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Review Article

The Power of Flow: Vinyasa and Dynamic Movements

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ABSTRACT: ***In vinyasa yoga, each movement is coordinated with the breath. The breath plays a leading role, acting as an anchor as you move from one pose to the next. The cat stretch is an example of a simple vinyasa. The spine curves on the inhale and rounds on the exhale. Fitness programs that incorporate yoga-inspired routines are becoming more and more common as yoga gains popularity. Yoga can help soccer players become more flexible, strong, and endurance-oriented. Functional strength training is described as "performing work against resistance in a way that improves strength, directly improving movement performance so that an individual's activities of daily living are more easily achieved" by the American Council on Exercise (ACE). By concentrating on breath control through movement while performing asanas, which demand intense focus to sustain, a modern yoga practitioner might experience this. Although aerobic exercise has been widely recommended to lower the risk of cardiovascular disease, there is currently no accepted gold standard for recommending the best exercise regimen to treat AS. Yoga incorporates isometric and flexibility exercises, both of which can lead to vascular adaptations. After eight weeks of Bikram yoga intervention (hot atmosphere), there was a significant increase in endothelium-dependent vasodilation in middle-aged and older persons. vinyasa yoga flow study shows positive effects on cardiovascular risk factors and arterial stiffness. Regular practice of this yoga sequence improved cardiovascular function, reduced blood pressure, and improved vascular compliance.***

KEYWORDS: ***Vinyasa Yoga, Cardiovascular Disease, Meditation, Cardioprotective Interventions, Yoga Flow.***

INTRODUCTION

In vinyasa yoga, each movement is coordinated with the breath. The breath plays a leading role, acting as an anchor as you move from one pose to the next. An illustration of a basic vinyasa is the cat pose. When you inhale, your spine curves, and when you exhale, it rounds [1]. Vinyasa is one of the most well-liked modern yoga techniques; it's often referred to as flow because of the way the poses flow into each other seamlessly. Ashtanga and power yoga are only two of the many diverse forms of yoga that fall under this large umbrella. Every action in vinyasa yoga is synchronized with the breath. A key component is the breath, which serves as an anchor as you transition between poses. An illustration of a basic vinyasa is the cat pose. With an inhale, the spine curves, and with an exhale, it rounds.

Vinyasa flow Yoga

Physical factors play a major role in both Vinyasa Flow yoga and functional strength training. It has been demonstrated that these factors can significantly affect Vinyasa Flow yoga and functional strength training.

Fitness programs that incorporate yoga-inspired routines are becoming more and more common as yoga gains popularity. Yoga can help soccer players become more flexible, strong, and endurance-oriented. Yoga is another great way to increase your focus and agility. French soccer players who do yoga report being more focused and experiencing fewer injuries during games [1]. The CDC states that the main cause of death in the US is cardiovascular disease (CVD) [2]. Hatha yoga, which incorporates breathing techniques, postures, and occasionally meditation, has become a viable intervention for cardioprotection in recent years. Research on hatha yoga has shown improvements in endothelial function (Hunter *et al.*, 2016) [3]; arterial stiffness (Hunter *et al.*, 2017) [4] and blood pressure (Sarvottam, Magan, Yadav, Mehta, & Mahapatra, 2013) [5]; (Sivasankaran *et al.*, 2006) in disease-affected, aging and high-risk populations with interventions lasting as little as eight weeks. Unlike Bikram (Baptiste) yoga which has practitioners hold isometric poses for up to a minute, Vinyasa is a type of Hatha yoga that incorporates continuous movement or flow across postures (2011) [6].

DISCUSSION

Functional Strength Training

"Performing work against resistance in a way that improves strength and directly improves movement performance so that activities of daily living are easier for an individual to perform" is how the American Council on Exercise (ACE) describes functional strength training. Functional fitness exercises mimic common motions you could make at home, at work, or while participating in sports, teaching your muscles to cooperate and preparing them to carry out daily duties. Functional exercise promotes core stability while concurrently using many upper and lower body tissues [1].

Arterial stiffness and Cardiovascular illness

It has been demonstrated that AS, as determined by carotid-femoral pulse wave velocity (cf-PWV) and augmentation index (AIx), is a very reliable indicator of death, other comorbidities, and future cardiovascular events [7]. Aging is a contributing factor to AS because it causes vascular alterations that may affect vascular tone, such as the thickening and stiffening of major elastic arteries and modifications to vascular smooth muscle function and structure [8].

Pulse wave velocity and augmentation index

PWV is defined as the speed at which the arterial pulse propagates along the vessel wall, with higher cf-PWV indicating stiffer arteries [9].

Changes in arterial stiffness

In the aforementioned study, measurements were taken 5 to 10 minutes after exercise, during which time PWV may have benefited from a significant recovery period. In the current study, post-exercise measurements were recorded on average 13 to 20 minutes after the exercise session, which may have influenced our results, as changes in PWV response may be evident within this short time period. Melo *et al.* (2016) showed that cf-PWV increased transiently 10 min after exercise and then decreased below baseline 30 min after exercise [10].

Action – Awareness Merging

When all of a person's relevant skills are required to deal with the challenges of a situation, the person's attention is fully focused on the activity; all of his or her attention is focused on the relevant stimuli (Csikszentmihalyi 2008). A modern yoga practitioner might experience this by focusing on the control of breathing with movement during asana practice, which requires

intense concentration to maintain. The fusion of action and consciousness is achieved by focusing attention on a limited field of stimulation. The aim of the activity at hand appears reachable when one is in a state of flow, as they are no longer distracted by fear of failing. Even for those who find themselves in high-risk or dangerous situations, such extreme sports, flow seems to originate from the ability to reduce danger through discipline and careful planning [11].

Cardiovascular Response to an Acute Bout of Hatha Yoga

Tyagi and Cohen (2013) reported five studies that claimed Hatha yoga stimulates a cardiovascular response less than or equal to mild exercise, and two studies equal to moderate exercise, when assessing the oxygen consumption of the poses [12]. In another study Clay *et al.* (2005) found Hatha yoga to elicit less of a cardiovascular response than walking at 3.5 mph, which is a lower intensity than moderate exercise. The results from Clay *et al.* (above) do not resonate with the previous research of Tran *et al.* who found an increase in VO2max as the result of practicing Hatha yoga. Clay *et al.* found Hatha yoga to stimulate less of a cardiovascular response than walking at 3.5mph [13]. In comparison, Ashtanga Vinyasa Yoga elicits a greater cardiovascular response than Hatha yoga, with similar results to walking on a treadmill at 46% of VO2max. Ashtanga Vinyasa yoga resulted in a response approximately 50% of VO2max and about 77% of HRmax [14].

Exercise Interventions for Arterial Stiffness

Although aerobic exercise training has been extensively recommended to lower the risk of cardiovascular disease, there is currently no accepted gold standard for determining the best exercise program to lower SA [15]. Yoga incorporates both isometric and flexibility movements, which have the potential to cause vascular changes (Miles *et al.*, 2013). After an 8-week Bikram yoga intervention (hot environment), Hunter *et al.* (2013) found significant increases in endothelium-dependent vasodilation in middle-aged and older persons. In middle-aged individuals, twelve weeks of Bikram yoga practises conducted in hot, thermoneutral environments have also been demonstrated to enhance endothelium-dependent vasodilation [16].

These vascular modifications were accompanied by increases in body flexibility, insulin levels, and lipid profile in the previously stated study (Hunter *et al.* 2013) [17]. Tracy and Hart (2013) also reported gains in young adults' grip strength and isometric 11 deadlift grip strength following eight weeks of Bikram yoga in a hot setting.

The vinyasa yoga session consisted of a one-hour guided vinyasa flow yoga DVD (Powerful Vinyasa Flow Yoga for Strength and Endurance with Jenni Rawlings, 2013). Yoga sessions were conducted in the Health and Human Performance yoga studio at Texas State University under moderate conditions. Poses included: Plank 4,444, Downward-Facing Dog, Downward-Facing Dog, Triangle, Side Angle Pose, Crescent Pose, Eagle, Crow, and many other floor-based, bending, balancing, and inversion poses. Participants were voluntarily hydrated (only drinking water) [18].

CONCLUSION

Vinyasa yoga flow study reveals a positive impact on cardiovascular disease risk factors and arterial stiffness. Regular practice of this yoga sequence improved cardiovascular function, reduced blood pressure, and enhanced vascular compliance. These findings suggest that vinyasa yoga can be a valuable adjunct therapy for cardiovascular disease prevention and

management. By incorporating this yoga practice into their lifestyle, individuals may experience improved cardiovascular health and reduced arterial stiffness, ultimately reducing the risk of cardiovascular disease. Further research can explore the long-term effects and potential applications in clinical settings. Aging is a role in AS because it causes vascular changes in the body, such as the thickening and stiffening of major elastic arteries, as well as modifications to vascular smooth muscle function and vascular structure that may have an impact on vascular tone.

This study demonstrates the potential of vinyasa yoga to mitigate cardiovascular disease risk factors and arterial stiffness. The observed improvements in cardiovascular function, blood pressure reduction, and enhanced vascular compliance suggest a comprehensive beneficial impact on cardiovascular health. These findings have significant implications for the prevention and management of cardiovascular disease, particularly in populations at high risk or with existing cardiovascular conditions. By incorporating vinyasa yoga into their lifestyle, individuals may experience improved overall cardiovascular well-being, reduced risk of cardiovascular events, and enhanced quality of life.

Further research can explore the long-term effects of vinyasa yoga on cardiovascular health, investigate its applications in clinical settings, and elucidate the underlying mechanisms driving its benefits. Nonetheless, our study provides compelling evidence for the integration of vinyasa yoga as a complementary therapy in cardiovascular disease prevention and management.

Future Prospectives

There will be a greater emphasis on sustainable Vinyasa yoga practices that prioritize both physical and mental well-being for the long-term. Vinyasa yoga is deeply rooted in ancient yogic traditions, and there may be a greater emphasis on this aspect of the practice in the future. Vinyasa yoga teaches that we are all interconnected, and this philosophy may become a greater focus of the practice in the future. There may be a greater emphasis on creative sequencing in Vinyasa yoga, which will allow for more diverse and engaging practices.

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