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Role of Yogic Procedures in Diabetes and Cardiovascular Diseases

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ABSTRACT:

Introduction: *Yoga* is an ancient Indian way of life and it includes changes in mental attitude, diet, practice of specific technique such as *Yogasana*, *Pranayama* and meditation to attain the highest level of consciousness. Yogic procedures are very helpful to manage diabetes and cardiovascular diseases. **Methods**: The information has been collected from many research articles which are available on authentic research journals and Ayurveda classical texts. **Conclusion**: Yogic postures stimulates the pancreas, increasing the blood and oxygen supply that works on pancreatic cells and rejuvenate the beta cells which are responsible for reducing blood sugar level in diabetic patients. *Pranayama* and meditation techniques are beneficial to decrease physiological manifestation of stress by reducing heart rate, blood pressure. Thus, yogic procedures have important role to manage diabetes and cardiovascular diseases.

Key-words: Cardiovascular diseases, Diabetes, *Pranayama*, *Yoga*.

INTRODUCTION

Yoga Shashtra is a traditional Indian way of life that dates back thousands of years. *Yoga* may be taken to mean as union of the *Atman* (individual consciousness) with *Parmatman* (supreme consciousness) and union, integration, adjustment or harmony of an individual with environment.[1] Sedentary lifestyle, lack of regular exercise, unhealthy diet and chronic psychosocial stress are major cause of non - communicable diseases (NCDs) like Diabetes, cardiovascular disorders, cancer etc. NCDs contributes to around 5.87 million (60%) of all deaths in India.[2] Cardiovascular disease (CVD) is the primary cause of morbidity and mortality in those with type 2 DM.[3]

Maharshi Charaka has mentioned *Yoga* as a means of *Vedna Avartanam*.[4] Through *Yoga* and meditation we can develop voluntary control over involuntary activities such as lowering of the heart rate, variations of temperature, lowering of metabolic rate, changes in mental rhythm, mental fitness etc.[5]

METHOD

In order to locate research studies and interventions that examined the therapeutic effects of yogic procedures, databases were searched from many research articles which are available on authentic research journals.

In order to select the articles included in these manuscripts, several steps were taken. First, the title was read. If the

article appeared appropriate to the examination of overall effect of yogic procedures, it was saved to a folder. The article describing interventions that utilized *Yoga* (*Asanas*, *Pranayama* and meditation) as a means to achieve health (physical and mental) outcome were chosen for further review. Each of the articles chosen were then thoroughly read and reviewed.

RESULT

Mental health problems such as depression, anxiety, stress and insomnia are among the most reason for individuals to seek treatment with complementary therapies such as yoga.[6] *Yoga* encourages one to relax, slow the breath and focus on the present, shifting the balance from the sympathetic nervous system and the Fight-or-flight response to the parasympathetic system and relaxation response.[7] These are few research works which gave beneficial results. Effect of *Asanas* which are useful in diabetes and cardiovascular diseases are beneficial for physical and mental health. Here are mainly four *Asanas* which are more effective in diabetes. Which are *Ardh-masyendrasana, Halasana, Dhanurasana, Pashchimottanasana* other *Asanas* like *Shalabhasana, Chakrasanaa* and *Sarvangasana* are very beneficial for cardiac disorders.

Meditation is especially useful in management of stress. Glucagon (Anti insulin hormone) secretion enhanced by stress. *Yoga* effectively reduces stress, thus reducing glucagon and possibly improving insulin action. *Pranayama* like *Bhramari, Brasrika* and *Anuloma - Viloma* are effective for control diabetes other diseases like hypertension, stroke, dyslipidaemia etc.

DISCUSSION

Studies on *Yoga* (Table 1) provide convincing evidence for its effectiveness over autonomic nervous system. *Yoga* has a direct effect on optimizing secretion of sympathetic hormones such as cortisol and catecholamine, thereby improving parasympathetic activity and reducing metabolic rate.[11]

Possible benefits of yogic procedures - *Yoga* acts by down regulating the HPA axis which gets hyper activated as a response to abnormal physical or psychological demand (stressor). Any stressful situation affects balances between sympathetic and parasympathetic systems by release of increased cortisol and catecholamine's. This response is classic 'fight or flight' response which is encountered by hyper mobilization of energy needed to combat the stressor. Deregulation of normal body system leading to stress related diseases such as diabetes, depression, obesity and cardiovascular diseases. *Yoga* attenuates the stress cascade by reducing the perception of stress. It decreases physiological manifestation of stress by reducing heart rate, blood pressure and respiratory rate.[12] *Yoga* postures for diabetes switch back and forth between *Asanas* that contact specific area of abdomen and *Asanas* that relax those areas. This alteration of abdominal contractions and relaxation stimulates the pancreas, increasing the blood and oxygen supply. As a result, the pancreatic cells buffeted by nutrients and fresh blood supply, undergo a rejuvenation or regeneration of beta cells that improves the ability to produce insulin. That reduces blood sugar level in diabetic patients. Yogic exercises also reduce LDL (low density lipoprotein cholesterol "bad") and triglyceride levels, both which are often accompanying symptoms for diabetes. *Kapalbhati* with *Nauli Kriya* (pressure manipulation and isolation of abdomen-recti muscle) practices creates balance in basic metabolic rate (BMR). Meditation in yogic procedures, which create calming effect on nervous system, brings balance between sympathetic and parasympathetic nervous systems. It reduces adrenaline, noradrenaline and cortisol in blood. Glucagon (Anti insulin hormone) secretion enhanced by stress. *Yoga* effectively reduces stress, thus reducing glucagon and possibly improving insulin action. *Pranayama* like *Bhramari, Bhrasrika* and *Anuloma – Viloma* increases oxygen level and reduce CO_2 also have calming effect on mind, brain and nervous system. Normally Catecholamine's induce lipolysis and release free fatty acids into circulation and Resynthesize of triglycerides and VLDL production done by the liver but Stress causes activation of sympathetic nervous system that Increases production of serum lipids and lipoproteins by altering lipid metabolic processes.

CONCLUSION

Diabetes and cardiovascular diseases are metabolic disorders that can be prevented through yogic procedures like *Yogasana*, *Pranayama* and meditation. Now a day's stress is common cause of many problems like diabetes, depression, obesity and cardiovascular diseases. *Pranayama* and meditation are mind controlling exercises which are effective for control diabetes, hypertension, stroke, dyslipidaemia etc. Different yoga postures (*Ardha - Matasyendrasana*, *Pashchimottanasana*, *Shavasana* etc.) stimulate many cells (like beta cells in pancreas) with increases blood circulation and treat diabetes. Thus yogic

procedures are very beneficial for diabetes and cardiovascular diseases.

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Table No. I. - Previous Research work

Research work	Procedure with time duration	Results
Effect of yoga in blood glucose levels in Pt. with T2 DM (JCDR)[8]	*Pranayama* (5min.), *Asana* - *Vajrasana Halasana, Ardha-Matasyendrasana, Pashchimottanasana* (30min.) *Shavasana* (5min.) - for 6 months	Decreased weight, balanced BMR Effective positive results in blood sugar level
Yoga practice for management of T2 DM in Adults. (Evidence based complementary and Alternative Medicine)[9]	All yoga exercise (45/day)-for 40 days	Increased HDL level Lowering cholesterol effect HBA1C improved
Effect of yoga *asanas* in nerve conduction (IJPP)[10]	Yoga exercise, meditaion(45/day)-for 40 days	Improvement in Complication, nerve conduction (Diabetic Neuropathy) blood sugar level down