

Role of *Vyayama* in the Prevention of *Hridroga* w.s.r. to Heart Diseases

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Abstract

Charaka described 107 *marmas* in the body. Among these *Basti*, *Hridaya* and *Murdha* are three *marmas* considered as *pradhanabhuta marma*. If *Vatadi dosha* are vitiated through the *nidana sevana*, these three vitiated *doshas* also vitiate the *prana* and its *ashraya sthana* – *marma* are also responsible for the development of different diseases. *Vyayama* has direct effect on the causative factor of *dosha dushti*, which ultimately affects vital organs like *Basti*, *Shira*, *Hridaya* etc. According to modern concepts exercise improves muscle tone, work capacity, appetite and blood circulation, which helps the heart muscle to become strong and more efficient. In addition, the entire circulatory system works more efficiently due to vascular dilatation and cholesterol reduction. Exercise reduces fatigue, weight, reduces stress, anxiety and depression, which are the ultimate causative factors of heart disease. *Vyayama* is a one of the best concept for prevention of diseases of *Hridaya* (heart).

Keywords

Vyayama, *Trimarma*, *Hridaya*



Greentree Group

Received 25/09/15 Accepted 24/10/15 Published 10/11/15

INTRODUCTION

Charaka described 107 *marmas* in the body¹ *Acharya* divided all the *marma* into two parts- *Skandha ashrita* and *Shakha ashrita*. *Shakha ashrita marmas* depend on the *Skandha ashrita marma*. Charaka considered *Skandha ashrita marmas* as a *mool* (root) of the *sharir* (body).^[2] *Marmas* are the junctions of *mamsa*, *asthi*, *snayu*, *dhamani*, *sira* and *sandhi*. They are vital parts of the body as they are also described as *pranayatanam*³. Charaka said that if *marmas* are vitiated by any kind of traumatic injury or *dosha*, it is more painful because the *marmas* are the main location of *chetana* (consciousness)⁴. Among all *Basti*, *Hridaya* and *Murdha* are three *marmas* considered as *pradhanabhuta marma*. If *Vatadi doshas* are vitiated through the *nidana sevana*, the three vitiated *doshas* also vitiate the *prana* and its *ashraya sthana* – *marma*; also responsible for the development of different diseases⁵. *Vyayama* is described in the chapter of *Naveganadharniya* by Charaka under *swastha chatushka*⁶. Preventive aspects are described in this chapter.

- For the evaluation of effect of *vyayama* on the *Hridaya* (heart).
- Give the society cost effective and beneficial Ayurveda remedy.
- Evaluate the prevention aspect of *Hridaya roga*.

ANATOMY AND PHYSIOLOGY OF HRIDAYA:

According to Charaka Samhita, *Hridaya* is also recognized as *mahat* and *artha*⁷. Location of the heart in the thoracic cavity and its shape has been described like a lotus bud having its apex on the reverse side⁸. *Hridaya* (*Koshthang*) is situated in between two mammary glands. Diseases which are occur in *trimarma* described under *madhyama rogamarga*⁹. All these three pathways are connected with each other with *dhamani* and *sira*. According to *Shushrut*, *rasavaha dhamani* and *pranvaha dhamani* are directly situated in the *Hridaya*. According to Charaka *Hridaya* is a prime location of *chetana* (consciousness). *Sharangadhar* also commented that *pranavayu* is situated in the *Hridaya*. *Hridaya* is also location of *oja* which is circulated in the whole body by *rasavaha dhamani*.

VYAYAMA

AIMS AND OBJECTIVES

The physical activity that leads to fatigue in the body is called as *vyayama*.

Vyutpatti (Etymology) - *Vyayama* is the combination of the “*Vi + A+ Yam*”¹⁰

VYAYAMA PARIBHASHA

The activities or *karma* which induces tiredness in the body are called as *Vyayama*¹¹. *Vyayama* includes the activities of the body done with intention of producing firmness and strength. The *chesta* (activity) or *karma* which induces tiredness to physical body is called as *Vyayama*. *Vyayama* is one which creates lightness in the body, increases the ability to do work, makes body compact, mitigates the increased *dosha* and increases the digestive power¹².

Duration of Vyayama:

One has to perform the *Vyayama* up to utilization of *ardhashakti* i.e., a person who is seeking his own good health should perform physical exercise every day only to the half extent of his capacity as otherwise it may be harmful or even fatal¹³. The amount of exercise which makes the *pranavayu* comes out through the mouth as soon as hard breathing sets in; it is known as the *balardha vyayama*. Appearance of perspiration on nose, axilla, forehead and in joints of the palm and feet and dryness of

the mouth denotes the *ardhashakti* of an individual¹⁴.

The *Vyayama* requires careful attention especially in regard to limit the duration and suitable condition for its practice. It is recommended with emphasis not to make an attempt for any physical exercise or body exertion beyond capability, otherwise serious consequences are likely to occur and adversely affect human body. By attaining *balardha*, mouth starts becoming dry due to aggravation of *Vata* which is present at *Hridaya*¹⁵.

Specific nidana of *Hridaya roga* (Etiological factors) are as under:

Hridaya – *Chinta* (Anxiety), *Bhaya* (Fear), *Trasa* (Phobia), *Tikshna vireka-Basti* (Drastic purgation and *Basti*), *Chhardi* (Emesis), *Gadatichar* (Iatrogenicity) etc¹⁶.

Exercise

Any physical activity that raises the heart rate is exercise. Exercise is a type of physical activity that one plans to do specifically to improve one's physical fitness. *Vyayama* is also a physical activity¹⁷.

DISCUSSION

After digestion of the food *ahara rasa* nourishes other dhatus through *trimarma*. *Hridaya* is the *srotomula* of two *srotasa* –

pranavaha and *rasavaha*. *Ahara rasa* is entering from *koshtha* to *shakha* with the medium of *Hridaya*.

Vyayama was described in *Navegannadharniya adhyaya* after the description of *dharniya and adharniya vega* (urges). Due to suppression of *vega*, *gati* of *Vata* (motion) become reversed (*pratiloma*) and it circulates in all regions. *Vata* enters in the *pachyamanashaya* or *grahani*. *Nabhi*, which is situated between *aamashaya* and *pakwashaya*, is responsible for circulation of the *ahara rasa* into *Hridaya* through *dhamani*¹⁸. Vitiated *dosha* enter into the *Hridaya* and also develop pathology related to the organ. *Chinta*, *Bhaya* etc. are the causative factor of *Hridaya roga* and they are also described as *dharniya vega* (suppressible urges). According to *Ayurveda* literature, *Vyayama* has some beneficial effect like *Laghuta* (lightness of the body), *Karma Samarthya* (improve physical strength), *Sthairya* (stability), *Dukha Sahishnuta* (increase endurance power), *Dosha Kshaya* (allevation of *dosha*). *Vyayama* creates lightness in the body and regulates the circulation of *ahara rasa*. It decreases the vitiated *Vatdi doshs* which are causative factor of *marma roga*.

EFFECTS OF EXERCISE ACCORDING TO MODERN CONCEPT:

Cardiovascular responses to Exercise

Exercise is characterized by increased energy expenditure in the exercising muscles. In order to meet the increased demand for energy, blood flow through the exercising muscles increases. This is made possible mainly by increasing the cardiac output and to some extent by reducing blood flow through some other areas of the body¹⁹.

Skeletal muscle Blood flow

At rest, skeletal muscles receive about one liter of blood per minute i.e., 1/5th the cardiac output during maximal exercise. The skeletal muscle blood flow may exceed 20 L / min and much of the increase is confined to the muscles involved in exercise. The enormous increase in blood flow is made possible by arteriole dilation and opening up of closed capillaries²⁰.

Heart Rate

The heart rate increases because of the stimulation of the sympathetic nervous system i.e., during prolonged exercise local and humeral factors possibly contribute to the sustained increase in heart rate. Muscle tissue has free nerve endings which are

stimulated by lactic acid, potassium ions and other chemicals which collect in exercising muscles. Stimulation of these nerve endings brings about reflex tachycardia. Release of adrenaline, nor adrenaline and possibly thyroid hormones during exercise also contribute to the increase in heart rate. These are intrinsic factors which increase the heart rate during exercise increase in venous return stretches the right atrium and consequently the Sino arterial node leading to an increase in heart rate this is known as 'Brain bridge effect'. Increased activity of the heart during exercise raises body temperature which in turn directly increases the rhythm of the pace maker. The heart rate comes down after exercise but complete return to resting level takes considerable time. The continuing tachycardia after exercise is likely to be due to the effect of local metabolites in exercising muscle, hormones and temperature. The heart rate increases depending up on the type of the exercise and severity of the exercise²¹.

Cardiac Output

Cardiac output is the product of heart rate and stroke volume. An increase in both contributes to increase in cardiac output during exercise. The cardiac output may increase from 5 liter/min (normal value) to

30-35 liter/min depending up on the type of exercise²².

CONCLUSION

Vyayama prevent the vital organs like *Basti*, *Shira*, *Hridaya* from the causative factors. According to modern researches, exercise improves muscle tone, work capacity, appetite and blood circulation, which helps the heart muscles to become strong and more efficient. In addition the entire circulatory system works more efficiently due to vascular dilatation and cholesterol reduction. Exercise reduces fatigue; reduce weight, stress, anxiety and depression which are the ultimate factors for heart diseases. *Vyayama* is one of the best aspects for prevention for *Hridaya roga* (heart diseases).

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