

Patanjali's Ashtanga Yoga: A Bibliometric Analysis Of Its Impact On Health And Well-Being

Aakash^{1*}, Dr Anurodh Sisodia², Dr Ajay Kumar³, Iti Jain⁴

^{1*}PhD Scholar, Centre for Yogic Sciences, Jiwaji University Gwalior, Madhya Pradesh India

²Professor, UGC-MMTC, LNIPE Gwalior, Madhya Pradesh, India

³Head of Department of Physical Education, Government College Chinnor, Gwalior Madhya Pradesh, India

⁴PhD Scholar, Department of Yogic Science, LNIPE Gwalior, Madhya Pradesh India

***Corresponding Author:** Aakash

*PhD Scholar, Centre for Yogic Sciences, Jiwaji University Gwalior, Madhya Pradesh India

ABSTRACT

Objective: This bibliometric analysis seeks to summarize research papers on Patanjali's Ashtanga Yoga and investigate its influence on health and well-being.

Methods: A thorough search of the PubMed database was done to find papers that were pertinent to Ashtanga Yoga. VOSviewer software was used to retrieve and analyze 2,864 articles in total.

Findings: The examination uncovered a wide range of advantages linked to Ashtanga Yoga, such as enhancements in psychological, immunological, and neurological well-being, improved quality of life, and heightened levels of awareness. Research has demonstrated that Ashtanga Yoga effectively mitigates stress, sadness, and anxiety, while concurrently enhancing cardiovascular and mental well-being, alleviating persistent pain, and optimizing sleep quality. The ethical standards delineated in Yama and Niyama were recognized as factors that contribute to self-discipline and ethical deliberations. Moreover, the bodily positions (Asanas), strategies for controlling breath (Pranayama), and withdrawal of senses (Pratyahara) that are linked to Ashtanga Yoga were discovered to have beneficial impacts on different elements of health and overall well-being. The ultimate stages of Ashtanga Yoga, namely Dharana, Dhyana, and Samadhi, were emphasized for their ability to promote deep internal focus, mindfulness, and spiritual illumination.

Conclusion: This bibliometric research highlights the holistic approach of Patanjali's Ashtanga Yoga to enhance physical, mental, and spiritual well-being. The results indicate that Ashtanga Yoga provides significant knowledge for improving general well-being and cultivating a sense of inner balance and spiritual awareness.

Keywords: Yoga, Patanjali Ashtanga Yoga, Physical health, Mental health, Well-being, Stress, Consciousness.

INTRODUCTION

These days, machines handle all the labor humans used to do by them. The outward and internal balance of our lives is being eroded. Science has unquestionably altered the lifestyle of man, but the effect has not been particularly favorable physiologically (1). Constant employment does not give a person time to reflect on what is bad to him, which is affecting his life, and his future generations (2). Lack of physical labor, more food, unbalanced food, more work, incorrect habits, opulent living, etc. are some such things, which have given birth in modern life. Despite all the luxuries and advantages in modern life, human physical and mental health is worsening daily (3)(4). Therefore, there will be no exaggeration in declaring that yoga is vital for a person to be healthy (5).

Therefore, yoga is not only the science of diverse physical postures, but it is a source of total health and on the other hand, it also maintains the mind's peacefulness (6). Regular practice of yoga or physical activities similar to it not only increases the age but also leads to a meaningful life (7)(50).

More than 5,000 years ago, yoga, started its journey as an ancient Indian science of holistic healthcare and wellness stream of medical sciences and presented a good variety of practical strategies for leading a healthy life (8). Maharishi Patanjali has written in his yoga sutra that yoga is the state where everyone is free from anxieties and the mind is entirely altered. Both body and soul play a significant role in the metamorphosis from the beginning to everlasting (9)(10). For this reason, it is the key for acquiring worldly secrets. Human beings can implement their personality by studying rhythmic breathing, paying attention and contemplating.

Though yoga philosophy provides a rich theoretical framework but the biggest disconnect is its usage as a tool for health and wellbeing remains undiscovered (11). In the modern day, yoga has become famous and it is spread all over the world (12). In India, it has been a part of the curriculum in 1.5 million elementary, secondary and senior secondary schools for "creating awareness about the benefits of yoga" (13) and also over 50 Yoga universities and institutions have come into the picture. Yoga is being used in schools to boost students' wellness using Ashtanga yoga practices which

incorporates several moral conduct behaviors - physical fitness, mental health, self-regulation, happiness, focus and, memory etc. (14)(15).

Yoga philosophy defines yoga as the practice of regulating the alterations or oscillations of the mind (16). The terms mind, ego, and intelligence all refer to chitt (17). Given their highly changeable nature, it is crucial to take measures to prevent them when engaging in yoga as a lifestyle (18). In yoga philosophy, various varieties of chittbhumi, which refer to different mental states, are recognized (19). Vyas Rishi discusses the five mental planes, which represent the various states of the mind. The five states mentioned are kshipta (characterized by raving), mudha (characterized by forgetfulness), vikshipta (characterized by oscillation), ekagra (characterized by one-pointedness), and niruddha (characterized by restraint) (20). Thus according to the Yog Darshan, one might pervade in various mental levels by doing the eight step yoga (Ashtang Yoga) (21).

Ashtanga yoga concept is drawn from Indian yoga philosophy text book—Patanjali Yog-Darshana/Patanjali Yogsutra (22). According to Maharishi Patanjali, there are eight aspects of ashtang yoga practice, in which after acquiring mastery, any person can build a relationship with God (23). To go into this state it is important to follow two conditions - practice and freedom from wants (24). Ashtanga Yoga offers out a thorough route for spiritual growth through its eight limbs, with significant implications for both physical and mental health (25). Ashtanga, translating to "eight limbs," offers a holistic approach that intertwines ethical concepts, physical disciplines, and mindfulness (26).

Through the Yog sutras, Maharishi Patanjali gives a systematic path to acquire a higher degree of consciousness (27). It is also called Raj Yoga, in which special directions have been given to awaken the consciousness and lead a higher life (28). Inside the text, Patanjali presents a step-by-step series of instructions known as the eight limbs of Yoga (29).

The eight folds are separated in two, where the first five represents the Bahirang or exterior aspect and the next three represent Antrang or inward aspect of yoga (23)(30).

Bahirang Yoga - Bahirang is a Sanskrit phrase which signifies 'external' or outside. In the eight fold path of yoga, it is related with Yama, Niyama, Asana, Pranayama and Pratyahara (31)(32). **Antaranga yoga** - It comprises Dharna, Dhyana and Samadhi (33).

Yama and Niyama - The early limbs, establish a moral and ethical foundation for practitioners, and research demonstrates that adherence to such precepts positively improves mental well-being (34)(35). Studies reveal that persons who adopt ethical norms into their life experience lower stress and increased mental health (36).

Asana - The third limb, involves physical postures believed to promote flexibility, strength, and balance (37)(38). Numerous scientific studies indicate the good influence of yoga asanas on cardiovascular health, including increases in blood circulation and heart function. Regular practice has been associated to lower risk factors for heart disease (39)(40).

Pranayama - The fourth limb stressing breath control has been extensively investigated for its physiological advantages (41). Research reveals that conscious breathing techniques not only improve lung capacity but also have a calming effect on the neurological system, leading to reduced stress levels and improved mental clarity(42)(43).

Pratyahara -The fifth limb coincides with contemporary worries about sensory overload. In the age of constant connectedness, studies suggest that intentional retreat from external stimuli favorably benefits mental health, reducing anxiety and boosting overall well-being (44)(45).

Dharna, Dhyana and Samadhi - Ashtanga Yoga's latter limbs—Dharana, Dhyana (46), and Samadhi (47)—focus on concentration, meditation, and unity, respectively. Neuroscientific research reveal that regular meditation practices contribute to increased gray matter density in the brain regions related with emotional control and self-awareness (48)(49).

In essence, Ashtanga Yoga emerges as a scientifically validated approach to comprehensive health. By incorporating ethical concepts, physical postures, breath control, and meditation, individuals stand to acquire not just physical fitness but also mental resilience, emotional balance, and an overall increased quality of life. The combination of traditional knowledge and modern scientific proof puts Ashtanga Yoga as a timeless and beneficial technique for developing overall well-being.

To create a healthy nation and to understand sustainable health goals, academics, policymakers, and physicians need to work on evidence production on Ashtanga Yoga. There are numerous approaches for measuring the quantity and quality of the research output. A bibliometric approach is a tool used to analyze research activity, theories, laboratories, scientists, and scientific specialization. The present study is a bibliometric study trying to map the trend

of Patanjali's Ashtanga yoga research globally, identifying top publications dominating Patanjali's yoga research, outlining the sorts of research patterns and current trends in yoga research.

NEED OF THE STUDY

In the current era dominated by materialism, we are witnessing significant advancements in scientific development, while also observing a noticeable fall in our spiritual well-being (50)(51). Today, as a result of alterations in human dietary patterns and behaviors, his physical well-being is progressively declining (52). Without a sound mind and body, even the most ambitious individual is incapable of achieving anything (53). A healthy body leads to a healthy mind (54). When the body is afflicted with disease, our inclination to pursue supreme consciousness diminishes, as the diseased body has a detrimental impact on the mind (55)(56).

Today, there is an urgent requirement for yoga to comprehend the wisdom of sages and adhere to the path they have paved for optimal well-being (57).

Patanjali's Ashtanga Yoga, a form of yoga that promotes physical vitality, mental clarity, and spiritual balance, is increasingly important for personal and societal well-being (58). Ashtanga Yoga promotes ethical principles, emotional intelligence, and spiritual consciousness, fostering a deeper connection with the self and the universe (59). It tackles the problems of today by outlining a realistic way to achieve health, happiness, and spiritual enlightenment (60) —the combination of a holistic existence. It is not only an individual quest for self-improvement, but also a collaborative effort towards a healthier and more harmonious global community. We improve physical (5), mental (61), and spiritual health (62) while also expanding our understanding of what it means to be truly healthy as a society. Consequently, further investigation is necessary to enhance knowledge of the engagement of Ashtanga yoga in daily routines. A search has been undertaken to collect the most exemplary and comprehensive studies, notably emphasizing the demonstration of ashtanga yoga as a holistic methodology for promoting health and well-being.

OBJECTIVES

The primary aim of this study is to determine the number of research articles relevant to ashtanga yoga that have been published in the PubMed database. This study specifically targets the following objectives: (i) To analyze the pattern of Patanjali's research articles on ashtanga yoga. (ii) To determine the impact of ashtanga yoga on the general population. (iii) To elucidate the ongoing research about the various components of ashtanga Yoga, namely yama, niyama, asana, pranayama, pratyahara, dharna, dhyana, and samadhi. (iv) To delineate the pattern of adherence to Patanjali's yoga philosophy among individuals.

METHODS

Database used

PubMed database comprises more than 36 million citations for biomedical literature from MEDLINE, life science journals, and online books. This database is frequently used, gives free access, and is considered one of the essential databases for literature surveys. The Mesh terms are also one of the primary elements of PubMed to search and retrieve articles. So, we have taken this database to obtain the Ashtanga Yoga-related published articles.

Keywords

Traditionally Ashtanga yoga is an integration of eight limbs which includes: Yama, Niyama, Asana, Pranayama (Breathing exercise/practices), Pratyahara (withdrawal of senses), Dharna, Dhyana (Meditation), and Samadhi. We have performed an advanced search in PubMed and used the "MeSH" phrase "yoga" and used the following keywords: Patanjali Yoga* [Title/Abstract] OR Ashtanga Yoga* [Title/Abstract] Yama and Niyama* [Title/Abstract] OR Asana* [Title/Abstract] OR Pranayama* [Title/Abstract] OR Pratyahara* [Title/Abstract] OR Dharna* [Title/Abstract] OR Dhyana* [Title/Abstract] OR Samadhi* [Title/Abstract] and were incorporated in the search tab. The Medline/PubMed electronic database was searched in 2023. We haven't restricted the chronology or country-specific for the search; therefore all the articles were included in our study.

INCLUSION AND EXCLUSION CRITERIA

The studies included in this bibliometric review specifically matched the keywords linked to Patanjali's Ashtanga Yoga that are accessible on PubMed. Study methods encompasses quantitative, qualitative and mixed-methods approaches. All scholarly articles pertaining to terms such as - Yama, niyama, asana, pranayama, pratyahara, dharna, dhyana, and samadhi have been included and accessible on PubMed. All languages, clinical diagnoses, and philosophical or symptoms-related articles that corresponds to the keywords were considered.

Abstracts, dissertation reports, conference proceedings, book chapters, case reports, case series, and treatment programs with minimum reported outcomes were removed. Studies relating to other styles of yoga other than Ashtanga yoga were eliminated.

DATA EXTRACTION AND ANALYSIS

We obtained 2,864 research articles from PubMed as CSV files. The retrieved data was cleaned, processed, created, and visualized into bibliometric networks based on citation, bibliographic coupling, co-citation, or co-authorship interactions. VOSviewer (version 1.6.20) was used to review the data. **VOSviewer** is a software tool for constructing and visualizing bibliometric networks. These networks can include journals, researchers, or individual publications. They are built on the basis of citation, bibliographic coupling, co-citation, or co-authorship relations.

RESULT

The bibliometric analysis of Patanjali's Ashtanga Yoga involved a thorough search of the PubMed database, resulting in the retrieval and analysis of 2,864 research articles [T4]. The examination of these articles uncovered a multitude of benefits associated with practicing Ashtanga Yoga, impacting various aspects of health and well-being.

1. Psychological Well-being: Ashtanga Yoga was found to enhance psychological well-being by reducing stress, sadness, and anxiety. The practice of ethical standards and physical postures within Ashtanga Yoga contributes to mental resilience and emotional balance.

2. Immunological and Neurological Well-being: The analysis revealed improvements in immunological and neurological well-being among individuals practicing Ashtanga Yoga. Conscious breathing techniques and meditation practices within Ashtanga Yoga were shown to have a calming effect on the neurological system, leading to reduced stress levels and improved mental clarity.

3. Quality of Life: Practicing Ashtanga Yoga was associated with an improved quality of life and heightened levels of awareness. The combination of ethical principles, physical postures, breath control, and meditation in Ashtanga Yoga contributes to overall well-being and a deeper connection with the self and the universe.

4. Cardiovascular and Mental Health: Ashtanga Yoga was found to enhance cardiovascular and mental health, alleviate persistent pain, and optimize sleep quality. The physical practices within Ashtanga Yoga, such as asanas and pranayamas, promote physical strength and cardiovascular health.

5. Spiritual Illumination: The ultimate stages of Ashtanga Yoga, namely Dharana, Dhyana, and Samadhi, were emphasized for their ability to promote deep internal focus, mindfulness, and spiritual illumination. These aspects of Ashtanga Yoga contribute to a deeper understanding of self and the universe, fostering spiritual growth and enlightenment.

DISCUSSION

Researcher obtained 2,864 research articles using the provided keywords. The report gives a synthesis of many studies utilizing keywords linked with Patanjali's Ashtanga Yoga, with the result that researches are looking at the diverse benefits of yoga on the lives of people. Ashtanga Yoga promotes the compatibility of psychological, immunological, and neurological improvement in healthy people, improves life quality as a decent human being for society, and also elevates your level of consciousness to a higher degree. Ashtanga Yoga decreases stress, depression, anxiety, chronic pain, and sleep difficulties while increasing cardiovascular and mental health in human beings (64), (65), (66). The studies reveal that there are various benefits of practicing Ashtanga yoga frequently showing in Figure.1, such as enhancing consciousness, mental health, emotional health, musculoskeletal aches, menopause symptoms, and non-communicable diseases (67). Along with their changing living standards and lifestyles, human beings are experiencing numerous benefits from following Patanjali Ashtanga Yoga in their lives as it removes anxiety, depression, and improves physical, mental, spiritual health etc.

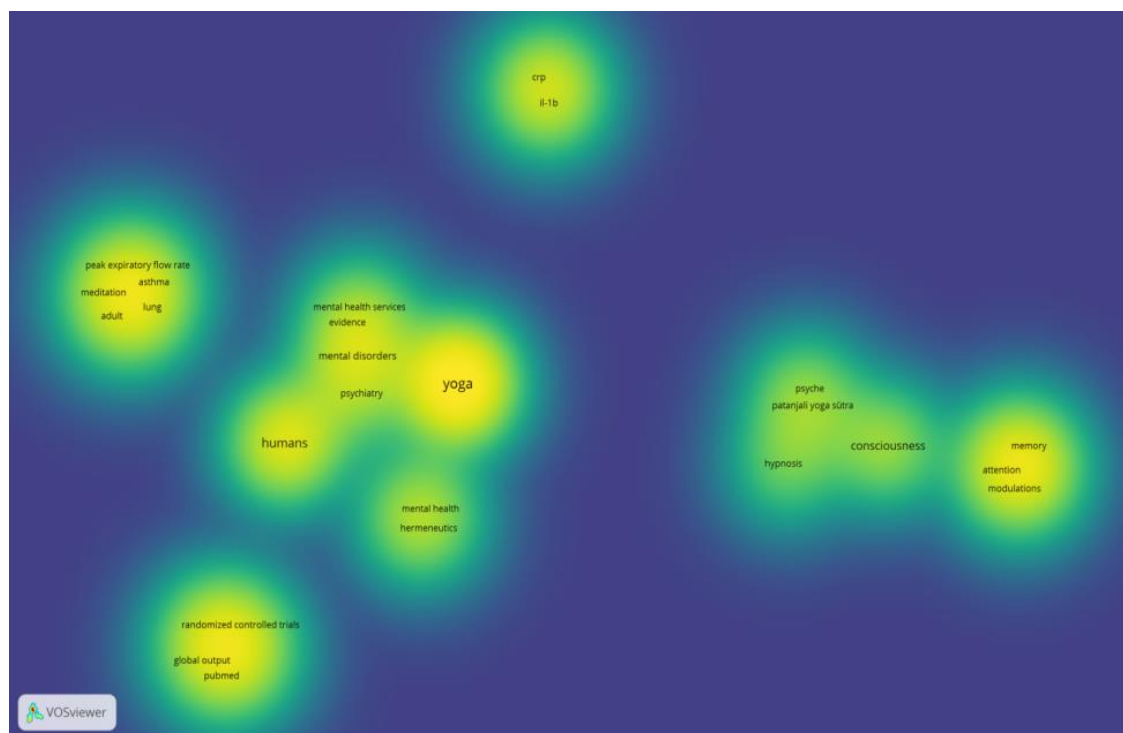


Figure 1 Patanjali's Ashtanga Yoga Density Visualisation

Patanjali's Ashtanga Yoga, as taught in the Yoga Sutras, provides ethical and moral foundations through the first and second limbs, Yama and Niyama. Examining Yama Niyama by VOSviewer in Figure 2. Yama Niyama's influence can be observed in issues with mental stress, problems with mental health, modifying one's lifestyle, depression, ethics, and in students as well as adults. Patanjali, Yama, and Niyama assist us in maintaining self-control and directing our lives along certain paths. Yama represents ethical rules guiding relationships with the external world, while Niyama emphasizes individual observances and personal disciplines. As displayed in this picture, these are largely connected to lifestyle, mental health, ethics, hypertension, anxiety, depression, etc. Patanjali's emphasis on ethical living emphasizes the importance of morality in a yoga practitioner's growth.

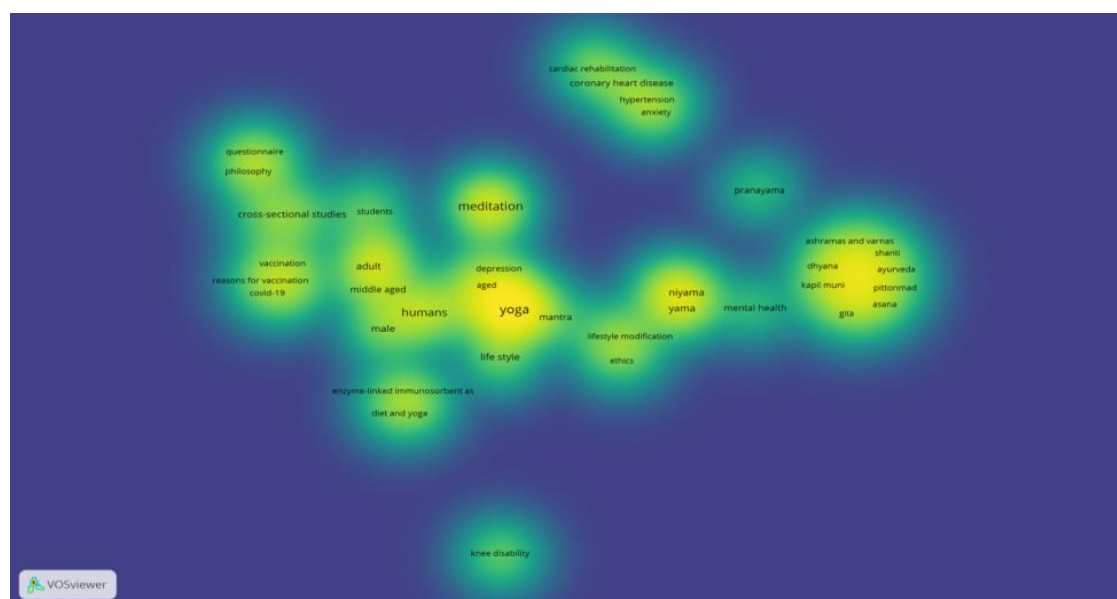


Figure 1 Yama-Niyama Density Visualisation.

Examining Patanjali's Ashtanga Yoga third limb, asanas, by VOSviewer in Figure 3. Asana, generally translated as "posture," involves the practice of physical poses aimed at improving physical strength, and it can be observed to be helpful in issues with attention and concentration, improving heart rate, improving blood pressure, cardiovascular diseases, coronary diseases, cognition-level problems with mental health, modifying one's lifestyle, and improving occupational health in adults. It is also seen that asana provides a strong foundation for meditation and spiritual development. Patanjali emphasizes the necessity of a comfortable and firm posture in creating a serene state of mind, hence easing the practitioner's journey along the yogic path. As displayed in this picture, it is mostly linked to yoga therapy, stress, musculoskeletal disorders, hypertension, public health, etc. The practice of asana extends beyond simply physical exercise, encompassing a conscious and purposeful approach to each pose and developing a harmonious synthesis of the body, mind, and spirit.

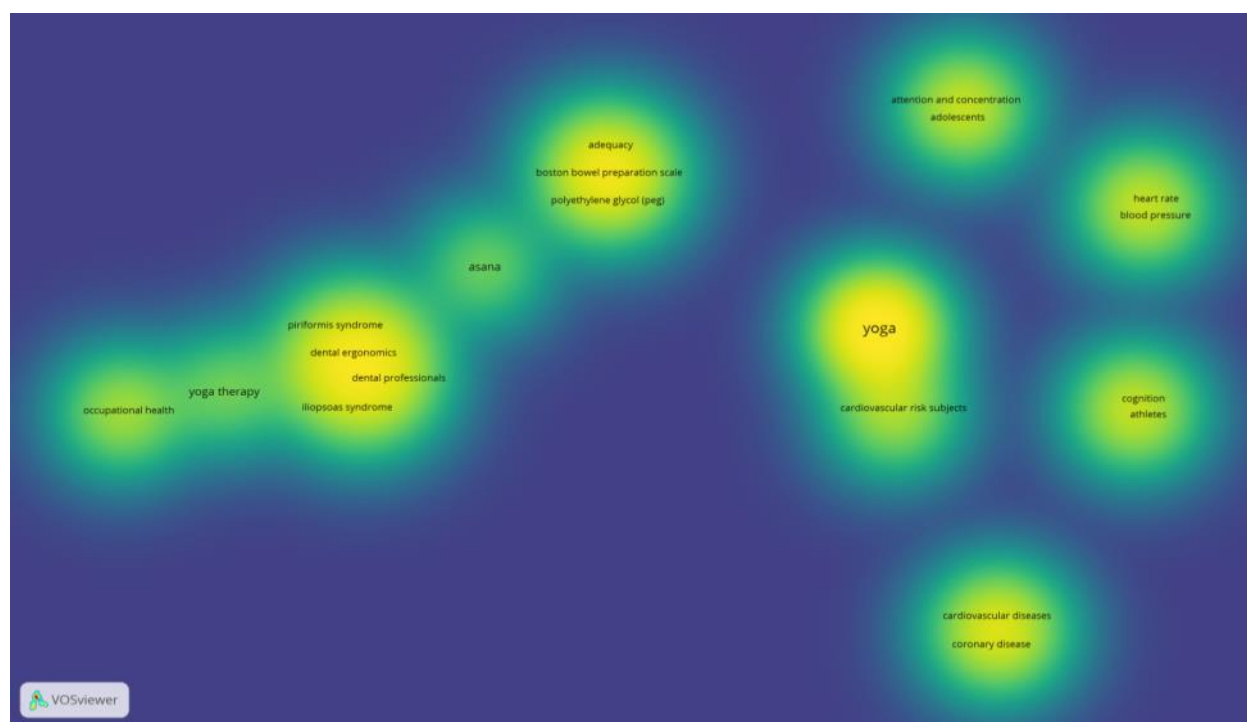


Figure 2 Asanas Density Visualisation.

Pranayama, as a foundational technique focused at harnessing and directing the breath to nurture energy and enhance consciousness. Pranayama is a breathing practice that involves managing intake, exhalation, and retention of vital energy, seeking to increase the circulation of prana throughout the body. Examining Patanjali's Ashtanga Yoga fourth limb, pranayama, by VOSviewer in Figure 4, it is evident that this intervention proves beneficial in addressing concerns pertaining to respiration, breathing, hemoglobin saturation, and overall health-related quality of life. Patanjali argues that mastery over the breath facilitates mastery over the mind, leading to deeper states of awareness and concentration suited to meditation. By engaging in the rigorous practice of Pranayama, individuals can not only improve their physical well-being by enhancing respiratory and cardiovascular function, but also cleanse the subtle energy pathways (nadis) and activate latent spiritual capacities. Patanjali's emphasis on Pranayama highlights its crucial function in promoting the harmonious union of the physical body, breath, and mind, thereby facilitating spiritual growth on the yogic journey.

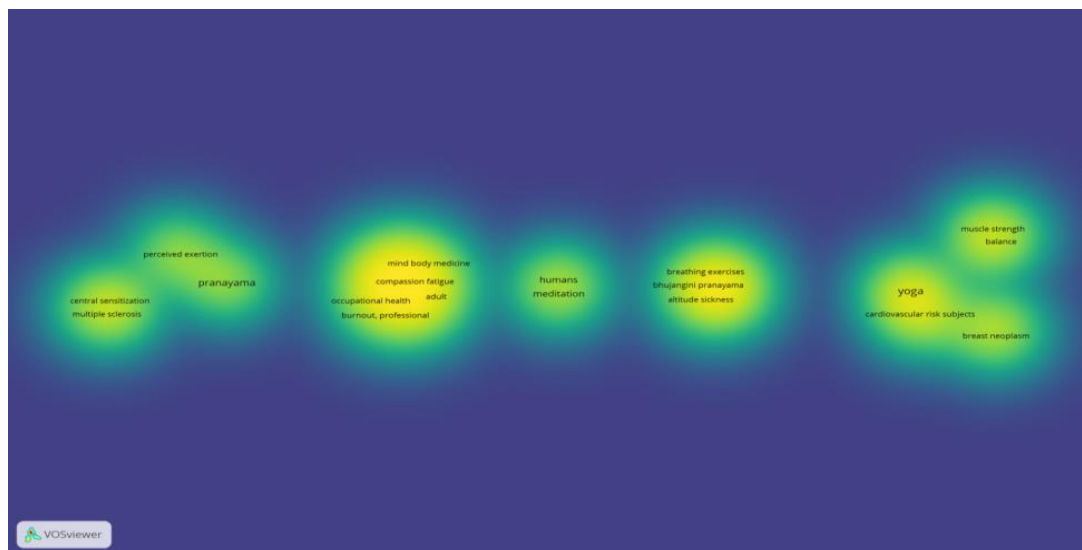


Figure 3 Pranayama Density Visualisation.

Patanjali's Ashtanga Yoga emphasizes Pratyahara, the fifth limb, shows in Figure 5 as a crucial stage in the spiritual journey. Pratyahara involves shifting the senses from their outward interaction with the external world towards the inner realm, enabling practitioners to lower hypertension, remove mental stress, which slows the process of diabetes, improve consciousness and memory power, and help in modifications of thoughts and states of mind that permit practitioners to disconnect from sensory distractions and build inner awareness. Pratyahara prepares the mind for deeper meditation and self-realization, marking a significant stage in the Ashtanga Yoga framework.

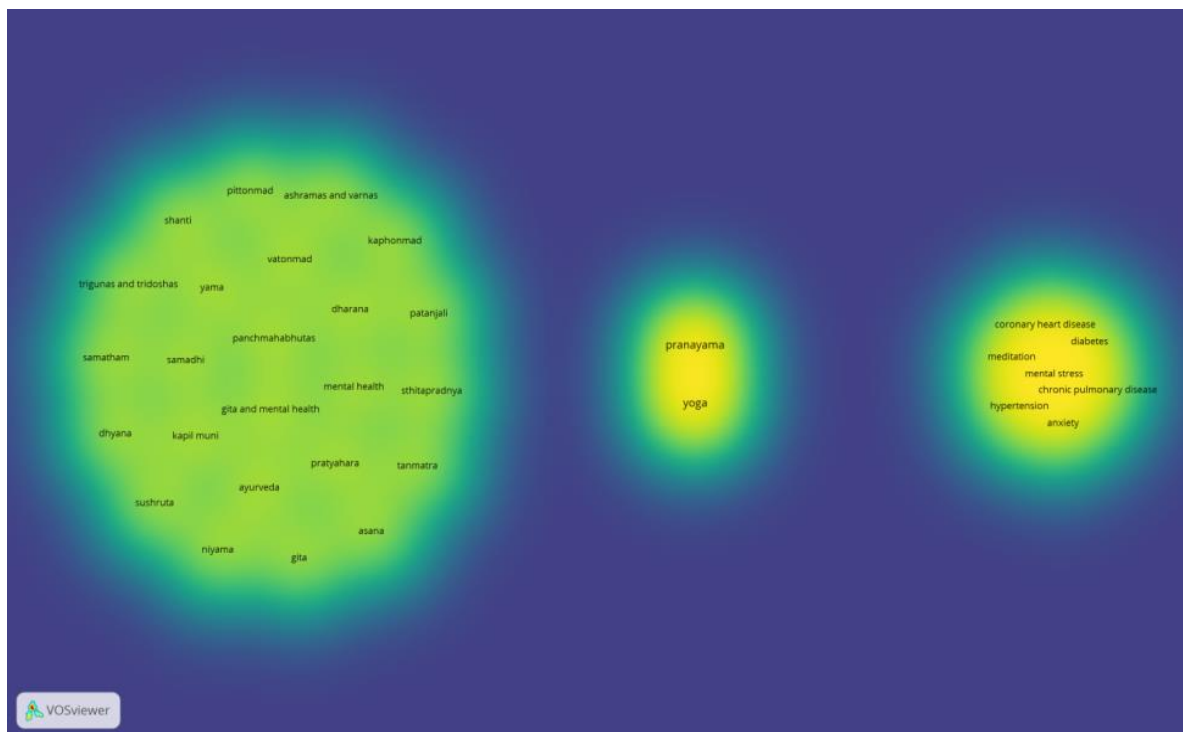


Figure 4 Pratyahara Density Visualisation

Patanjali's Ashtanga Yoga culminates in the sixth, seventh, and eighth limbs, which are Dharana (concentration), Dhyana (meditation), and Samadhi (absorption). By observing according to VOSviewer in Figure 6 and 7. Dharana incorporates the strong concentration of the attention on a single point or object, establishing state of consciousness mental stability

and clarity. Dhyana strengthens focus by facilitating a continuous flow of awareness, transcending individual thoughts and leading to a state of mindfulness. In this state, focused brain activity works as a therapeutic mechanism, facilitating profound inward absorption. Samadhi is the ultimate objective of yoga, characterized by perfect union with the object of meditation, leading to a state of blissful oneness and spiritual realization.

These final limbs signify the summit of the yogic path, wherein practitioners transcend the restrictions of the individual self and merge with the universal awareness, gaining liberation and great inner peace. Patanjali's explanation of Dharana, Dhyana and Samadhi shows their crucial role in directing a practitioner towards the realization of their true nature and the ultimate goal of Yoga.

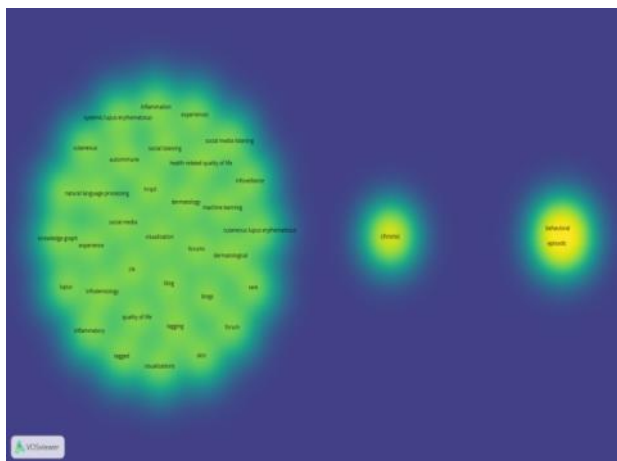


Figure 6 Meditation Density Visualisation..

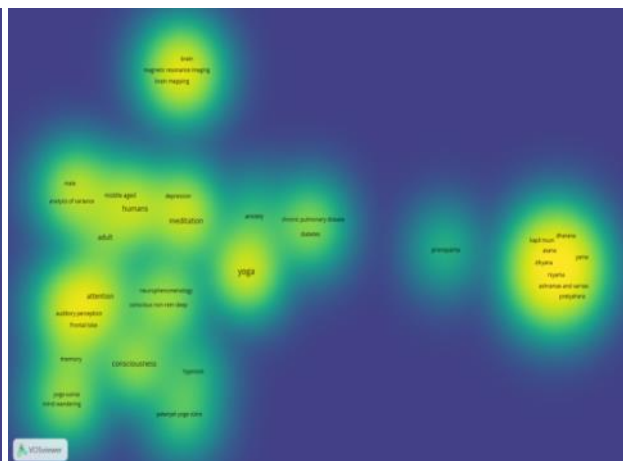


Figure 7 Samadhi Density Visualisation..

CONCLUSION

The synthesis of several research publications by VOSviewer utilizing keywords related with Patanjali's Ashtanga Yoga displays its diverse benefits on individuals' lives. Ashtanga Yoga provides psychological, immunological, and neurological advantages in healthy persons, boosts life quality, and elevates consciousness levels. It decreases stress, depression, and anxiety while promoting cardiovascular and mental health, relieving chronic pain and sleep difficulties. Alongside changing lifestyles, individuals receive multiple benefits from practicing Patanjali's Ashtanga Yoga, including anxiety and depression alleviation, as well as improvements in physical, mental, and spiritual wellness. Patanjali's ethical and moral underpinnings through Yama and Niyama assist in maintaining self-control and directing lives down specified routes, impacting mental stress, lifestyle alterations, and ethical considerations. Asanas, the third limb, promote physical strength and attention, boosting heart rate, blood pressure, cardiovascular and cognitive health, and vocational well-being. Pranayama, the fourth limb, promotes respiratory function, hemoglobin saturation, and general health-related quality of life. Pratyahara, the fifth limb, aids in lowering hypertension, reducing mental stress, boosting consciousness and remembering ability, and facilitating alterations of thoughts and states of mind. The ultimate limbs, Dharana, Dhyana, and Samadhi, indicate the apex of the yogic path, permitting intense inner absorption, mindfulness, and spiritual enlightenment. Patanjali's Ashtanga Yoga incorporates a comprehensive approach to holistic well-being, fostering physical, mental, and spiritual harmony for holistic development.

In overall conclusion, it can be said that Patanjali's Ashtanga Yoga displays its diverse benefits on individuals' lives. There is currently no specific measuring tool for quantifying the extent to which an individual is associated with Patanjali's Ashtanga Yoga practices, both knowingly and unknowingly. Therefore, there is a pressing need to develop such measuring tools in this field at present.

REFERENCES

1. North, R. C. (1963). International Relations: Putting the Pieces Together. *Background*, 7(3), 119. <https://doi.org/10.2307/3013673>
2. Paul, K. I., & Moser, K. (2006). Incongruence as an explanation for the negative mental health effects of unemployment: Meta-analytic evidence. *Journal of Occupational and Organizational Psychology*, 79(4), 595–621. <https://doi.org/10.1348/096317905X70823>
3. Straker, L., & Mathiassen, S. E. (2009). Increased physical work loads in modern work – a necessity for better health and performance? *Ergonomics*, 52(10), 1215–1225. <https://doi.org/10.1080/00140130903039101>

4. Berthoud, H.-R. (2004). Neural control of appetite: Cross-talk between homeostatic and non-homeostatic systems. *Appetite*, 43(3), 315–317. <https://doi.org/10.1016/j.appet.2004.04.009>
5. Ross, A., & Thomas, S. (2010). The Health Benefits of Yoga and Exercise: A Review of Comparison Studies. *The Journal of Alternative and Complementary Medicine*, 16(1), 3–12. <https://doi.org/10.1089/acm.2009.0044>
6. &Na; (2008). What is yoga?: *Journal of the American Academy of Physician Assistants*, 21(2), 36. <https://doi.org/10.1097/01720610-200802000-00013>
7. Loewenthal, J. V., Farkas, E. J., McGough, K., Tomita, B., Wayne, P. M., & Orkaby, A. R. (2023). The impact of yoga on aging physiology: A review. *The Journal of Nutrition, Health and Aging*, 100005. <https://doi.org/10.1016/j.jnha.2023.100005>
8. Chapple, C. K. (2020). The Academic Study of Yoga in India. *Journal of Dharma Studies*, 3(1), 107–120. <https://doi.org/10.1007/s42240-020-00066-y>
9. Maheshwari, A. K., & Werd, M. R. P. (2021). Yoga Sutras and Well-Being. In S. K. Dhiman (Ed.), *The Palgrave Handbook of Workplace Well-Being* (pp. 945–967). Springer International Publishing. https://doi.org/10.1007/978-3-030-30025-8_38
10. Patañjali. (1975). *The Yoga sutras of Patanjali : the book of the spiritual man : an interpretation*. London :Watkins,
11. Govindaraj, R., Karmani, S., Varambally, S., & Gangadhar, B. N. (2016). Yoga and physical exercise – a review and comparison. *International Review of Psychiatry*, 28(3), 242–253. <https://doi.org/10.3109/09540261.2016.1160878>
12. Manjunath, N. (2023). The transformative impact of the International Day of Yoga. *International Journal of Yoga*, 16(1), 1. https://doi.org/10.4103/ijoy.ijoy_106_23
13. (PTI, 2015, information based on MHRD, Govt. of India)
14. Hart, N., Fawcner, S., Niven, A., & Booth, J. (2022). Scoping Review of Yoga in Schools: Mental Health and Cognitive Outcomes in Both Neurotypical and Neurodiverse Youth Populations. *Children*, 9(6), 849. <https://doi.org/10.3390/children9060849>
15. Lea, J., Philo, C., & Cadman, L. (2016). ‘It’s a fine line between . . . self discipline, devotion and dedication’: Negotiating authority in the teaching and learning of Ashtanga yoga. *Cultural Geographies*, 23(1), 69–85. <https://doi.org/10.1177/1474474015569993>
16. Padhy, S. (2016). The Technology of Yoga - An Imperative Scientific Implementation to Harmonize the Diversity of Human Society: A Review. *Journal of Biodiversity*, 7(2), 77–87. <https://doi.org/10.1080/09766901.2016.11884760>
17. The Four Parts of Mind in Yoga - Buddhi, Manas, Ahankara and Chitta Pov
<https://isha.sadhguru.org/yoga/yoga-articles- mind-stress/parts-of-mind/> Accessed: 2024-01-22.
18. Kumar, S. B., Yadav, R., Yadav, R. K., Tolahunase, M., & Dada, R. (2015). Telomerase Activity and Cellular Aging Might Be Positively Modified by a Yoga-Based Lifestyle Intervention. *The Journal of Alternative and Complementary Medicine*, 21(6), 370–372. <https://doi.org/10.1089/acm.2014.0298>
19. Chitta Bhumis (चित्तभूमयः) – Dharmawiki https://dharmawiki.org/index.php/Chitta_Bhumis_ Accessed: 2024-01-22.
20. Vyasa - Wikipedia <https://en.wikipedia.org/wiki/Vyasa> Accessed: 2024-01-22.
21. Roy, G. (2021). Ashtang Yoga: For Attaining the State of Mindfulness. *Journal of Indian Council of Philosophical Research*, 38(3), 445–452. <https://doi.org/10.1007/s40961-021-00257-3>
22. Bhavanani, Ananda. (2010). An overview of the Yoga Sutras. *Integral Yoga Magazine*. 2010. 8-10.
23. Dwitayasa, I. M. (2020). Hidup Sehat Bersama Yoga. *JURNAL YOGA DAN KESEHATAN*, 1(1), 83. <https://doi.org/10.25078/jyk.v1i1.1547>
24. Krishna, D., Eliade, M., & Trask, W. R. (1960). Yoga: Immortality and Freedom. *Philosophy East and West*, 10(3/4), 173. <https://doi.org/10.2307/1397017>
25. Kumar, V., Kumari, P., & Sharma, T. (2017). Yoga and Mental Health: A Review. *Journal of the Indian Academy of Applied Psychology*, Vol. 43.
26. Markil, N., Geithner, C. A., & Penhollow, T. M. (2010). HATHA YOGA: Benefits and Principles for a More Meaningful Practice. *ACSM’S Health & Fitness Journal*, 14(5), 19–24. <https://doi.org/10.1249/FIT.0b013e3181ed5af2>
27. Singh, R. (2016). Yog: A Larger Perspective. *Academic Discourse*, 5, 93-99.
28. Telles, S., & Singh, N. (Eds.). (2018). *Research-Based Perspectives on the Psychophysiology of Yoga*: IGI Global. <https://doi.org/10.4018/978-1-5225-2788-6>
29. Iyengar, B. K. S. (1996). Light on the Yoga Sutras of Patanjali. *Philosophy East and West*, 46(2), 291. <https://doi.org/10.2307/1399412>
30. Singh, B., & Dave, N. (2023). TO COMPARE THE CONCEPT OF HATHA YOGA ACCORDING TO PATANJALI YOGA SUTRA AND VASISHTHA SAMHITA. *VIDYA - A JOURNAL OF GUJARAT UNIVERSITY*, 2(1), 170–175. <https://doi.org/10.47413/vidya.v2i1.168>
31. *Bahiranga - The External Aspect of the 8-Fold Path of Yoga - The Yoga Institute*. (n.d.). Retrieved January 23, 2024, from <https://theyogainstitute.org/bahiranga-the-external-aspect-of-the-8-fold-path-of-yoga/>

32. What is Bahiranga? - Definition from Yogapedia. (n.d.). Retrieved January 23, 2024, from <https://www.yogapedia.com/definition/5648/bahiranga>
33. Antaranga-The Internal Aspect of the 8-Fold Path of Yoga - The Yoga Institute. (n.d.). Retrieved January 23, 2024, from <https://theyogainstitute.org/antaranga-the-internal-aspect-of-the-8-fold-path-of-yoga/>
34. Division of Yoga and Physical Sciences, S-VYASA Deemed-to-be-University, No.19, Eknath Bhavan, Gavipuram Circle, Kempegowdanagar, Bengaluru, 560019, Karnataka, India., Xu, W., Kumar, I. R., & Srinivasan, T. M. (2021). Evaluation of Impact of Ethics of Yoga in the Psychological Health of College Students: A Randomized Control Trial. *Indian Journal of Science and Technology*, 14(12), 995–1005. <https://doi.org/10.17485/IJST/v14i12.2001>
35. Sharma, S., & Rawat, V. (2023). The need for Yamā and Niyamā in promoting adolescents' physical and mental well-being. *Journal of Applied Consciousness Studies*, 11(1), 51–51.
36. Büssing, A., Bretz, S. V., & Beerenbrock, Y. (2021). Ethical Principles of Yoga Philosophy in Western Yoga Practitioners: Validation of the Yama/Niyama Questionnaire. *Complementary Medicine Research*, 28(4), 325–335. <https://doi.org/10.1159/000513026>
37. Saha, M., Halder, K., Tomar, O. S., Pathak, A., & Pal, R. (2014). Yoga for Preventive, Curative, and Promotive Health and Performance. In S. B. Singh, N. R. Prabhakar, & S. N. Pentyala (Eds.), *Translational Research in Environmental and Occupational Stress* (pp. 169–180). Springer India. https://doi.org/10.1007/978-81-322-1928-6_14
38. Ryan, A. J. (1962). Be young with Yoga. *JAMA*, 182(11). <https://doi.org/10.1001/jama.1962.03050500070027>
39. Chu, P., Gotink, R. A., Yeh, G. Y., Goldie, S. J., & Hunink, M. M. (2016). The effectiveness of yoga in modifying risk factors for cardiovascular disease and metabolic syndrome: A systematic review and meta-analysis of randomized controlled trials. *European Journal of Preventive Cardiology*, 23(3), 291–307. <https://doi.org/10.1177/2047487314562741>
40. Guddeti, R. R., Dang, G., Williams, M. A., & Alla, V. M. (2019). Role of Yoga in Cardiac Disease and Rehabilitation. *Journal of Cardiopulmonary Rehabilitation and Prevention*, 39(3), 146–152. <https://doi.org/10.1097/HCR.0000000000000372>
41. Novaes, M. M., Palhano-Fontes, F., Onias, H., Andrade, K. C., Lobão-Soares, B., Arruda-Sanchez, T., Kozasa, E. H., Santaella, D. F., & De Araujo, D. B. (2020). Effects of Yoga Respiratory Practice (Bhastrika pranayama) on Anxiety, Affect, and Brain Functional Connectivity and Activity: A Randomized Controlled Trial. *Frontiers in Psychiatry*, 11, 467. <https://doi.org/10.3389/fpsy.2020.00467>
42. Campanelli, S., Lopes Tort, A., & Lobão-Soares, B. (2020). Pranayamas and their neurophysiological effects. *International Journal of Yoga*, 13(3), 183. https://doi.org/10.4103/ijoy.IJOY_91_19
43. Yackle, K., Schwarz, L. A., Kam, K., Sorokin, J. M., Huguenard, J. R., Feldman, J. L., Luo, L., & Krasnow, M. A. (2017). Breathing control center neurons that promote arousal in mice. *Science*, 355(6332), 1411–1415. <https://doi.org/10.1126/science.aai7984>
44. Pêgo, J. M., Sousa, J. C., Almeida, O., & Sousa, N. (2009). Stress and the Neuroendocrinology of Anxiety Disorders. In M. B. Stein & T. Steckler (Eds.), *Behavioral Neurobiology of Anxiety and Its Treatment* (Vol. 2, pp. 97–118). Springer Berlin Heidelberg. https://doi.org/10.1007/7854_2009_13
45. SIGNIFICANCE OF PRATYAHARA IN MANAGEMENT OF TECHNO-STRESS. (n.d.). Retrieved February 8, 2024, from <https://www.jetir.org/view?paper=JETIR1908A06>
46. Telles, S., Singh, N., Gupta, R. K., & Balkrishna, A. (2016). A selective review of dharana and dhyana in healthy participants. *Journal of Ayurveda and Integrative Medicine*, 7(4), 255–260. <https://doi.org/10.1016/j.jaim.2016.09.004>
47. Nehru, S., & Jothilakshmi, M. (2016). Samadhi Is the Ultimate State of Realization of Self. *Imperial Journal of Interdisciplinary Research*. <https://www.semanticscholar.org/paper/Samadhi-Is-the-Ultimate-State-of-Realization-of-Nehru-Jothilakshmi/2ec52d0a2db684c400285d773ed23a5331818811>
48. Tang, R., Friston, K. J., & Tang, Y.-Y. (2020). Brief Mindfulness Meditation Induces Gray Matter Changes in a Brain Hub. *Neural Plasticity*, 2020, 1–8. <https://doi.org/10.1155/2020/8830005>
49. Luders, E., Toga, A. W., Lepore, N., & Gaser, C. (2009). The underlying anatomical correlates of long-term meditation: Larger hippocampal and frontal volumes of gray matter. *NeuroImage*, 45(3), 672–678. <https://doi.org/10.1016/j.neuroimage.2008.12.061>
50. Kumar, A., & Jhajharia, B. (2018). Effect Of Morning Exercise On Immunity. *International Journal of Physiology, Nutrition And Physical Education*, 3(1), 1987-1989.
51. Brown, C. G. (2019). Modern Ashtanga Yoga. In C. G. Brown, *Debating Yoga and Mindfulness in Public Schools* (pp. 68–85). University of North Carolina Press. <https://doi.org/10.5149/northcarolina/9781469648484.003.0005>
52. Csala, B., Springinsfeld, C. M., & Köteles, F. (2021). The Relationship Between Yoga and Spirituality: A Systematic Review of Empirical Research. *Frontiers in Psychology*, 12, 695939. <https://doi.org/10.3389/fpsyg.2021.695939>

53. Damkjær, C. (2022). Slowness Out of Sync—Understandings of Time in Ashtanga Yoga. *Sport, Ethics and Philosophy*, 16(2), 207–220. <https://doi.org/10.1080/17511321.2019.1696880>
54. Department of Philosophy, ZHDC, Delhi University, & Kumar Gupta, A. (2012). Materialism Versus Spirituality: Neo-Vedanta Approach of Synthesis. *Idea. Studia Nad Strukturą i Rozwojem Pojęć Filozoficznych*, 24, 305–314. <https://doi.org/10.15290/idea.2012.24.17>
55. Desai, R., Tailor, A., & Bhatt, T. (2015). Effects of yoga on brain waves and structural activation: A review. *Complementary Therapies in Clinical Practice*, 21(2), 112–118. <https://doi.org/10.1016/j.ctcp.2015.02.002>
56. Fox, J. P. (2010). The Role of Self-Awareness and Communication in Issues of Health and Aging. In T. W. Miller (Ed.), *Handbook of Stressful Transitions Across the Lifespan* (pp. 389–408). Springer New York. https://doi.org/10.1007/978-1-4419-0748-6_21
57. Hanna, R., & Thompson, E. (2003). Neurophenomenology and the Spontaneity of Consciousness. *Canadian Journal of Philosophy Supplementary Volume*, 29, 133–162. <https://doi.org/10.1080/00455091.2003.10717597>
58. Kasser, T. (2016). Materialistic Values and Goals. *Annual Review of Psychology*, 67(1), 489–514. <https://doi.org/10.1146/annurev-psych-122414-033344>
59. Popkin, B. M., Adair, L. S., & Ng, S. W. (2012). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews*, 70(1), 3–21. <https://doi.org/10.1111/j.1753-4887.2011.00456.x>
60. Radebe, J.-X. (2021). The Ancient Wisdom and Resurgence for Yoga: A Sociological Perspective. In N. Mthembu (Ed.), *Advances in Educational Technologies and Instructional Design* (pp. 206–227). IGI Global. <https://doi.org/10.4018/978-1-7998-1249-4.ch009>
61. Riazi, G. (2012). How cognition controls health and disease. *Archives of Advances in Biosciences*, 3(2). <https://doi.org/10.22037/jps.v3i2.3278>
62. Upadhyay, Dr. B. N., & Gohil, M. (2020). THE MEANS TO CONTROL THE MIND. *GAP BODHI TARU - A GLOBAL JOURNAL OF HUMANITIES*, 3(4), 174–177. <https://doi.org/10.47968/gapbodhi.340035>
63. Younge, J. O., Gotink, R. A., Baena, C. P., Roos-Hesselink, J. W., & Hunink, M. M. (2015). Mind–body practices for patients with cardiac disease: A systematic review and meta-analysis. *European Journal of Preventive Cardiology*, 22(11), 1385–1398. <https://doi.org/10.1177/2047487314549927>
64. Taneja, D. (2014). Yoga and health. *Indian Journal of Community Medicine*, 39(2), 68. <https://doi.org/10.4103/0970-0218.132716>
65. Büssing, A., Michalsen, A., Khalsa, S. B. S., Telles, S., & Sherman, K. J. (2012). Effects of Yoga on Mental and Physical Health: A Short Summary of Reviews. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–7. <https://doi.org/10.1155/2012/165410>
66. MEA / Search Result. (n.d.). Retrieved February 5, 2024, from https://www.mea.gov.in/search-result.htm?25096/Yoga:_su_origen,_historia_y_desarrollo
67. Gothe, N. P., Khan, I., Hayes, J., Erlenbach, E., & Damoiseaux, J. S. (2019). Yoga Effects on Brain Health: A Systematic Review of the Current Literature. *Brain Plasticity*, 5(1), 105–122. <https://doi.org/10.3233/BPL-190084>