



Review Article

ROLE OF ADOLESCENCE LIFESTYLE IN CARDIO VASCULAR DISEASE-AN AYURVEDIC PERSPECTIVE

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ABSTRACT

In the adolescent age group, there has a wide range of cardiac illness. Among all adolescents, risk factors like obesity, an inactive lifestyle, smoking, high blood pressure, and high cholesterol that have a direct link to the likelihood of developing heart illness later in life. According to Ayurvedic literature, the word '*Hrudaya*' is a synonym for heart. The function of this essential organ is implied by its name. '*Hru*' refers to a person who forcibly extracts fluid or blood from the body and '*Da*' refers to a person who donates. *Rasa* (body fluids) and *Rakta* (blood) are circulated in the body through the heart's dual activity of forced collection and supply, hence the name. *Hridaya* is the *Mula* of *Rasavaha Srotas*. The vitiation of the *Rasavaha Srotas* may lead to various diseases such as *Sthoulya*, *Hridroga* etc. *Vyana Vayu* and *Ojus* have an important function in the health and sickness of the cardio-vascular system. The principles of *Dinacharya*, *Ritucharya*, and *Sadvrta* can be used to prevent or manage cardiac risk factors. The occurrence of chronic diseases has reached alarming proportions in recent decades as a result of rapid economic development and rising urbanisation of lifestyle. So, this presentation is an effort to throw light on the role of adolescence lifestyle in cardiac diseases.

INTRODUCTION

Cardio Vascular Disease is a major cause of morbidity and mortality and is responsible for more than 30% of all the deaths.^[1] The strongest evidence of childhood onset comes from atherosclerosis originates in childhood, with a rapid increase in the prevalence of coronary pathology during adolescence and young adulthood. The stage of adolescence is between 12yrs of age and 18 in which children pass through many physical and emotional variations^[2] fast food, Smoking, obesity, physical inactivity, alcohol use, drug use and sleep duration are the risk factors^[3]. If risk factors are controlled from childhood, it will reduce the risk in developing heart disease in adults. Studies found that fatty streak, the earliest lesion of atherosclerosis, occurred by 5 to 8

years of age and fibrous plaque, the advanced lesion, appeared in the coronary arteries in subjects in their late teens. Fibrous plaque was found in over 30% of 16-20 years old and the prevalence reached nearly 70% by age 26 to 39. According to Ayurvedic literature, *Ama* plays a role of important risk factor in the pathogenesis of heart diseases by causing *Srotosanga*. According to *Acharya Susruta* suppression of the natural urges, excessive intake of *Ushna*, *Rukshna*, *Virudha Ahara* etc. can causes this disorder.^[4] *Pathya Ahara vihara* has an effective role in Cardiac diseases.

Major Risk Factors For Heart Disease^[5]

Cardio vascular risk factors include positive family history of coronary heart disease, smoking, high level of cholesterol, hypertension, overweight, and diabetic or prediabetic states. In Adolescent stage especially boys having the habit of use junk food and fast food and lack of exercise, smoking etc. will lead to CVD in later stage. These risk factors are all associated with an increased prevalence and extent of atherosclerosis.

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Obesity

Obesity continues to be leading public health concern. Obesity prevalence doubled in adults and overweight prevalence tripled in children and adolescents aged 6 to 19 years. Changes in BMI occur with normal growth. Increased consumption of calorie dense foods and decrease in physical activity or increased time spent on television and video games may be causally related to the increasing prevalence of obesity seen in adolescents.

Management

- Amount of time spent walking, bicycling, swimming, and playing in the backyard on a regular basis.
- Use of stairs, playground, any gymnasiums and interactive physical play with other play.
- Number of hours per day spent watching, television or videotapes and playing computer games.
- Time spent in school in school physical education that includes a minimum of 30 minutes of coordinated large muscle exercise.
- Positive role modeling for a physically active lifestyle by parents and other care takers.

Cigarette Smoking

Most of the people start smoking during adolescence. The transition from elementary to middle school, as well as the first and second years of middle school, is high-risk period. Smoking causes atherogenic dyslipidaemia increases levels of LDL and VLDL cholesterol and triglycerides and it lowers HDL cholesterol levels. It causes peripheral arterial disease through endothelial dysfunction. Centers for Disease Control (CDC), nearly 25% of high school students use some kind of tobacco product. These affect cholesterol and levels of fibrinogen, which is blood-clotting material.

Management

- Smoking history should obtain from for parents and be updated. i.e., onset of smoking, number and type of cigarette smoked per day, week, or month.
- Parents who smoke should be encouraged to quit. Physician should emphasize adverse effects of passive smoking on their children and need to be the role model for their children
- Counseling technique according to the age of the child

High Blood Pressure

Children with hereditary factor, overweight of children and also the heart or kidney disease. Elevated BP in childhood or adolescence increases the risk of CVD events in adulthood.^[6] Several studies have shown associations between child or adolescent BP and high PWV, high CIMT, and LVH in adults, indicating that high blood pressure in children or teens increases the risk of CVD in adults.

Management

- Exercise,
- Lower sodium intake
- Weight reduction
- Increasing physical activity
- Healthy diet

Physical Inactivity

Physical activity levels decline during adolescence. Boy's aerobic fitness remains steady throughout puberty, but girls' aerobic fitness eventually falls. Over the last few decades, the prevalence of childhood obesity and the advent of type 2 diabetes in children and in adolescents have increased. Physical activity explains a tiny portion of the variance in CVD risk variables during childhood and adolescence, despite the fact that the link is weak and causal inference cannot be established.

Management

- Exercise
- Regular aerobic activity
- Limit sedentary activities

High cholesterol

Intake of meats, eggs, and dairy products and from foods high in saturated fats and unhealthy diet, especially one that is high in fats are the risk factors and also family history of high cholesterol, especially when one or both parents have high cholesterol and Obesity. High cholesterol can be caused by a variety of conditions, including diabetes, renal disease, and certain thyroid disorders.

Management

Eat foods low in cholesterol and fat lifestyle changes are the main treatment for high cholesterol in Adolescence

- **Exercise:** This entails getting regular activity and reducing the amount of time spent sitting (in front of a television, at a computer, on a phone or tablet, etc.)
- Consumption of nutritious foods, limiting foods heavy in saturated fat, sugar, and transfat is part of a cholesterol-lowering diet. Fresh fruits, vegetables, and entire grains should also be consumed in large quantities.
- If your child or teen is overweight, losing weight is a priority.

Hridroga in Ayurveda

Hridroga is one of the ten '*Pranayatana*' or 'Store House' of *Prana* (life).^[7] According to Ayurvedic literature, *Hridroga* is one of the diseases. Its definitions are brief and the Ayurvedic perspective requires clarification.

Various factors acting on *Hridaya*^[8,9]

- Psychological factors
- Dietetic factors

- Physical activity
- Excessive indulgence in sexual activities
- Suppression of natural urges
- Alcoholism
- Bacteria, viruses, parasites, and worms, as well as the toxins they produce
- Iatrogenic
- Toxic effect of drugs
- Improper managements of diseases
- Use of emetics, purgatives, or enemas in an abnormal or excessive manner.
- Trauma to heart
- Complications of other diseases

Nidana (Etiology)^[10]

Dietetic factors	<i>Usna, Guru, Kasaya, Tiktasevana, Advasana</i>
Somatic factors	<i>Srama, Vegadharana, Abhigata, Ativerechana</i>
Psychological factors	<i>Cinta, Bhava, Trasa</i>

Adolescents take the food containing large amounts of saturated fat, and cholesterol rich food and also smoking and stress and strains of modern life are the main causes of heart disease. In Ayurvedic classics, due to intake of *Guru, Tikta Sevanaahara* and also the somatic and psychological factors like *Vegadharana, Abhigata, Chinta* will lead to *Hridroga*. *Vagbhata* states that the etiological factors of *Hridroga* are similar to that of *Gulma*.^[11]

samprapti

Due to *Nidana* the *Doshas* get vitiated and moves in *Hridaya*. Then vitiate *Rasa*, the seat of *Rasa* being *Hridaya*, and make *Hridroga* i.e., *Agnimandya* leads to the formation of *Saama Rasa Dhatu* (Hypercholesterolemia) and it will result in to *Srotoavrodha, Dhamnpratichaya* (Atherosclerosis, Obstruction of arteries)

Types of Hridroga

- *Vataja*
- *Pittaja*
- *Kaphaja*
- *Tridoshaja*
- *Krimija*

Dosha Vishishta Nidana^[12]

<i>Vata-janya</i>	<i>Shoka, Upavasavyayam, Ruksha-sushka-alpa-bhojan</i>
<i>Pitta-janya</i>	<i>Ushna-amlalavan-kshara-katu-ajirna-bhojane, Madya Krodha, Atapa</i>
<i>Kapha-janya</i>	<i>Atyadana, Guru-snigdham, Achintam, Achestanam, Nidra-sukham-Adhikam</i>
<i>Tri-doshajanya</i>	All the <i>Nidanas</i> of <i>Tri-dosajanaya Hridroga</i> .
<i>Krimi-janya</i>	<i>Granthi</i> occurs in areas of <i>Hridaya</i> when a person continues eat sesame, jaggery, milk products

Specific Interventions

Dietary Changes

Most of adolescents tend to eat more meals than younger children. Many adolescents value meal convenience, and they may be consuming excessive amounts of the improper foods, such as soft drinks, fast food, or processed meals. Dietary adjustment is the most important preventive technique for CHD. Excessive *Tailavarga* consumption should be avoided. Take the consumption of *Haritavarga, Phalavarga, Dhanyavarga* and avoid *Madyapana*, excessive intake of *Lavanavarga dravyas*

Smoking

Smoking should illustrate the harmful effects of smoking in comprehensive health programmes through mass media, using *Pragnaparadha* as a tool for both causative and preventive methods.

Blood Pressure

Effective control of blood pressure should include multi factorial approach based on *Ahara*, intake of salt and avoid *Madyapana*, follow *Vyayama* and weight control. Eat more leafy greens, carrots, lemon-honey juice, curry leaves decoction, and so on

Physical activity

Chankramana (brisk walk) and regular moderate *Vyayama* should be part of normal daily life. It's especially vital to encourage kids to participate in physical activities that they can do for the rest of their life.

Prevention and Management^[13]

Ayurveda believes that prevention is preferable to treatment. As a result, in the case of *Hridroga*, prevention is crucial. So one should decrease risks of obesity, hypertension, and dyslipidemia. Individual counseling to improve diet and physical activity. Engage adolescence in both school-based and out-of-school programmes to improve the health and behavior. Avoidance of *Mano Abhighatajahetu*. *Rasayana* therapy like *Brahma Rasayana, Amalaki Rasayana, Shilajeet Rasayana*, etc., are very effective for management of this. As *Hridya* is the *Sthana* of *Oja, Prana, Buddhi* and *Mana*. Hence anxiety, stress, depression or mental stress should be avoided preferably. *Shirodhara, Shiropichu, Hridbasti, Pranayam, Yoga*, these are very effective for stress management. Follow the lifestyle stated by Ayurveda. As par *Dosha dushtila kshana* seems, *Shodhana* and *Shaman* therapy treatment should be done with different herbal preparations.

DISCUSSION

Cardiac diseases in adolescence are a result of a poor diet and lifestyle. Fast food, risky alcohol use, illegal substance use, smoking, sleep deprivation, being overweight or underweight, and adolescent media consumption all contribute to a high prevalence of this.

The proper execution of a regular routine (*Dincharya*) benefits both physical and mental wellbeing. Seasonal diversity (*Ritucharya*) is also essential to remain free from disease conditions. The diet as per Ayurveda plays important role in curing of diseases. *Sadvritta* imparts national, moral, and spiritual ideals in addition to health benefits. There are number of drugs, formulation are described in Ayurveda which have very effective result on the cardiovascular diseases. If someone adopts the diet pattern, life style according to the Ayurveda from the childhood, it can be helpful in the decrease the incidence of cardiovascular diseases in adults. The diet mentioned in Ayurveda includes all the food products we use in our day to day life. *Ahara, Vihara, Dinacharya, Ritucharya, Yoga, Rasayana* which have good role in prevention and cure of the cardiac diseases

CONCLUSION

Most of the adolescents use improper food habits and also lack of *Vyayama* of adolescents lead to *Rasa-vaha srotas* vitiation which leads to obesity, hyperlipidaemia, and diabetes which are today's leading causes of *Hridroga*. *Ati-chintan* (stress) is also a cause of *Rasa* vitiation. Exertion and environmental factor causes vitiation of the *Prana-vahasrotas* which vitiate *Vata dosha*, thus, lead to *Hridroga* in adolescents. *Pathya Apathya, Dinacharya* and diverse techniques of *Yoga* which have wonderful preventive and curative effect on cardiac diseases. Preservation of health and prevention of cardiovascular disease among adolescents must begin early their schools, and homes. Cardio protective drugs mentioned in Ayurveda have an effective role in the cardiac diseases. The prevention and management can be done successfully through Ayurveda.

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