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**AN AYURVEDIC VIEW ON THE CHANGES IN LIFESTYLE AND
PATHOPHYSIOLOGICAL INCREASE IN ASSOCIATED DISORDERS
IN CHILDREN AND ADOLESCENTS IN THE MODERN ERA**

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ABSTRACT

Research worldwide has established a strong correlation between lifestyle disorders and harmful childhood dietary and lifestyle practises. Therefore, it is essential that children adopt a healthy lifestyle at an early age. This issue places a substantial burden on households and national economies worldwide. The prevalence of lifestyle disorders in adolescents, such as obesity, diabetes, cardiovascular disease, cancer, gastrointestinal diseases and psychological disorders, has increased dramatically over the past two decades. Social media, electronic devices, and video games are increasingly substituting physical activities among modern children, leading to mental health issues such as depression and dietary disorders. Moreover, misleading advertisements from multibillion-dollar food industry brands have influenced the consumption of processed foods. Insufficient quality time spent with children by parents exacerbates the problem. Despite increased literacy, awareness, and access to healthcare, the

problem persists and has attracted the focus of the World Health Organisation (WHO) due to its potential to affect millions of lives and contribute to unprecedented disease mutation rates. To effectively address this issue, the underlying causes, namely inactivity, unhealthy food consumption, and living environments, must be identified. Ayurveda, the foremost life science, offers guidance on preventing and addressing lifestyle disorders. By incorporating principles of Ayurveda into dietary management and lifestyle practices, including Panchakarma procedures for purifying the body, medications, and rejuvenation therapies such as Rasayanas, it presents a holistic approach that can effectively address various ailments affecting children.

Keywords: Lifestyle Disorders, Juvenile Diabetes, Childhood Obesity, Ayurvedic Management

INTRODUCTION

The path to a healthy lifestyle should ideally begin early on in life. How a person shapes his adult self is generally dependent on his upbringing in childhood. Researches from all around the world has shown the close relationship between lifestyle disorders and faulty initiation of dietary and lifestyle patterns of childhood. This has become a serious burden to the family and national economies worldwide.

In the last two decades, the number of children suffering from lifestyle disorders such as childhood obesity, diabetes, cardiovascular disease, cancer, gastrointestinal diseases, computer vision syndrome, and psychological disorders such as stress disorders, anxiety, and depression has increased twentyfold [1]. This gradual but significant increase is also associated with a rise in mortality and morbidity among adolescents. When investigating the cause of this increase in lifestyle-related diseases, it is crucial to note that the dramatic rise in childhood morbidities has occurred despite

the rise in literacy, awareness of lifestyle disorders, and availability and accessibility of primary and tertiary health care services worldwide. Despite our best efforts or lack thereof, this ailment has persisted and made its presence known enough for WHO to regard it as something with the potential to affect the future of millions and reach unprecedented levels of disease mutational possibilities. To effectively address this growing concern, it is essential to identify its underlying causes [2].

Identifying the definite causative factors should be ideally an ever-continuing process, but the main factors of causation can be rounded up into three. They are: - inactivity, consumption of junk foods and living environments. Amongst these, the suitability of our living environment is something which, neither the kids nor their parents can control. The remaining two factors namely, inactivity and consumption of junk food are something over which you have some degree of control.

Social media, electronic devices, and video games have replaced physical activities in the lives of today's children. This has resulted in severe mental health issues such as depression and eating disorders, as well as a seismic shift in processed food consumption. The advertisements of multibillion-dollar Food Industry Brands, with their emotional slogans and picture-perfect depictions of food products, distort children's perceptions of what constitutes a nutritious meal. The most important aspects of this are the effects of processed foods on a child's diet, the rising rates of childhood suicide and reports of depressive disorders, and the lack of time parents have to spend with their children [3].

Frequently, parents send their children to expensive tutoring centres and residential schools, but neglect to provide them with the affection and reassurance they need to have a more promising future. Humans are now more distant from one another than ever before, and parents rarely have enough time for their offspring. By devoting time and attention to their children, parents can improve their children's future opportunities. [4]

Major Lifestyle Disorders in Children

Some of the common life style disorders in children includes childhood obesity, diabetes, cardiovascular disease, cancer and psychological disorders like stress disorders, anxiety, depression etc. [5].

Globally, the prevalence of childhood obesity is increasing as a result of the accelerated nutritional changes of the past few decades. Risk factors include unhealthy foods, packaged foods, and high-calorie foods. During Lockdown, children were more likely to acquire weight due to an increase in screen time, a sedentary lifestyle, and a lack of sleep. In addition, children were less active and ate more during the Covid era, which may have had long-term consequences for their health. Children who remain overweight into maturity have a greater chance of developing heart disease, type 2 diabetes, high blood pressure, stroke, joint problems, and breathing issues, among other conditions [6].

Juvenile Diabetes or Type-I diabetes and Type 2 diabetes was not a common condition years ago. Infact Type 2 Diabetes was called as Adult-Onset Diabetes till recently. There is increasing evidence of incidence of type 2 diabetes rising due to changes in eating patterns, weight gain, and decreased physical activity [7].

Heart disease is the primary cause of death in adults, and sadly, the markers for adult cardiovascular disease (CVD) are becoming more evident in childhood. In retrospect, many of the lifestyle decisions that contribute to these risk factors in adults, such as poor eating patterns and physical inactivity, can be traced back to childhood and adolescence. Childhood-observable risk

factors for cardiovascular disease and type 2 diabetes increase the likelihood of adverse health outcomes in adulthood [8].

Lifestyle-related factors are not cancer-causing agents in and of themselves, but they are cancer-causing risk factors. Diets shifted significantly in the twenty-first century, with an increase in the consumption of refined foods and beverages and a decrease in the consumption of staple foods. A high-sugar diet may increase cancer risk by promoting insulin-glucose dysregulation, oxidative stress, inflammation, and body obesity, despite contradictory epidemiological evidence. According to studies, individuals who consume a variety of fruits, vegetables, and fiber-rich foods may have a reduced risk of developing certain malignancies [9].

Due to the intense pressure that family, school, and society place on children of all ages in today's competitive world, they are constantly under stress. Rather than adopting a healthy lifestyle with the assistance of their parents, such as meditation and yoga, children are turning to drugs, alcohol, and internet addictions. In some instances, the parents are too preoccupied or careless to address their children's problems. This can contribute to psychological disorders such as anxiety, depression, etc., and even suicidal tendencies.

Ayurvedic View

A person's lifestyle is a culmination of his or her physical ability in coordination with psychological functioning, displayed in the form of habits, behavior, dietary choices, and living arrangements based on his or her own training sought since childhood, as well as imitations he or she picked up from his or her close friends, such as parents, siblings, peers, etc.

It involves intrinsic and pure psychological control over bodily and sensory functions. When the process of initiating, controlling, and coordinating lifestyle habits is interrupted, it leads to a disturbance in one's lifestyle and any related lifestyle disorders. This condition was described by Ayurveda as Prajnaparadha, which is one of the three fundamental causes of any ailment. There are many incorrect behaviours that result from Prajnaparadha and are the primary drivers of many diseases. For instance, the habit of repressing any natural need is a result of Prajnaparadha and is identified as the root cause [10] [11].

In the form of ahara vihara, ayurveda emphasises the significance of lifestyle in the pathophysiology of various illnesses. Heena, Mithya, and Atiyoga of kala, indriyarth, and karma are the main causes of roga. Three upastambha (supporting pillars) of life, including ahara (diet), nidra (sleep), and brahmacharya (self-control). have been described in Ayurveda. Any one of these pillars can

become out of balance, which can throw off the body's homeostasis and result in so-called lifestyle illnesses. Numerous lifestyle diseases are facilitated by virrudhahara, ahitahara (incompatible and poor food practises), prajagrana (waking up at night), divaswapna (sleeping during the day), and repression of thirteen natural desires. Ayurveda provides a thorough explanation of a balanced diet and dietary considerations. Additionally, it is stressed that even healthful food consumed in moderation will not be properly digested (generating intermediate metabolites in the form of Ama) if it is consumed anxiously [12].

Ayurveda which literally means the 'Science of Life' is abundant with guidelines for leading a healthy and purposeful life. Ayurveda provides descriptive details regarding proper dietary practices, dietary etiquettes, adulterated foods, incompatibility amongst various food substances etc. and hence provide a huge source from which to attain and incorporate these details in daily life.

A healthy lifestyle can help you manage a variety of diseases. Childhood is an important time to establish healthy habits and avoid these problems. It can be difficult for parents because it requires patience, optimism, practice, and time. A child who has a positive perception regarding the importance of a healthy diet and an eager

sense for incorporating physical activities in everyday life will be more attuned towards his own comprehensive physical and mental development.

Better solutions are offered by Ayurveda in the form of good nutritional management, lifestyle recommendations, Panchakarma treatments for bio purification and detoxification, medications, and rejuvenation therapies. Ayurveda is a great treatment choice for lifestyle disorders because of its holistic approach, which treats the patient as a whole and focuses on total physical, psychological, and spiritual well-being.

Ayurveda offers a variety of regimens, including the dinacharya (daily regimen), ritucharya (seasonal regimen), for the prevention of lifestyle disorders. It is crucial to uphold the sadvritta (ideal practises) and aachara Rasayana (code of conduct) for maintaining both mental and physical health [13].

Dinacharya

Dinacharya, in Ayurveda, refers to the daily routine or regimen that promotes optimal health and well-being. It is a set of practices and activities that are recommended to be followed on a daily basis to align with the natural rhythms of the day and maintain balance in the body and mind. Dinacharya focuses on harmonizing our daily activities with nature's cycles to promote physical, mental, and spiritual wellness. Key elements

of dinacharya are:

- a. **Waking up Early:** Ayurveda emphasizes waking up during the pre-dawn period, known as Brahma Muhurta, which is considered a time of calmness and purity.
- b. **Oral Hygiene:** Upon waking, cleansing the mouth with techniques like tongue scraping, oil pulling, or rinsing with warm water helps remove toxins and promote oral health.
- c. **Elimination:** Evacuating the bowels and bladder in the morning helps eliminate waste materials from the body, promoting digestive health.
- d. **Self-Massage:** Abhyanga, or self-massage with warm oil (such as sesame or coconut oil), is recommended to nourish the skin, improve circulation, calm the nervous system, and promote overall well-being.
- e. **Bathing:** Taking a refreshing bath or shower helps cleanse the body and awaken the senses. Herbal preparations can be added to the bathing water for additional therapeutic benefits.
- f. **Exercise or Yoga:** Engaging in physical activity or yoga practices in the morning helps improve flexibility, strength, and circulation, and promotes mental clarity.
- g. **Meditation and Pranayama:** Practicing meditation and breathing exercises, such as pranayama, in the morning helps calm the mind, reduce stress, and enhance mental focus.
- h. **Breakfast:** Having a wholesome, balanced breakfast is recommended to provide nourishment and energy for the day. It should consist of fresh fruits, cooked grains, dairy products, and other healthy options based on individual constitution.
- i. **Work and Rest:** Following a regular daily routine for work, meals, and rest helps maintain a sense of stability and balance in daily activities.
- j. **Evening Routine:** Ayurveda suggests a lighter dinner in the evening, allowing enough time for digestion before bedtime. Gentle activities like reading, spending time with loved ones, or engaging in relaxing hobbies are encouraged.
- k. **Sleep:** Going to bed early and having a restful sleep is considered crucial for overall health. Creating a conducive sleep environment and adopting relaxation techniques before sleep can support quality sleep [14].

Ritucharya

Ritucharya, in Ayurveda, refers to the seasonal regimen or guidelines that are recommended to be followed to maintain health and prevent imbalances during different seasons of the year. It recognizes that each season has its own unique qualities and influences on the body and mind. By aligning our lifestyle and habits with the

changing seasons, we can support our overall well-being. Key principles of ritucharya are: -

- a. Vata, Pitta, and Kapha Balance: Ayurveda views the seasons as having an impact on the doshas (Vata, Pitta, and Kapha) within the body. Each season is associated with specific doshas, and the aim of ritucharya is to maintain balance among them.
- b. Adjusting Diet: Dietary adjustments are recommended to align with the qualities of each season. For example, during the hot summer months, cooling and hydrating foods like fresh fruits, vegetables, and herbal infusions are encouraged. In colder seasons, warming foods and spices can help keep the body warm and nourished.
- c. Lifestyle Modifications: Certain lifestyle practices can be incorporated to adapt to seasonal changes. This may include adjusting exercise routines, modifying daily routines, and adopting appropriate self-care practices.
- d. Herbal Support: Ayurvedic herbs and formulations specific to each season may be recommended to support the body during that time. These herbs can help balance doshas, boost immunity, and address common ailments associated with the season.
- e. Protecting Against Seasonal Ailments: Ritucharya aims to prevent seasonal

ailments by adopting preventive measures. For example, during the monsoon season, when there is an increased risk of digestive issues, it is recommended to consume easily digestible foods and avoid raw, uncooked foods.

- f. Detoxification: Specific cleansing practices, such as Panchakarma, may be recommended during certain seasons to eliminate accumulated toxins and rejuvenate the body.
- g. Lifestyle and Environmental Factors: Ritucharya also considers other lifestyle and environmental factors such as appropriate sleep patterns, exposure to sunlight, maintaining hygiene, and protecting oneself from extreme weather conditions [15].

Management of Obesity in Children

Ayurveda, presents a holistic approach to the management of obesity. It emphasises the significance of knowing one's body type (Prakruti) and balancing the doshas to promote overall health. Warm, freshly cooked meals, foods with a sweet, bitter, and astringent taste, minimal heavy, oily, and sugary foods, avoiding overeating and eating leisurely, maintaining regular meal times, and the use of herbal remedies are examples of healthy eating habits. For eg. Triphala is a blend of three fruits that facilitates digestion and elimination. Ayurveda emphasises the significance of

daily routines and lifestyle practises for maintaining overall health, such as regular physical activity, adequate rest, stress management techniques, and avoiding daytime naps. Panchakarma treatments, such as Virechana or Basti, may be suggested to promote weight loss and general health. It is essential to consult with an experienced Ayurvedic practitioner in order to construct a safe and effective plan tailored to the individual's needs. Reducing obesity in children requires a comprehensive approach that addresses their diet, physical activity levels, and overall lifestyle.

- a. Encourage a balanced diet: Promote healthy eating habits by providing a variety of nutritious foods. Make sure that their meals are filled with lots of fruits, vegetables, lean meats, healthy grains, and dairy items that are low in fat. Limit sugary drinks, processed snacks, and fast-food consumption.
- b. Portion control: Teach children about appropriate portion sizes and avoid overeating. Teach children to pay attention to the indications provided by their bodies about whether they are hungry or full.
- c. Limit sugary beverages: Encourage children to drink water or low-fat milk instead of sugary drinks like soda, sports drinks, or fruit juices. These beverages often contribute to excessive calorie intake without providing significant nutrition.
- d. Encourage regular physical activity: Promote at least one hour of moderate to vigorous physical activity every day. Engage children in activities they enjoy, such as playing sports, swimming, biking, or dancing. Encourage active playtime rather than excessive screen time.
- e. Limit sedentary behaviors: Reduce the time spent watching TV, playing video games, or using electronic devices. Encourage children to engage in more active pursuits and limit sedentary activities to a reasonable extent.
- f. Promote family involvement: Involve the entire family in adopting healthier habits. Plan and prepare nutritious meals together, go for walks or bike rides as a family, and make physical activity a fun and regular part of family routines.
- g. Set a positive example: Children often mimic their parents' behavior, so it's crucial for parents and caregivers to lead by example. Show them the importance of healthy eating and regular physical activity by practicing those habits yourself.
- h. Create a supportive environment: Make sure the home environment supports healthy choices. Keep nutritious snacks readily available, limit the availability of unhealthy foods, and create opportunities for physical activity by

providing access to sports equipment or enrolling children in sports clubs or activities.

- i. Teach mindful eating: Encourage children to eat slowly, savor their food, and pay attention to hunger and fullness cues. Discourage eating while watching TV or engaging in other distracting activities.
- j. Seek professional help if needed: If a child's obesity persists despite efforts to make healthy changes, consult a healthcare professional, such as a pediatrician or registered dietitian, who can provide personalized guidance and support [16].

Management of Diabetes in Children

Medical care, blood sugar monitoring, healthful lifestyle choices, and family support are required to effectively manage diabetes in children. Important factors include medical care, blood sugar monitoring, healthy dietary habits, physical activity, blood sugar awareness and emergency preparedness, as well as support and education. Medical care and monitoring entails close collaboration with the child's healthcare team, blood sugar monitoring, healthy eating practises, physical activity, blood sugar awareness and emergency preparedness education and support.

- a. Lifestyle modifications: Ayurveda emphasizes lifestyle changes to support overall health and manage diabetes.

Encourage the following practices:

- a. Regular physical activity: Engage your child in age-appropriate physical activities that they enjoy. This helps improve insulin sensitivity and maintain healthy blood sugar levels.
 - b. Stress management: Teach your child stress-reducing techniques such as deep breathing exercises, meditation, or gentle yoga. Chronic stress can impact blood sugar levels.
 - c. Proper sleep: Ensure your child gets sufficient sleep and follows a consistent sleep schedule, as lack of sleep can affect blood sugar control.
- b. Diet modifications: Ayurveda emphasizes dietary changes to balance the doshas and manage diabetes.
 - a. Favor whole foods: Encourage your child to consume whole grains, fresh fruits, vegetables, legumes, and lean proteins. These forms of food not only provide necessary nutrients but also contribute to the preservation of steady blood sugar levels.
 - b. Emphasize bitter and astringent tastes: Include foods with bitter and astringent tastes, such as bitter gourd, fenugreek, and turmeric.
 - c. Reduce sweet and heavy foods: Minimize the intake of sugary

foods, processed snacks, and deep-fried foods, as they can contribute to blood sugar fluctuations.

- d. Herbal remedies: Ayurveda utilizes various herbs and herbal formulations that are believed to help manage diabetes.
- c. Panchakarma: Panchakarma is a cleansing and detoxification therapy in Ayurveda. It aims to remove toxins (ama) from the body and restore balance. Panchakarma treatments such as Virechana (therapeutic purgation) or Basti (medicated enemas) may be recommended to support diabetes management [17].

Management of Cardiovascular Disorders in Children

Medications and lifestyle modifications, including a healthy diet, regular exercise, weight management and stress management, are essential for managing Cardiovascular disorders in children. Adopt the DASH diet, limit the sodium intake, engage in regular physical activity and practise stress-reduction techniques.

a. Diet and Nutrition:

- a. Avoid excessive intake of salty, oily, and processed foods.
- b. Emphasize fresh fruits, vegetables, whole grains, and lean proteins in your diet.
- c. Incorporate herbs and spices like garlic, turmeric, ginger, and cumin,

known for their potential benefits in reducing blood pressure.

b. Lifestyle Modifications:

- a. Practice regular exercise, such as yoga, walking, or swimming, to improve circulation and manage stress.
- b. Engage in stress-reducing activities like meditation, deep breathing exercises, and gentle yoga poses.
- c. Maintain a regular sleep schedule and ensure adequate rest.

a. Herbal Remedies:

- a. Ayurvedic herbs like Ashwagandha, Brahmi, Arjuna, and Sarpagandha have been traditionally used to support heart health and manage blood pressure [18].

CONCLUSION

Ayurveda is the preeminent life science and explains how to prevent and treat lifestyle disorders. In the form of improved dietary management and lifestyle based on ayurvedic principles, Panchakarma procedures for bio-purification, medications, and rejuvenation therapies in the form of Rasayanas, it can provide a better solution for many of the ailments of children. Modification of lifestyle is a tedious and often less successful task during adulthood. The question does not have to arise in the first place if a child is properly initiated in proper dietary practices and the

importance of kinetic activity in mental as well as physical wellbeing and formation. In fact, successful incorporation of proper dietary habits and physical activities does a lot towards minimizing the chances of lifestyle disorders in future. Parents have an important role in this regard. Giving due importance and accepting the role they play in their child's life is essential for proper growth of the child in all aspects of life, be it physical, mental or social. The community's understanding of the impact of these factors on human health can equip individuals with the knowledge and skills necessary to live a healthy lifestyle and avoid future health problems for the young generation. NCDs pose a substantial threat to the health of the Indian population and a formidable obstacle to the country's overall development. More emphasis should be placed on interventional programmes and activities aimed at reducing modifiable lifestyle risk factors in order to prevent and control noncommunicable diseases. The national policies promoting partnerships with civil society, NGOs, the private sector, and professional organisations must be strengthened.

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Conflict of Interest

Nil

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