Sthaulya (Obesity) is a blessing of the modern age of machines and materialism. Almost 30-65% of adult urban Indian is either overweight or obese or has abdominal obesity. Obesity and overweight pose a major risk for serious diet related chronic disease, including type-2 diabetes, cardiovascular disease, hypertension & stroke and certain forms of cancer. So there is need to control the disease by natural ways. Yogic exercise like Kapal Bhati and Paschimottanasana help to reduce obesity with considerable health benefits therefore, study has been intended to appraise the alteration on subjective and objective parameters by Kapal Bhati and Paschimottanasana in obese individuals. Material and methods: Total 50 subjects of both genders diagnosed as overweight, grade I and grade II on the basis of BMI criteria were registered in OPD and IPD of NIA. These subjects were divided into two groups by random sampling method in group K and P. Group K individuals were instructed Kapal Bhati whereas subjects of group P were Paschimottanasana. All the subjects were evaluated for subjective and objective parameters. Result: Statistical analysis was done initial and after three months of life style modification which showed superior rejoinder in terms of diminution in subjective and objective parameters after performing Kapal Bhati and Paschimottanasana. Conclusion: Action of Kapal Bhati is the process which may increases the metabolic activities of the body, by this action it resulted in gradual improvement in reducing the subjective complaints whereas the Paschimottanasana process results in reducing the objective as well as subjective complaints by enhancing the metabolic activities and imparting the massing effect over the various body parts.

**Keywords**: Kapal Bhati, obesity, Paschimottanasana and Sthaulya
Ayurveda is a holistic way of living in which the mind, body, diet and exercise act together to contribute to one’s health. Any vitiation leads to imbalance which needs to be corrected through regulation of diet, exercises, mind and bodily functions.

In recent years, health levels are decreasing due to changing of life style, diet pattern behavioral pattern and mental stress and strain, everyone is prone to various disease due to the against of our normal physiology of digestion. Due to this artificial living life style, person has got many disorders for themselves. Sthaulya (Obesity) is one among the major diseases of modern era. Obesity is a blessing of the modern age of machines and materialism. It occurs as a result of lack of physical activity with increased intake of food. The industrialization, stress during the work, dietary habits, lack of exercise & various varieties among the daily diet e.g. fast food, freeze fruits, increased amount of soft drinks and beverages, canned foods results into the clinical entity which we can call as obesity. Obesity is the one of the disease which is gaining more and more attention of scientists at global level. Many institutions and medical schools are making efforts to find a perfect remedy for this burning problem. Obesity is the ailments which has mere resemblance with Sthaulya which has been explained comprehensively in Ayurvedic excellence.

Kapal Bhati Prayanama is undoubtedly one of the most popular forms of breathing exercises in the yogic science. It even benefits in those disease which are impossible to be cured by medicine like diabetic, asthma, obesity, etc. Kapal Bhati is a Sanskrit word. Kapal means forehead or cranium and Bhati means light. It refers that by this breathing exercise forehead becomes luminous and lustrous, which means all diseases disappears and body becomes pure, healthy and happy. It as many extraordinary benefits that help in many incurable diseases. According to the Hatha Yoga Pradipika, Kapal Bhati is very effective in obesity and obesity borne diseases by eliminating Kapha Dosha and Mala. Kapal Bhati Pranayama has excellent results in reducing abdominal fat. It also tones up abdominal muscles and bestows core abdominal strength and power. It also reduces stress and emotional debris which is also a causative factor for obesity.

Paschimottanasana or seated forward bending posture is a technically intense western stretch, since Paschima means west in Sanskrit and Uttana means intense stretch. Paschimottanasana reduces obesity and abdominal fat. Paschimottanasana calms your brain and relieves stress, as well as mild depression. This asana stretches your spine, shoulders and hamstrings fully. It stimulates your liver, kidney, uterus and ovaries. It improves digestion. A definition of Swastha purusha as given by Cha.Su. 21/18-19 and Su.Su. 15/48, A healthy body is the only one media to achieve the ultimate goal among the Chaturvidha Purushartha. Acharya Sushruta also said that Madhyma Sharira is the best but Ati Sthaula and Ati Krisha are always affected with some complaints (Su.Su 15/42). Acharya Charak has thrown light on the eight varieties of impediments which are designated as Nindita Purusha, Ati Sthaulya comprises one of them. Obesity is now a very burning problem worldwide. Since 1980 obesity rate increase more than 3 folds. More than 1 billion adult people are overweight among them at least 300 million of them are clinically obese. Almost 30-65% of adult urban Indian is either overweight or obese or has abdominal obesity.

Obesity and overweight pose a major risk for serious diet related chronic disease, including type-2 diabetes, cardiovascular disease, hypertension & stroke and certain forms of cancer. The health consequence range from increased risk of premature death, to serious chronic condition that reduce the overall quality of life. There are so many medicines in market regarding obesity. But there are no satisfactory results even they have lot of side effects. So there is need to control the disease by natural ways.

Aims and objectives –

- To evaluate the efficacy of Kapal Bhati in the management of Sthaulya.
- To evaluate the efficacy of Paschimottanasana in the management of Sthaulya.
➢ To compare the effect of Kapal Bhati and Paschimottanasana in Sthaulya.

Materials and methods –

The present study was approved by the IEC (IEC/ACA/2015/113), NIA after deliberation on 18th and 19th May 2015.

Study Design

Type of study – The present study was randomized prospective clinical trial.

Type of trial methodology – Trial adopted for the study was open trial.

Inclusion Criteria

➢ Patients aged between 18 to 50 years.
➢ Patients BMI in between 25 to 40 kg/m²
➢ Patients having clinical signs and symptoms of Sthaulya. Patients should not on any others medicines for Sthaulya.
➢ Patients willing to sign the consent from.

Exclusion Criteria

➢ Age below 18 years and more beyond 50 years.
➢ BMI less than 25kg/m² and more than 40kg/m².
➢ Neuro Endocrine disorders.
➢ Genetic Syndromes.
➢ Drug induced Obesity.
➢ Chronic systemic problems like Diabetes Mellitus.
➢ Patients with severe Hypertension.
➢ Patients with Hypothyroidism.
➢ Patients with evidence of renal, hepatic and cardiac involvement.
➢ Patients with long term Steroid treatment.
➢ Pregnant women.

Plan of Study

Patients will be selected with irrespective of age, gender, religion, caste etc. and randomly distributed into following 2 therapeutics groups with 25 patients in each group.

Distribution Of Patients

Out of 60 registered patients; 50 had completed the trial, patients were divided into two groups each group containing 25 patients. In both groups before starting main process, patients were asked to do warm up exercises. After completion of main process each patient is advised to do Shavasna for few minutes.

Group K: Consist of 25 obese samples

Kapal Bhati - 10 sets of Pranayama done and each set consists 50 round. There were be pause of few seconds between the 2 sets. For beginner it was according to his/her strength and capacity.

Procedure:

Sit on Padmasana or in any meditative posture. Close the eyes and keep the hands on the knees and perform Puraka and Rechaka rapidly. Profuse perspiration occurs by the vigorous practice. This is a good form of exercise. Those who are well-versed in Kapal Bhati, can do Bhastrika very easily. This is done without Kumbhaka. Rechaka is the prominent part of Kapal Bhati while Puraka is mild, slow and long (Dirgha). Rechaka should be done quickly and forcibly by contracting the abdominal muscles with a backward push. While doing Puraka, abdominal muscles should be released. Head and the trunk should be kept erect. Sudden expulsions of breath follow one another as in Bhastrika

Group P: Consist of 25 obese samples

Paschimottanasana – The asana was done for 3 to 5 minutes and every time 6 to 10 rounds of Asanas were performed. For beginners it was according to their strength and capacity. Holding time of the final step proper was being up to 30 seconds. After the completion of Paschimottanasana, patients were asked to do its counter pose Ustraasna.

Procedure:

Starting position: Dandaasana

To inhale and sit on the floor with the legs outstretched, feet kept together and hands to be kept on the knees.
Whole body is relaxed. This is the starting position.

Further, with slow exhalation forward bend from the hips is made with sliding the hands down the legs and big toes grasped with the fingers and thumbs. If that is not possible, heels, ankles or any other part of the legs can be held that can be reached comfortably. Slow movements without jerks are made. This position is retained for a few seconds. Inhalation is done in the static position. Muscles of the back and legs are relaxed and gently stretched.

Legs are kept straight. Elbows are bent utilizing the arm muscles and trunk is brought down towards the legs. Knees are to be touched with the forehead. This is the final position, retained for as long as the person is comfortable.

Slow and deep breathing is done in this position. With inhalation slow return to the starting position is made.

Follow up study: Once in every 15 days.

Duration: 3 months each group.

Practice was being done in early morning with empty stomach.

Subjective Criteria

1. Chala Sphika Udara Stana:
2. Alasya / Utsahahani:
3. Nidradhikya:
4. Swedadhikya:
5. Daurgandhya:
6. Ati Pipasa:
7. Ati Kshudha:
8. Anga Gaurava (heaviness in body)

Objective Criteria:

Cardinal measures –
1. Weight
2. BMI

Circumference Measurements – for the present study the girth measurements of certain regions using measuring tape before and after the treatment will also carried out. The girth measurement of following areas where generally the adiposity is found more was taken:

1. Waist – At the level of umbilicus.
2. Hip - At the level of highest point of distension of buttock.
3. Mid-Thigh Circumference.

Skin Fold Thick Ness -

1. Mid Biceps
2. Mid Triceps
3. Supra Iliac Region
4. Sub-scapular Region

In case of all circumference measurements, the mean values were taken before and after treatment. The body weight was also taken before and after treatment.

Assessment Gradation:

The suitable scoring method for signs and symptoms were recorded in following patients.

Present / absence of symptoms - 0
Mild - 1
Moderate - 2
Severe - 3
Very severe - 4

Results -

A total of 60 patients were registered from the O.P.D. and I.P.D., Department of Swasthavritta, National Institute of Ayurveda (NIA) Jaipur, Rajasthan. 10 Patients did not return for further follow up treatment and study was completed in 50 cases. Out of them 50 selected for the present study. They were randomly divided into Trial Group-K (n=25), Trial Group-P (n=25). Under this study, 08 sign and symptoms were assessed before and after treatment.
Dubey GK, Sharma KK, A Comparative Study of Kapal Bhati and Paschimottanasana in Sthaulya JOA XIII-4, 2019: 25 - 34

**Table No. I Subjective Parameter**

<table>
<thead>
<tr>
<th>Subjective Parameter</th>
<th>% Relief</th>
<th>Group-K</th>
<th>Group-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chala Sphika Udara Stana</td>
<td></td>
<td>14.89%</td>
<td>34.14%</td>
</tr>
<tr>
<td>2. Alasya / Utsahahani</td>
<td></td>
<td>24.39%</td>
<td>22.50%</td>
</tr>
<tr>
<td>3. Nidradhikya</td>
<td></td>
<td>14.58%</td>
<td>15%</td>
</tr>
<tr>
<td>4. Swedadhikya</td>
<td></td>
<td>12.76%</td>
<td>13.33%</td>
</tr>
<tr>
<td>5. Daurgaandhya:</td>
<td></td>
<td>8.92%</td>
<td>13.51%</td>
</tr>
<tr>
<td>6. Ati Pipasa</td>
<td></td>
<td>27.77%</td>
<td>24.13%</td>
</tr>
<tr>
<td>7. Ati Kshudha</td>
<td></td>
<td>28.12%</td>
<td>24.13%</td>
</tr>
<tr>
<td>8. Anga-Gaurava</td>
<td></td>
<td>19.56%</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Table No. II Anthropometric Profile**

<table>
<thead>
<tr>
<th>Anthropometric Profile</th>
<th>% Relief</th>
<th>Group-K</th>
<th>Group-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Body Weight</td>
<td></td>
<td>4.06%</td>
<td>5.86%</td>
</tr>
<tr>
<td>2. Body Mass Index (BMI)</td>
<td></td>
<td>4.06%</td>
<td>5.85%</td>
</tr>
<tr>
<td>3. Waist Circumference</td>
<td></td>
<td>2.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>4. Hip Circumference</td>
<td></td>
<td>1.2%</td>
<td>2.92%</td>
</tr>
<tr>
<td>5. Mid-Thigh Circumference</td>
<td></td>
<td>1.33%</td>
<td>2.07%</td>
</tr>
<tr>
<td>6. Mid-Biceps</td>
<td></td>
<td>1.19%</td>
<td>2.75%</td>
</tr>
<tr>
<td>7. Mid-Triceps</td>
<td></td>
<td>0.98%</td>
<td>6.6%</td>
</tr>
<tr>
<td>8. Supra Iliac</td>
<td></td>
<td>1.32%</td>
<td>2.42%</td>
</tr>
<tr>
<td>9. Sub-scapularis</td>
<td></td>
<td>0.93%</td>
<td>2.07%</td>
</tr>
</tbody>
</table>
Table No. III Inter & intra-group comparison between group K & P for subjective parameters.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group – k BT(n=25) Mean±SD</th>
<th>Group – k AT(n=25) Mean±SD</th>
<th>Group – p BT(n=25) Mean±SD</th>
<th>Group – p AT(n=25) Mean±SD</th>
<th>Intra-group comparison between BT &amp; AT (Wilcoxon) Group-K Mean±SD</th>
<th>Intra-group comparison between BT &amp; AT (Wilcoxon) Group-P Mean±SD</th>
<th>t value on difference of BT &amp; AT (Mann-Whitney test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalasphika</td>
<td>1.88 ± 1.054</td>
<td>1.6 ± 1.04</td>
<td>1.64 ±0.99</td>
<td>1.08 ± 0.81</td>
<td>0.28 ± 0.45</td>
<td>0.56 ± 0.58</td>
<td>U -234.00 P &gt; 0.05</td>
</tr>
<tr>
<td>Udarastana</td>
<td>1.64 ± 1.186</td>
<td>1.24 ± 1.01</td>
<td>1.6 ± 1.15</td>
<td>1.24 ± 1.01</td>
<td>0.4 ± 0.5</td>
<td>0.36 ± 0.48</td>
<td>U -300 P &gt; 0.5</td>
</tr>
<tr>
<td>Alasya</td>
<td>1.92 ± 1.15</td>
<td>1.64 ± 1.03</td>
<td>1.6 ± 1.15</td>
<td>1.36 ± 1.07</td>
<td>0.28±0.45</td>
<td>0.24 ± 0.43</td>
<td>U -300 P &gt; 0.5</td>
</tr>
<tr>
<td>Nidradhikya</td>
<td>1.88 ± 1.01</td>
<td>1.64 ± 0.90</td>
<td>1.80 ±0.95</td>
<td>1.56 ± 0.91</td>
<td>0.24 ± 0.43</td>
<td>0.24 ± 0.43</td>
<td>U – 312 P &gt; 0.9</td>
</tr>
<tr>
<td>Swedadhikya</td>
<td>2.24±0.59</td>
<td>2.04±0.67</td>
<td>1.48±1.12</td>
<td>1.28±1.06</td>
<td>0.20±0.40</td>
<td>0.22±0.40</td>
<td>U – 300 P &gt; 0.5</td>
</tr>
<tr>
<td>Daurgandhya</td>
<td>1.44±0.91</td>
<td>1.04±0.67</td>
<td>1.16±1.10</td>
<td>0.88±0.88</td>
<td>0.4±0.50</td>
<td>0.28 ± 0.45</td>
<td>U – 275 P &gt; 0.1</td>
</tr>
<tr>
<td>Ati pipasa</td>
<td>1.28±1.24</td>
<td>0.92±1.03</td>
<td>1.16±1.02</td>
<td>0.88±0.83</td>
<td>0.36±0.48</td>
<td>0.28±0.54</td>
<td>U – 279 P &gt; 0.1</td>
</tr>
<tr>
<td>Ati Shudha</td>
<td>1.84±1.06</td>
<td>1.48±1.005</td>
<td>1.60±1.08</td>
<td>1.12± 1.05</td>
<td>0.36±0.48</td>
<td>0.48± 0.65</td>
<td>U – 291 P &gt; 0.5</td>
</tr>
</tbody>
</table>

Table No. IV Inter & intra-group comparison between group K & P for objective parameters

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group – k BT(n=25) Mean±SD</th>
<th>Group – k AT(n=25) Mean±SD</th>
<th>Group – p BT(n=25) Mean±SD</th>
<th>Group – p AT(n=25) Mean±SD</th>
<th>Intra-group comparison between BT &amp; AT (Paired t test) Group-K Mean±SD</th>
<th>Intra-group comparison between BT &amp; AT (Paired t test) Group-P Mean±SD</th>
<th>t value on difference of BT &amp; AT (Unpaired t test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Weight</td>
<td>78.64±10.45</td>
<td>75.44±9.74</td>
<td>81.88±9.29</td>
<td>77.08±9.023</td>
<td>3.2±1.63</td>
<td>4.8±1.55</td>
<td>t = 3.548 P&lt;0.001</td>
</tr>
</tbody>
</table>
Discussion -

1. Discussion on probable mode of action of the therapy.

Yoga is a way of life predominantly concerned with maintaining a state of equanimity at all costs. It brings steadiness and health to the physical, mental, emotional and spiritual dimensions of the individual. Yoga comprises eight limbs i.e Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, and Samadhi[1].

Yoga practice helps in revitalizing the body that has been in inactive mode due to obesity. Yoga plays significant assignment in refinement of the body toxins and reduces fatigue. Yogic technique help to smoulder up excess fat, recover metabolism, tone up muscles and facilitate the practitioner to enjoy a healthy life. Study by shows that the total works on the abdominal muscles during Yogic exercise was five times greater than the work during abdominal crunches. Because of the high muscle activity this form of exercise would be good for people who cannot easily exercise on the floor such as obese people[2].

Lorenzo A Gordon et al (2008) has demonstrated the efficacy of Hatha yoga exercise on blood glucose, lipid profile, oxidative stress markers and antioxidant status in patients with type 2 diabetes, obesity and suggested that Hathayoga exercise and conventional physical training exercise may have therapeutic preventive and protective effects on diabetes mellitus and obesity by decreasing oxidative stress and improving antioxidant status[3].

Kapal Bhati is an essential part of Shatkarma, the Yogic system of body refinement techniques[4].

Kapal Bhati - 'Kapal' is a Sanskrit word, which means skull. 'Bhati' means to shine. So the term 'Kapal Bhati' means an exercise that makes the skull shine. It cleanses the skull and is described as one of the Shat-Karmas (six cleansing processes in Hatha Yoga).

Kapal Bhati practices recommended for obesity are the

<table>
<thead>
<tr>
<th>Table</th>
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</thead>
<tbody>
<tr>
<td><strong>BMI</strong></td>
</tr>
<tr>
<td><strong>Waist circum.</strong></td>
</tr>
<tr>
<td><strong>Hip</strong></td>
</tr>
<tr>
<td><strong>Mid-thigh Circum.</strong></td>
</tr>
<tr>
<td><strong>Mid-Biceps</strong></td>
</tr>
<tr>
<td><strong>Mid-Triceps</strong></td>
</tr>
<tr>
<td><strong>Supra Iliac</strong></td>
</tr>
<tr>
<td><strong>Subscapularis</strong></td>
</tr>
</tbody>
</table>

*P<0.05
more vibrant forms which promote the metabolism and influence different hypothalamic centres controlling the thirst and the feeling of satisfaction with food. Kapal Bhati practice is very accommodating for weight loss because it works on the abdominal muscles, reduces fat and develops body tone. K.V.V. Prasad et al (2006) studied the efficacy of Pranayama and Yogasanas on blood lipid profiles in normal healthy volunteers and concluded that Yoga practices may be helpful in patients with lipid metabolism disorders such as diabetes mellitus, coronary heart disease and dyslipidaemia.

Kapal Bhati pranayama involves abdominal muscle contractions with forceful and passive inhalation. It is a form of abdino-respiratory-autonomic exercise. Due to this, abdominal, gastrointestinal and somatic receptors get stimulated. Also, afferents, centres in brain-stem and cortex, efferent and effectors get stimulated. This leads to synchronous stimulation of autonomic nervous system, hypothalamus, pineal gland and other associated brain structures. Because of this there is synchronous increase in autonomic nervous system, pineal gland, hypothalamus and other central nervous system discharge to all parts of the body including endocrine and metabolic processes. This is responsible for the effect of Kapal Bhati on fat metabolism. This causes increase in basal metabolic rate, and because of this there is increase in calories consumption and decrease in fat deposition and so reduction in weight.

The review on yoga showed that yoga had beneficial effect on body weight, blood pressure, and blood glucose level and cholesterol level.

Nirmala N. Nayak reported that various yogasanas including Kapal Bhati seem to have a positive effect in reducing obesity.

Swami Ramdev mentioned that Kapal Bhati is helpful in reducing obesity.

In a study by Ajay Singh Ruhal et al (2010) it is reported that practice of Kapal Bhati decreases lean body mass and body fat percentage and increases basal metabolic rate. The neuroendocrine and autonomic nervous system mechanisms might be involved in the effects of Kapal Bhati Pranayama.

Kapal Bhati works on the Navel Center (Manipura Chakra) and associated organs and systems of that region, thus causing improvement in digestion and elimination process. Cures diseases and imbalances associated with this region such as indigestion, gas, diabetes, etc.

Kapal Bhati Pranayama also helps reduce abdominal fat, fight obesity, tone abdominal muscles and bestow core abdominal strength and power. Generates heat in the system to help dissolve toxins and waste matter.

Paschimottanasana - This asana stretches the hamstring muscles and increases flexibility in the hip joints. It tones and massages the entire abdominal and pelvic region, including the liver, pancreas, spleen, uro-genital system, kidneys and adrenal glands and thus helps to remove excess weight in this area and stimulates circulation to the nerves and muscles of the spine.

This asana carries the air from the front to the back part of the body (i.e., to the Susumna). It kindles gastric fire, reduces obesity and cures all diseases of man.

As it decreases the amount of fat accumulated in various body parts therefore the symptom Chalasphigodarastana is relieved by practising this asana. Meda Dhatu is the main Dhatu vitiated in Sthaulya Roga which when corrected by Paschimottanasana causes the symptom of Swedadhikya to get relieved, Sweda being the mala of Meda Dhatu. Sweda being the causative factor for Daugandhya relieves the symptom of Daugandhya upon its own alleviation. Nidra is caused by dominancy of Kapha and tama Doshas, Meda, Kapha, and Tama are interrelated to each other; hence Meda reduction tends to relieve the symptom of Nidradhikya in obese patients. Paschimottanasana is considered to be one of the most venerable Yogic technique and most of the traditional texts accentuate its ability to improvement metabolism thus helping to keep away from several metabolic disorders principally obesity.

Final posture attained during the Paschimottanasana imparts strong contraction and massaging effect over the
abdominal muscle, this effect may help to liquefy the fat mass deposited around the waist region, hip region, supra iliac spine, triceps, Biceps, shoulder and sub scapular region.

Sitting in this posture even imparts massaging effect over the abdominal vital organs viz, liver, spleen, pancreas and gastric region which may enable the proper enzymatic and gastric secretion it in turns ignite the digestion and metabolism process.

Sitting in Paschimottanasna also enable proper and high circulation to abdominal muscles and helps to take out the deposited toxins (bad fat).

**Conclusion -**

At the end of the study, following conclusion can be drawn on the basis of Observations made, Results achieved and thorough discussion in the present context and can be summarized as below:

1. Obesity is a metabolic disorder. So without improving metabolism the proper food intake has very limited role. So that type of therapy should be recommended which pacify these factors. Also, Kapal Bhati and Paschimottanasana acts on metabolism of the body and helps in reducing the body fat of a particular area i.e. supra iliac region, buttocks, thighs and abdominal fat etc.

2. In Kapal Bhati group, percentage of relief in 3 sing & symptoms was achieved more compared to Paschimottanasana group. But in Paschimottanasana Group percentage of relief in 5 sign & symptoms was achieved more compare to Kapal Bhati group.

3. Pashimottanasana group showed maximum percentage relief in Subjective, Objective parameter except Alasya, Atipipasa & Atikshudha. This is the only symptoms in which Kapal Bhati group showed maximum percentage of relief.

4. Paschimottanasana group showed higher percentage relief as compare to Kapal Bhati group in all Anthropometric Profile (Weight, BMI, Waist, Hip, Mid-Thigh Circumference etc.).

5. Action of Kapal Bhati is the process which may increases the metabolic activities of the body, by this action it resulted in gradual improvement in reducing the subjective complaints whereas the Paschimottanasana process results in reducing the objective as well as subjective complaints by enhancing the metabolic activities and imparting the massing effect over the various body parts.

6. The plus point observed in case of Yogic technique management is absence of any hazardous effect, which is really a great benefit to the patients and is of vital importance in view of the global acceptance of Yoga.

**Limitations -**

The sample size was small; the follow up period was short as the study was time bound.

**Recommendations –**

1. Large sample study can be conducted. Various studies shows Pranayama has better role in improving metabolic disorder than Asanas

2. The therapeutic effect can be enhanced significantly when there should be incorporation of various Yogic exercises like Surya Nmaskar, Chakrasana, etc along with the proper diet regimen.

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