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Review article

ESSENTIALITY OF FLUID INTAKE BY THE HUMAN BODY

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ABSTRACT

Like hunger thirst is also an important factor of human body. It is important for maintaining fluid homeostasis within the body. It is a perception that creates the urge for all humans for drinking fluids. It aids in maintaining body fluid homeostasis which is essential for survival. The quest of thirst can arise due to any one of the reasons such as habitual, cultural etc. When the body loses water it is not the case that equal amount will be lost from each of the fluid spaces - extracellular and intracellular.

KEYWORDS: Fluid homeostasis, Daily requirement, Non communicable diseases

INTRODUCTION

In the human body water contributes as the major component. It can be said as a drawback that human body neither can produce enough water by metabolism process nor can receive surplus water by food intake to meet all the body needs. So in order to cope with this we need to monitor what we have to drink throughout the day to meet our daily water requirement. If it cannot be done then one might have to face negative health effects. Water is considered to be vital need for life. Being so vital also it is often missed out in dietary recommendations. Because of this factor one is often confused about quantity of water to consume. So in this article we try to highlight the functions of water, daily requirement of fluid by humans, role of fluids in diet, prevalence of non-communicable disease.[1]

Daily Requirement of Fluid by humans

The requirement of fluid intake depends on a person's age, weight, lifestyle and the temperature in which he is living.

When the body is too hot, the blood vessels just beneath the skin expand (dilate), increasing blood flow and accelerating heat loss. When the body is too cold, these blood vessels become narrow (constrict) reducing heat loss.

Adults should consume 1 litre of fluid for every 1000 Kcals in their diet. Infants should consume 1.5 litres for every 1000 Kcals in their diet.

Importance of Fluid for the Human Body [2]

Fluid is needed for most body functions, including to:

- Maintenance of the health and integrity of each cell in the body
- Keep the bloodstream liquid enough to flow through blood vessels
- Help eliminate the waste byproducts of the body's metabolism, excess electrolytes (for example, sodium and potassium), and urea, which is a waste

product formed through the processing of dietary protein.

- Regulating body temperature through sweating
- Moisten mucous membranes such as those of the lungs and mouth
- Act as a lubricant and cushioning agent for joints
- Reduces the risk of cystitis by keeping the bladder clear of bacteria
- Aid digestion and prevent constipation
- Moisturize the skin to maintain its texture and appearance
- Transport nutrients and oxygen to cells
- Serve as a shock absorber inside the eyes, spinal cord and in the amniotic sac surrounding the fetus in pregnancy.

Role of Fluids in the diet [3]

Water comes from more than just fluids, it is a major component of many foods. In fact, it is estimated that 20% of our water needs are met through food, not fluids. Meal consumption is critical to ensure full hydration on a day to day basis. Eating food promotes fluid intake and retention.

Source of Fluids: Drinking water, beverages consumed, foods consumed, water used for cooking. A 2000 Kcal balanced diet may provide 500 to 800 ml of water.

Prevalence of Non Communicable Diseases [4]

Hypertension in India: The prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among rural adults. The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025, with nearly equal numbers of men and women. A survey of 26,000 adults in South India showed a hypertension prevalence of 20% (men 23% and women 17%) but 67% of those with hypertension were unaware of their diagnosis. Majority of hypertensive subjects still remain undetected and the control of hypertension is also inadequate.

CVD in India: Cardiovascular disease (CVD) is globally considered as the leading cause of death with 80% of CVD related deaths being reported from low and middle income countries like India.

Obesity in India: Abdominal obesity was found in 47% – 51% with higher rates in women (women: 56%; men: 35%).4, 5 Among 5% of men and 14% of women, abdominal obesity was found with normal BMI (isolated abdominal obesity). Abdominal obesity measured as WC is a better marker of obesity-related metabolic risk than BMI among Indians.

Diabetes in India: India is facing an epidemic of diabetes; with a higher prevalence in urban India– approximately double that of rural India. The prevalence of diabetes and pre-diabetes is not only high but increasing steadily in urban India. Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease.

Facts on Non Communicable Diseases

1. The prevalence of diabetes increased tenfold, from 1.2% to 12.1%, between 1971 and 2000.[5]
2. It is estimated that 61.3 million people aged 20-79 years live with diabetes in India (2011 estimates). This number is expected to increase to 101.2 million by 2030.[6]
3. 77.2 million People in India are said to have pre-diabetes. [7]
4. Diabetes affects people both in urban and rural India though the impact on urban India is higher.[8]
5. It is also becoming a growing problem in the slums of India.1 out of 4 people living in urban slums of Chennai suffer from diabetes, which is three times higher than the national average of about 7%. [9]
6. More than 20% of the population in India has at least one chronic disease and more than 10% of the people have more than one. [10]
7. One-third of non-communicable disease deaths in India involve people under 60 years of age. [11]
8. The rate of cardiovascular disease mortality in India in the 30-59-year age group is double that in the U.S. 86% of adults consume less than five servings of fruits and vegetables a day.[12]
9. A most disturbing trend is the shift in age of onset of diabetes to a younger age. Indians get diabetes on average 10 years earlier than their Western counterparts. [13]
10. The risk for coronary artery disease (CAD) is two to four times higher in diabetic subjects, and in Indians, CAD occurs prematurely, i.e., one to two decades earlier than in the West.[14]
11. Lifestyle changes have lead to decreased physical activity, increased consumption of fat, sugar and calories, and higher stress levels, affecting insulin sensitivity and obesity.[15]

12. Many Indians have insufficient physically activity (26.4% among males and 25.6% among females).[16]
13. The annual cost for India due to diabetes was about $38 billion in 2011.[17]
14. According to the WHO, if one adult in a low-income family has diabetes, "as much as 25% of family income may be devoted to diabetes care.[18]
15. According to the World Economic Forum, cardiovascular disease, cancer, chronic respiratory disease, diabetes and mental health conditions will cost India 126 trillion rupees between 2012 and 2030.[19]

CONCLUSION

Water being a vital nutrient has number of essential and critical roles in the human body. It serves as various functions such as building material, solvent, transporter for nutrients and waste products. It also acts as a lubricating agent and shock absorber. Hence our body requires a superior hydration level to function optimally. So one should be very careful about the water/fluid intake on a daily basis in order to prevent from the harmful side of diseases. Hence estimation has been done that on an average a sedentary adult should drink 1.5 litres of water per day apart from other sources of water. Because water is the only liquid which is essential for the body to perform properly.

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