

Regularity on following Integrated Approach of Yoga Therapy (IAYT) in human health & diseases: A neglected domain of life

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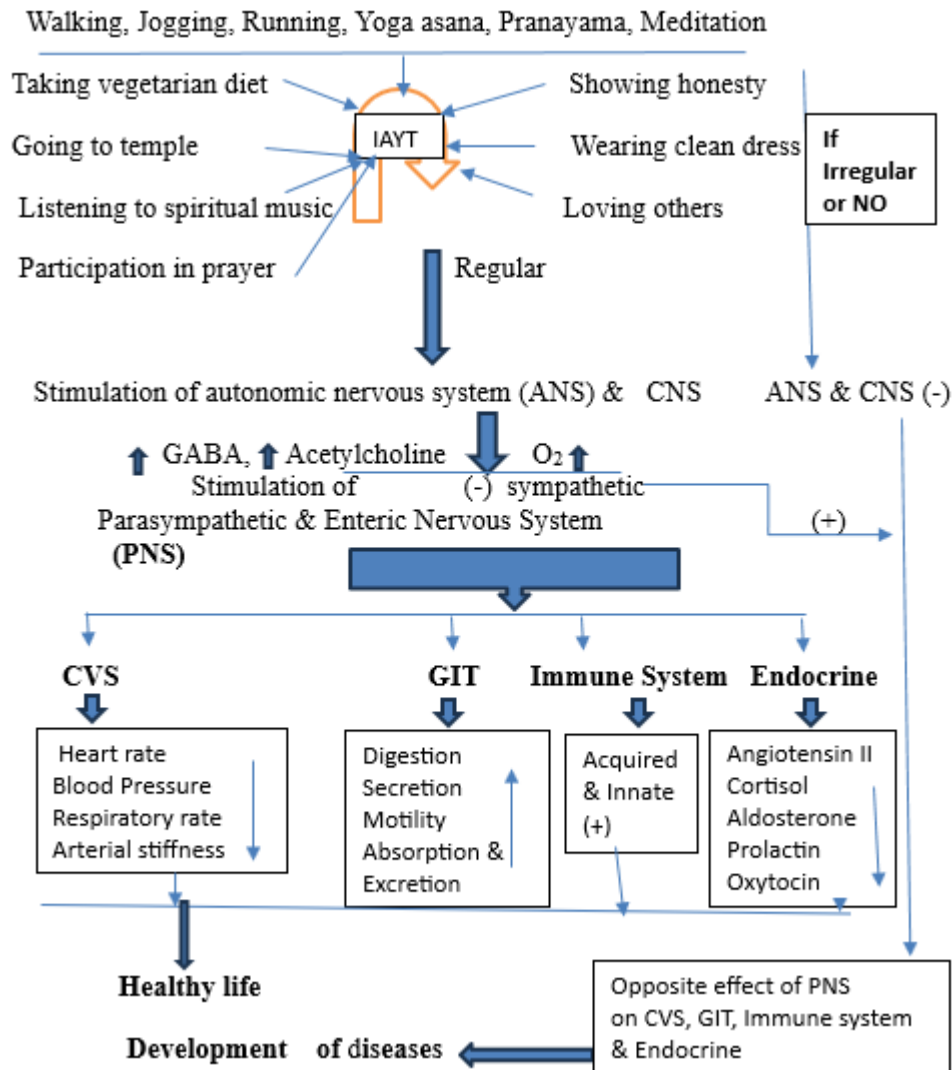
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Abstract

There are many ways to relieve stress, such as 1) Taking regular exercise by going for a walk, 2) Considering supplements like taking herbal and natural supplements (lemon balm, turmeric, ashwagandha, omega-3-fatty acids) 3) Connecting with nature (spending outside i.e. away from home) 4) Aromatherapy (taking nice smell or calming scents from rose), 5) Journaling (writing positive finding in your life), 6) Listen to soothing music, 7) Singing, 8) Laughter, 9) Connect with friends, 10) Just say “No”, 11) Avoid procrastination, 12) Petting a dog or cat, 13) Mindfulness & Meditation, 14) Practice abdominal breathing, 15) Yoga practices, 16) Serving others or helping others, 17) Joining with morning or evening prayer 18) Eating sattvic diet 19) Avoiding on telling lie and 20) Reducing caffeine intake. Above twenty steps are included in Yoga therapy. Yoga therapy is a type of therapy that concentrates on yoga exercises, practices, and philosophies, to improve mental and physical health. While the practice of yoga is commonly associated with stress-relief, yoga therapy can be helpful in the treatment of several other mental health conditions as well. Let us look at the beneficial aspect of yoga therapy. Parasympathetic of autonomic is stimulated, resulting hardening characteristics of the arteries are reduced, heart rate comes down, blood pressure is reduced, respiratory rate is reduced, and adequate perfusion of body tissues are noted. Beneficial effects of yoga therapy are many but there are very few who can understand. There are very few who can follow yoga therapy regularly. Reason is very clear; people do not have time to spend for this only (lack of time) Second most common reason people stop their practice is because they are just not seeing the results. Third one is absence of motivation. Motivation is rarely the cause of accomplishment and is so often the cause of inaction. When you are motivated, everything is easy. Developing a consistent practice takes discipline; it takes faith, takes self-control and deep concentration. Above all it takes determination. Sometimes availability of finances can be another important reason behind keeping away from following yoga therapy. Staying with a consistent practice is not an easy task, but it is one of the best things we could possibly do for our overall health and wellbeing. The purity of thought is possible only with a faith in God bordering on definite experience.

Keywords: integrated approach of yoga therapy, autonomic nervous system

Abstract (Diagrammatic)



Introduction

Yoga therapy is a self-empowering process, where the care-seeker, with the help of the Yoga therapist, implements a personalized and evolving Yoga practice, that not only addresses the illness in a multi-dimensional manner, but also aims to alleviate his/her suffering in a progressive, non-invasive and complementary manner. Depending upon the nature of the illness, Yoga therapy can not only be preventative or curative, but also serve a means to manage the illness, or facilitate healing in the person at all levels [1-3].

Yoga therapy is the application of yoga practices to alleviate physical and mental health conditions with the view of promoting self-care and encouraging overall well-being. Whilst the practice of yoga in general aims to cultivate the body and mind and hence has the potential for therapeutic effects, in yoga therapy we are using specific yoga practices and their known benefits to help alleviate or improvement mental and physical ailments [4].

The modern term, 'Yoga therapy' was coined by Swami Kuvalyananda in the 1920s who believed the changes would be possible to measure the physical and physiological changes that occurred through yoga practice. His passion brought foreigner researchers to India to study yoga's effect, a magazine, an entire yoga institution and a new field. Swami Kuvalyananda made it possible to start applying the specific effects of yoga to medical conditions [5-7].

These days yoga therapy has become so popular that many doctors are now supporting it. Various medical journals reveal research as to yoga's multi-tiered benefits. Likewise, those in the field of mental health often recommend yoga to clients or may even integrate aspects into their work. At The Mindful Institute we train many mental health professionals to bring yoga therapy into clinical practice.

The Upanishad reveals that our being has five distinct sheaths: Anamaya, pranayama, manomaya, vighnamaya and anandmaya. The outermost sheath is our gross body called annamaya-kosha, 'anna-maya' means 'made of anna', the food. To keep this sheath harmonized, we need to eat the right food in the right quantity at proper times. The next sheath, the pranayama-kosha, is subtler than the earlier one and made of prana, the breath which accounts for all physiological functions-metabolism, respiration, and excretion. We need to regularly walk, exercise and do pranayama to keep this kosha harmonized. Subtler than this is monomaya-kosha, the body made up of moods, feelings, and phobias. To harmonize this kosha, we ought to cultivate a heart which is humble and prayerful. The process in yogic language is called Bhav Shuddhi. The fourth one, called Vighnamaya-kosha, is made up of our values, cognition, memory, and faculty of analysis. Critical thinking happens here, we can harmonize this kosha through Vichar Shuddhi, by questioning the variety of our beliefs and values. The innermost, Ananda maya-kosha, bliss body is the most sublime too. It is the purest part

of our being. When our thinking, Vigyan maya-kosha, and emotions, monomaya-kosha, do not eclipse our Anand maya-kosha, we experience uninhibited bliss. Anand is never created. It is our very nature. Pervading these five sheaths and yet remaining beyond, Lies the self, the consciousness, the field of oneness. We have to rediscover this space within us. The secret of abiding Anand lies in harmonizing the panch-koshas, leading one to one's own innate nature, the blissful field of oneness. All five kosha are put together in Yoga therapy. Understanding and following are very much needed to get scientific results.

Yoga has a reputation for being one of the best ways to take care of your body, mind, and spirit. Or in other words, yoga incorporates holistic wellness. Its practice originated in India over 5,000 years ago, and its ancient techniques have reaped all kinds of wellness benefits for people in modern day society. Irregularity or no to IAYT leads to stimulation of sympathetic nervous system which again leads to development of aggressiveness, negative feeling, depression & anxiety. Arterial stiffness is increased when sympathetic is involved, leads to decrease muscle mass, joy and happiness are reduced, person's health is disturbed, and leads to development of cardiovascular diseases [5-7].

Discussion

The vagus nerve is an important major component of autonomic nervous system (ANS), has an important role in the regulation of metabolic homeostasis and has a key role in the neuro-endocrine-immune axis to regulated homeostasis through afferent and efferent pathways. Mindful meditation/ Prayer can modify central autonomic network, resulting in an increase in concentration of oxytocin which inhibits HPA axis and stimulate vagal nuclei, more acetylcholine, secreted from the nerve ending. Anxiolytic & anti-depressive behavior have been noted (Figure-1). Another very important finding when vagus is stimulated is consistent increase with the volume and activity of some of the important centers in central nervous system (Figure-1). Animal and human studies have shown that vagus nerve stimulation (VNS) influences the activity of norepinephrine, serotonin and other neurotransmitters implicated in mood disorders. Like other antidepressant therapies, VNS increases the expression of the neurotrophins brain derived neurotrophic factor and activates its receptor and stimulates hippocampal neurogenesis. Oxytocin levels are increased in limbic system, cingulate gyrus, frontal cortex, hypothalamus, nucleus tractus solitarius (NTS), cerebellum and amygdala (Figure-1). Effects are there and scientifically proved but we common people, even doctors with large numbers are unable to understand the effect of yoga therapy [7-12].

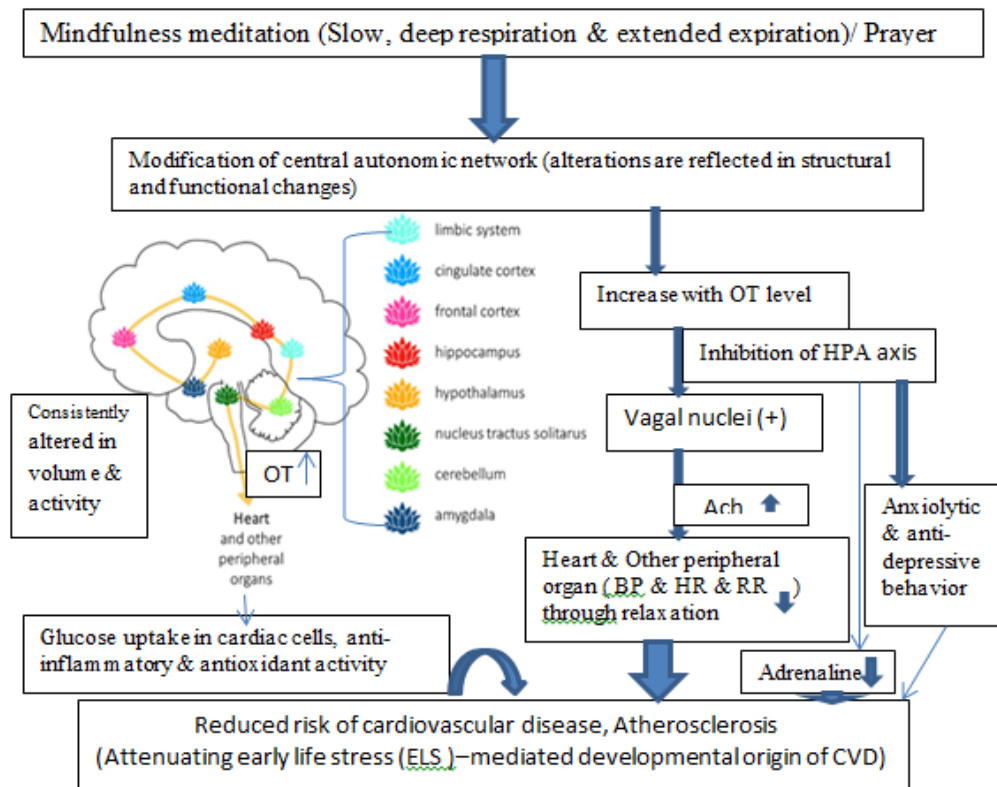


Figure-1: Role of vagus in anti-depression, cardiovascular responses and metabolic homeostasis.

Hydrogen sulfide (H₂S) & Oxytocin are increased or more secreted in a person who follows regular physical exercise, meditation, Yoga asanas, participating in prayer daily, taking sattvic food, resulting

involvement/stimulation of vagus (Parasympathetic) of ANS (1). Blood pressure becomes normal, tissue perfusion in the body is improved which can reduce atherosclerotic plaque formation and inflammation (Figure-2).

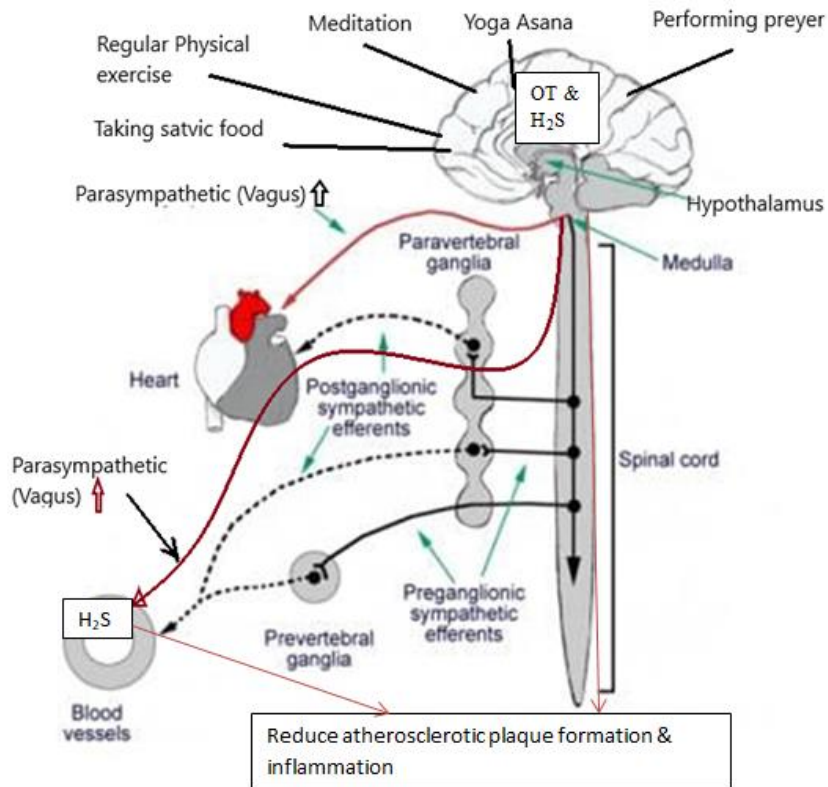


Figure-2: Showing the advantages of performing regular exercise, participating in prayer etc. (component of Pancha kosha).

Effect of following Yoga therapy on reducing hardening characteristic of the arteries: Components involved in developing hardening characteristics are the involvement of extracellular matrix (ECM) with increase in vascular collagen and decrease in vascular elastin, collagen & elastin disarray and increased vascular smooth muscle stiffness and numbers. Adequate concentration of ECM, mechanical events of vascular smooth muscle

contraction and endothelial function are noted with involvement of vagus nerve stimulation (VNS), explained with the help of flow chart (Figure-3). As per this chart, hardening characteristics are reduced with adequate physical and chemical component of blood vessel which possible if vagus is stimulated (Figure-3) [13-15].

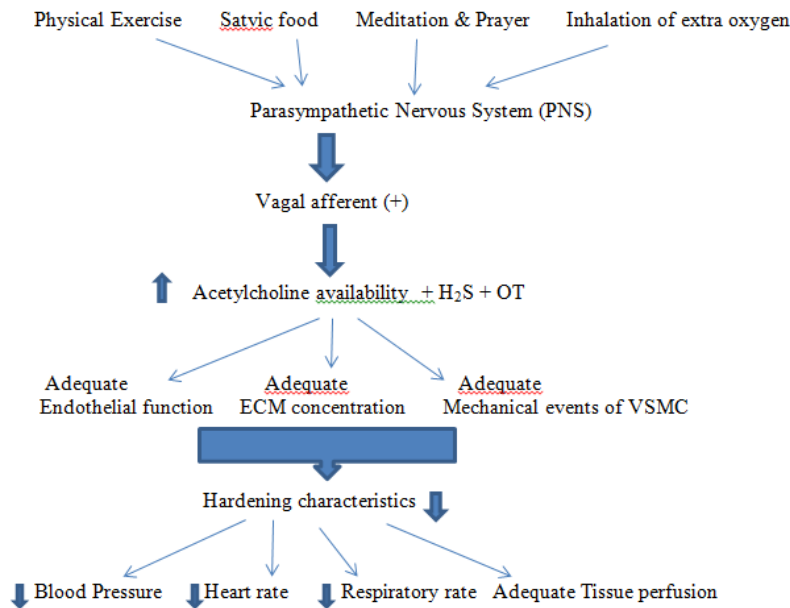


Figure-3: Effect of daily physical exercise, taking satvic food, performing meditation, participating in prayer and pranayama on cardiorespiratory parameters.

Impairment in skeletal muscle and the cardiovascular system, two interrelated systems, results in compromised functional status in aging. Increased oxidative stress and inflammation in older subjects constitute the background for skeletal muscle and cardiovascular system alterations (Figure-4). Aged skeletal muscle mass and strength impairment is related to

anabolic resistance, mitochondrial dysfunction, increased oxidative stress and inflammation as well as a reduced antioxidant response and myokine profile. Arterial stiffness and endothelial function stand out as the main cardiovascular alterations related to aging, where increased systemic and vascular oxidative stress and inflammation play a key role. IAYT arises as

modifiable determinants of functional outcomes in older persons. Exercise enhances antioxidant response, decreases age-related oxidative stress and pro-inflammatory signals, and promotes the activation of anabolic and mitochondrial biogenesis pathways in skeletal muscle. Additionally, exercise improves endothelial function and arterial stiffness by reducing inflammatory and oxidative damage signaling in vascular tissue together

with an increase in antioxidant enzymes and nitric oxide availability, globally promoting functional performance and healthy aging. This review focuses on the role of oxidative stress and inflammation in aged musculoskeletal and vascular systems and how physical activity/exercise influences functional status in the elderly [16-21].

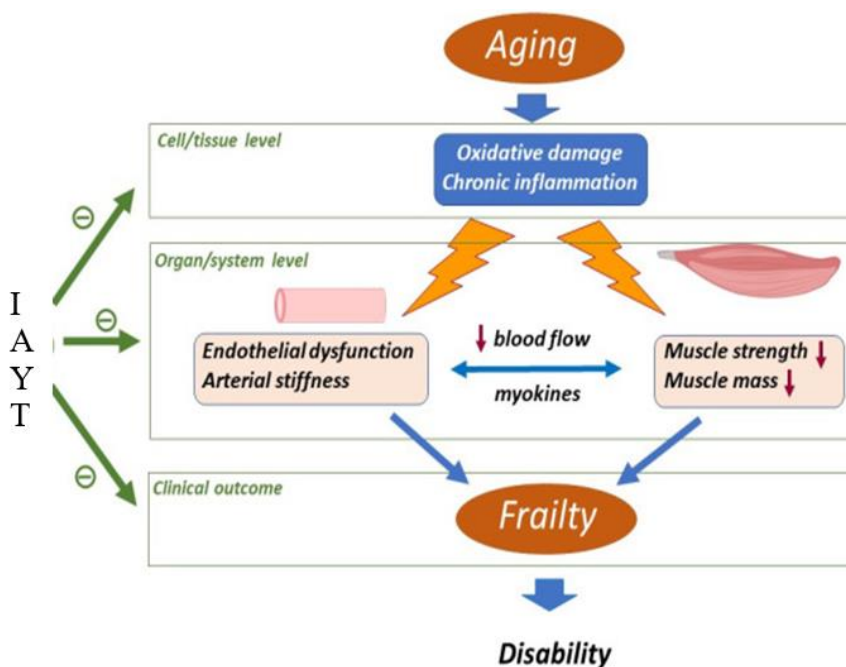


Figure-4: Effect of IAYT on cellular level.

How to reduce vascular stiffening?

- Regular exercise: Reduction on secretion of vasoconstrictors, endothelial mechanical-signaling associated with increased pulsatile flow and stretch and consequent enhanced nitric oxide stimulation.
- Reducing body weight: Significant reduction on stiffness can be noted, mechanism is still not clear. Many weight reduction diets can be preferred. Supplementation of n-3 polyunsaturated fatty acids (eicosatetraenoic acid and docosahexaenoic acid) increases systemic arterial compliance in dyslipidemia subjects, presumably by lowering of triglycerides and very LDL.
- Lowering Salt intake: High salt intake accelerates age-related changes in vasculature, by abnormal endothelial function, increased smooth muscle tone, intimal-medial thickening, and increased collagen, fibronectin, hyaluronic acid, and collagen cross-link formation. Vascular RAAS is also activated with a local increase in AT2 synthesis, whereas nitric oxide production decreases. Smooth muscle tone also increases because of endogenous Na pump ligands such as marinobufagenin or ouabain-like substances that increase with high-salt intake.
- High dietary intake of isoflavones, nonsteroidal plant-derived compounds abundant in soybeans, is associated with a lower PWV.
- Avoid telling lie: Wrong statement will always stimulate sympathetic.
- Sound sleep: Person must be enjoying with complete sleep and should be 6 hours or more than 6 hours.
- Moderate alcohol or no alcohol consumption

Reasons for neglecting: Few points to be noted behind this and these are 1) We hate yoga: There's not something wrong with us if we hate yoga. Everyone has different preferences. With, don't knock it until you try it. Yoga can cause so many positive changes in a person's life, so it's important to give it a real try if you think you're interested [22-31].

2) We are in a hurry: people tend to stop their 90-minute practice due to a perceived lack of time. It is not about how much time you really have in your day; it is about where you choose to spend it.

3) Is expensive: Looking for a yoga teacher is very expensive. There are very few eligible yoga teachers available.

4) Do not try to understand: Very difficult to understand actual scientific role of yoga or yoga therapy.

5) I am just too tired after work or before work or at lunch: People always tend to avoid due to lack of time, energy and money.

6) Too old and too overweight: misconception is common. People think that Yoga is only for younger people.

7) I am not good at yoga: Due to lack of confidence, Yoga is not being accepted primarily.

8) Yoga is for white young women: Our idea is not clear. We are uneducated, not experienced [31].

8) I eat meat and watch Bravo. I am not the Yogi type: Non-vegetarian people generally say that Yoga is for yogic people, not for them who are fond of taking meat.

Conclusion

And since yoga is gentle, almost anyone can do it, regardless of age or fitness level. It was developed as a practice to unite the mind and body Effect of Pancha kosha include 1) increased level of oxygen, GABA, DHES, Serotonin, Acetylcholine, Prolactin, and oxytocin 2) decreased level of angiotensin II, cortisol, aldosterone 3) improves ionic transport in the cell 4)

facilitate autophagy & mitophagy 5) reduce hardening characteristic of the arteries

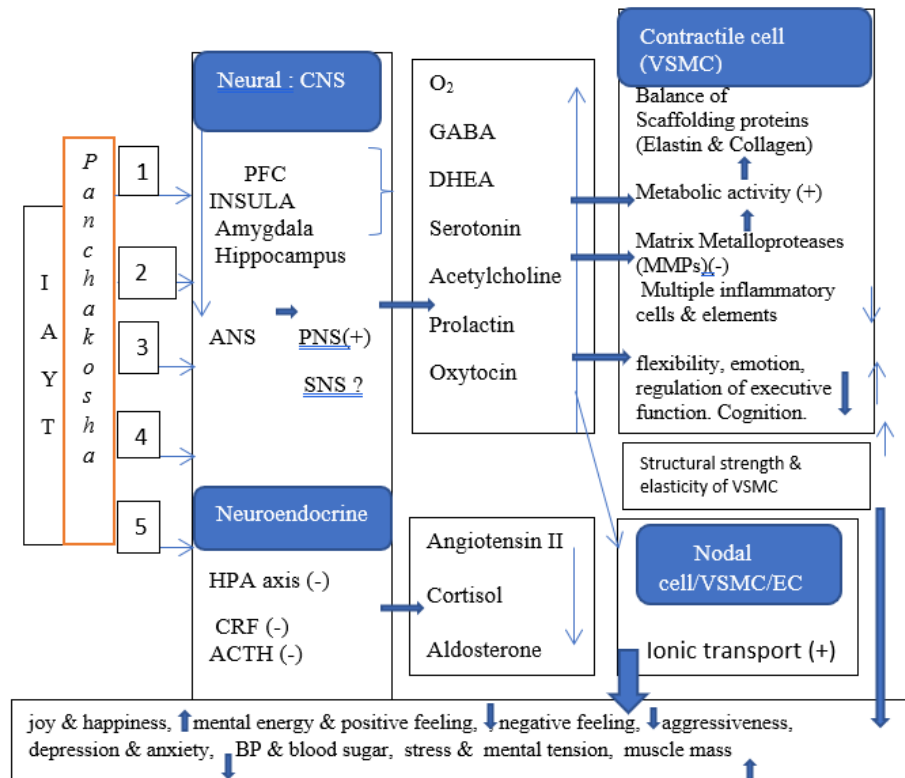


Figure-5: Effect of IAYT in brief.

The practice of yoga (IAYT) is not easy or as quick as taking medication, but mounting evidence suggests it is worth the effort and investment. This is based on *Pancha kosha* concept, helps one to reconnect with oneself. This can ultimately help to relieve one from the pressures and stressors which we receive almost daily. Neuroendocrine involvement is brought here and interactions between regulatory bodies and vascular functions have been elaborated. Only physical exercise or yoga did not show much beneficial. It is also should be noted that the field of yoga research encompasses the inherent dilemma of the wide variety of yogic practices used as interventional therapies. It has also been shown to have psychological benefits, as the practice can help to increase mental energy, positive feeling and decrease negative feeling of aggressiveness, depression and anxiety. Keeping these in mind it is very much essential to understand the regulatory involvement and their basic interactions with vascular physiology in IAYT.

References

- Pulaganti M, Sekhar AC, Krishna BH, Jampala S. (2023). Exploring the effects of yoga therapy on cardiovascular risk profile, cardiac workload, and oxygen demand in individuals with prehypertension: A pilot study. *Int J Acad Med Pharm.* 5(5):1595-1600.
- Sharma AS, (2018), Effect of yogasana on circulatory and respiratory system. *International Journal of Physiology, Nutrition and Physical ZEducation.* 3(1):190-192.
- Konefal J. (2002), The challenge of educating physicians about complementary and alternative medicine. *Acad Med.* 77:847-50.
- Oscar McCook, Nicole Denoix and Tamara Merz.(2021). The Gasotransmitter Hydrogen Sulfide and the Neuropeptide Oxytocin as Potential Mediators of Beneficial Cardiovascular Effects through Meditation after Traumatic Events , *Trauma Care.* 2021, 1;183-194.
- Kuvalyananda S,(1920) Asanas: A Pioneer scientific work on description of classical Yogic postures for physical and mental development. ISBN 818948504-0
- Chu, Paula, Rinske A. Gotink, Gloria Y. Yeh, Sue J. Goldie, and MG Myriam Hunink.[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.
- Dhebar, Foram.(2013) "Effect of short term hath yoga on lung function, aerobic capacity and quality of life in healthy young individuals." *International Journal of Current Research and Review* 5,(4): 61-72.
- Hozhabr Mozafari, Changchun Zhou, and Linxia Gu.(2009) Mechanical contribution of vascular smooth muscle cells in the tunica media of artery. *Nanotechnol review* 8;50-60.
- Boyang LV, Selena Chen, Chaoshu Tang, Hongfang Jin Junbao Du, Yaqian Huang.(2021). Hydrogen sulphide and vascular regulation – An update. *Journal of advanced research.* 27;85-97.
- El Assar , Alejandro Álvarez-Bustos , Patricia Sosa , Javier Angulo and Leocadio Rodríguez-Mañas .(2022).Effect of Physical Activity/Exercise on Oxidative Stress and Inflammation in Muscle and Vascular Aging. *Int J of Mol Science.*,23; 8713.

11. Nerea Méndez-Barbero, Carmen Gutiérrez-Muñoz and Luis Miguel Blanco-Colio., (2021) Cellular Crosstalk between Endothelial and Smooth Muscle Cells in Vascular Wall Remodeling. *Int J of Mol Sci* 22, 7284.
12. Najeeb A SHIRWANY, Ming-hui ZOU (2010). Arterial stiffness: a brief review. *Acta Pharmacologica sinica* ,31:1267-1276.
13. Courtney M Duren, Marie E Cress and K McCully. (2008). The influence of physical activity and yoga on central arterial stiffness. *Dynamic Medicine* , 7:2.
14. Patrick Lacolley, Veronique Regnault, Stephene Laurent (2020). Mechanism of arterial Stiffening From Mechanotransduction to Epigenetics. *Arterioscler Thromb Vasc Biol* 40(5):1063-1067.
15. Ins Stephens , (2017). Midical Yoga Therapy. *Children* ,4,12.
16. Joao Carlos Ribeiro-Silva , Patricia Nolasco , Jose Eduardo Krieger and Ayumi Aurea Miyakawa .(2021) Dynamic Crosstalk between Vascular Smooth Muscle Cells and the Aged Extracellular Matrix . *Int J of Mol Science*. 22,10175.
17. Yulan Sheng, Li Zhu.(2018) The crosstalk between autonomic nervous system and blood vessels . *Int J Physiol Pathophysiol Pharmacol*. 10(1):17-28.
18. A Meta-Analysis Alicia Saz-Lara , Iván Cavero-Redondo , Celia Álvarez-Bueno , Blanca Notario-Pacheco , Marta Carolina Ruiz-Grao and Vicente Martínez-Vizcaíno.(2021)The Acute Effect of Exercise on Arterial Stiffness in Healthy Subjects:.,*Journal of clinical Medicine* , 10, 291.
19. Snehasis Bhunia & Tater S.(2022) Effect of Integrated Approach of Yoga Therapy on Non Invasive Cardiovascular Responses: Study on Young and Older Healthy Males. *Asian Journal of Research in Cardiovascular Diseases* ,4(4): 39-47,
20. Snehasis bhunia. (2013) A Comparative Analysis of Non-invasive Cardiovascular Functions in Proficient and Nonproficient Healthy Subjects. *International Journal of Physiology*. 1(2):2
21. 26. Dhirendra Vaidya, Swayon Bhunia, Snehasis Bhunia. (2023) Electrocardiographic alterations using vectors in subjects of rural population following integrated approach of yoga therapy: A report. *International Journal of Current Research*. 15(030,24100.
22. Snehasis Bhunia, Bonny Bhunia & Sohan Raj Tater.(2023) A report on Molecular Approach of central regulation and vascular functions to integrated approach of yoga therapy *International Journal of Current Research* 15(1),pp-xxx xxx.
23. Snehasis Bhunia, Bonny Bhunia Amrita Lumbani, Sohan Raj Tater(2023). Electrophysiological implications of controlling arterial stiffness through integrated approach of Yoga Therapy. *International Journal of Innovation Scientific Research and Review*, 05(3), pp xxx.
24. Anand P, Yadav A, Debata P, Bachani S, Gupta N, Gera R.(2021). Clinical profile, viral load, management and outcome of neonates born to COVID 19 positive mothers: a tertiary care centre experience from India. *European journal of pediatrics*. Feb;180:547-59.
25. Shah B, Dande V, Rao S, Prabhu S, Bodhanwala M.(2021) Outcome of Covid-19 positive newborns presenting to a tertiary care hospital. *Indian pediatrics*. 2021 Feb;58:177-9.
26. Vatner SF, Zhang J, Vyzas C, Mishra K, Graharm RM and Vatner DE.(2021) Vascular stiffness in aging and disease. *Frontiers in Physiology*. ; 12: 762437.
27. Howland RH(2014). Vagus nerve stimulation. *Curr Behav Neurosci Rep.*;1(2):64-73.
28. Halder, K, Abhirup C., Kain TC, Pal R, Omveer S. Tomer, and Saha M(2012). "Improvement in ventilatory function through yogic practices." *Al Ameen J Med Sci* 5, (2) : 197-202.
29. Hainsworth, Roger, Mark J. Drinkhill, and Maria Rivera-Chira.(2007) "The autonomic nervous system at high altitude." *Clinical Autonomic Research* 17 : 13-19.
30. Harding, Jessica L., Kathryn Backholer, Emily D. Williams, Anna Peeters, Adrian J. Cameron, Matthew JL Hare, Jonathan E. Shaw, and Dianna J. Magliano.(2014) "Psychosocial stress is positively associated with body mass index gain over 5 years: evidence from the longitudinal AusDiab study." *Obesity* 22,(1): 277-286.
31. Harinath, Kasiganesan, Anand Sawarup Malhotra, Karan Pal, Rajendra Prasad, Rajesh Kumar, Trilok Chand Kain, Lajpat Rai, and Ramesh Chand Sawhney. (2004)"Effects of Hatha yoga and Omkar meditation on cardiorespiratory performance, psychologic profile, and melatonin secretion." *The Journal of Alternative & Complementary Medicine* 10,(2): 261-268.

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