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SYSTEMATIC REVIEW ON EFFECTS OF BHRAMARI PRANAYAM



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ABSTRACT-

Pranayama has many benefits and many studies were conducted experimenting these benefits, but there is very little documentation on specific pranayama individually. The bhramari pranayam has many health benefits but very diminutive scientific evidence showing its effects. Documentation is available of effects of bhramari pranayam which is done with other pranayam and very few literature is assessable on specific effects of bhramari pranayam. In this paper, there is review of the available scientific studies on the bhramari pranayam. Hence systematically reviewed the available studies on the benefits of bhramari pranayam to evaluate how the studies have been done and what are the effects of bhramari pranayam found to them. This review could lead in further identifying the gaps in the existing studies as well as exploring the new floor for scientific advances in this field.

INTRODUCTION -

Search Criteria:

The studies which was done the effects of bhramari pranayam is searched online through the Embase, google scholar and manual search, PUBMED and All research papers, articles, thesis works are searched related to bhramari pranayam to do comprehensive and identified all the studies done on the effects of bhramari pranayam.

Selection of studies:

The selection of studies was done on the basis of inclusion and exclusion criteria.

- Inclusion criteria:** The studies that have been done on Effects of bhramari pranayam generally, on particular system and benefits of bhramari pranayam on health were included.
- Exclusion criteria:** The studies that have been done on practice of bhramari pranayam in combination with any other practice were excluded.

Data extraction:-

Study of all research papers articles was done and finally include the points as objective of the study, the methodology, the tools used, participants, findings, any interventions performed and inference consequential from the study findings.

Systematic Review of Previous work done :-

The bramhari pranayam has many health effects but very diminutive scientific evidences are available showing its specific effects. Hence aim is to try to investigate those scientific studies on bramhari pranayama. For that, the available studies reviewed systematically

with the aim to their process evaluation and effects on body.

This review could help to identify the gaps in existing studies and explore new tools to study its effects.

- The Systemic review is carried out based upon following previous work done.

Table-01 -

s.n	Author & Objective	Methodology	Tools used	Participants	Findings	Implication
1.	Author - Nivethitha L To measure change in HR variability at and after Bh.P.1	Experimental study (5 min practice) single group repeated measures study	Four channel Polygraph, For recording electrocardiogram (ECG).	16 (9 males, 7 females) healthy volunteers	Significant increase in HR and LF spectrum of HRV and a significant reduction in HF spectrum of HRV	Study suggests that there might be a parasympathetic withdrawal during the practice of Bhramari.
2.	Diwakar Pal To determine the effects of bhramari Pranayama on State Anxiety On sedentary male ²	Randomised self as control	STAS Anxiety Questionnaire	40 male subjects	Significance effects of Bhramari Pranayama on Anxiety In school going children.	Bramhari Pranayam is one of best breathing exercises to release the mind of agitation, frustration or anxiety and get rid of anger.
3.	Usha Manjunath The effects of bhramari pranayama on aerodynamic and acoustic parameters of voice in healthy individuals. ³	Pretest-posttest design study.	calibrated Phonatory Aero view System Computerized Speech Lab system. For Analysis Multidimensional Voice Program, a module of CSL,	A total of 24 participants in the age range of 20 to 25 years	significant improvement in The maximum phonation duration, glottal airflow and pressure, average fundamental frequency, and cepstral peak prominence	Bhramari pranayam is effective in improving the Acoustic and aerodynamic parameters of voice.
4.	Suprabha Srivastava ¹ - To measure the interventional effect of Bhramari Pranayama On Mental Health in students ⁴	Single group pre and post study.	Mental health scale(Kamlesh Sharma 1996)	60 subjects	Significant effect on mental health and increased level of mental health was found in post study in comparison to pre study.	Bhramari Pranayama provides a means to individual peace, happiness, develops optimism attitude, self esteem and proper coordination between mind and body.

5.	Kuppusamy M To assess the immediate effect of Bhramari pranayama practice on the resting cardiovascular parameters in healthy adolescents. 5	Randomised control trial.	Heart rate and blood pressure	Sixty apparently healthy adolescents of both sex	Pre and Post inter group analysis also showed that significant reduction in HR and BP indices in Bhramari Pranayam group	Bhramari Pranayam (3bpm) practice improves the cardiovascular parameters through parasympathetic dominance in adolescents and it can be practiced routinely for the reduction of stress induced cardiovascular risk in their future.
6.	K Abishek Evaluate the efficacy of Bhramari pranayama in relieving the symptoms of chronic sinusitis 6	The randomized trial	Sino-Nasal Outcome Test . Endoscopic examination and preoperative computed tomography (CT) scan, system.	60 patients with chronic sinusitis.	The efficacy of high-volume budesonide nasal irrigations and found them to be effective and well tolerated in the management of chronic sinusitis	Bhramari pranayam helps by ventilating the sinuses by its mechanical cleaning and anti-inflammatory effects. Such practices of yoga are inexpensive, without side effects, and can improve the symptoms in patients with chronic sinusitis.
7.	Varun Malhotra 1 To see effect of brahmari pranayama on visual reaction time 7	Baseline record of Visual reaction time test was taken online.	Pre-test and post test	31 subjects	Reaction times decreased from 0.39784 ± 0.15 to 0.28406 ± 0.09 at p value of 0.0005 and their concentration improved.	Bhramari Pranayama gives unparalleled command over mind and enables to focus the mind quickly in the most intense way on any object of thought- intellectual, physical or spiritual.
8.	Maheshkumar - To Effect of bhramari Prā āyama practice on pulmonary function in healthy adolescents: 8	randomized control trial	Pulmonary function test -RMS Helios spirometry	90 healthy adolescents	A significant (P < 0.05) improvement in all pulmonary function parameters; Slow vital capacity (SVC) and Maximum Voluntary Volume (MVV) also showed significant improvement in the prā āyama group	Bhramari Prā āyama practice is effective in improving the pulmonary function among the adolescents which could be utilized for further clinical studies.
9	Dr.Kirti Bhatt To evaluate effects of Bhramari Pranayam in a series of patients suffering from symptoms of Anidra on various scientific parameters 9	Open randomized control clinical study, pre and post test	Sleep Diary Assessment . Brief Psychiatric Rating Scale	100 known cases of Aharaniya vega Nidra (Anidra) were selected.	Bhramari Pranayam provided 92.88% relief, Combined Therapy provided 98.26% relief followed by 93.56% relief in Sleep Hygiene group.	Yogic therapies when combined with behavioural therapy like Sleep Hygiene gives better relief to patients of Anidra.
10.	Kunwar Bipin Pratap Bhusan 1, Dr. Neeru Nathani 2 To find out the Impact of Bhramari Pranayama on Cardio Respiratory Endurance of the Cricket Players with Special Reference to Prakriti 10	Experimental (N=45) and control (N=45). Randomised control trial.	Cooper 12 minutes Run and Walk Test was used to identify Cardio Respiratory Endurance of players.	90 male (clinically healthy) cricket players	Pitta prakriti individuals mean and SD were 2288.28 ± 298.353 and 2334.48 ± 275.546 respectively, having 't' value was 5.153 and 'p' value was 0.000 which was found statistically Significant.	Cardio Respiratory Endurance improved by practicing Bhramari Pranayama for twelve weeks. Improvement in the Cardio Respiratory Endurance was found more in Cricket Players having Pitta Prakriti.

Data synthesis -

After the data collection, the data construction was done by categorizing the study findings under pulmonary effects, cardiovascular effects and autonomic system.

DISCUSSION:-

Study of Effect on cardiovascular system concluded that Bhramari pranayama improves the resting cardiovascular parameters in healthy adolescents. Reduction in the HR and BP indices, Pulse Pressure (PP), Mean Arterial Pressure (MAP), Rate Pressure Product (RPP) and Double Product (DoP) significantly decreased after Bhramari pranayam practice. This study showed that Bhr.P practice produces relaxed state and in this state parasympathetic activity overrides the sympathetic activity. Effects on pulmonary functions tests- As a deep breathing technique, this Pranayam practice reduces the physiological dead space ventilation and decreases the work of breathing. It makes efficient use of the diaphragm and abdominal muscles which improve the pulmonary function A significant improvement in all pulmonary function parameters; FVC, FEV1, FEV1/FVC ratio, FEF 25%-75% and PEFR was seen in the Bhramari pranayam. Slow vital capacity (SVC) and Maximum Voluntary Volume (MVV) also showed significant improvement. The Effect of Brahari Pranayama on Visual Reaction Time study concluded that reaction times decreased and benefitted by Brahari Pranayama and their concentration improved. Effect on Mental Health:- This study shows the increased mental health score after Bhramari Pranayam intervention in comparison to pre mental health score. It means the practice of Bhramari Pranayam session increase the mental health condition of students with constant effort. Effect on Chronic Rhinosinusitis- The breathing exercise of Bhramari pranayama helps to relieve symptoms of chronic rhinosinusitis It is an effective complementary modality .Bhramari pranayama helps by ventilating the sinuses by its mechanical cleaning and anti-inflammatory effects. It is inexpensive as well. On other hand Effect of Bhramari Pranayama on the Acoustic and Aerodynamic Parameters of Voice in Normophonic Females (Usha.) proved that significant improvements in the maximum phonation duration for all the sustained vowels. This indicates that the practice of bhramari pranayama improved the respiratory phonatory coordination.

Studies done by Jain et al. and Rampalliwar et al. have concluded that regular practice of Bhramari pranayam reduces the cardiovascular reactivity to stress (cold pressor test) by inducing parasympathetic predominance and cortico- hypothalamo medullary inhibition.[6],[7] Immediately after the practice of Bhramari pranayam, there is a reduction in heart rate, blood pressure [8] and improvement in the cognition in healthy subjects.[9] On the other hand, increased theta activity [10] and Paroxysmal Gamma wave [11] following the Bhramari pranayam has been noted to induce positive thoughts and feeling of happiness. It can be used for managing tinnitus as a self-induced sound therapy.

CONCLUSION:-

Bhramari Pranayam is an effective but complimentary therapy/ modality in the management of clinical conditions related to Cardiovascular, Central nervous and Respiratory system. More clinical condition related to these vital systems needs to explore where Brahari Prsnayam could help as complimentary modality. Central nervous system related clinical issues like stress, anxiety etc. needs to be studied with the regular practice of Bramhari Pranayam as principal therapy specially in the subjects of developing age.

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