 min, 2h, 4h, and 6h. inflammatory mediators such as histamine, prostaglandin D2, and leukotriene C4 concentrations were assessed using a competitive radioimmunoassay. Inflammatory mediators in nasal secretions decreased substantially after *jala neti*. It reduced histamine for a period of 6 hours, after a single 15min treatment, illustrating the beneficial effect of *jala neti* in reducing allergic response and inflammation (Georgitis, 1994).

A study (SNIFS Trial) assessing the efficacy of self-management tools for recurrent sinusitis compared *jala neti* with steam inhalation. The investigators of the study followed 32 participants for a period of six months. They concluded both interventions were acceptable to the patients, but *jala neti* was found to be effective in symptom management (Leydon et al., 2017).

A randomized control trial with seventy-six subjects followed patients with sinusitis for a period of six months. The investigators found improved quality of life, reduced symptoms, and need for medications in patients who performed *jala neti* daily for six months (Rabago et al., 2002).

3.2.2. *Neti* for post-irradiation rhinosinusitis in nasopharyngeal carcinoma: Sinusitis and nasopharyngeal irritation are common following radiotherapy for nasopharyngeal carcinoma.

A five-year follow-up study demonstrated that long-term nasal irrigation helped in improving the quality of life (QoL) of patients affected with nasopharyngeal carcinoma within one year of intervention there was a relief in nasal symptoms (Luo et al., 2014). A similar observation of the improved quality of life and reduced symptoms were observed in a trial involving 107 nasopharyngeal carcinoma patients after irradiation. The follow-up duration for the study was six months (Liang et al., 2008).

3.2.3. **Complication of *Sutra Neti*:** There was a case of a 67-year-old man presenting with a change of voice, loss of sensation of smell, nose blockage, and mouth breathing after regular practice of *Sutra Neti*. He had to undergo a controlled ablation for the release of the nostrils. The investigators suggested avoiding the vigorous practice of *sutra neti* (Tiwana et al., 2019). Thus, *Neti*, being one of the easiest cleansing procedures in *Yoga*, plays an advantageous role in the management of rhino-sinusitis. A case study also indicates the beneficial effect of *sutra neti*. on obstructive sleep apnea and snoring. The results indicate that the traditional explanation from *Hatha Yoga Pradipika* stating *neti* can help to cure disease above the throat appear to be supported by scientific evidence. The evidence-based effects of *neti kriya* are summarized in Table 2

Table – 2: Evidence summary of *Neti*

Author	Sample size	Variables studied	Findings
(Tiwana et al., 2019)	1	Nasal endoscopy	The vigorous practice of *sutra neti*. led to velopharyngeal stenosis requiring surgical intervention.
(Leydon et al., 2017)	32	Medication score, symptom checklist	*Neti* was found better than steam inhalation in reducing symptoms of rhinosinusitis.
(Lin et al., 2015)	10	Sinus & Nasal Quality of Life survey, Overall Nasal Quality of Life	*Neti* helped to reduce chronic nasal symptoms and improved quality of life
(Luo et al., 2014)	1134	Sinus & Nasal Quality of Life survey	Long-term use of *neti* helped in the improvement of quality of life in nasal sinusitis patients
(Liang et al., 2008)	107	Questionnaire and radiological assessment of rhinosinusitis	In the 6 months of a follow-up study of *neti* after radiotherapy, *neti* seems to improve the quality of life and symptoms.
(Rabago et al., 2002)	76	Medical outcome survey short fom, Rhinosinusitis Disability Index, Single-Item- Sinus Symptom Severity assessment	*Neti* helped in the reduction of symptoms and medication, and even improved in quality of life in sinusitis patients.

(Heatley et al., 2001)	150	Rhinosinusitis outcome measures, Daily medication use	*Neti* was found equally effective for the management of rhinosinusitis when compared with a reflexology massage and nasal irrigation using a bulb syringe.
(Shoseyov et al., 1998)	30	Radiology score & nasal secretion, cough or postnasal drip for rhinosinusitis	There was a significant reduction in nasal secretions, cough & postnasal drip in the hypertonic solution group than *neti* group
(Georgitis, 1994)	30	Nasal secretions - histamine, prostaglandin D2, leukotriene C4	*Neti* and large particle water vapor reduced nasal histamines & leukotriene C4 indicative of reduced nasal inflammation.
(Ramalingam & Smith, 1990)	1	Self-assessment of symptoms	The practice of *sutra neti* helped the person to reduce snoring and obstructive sleep apnea

3.3. SCIENTIFIC EVIDENCE ON YOGIC CLEANSING TECHNIQUES ON *TRĀṬAKA:*

The practice of *trāṭaka* involves concentrated gazing on a small object (usually a candle flame). The classical explanation of the practice involves gazing at an object without blinking the eyes, till tears roll out. The technique is said to reduce eye disorders and to reduce laziness (Muktibodhananda, 1999). The scientific studies on *Trataka* used cognitive functions and vision as their outcome measures.

3.3.1. Effect of *trāṭaka* on attention and cognition:

A self-as-control study assessed the effect of *trāṭaka* on critical flicker fusion (CFF). CFF is defined as the frequency at which a flickering stimulus is perceived to be continuous. Thirty subjects were recruited for the study who were conditioned for the practice through five sessions on different days before the commencement of assessments. Subjects were assessed individually for CFF immediately before and after the *trāṭaka* or control sessions. The *trāṭaka* session involved eye exercise followed by gazing at the candle flame whereas the control session had only eye exercise. The CFF was assessed with increasing and decreasing frequencies. The *trāṭaka* group showed a significant increase in CFF, and there was a nonsignificant reduction in CFF following the control session (Mallick & Kulkarni, 2010).

Another study with a similar sample size (n=30) and design evaluated the cognitive performance using the adult version of the Stroop-color-word test. The results indicated improvement in selective attention, response inhibition, and cognitive flexibility following *trāṭaka* session (Raghavendra & Singh, 2016).

A randomized controlled trial done in the elderly population evaluated the effect of *trāṭaka* on cognitive function. There was an improvement in the performance in the cognitive tasks such

as digit span, six-letter cancellation test, and tail-making test following a 26-day intervention compared to the baseline. This study indicates a possible role of *trāṭaka* in preventing cognitive decline in the elderly (Talwadkar et al., 2014).

3.3.2. Effect of *trāṭaka* on autonomic functions: A study assessed the immediate effect of *trāṭaka* on heart rate variability (HRV) and breathing rate following two sessions on two different days. The investigators found an increased in vagal tone following *trāṭaka* depicted by a decrease in heart rate and breath rate, the low-frequency component of HRV, and an increase in a high-frequency component. No changes were observed following the control session (Raghavendra & Ramamurthy, 2014).

3.3.3. Clinical trials on *trāṭaka* and eye disorders: A study assessing outcomes of ametropia and presbyopia compared the effects of two forms of eye exercises viz. Bates method and *trāṭaka*. The investigators reported subjective improvements in the vision without any change in objective assessment tools following both forms of eye exercises (Gopinathan et al., 2012; Tiwari et al., 2018) Table – 3 illustrates the studies on *trāṭaka*. Although traditional texts quote *trāṭaka* can be used to treat eye disorders, not many studies have evaluated the role of *trāṭaka* in eye disorders. The limited evidence does not support the role of *trāṭaka* in eye disorders, thus there is scope for further scientific evaluation in the subject area The studies also demonstrate enhanced cognitive functions and autonomic relaxation immediately following the practice. Thus, there is a need to explore the long-term effects of *trāṭaka* in physiological and clinical settings.

Table –3: Evidence summary of *trāṭaka*

Author & Year	Sample size	Variables studied	Findings
(Tiwari et al., 2018)	24	Snellen's Chart	*Trāṭaka* and eye exercise did not show any significant changes in refractive errors
(B. R. Raghavendra & Singh, 2016)	30	Stroop colour-word test	Improvement in selective attention, cognitive flexibility, and response inhibition was found following *trāṭaka* session
(Talwadkar et al., 2014)	60	Digit span test, six letters cancellation test, trail making test	*Trāṭaka* session in the elderly population showed a significant increase in cognitive levels compared to the control group
(B. Raghavendra & Ramamurthy, 2014)	30	Heart rate variability (HRV) & respiration rate	*Trāṭaka* group showed a decrease in heart rate, breath rate, the low-frequency component of HRV, and an increase in the high-frequency component of HRV
(Gopinathan et al., 2012)	66	Signs and symptoms of presbyopia, retinoscopy, auto refractometer, keratometer	Both *trāṭaka* and eye exercise improve subjective signs and symptoms, but no change in both groups on objective assessments
(Mallick & Kulkarni, 2010)	30	Critical Flicker fusion	After the practice of *trāṭaka* there was a significant increase in critical flicker fusion compared to an eye exercise group

3.3. SCIENTIFIC EVIDENCE ON YOGIC CLEANSING TECHNIQUES ON *KAPĀLABHĀTI:*

Kapālabhāti is a combination of two syllables, *Kapāla* means forehead and *bhāti* means shining. The practice of *kapālabhāti* involves breathing out at a rapid pace (~1-2 Hz) by flapping the abdomen (Muktibodhananda, 1999). It is also known as high-frequency *Yoga* breathing due to the nature of its practice. Generally, the practice of *kapālabhāti* is done before the practice of *prāṇāyāma* (yogic breathing practices). Some masters categorize the practice of *kapālabhāti* as one of the *prāṇāyāma* itself. However, the practice is classified as one of the *Shatkriya* as per the traditional *Yoga* texts (Saoji et al., 2019).

3.4.1. Effect of *kapālabhāti* on metabolism: One of the earliest studies on *kapālabhāti* showed a decrease in blood urea with an increase in creatinine and tyrosine following one minute of practice in twelve healthy subjects. These changes were attributed to a possible promotion of decarboxylation and oxidation (Desai & Gharote, 1990).

3.4.2. Effect of *kapālabhāti* on respiratory and cardiovascular changes:

Stanczak and colleagues conducted a group of experiments to determine physiological changes associated with *kapālabhāti* as early as 1991. Their experiments demonstrated a reduction in baroreflex sensitivity and vagal tone, associated with an increase in blood pressure and heart rate following *kapālabhāti* They could also demonstrate slower brain waves in the EEG topography which were attributed to the subjective relaxation in the participants. (Stancák, Kuna, Novák, et al., 1991; Stancák, Kuna, Srinivasan, Dostálek, et al., 1991; Stancák, Kuna, Srinivasan, Vishnudevananda, et al., 1991)

A Series of studies were conducted by Telles et al. on the effects of *kapālabhāti*. They

found *kapālabhāti* improves cognitive performance and attention assessed through event-related potentials (Joshi & Telles, 2009), associated with decreased anxiety (Telles et al., 2019). Similar positive outcomes were found with motor performance (Telles, Sharma, Yadav, et al., 2014) and finger dexterity (Telles et al., 2012), and spatial and working memory tasks (R. Gupta et al., 2019) following *kapālabhāti*. They also observed sympathetic arousal (Raghuraj et al., 1998b; Telles et al., 2011), and metabolic activation (Telles et al., 2015), during *kapālabhāti* however, the practice does not cause an increase in the prefrontal cerebral circulation (Telles, Gupta, et al., 2016).

A study conducted on the effect of *kapālabhāti* on cognitive functions demonstrated improvements in cognitive tasks (Pradhan, 2013).

Transcranial doppler was used to assess the cerebral blood flow changes during the practice of *kapālabhāti*. There was a reduction noted in the end-diastolic velocity and mean flow velocity indicating a decrease in cerebral blood flow. Such change could be due to the reduction of partial pressure of CO2 during the practice which involves breathing at a high frequency (Nivethitha et al., 2018).

An RCT performed on 60 mild to moderate asthma patients demonstrated that 10 min of the practice of *kapālabhāti* can enhance the forced vital capacity, forced expiratory volume in one second, and their ratio. These findings indicate a possible role of *kapālabhāti* in the management of bronchial asthma (Raghavendra et al., 2016).

3.4.3. The complication of *kapālabhāti:*

A case report presented a 29-year-old healthy woman, who developed spontaneous pneumothorax caused due to extreme practice of *kapālabhāti*. The investigators attributed such complications to pushing the practice to physiological extreme limits (Johnson et al.,

2004).

Thus, the studies on *kapālabhāti* illustrate the beneficial effects of the technique in enhancing cognitive and respiratory functions and leading to a state of physiological arousal. Such changes can be used in clinical situations such as bronchial asthma. However, one should be careful not to strain while performing the practice of *kapālabhāti*, which may also lead to complications. The evidence summary on *kapālabhāti* is summarized in Table no – 4.

Table – 4: Evidence summary of *kapālabhāti*

Author & Year	Sample size	Variables studied	Findings
Gupta et al; 2019	15	Corsi block-tapping task	Improvement in memory scores following breath awareness, *kapālabhāti* did not show any significant changes
Telles et al; 2019	61	Six letter cancelation task & Spielberger's State-Trait Anxiety Inventory -S	*kapālabhāti* practice increased attention with a reduction in anxiety levels
Nivethitha et al; 201	18	Cerebrovascular hemodynamic changes using Transcranial doppler	During the practice of *kapālabhāti* decreased cerebral blood flow was noted
Raghavendra et 2016	60	Pulmonary functions using Spirometry	The practice of *kapālabhāti* enhanced forced vital capacity, forced expiratory volume, and their ratio in asthma patients
Telles et al; 2016	40	Hemodynamic changes - functional near-infrared spectroscopy	The practice of *kapālabhāti* does not cause an increase in the prefrontal cereb circulation
Telles et al; 2015	67	Metabolic & ventilatory changes - open circuit oxygen	Metabolic activation was observed after the practice of *kapālabhāti*

		consumption analyzer	
Telles et al; 2014	50	Hand grip strength and Motor speed	Breath awareness and *kapālabhāti* improved arm & finger tapping, *kapālabhāti* alone enhanced hand grip strength
Balaram; 2013	36	Six letters cancellation task and digit letter substitution task	The practice of *kapālabhāti* did not show any significant changes in performance in the six-letter cancellation task and digit letter substitution task
Telles et al; 2012	140	Finger Dexterity and Visual discrimination	Improvement in finger dexterity and visual discrimination following *kapālabhāti* when compared to breath awareness
Telles et al; 2011	38	Heart rate variability	The practice of *kapālabhāti* has shown a reduction in parasympathetic modulation and increased sympathetic arousal
Joshi et al; 2009	30	Cognition & attention - P300 event-related potentials	*kapālabhāti* and breath awareness, both practices have shown improvement in selective attention assessed through P300
Jhonson et al; 2004	1	Chest radiograph	The case of spontaneous pneumothorax was reported after the practice of *kapālabhāti*
Raghuraj et al; 1998	12	Heart rate variability	*kapālabhāti* practice has shown an increase in low-frequency power, LF/HF ratio and, a decrease in high-frequency power signifying increased sympathetic activity
Stancák et al; 1991	17	Cardiovascular and respiratory changes	The practice of *kapālabhāti* showed a reduction in baroreflex sensitivity and vagal tone, associated with an increase in blood pressure and heart rate.

Stancák et al; 1991	11	Electrical activity of the brain - EEG topography	During the practice of *kapālabhāti* initial 10 min, there was an increase in alpha and beta waves, in the last 15 min, there was an increase in theta waves and maintained during the resting period after *kapālabhāti*
Stancák et al; 1991	24	Respiratory and cardiovascular rhythmicity	*kapālabhāti* altered the respiratory frequency and increased blood pressure
Desai & Gharote; 19	12	Serum urea, creatinine, and tyrosine	There was a significant reduction in blood urea, increase in creatinine, and tyrosine following 1 min *kapālabhāti*

3.5. *BASTI* (YOGIC ENEMA):

There are two forms of *Basti* described in *Hatha Yoga*, *jala* (water) and *sthala* (dry). Both *basti* practices involve the cleansing of the colon. Swami Swatmarama considers the practice of *basti* beneficial for balancing *tridosha* and *dhatus* and to purify the mind and senses. (Muktibodhananda, 1999) According to sage *Gherenda*, *basti* reduces the disorders of *vata* and is beneficial in urinary and digestive problems. it is also known to improve digestion (Saraswati, 2012).

3.6. *NAULI* (YOGIC ABDOMINAL MASSAGING):

Nauli is a practice of contracting and isolating the rectus abdominis muscle and churning the abdominal muscles. There are three variations based on the position of isolation of the muscles, namely *dakshina nauli* (right), *vama nauli* (left), *madhyama* (center). This practice is said to strengthen the secretion of gastric juice including endocrine and exocrine functions of the pancreas (Muktibodhananda, 1999; SanjibKumar Patra, 2017). Since the practices of *basti* and *nauli* are an advanced practice, we could not find any scientific study on the practice of *nauli* during our literature review.

3.7. Summary:

The practice of *ṣaṭkrīya* or *ṣaṭkarma* is recommended in the *Hathayoga* tradition. Studies exploring the effects of four out of six cleansing procedures were found in physiological as well as clinical settings. No studies were available on *basti and nauli* which could be due to the difficult nature of the practice. The practice of *dhauti* was found to enhance respiratory functions and was useful in digestive disorders. Nasal cleansing, *neti* was particularly found

beneficial in managing rhinosinusitis in age groups ranging from children to adults. Although *trāṭaka* practice was found to enhance cognition and bring a state of relaxation, there was no evidence supporting its role in eye disorders. *kapālabhāti* was the most studied among the *ṣaṭkrīya* practices. The range of studies on *kapālabhāti* included assessing neurocognitive assessments, autonomic, and metabolic activity. The practice appears to have a beneficial role in the activation of the sympathetic nervous system, enhances cognition, and improves overall metabolism. It was also found to enhance respiratory functions in patients with asthma. Single case reports (one each) were also found for practices of *dhauti, neti* and *kapālabhāti* and it was attributed to pushing the body to the physiological extreme.

This literature review was limited to online free databases only due to the keywords chosen. Although we tried, to include a variety of keywords related to *ṣaṭkrīya*, there may have been studies that were missed in the current review because of exclusion through the keywords and databases.

The beneficial role of *ṣaṭkrīyas* narrated in both traditional texts and evident from the small body of empirical work warrants further rigorous scientific exploration. From the available literature, we found the practice of the yogic cleansing technique safe, when practiced under the guidance of a trained teacher, and has a potential role in health and disease.