

CHAPTER – 3 Social Pharmacy

Topic: Fibres and water in the diet

3.1

INTRODUCTION

Dietary fibre is a type of carbohydrate found exclusively in plants. Unlike other types of carbohydrate, it is not absorbed in the small intestine to provide energy. However, it is fermented by the bacteria in the colon (large intestine) and provides a small amount of energy. Fibres are the essential substances needed for the digestion, excretion and proper function of the body. Generally, fibres are made up of the cellulose or lignin of the plant parts. Cellulose is not digested in the body so, on the basis of digestion, fibres are divided into two categories -

A. Soluble fibres: - In these fibres, cellulosic components are less and they are easily digested by the proteolytic enzymes of the body and convert into gel form. It makes the digestion process slow.

Example: Seeds, beans, apples, nuts, and some citrus fruits.

B. Insoluble fibres: - In these fibres, cellulosic components are more and they are not digested by proteolytic enzymes and they pass relatively unchanged through the stomach and give the support in the digestion process.

Example: Grains, papaya, banana, and some vegetables.

3.2

Important functions of fibres

Fibre in the diet Dietary fibre helps to:

- prevent constipation;
- increase the feeling of fullness and control energy intake;
- reduce blood cholesterol levels.

1. In digestion: - Fibres play an important role in the digestion by providing the support to the food material. In the intestine, food material is combined with the fibrous material and easily passes out through the anal/rectal region.

2. Maintain the cholesterol level: - In our body, cholesterol does not easily pass out from the body but due to the involvement of fibres, unwanted cholesterol is ligated with the fibre and easily excreted from the body.

3. Maintain the blood sugar level: - By helping in the digestion process, fibres allow the essential substances absorption and removal so it regulates the blood sugar level.

4. Prevention in GIT infections: - Some times indigestion, constipation and disturbed digestion, cause the infections in the GIT. For the treatment of these conditions, doctors are recommended to take more fibres from fruit or vegetable. Fibres also prevent the severe problems like piles.

Water in our body is nearly two-thirds water, so drinking enough fluid to stay hydrated is very important. Water is essential for healthy life. Humans can survive for a few weeks without food, but they cannot go without fluids for more than two to three days.

Water in the diet Water is the major component of body fluid and has many functions in the body:

- it acts as a lubricant for joints and eyes;
- it is the main component of saliva;
- it helps get rid of waste;
- it helps regulate body temperature.

The body loses water all the time, when we go to the toilet, from sweat and also evaporation from skin. If we do not consume enough water, we become dehydrated.

Sources of water: Water is provided by food and drinks. It has been estimated that roughly 20% of water consumed is from food (e.g. soups, yogurt, fruit and vegetables), while 80% is from drinks (water, milk and fruit juice).

Water is the universal solvent used in most of the reaction and product formation. Water is neutral in nature but in the reaction it shows both amphoteric properties (acid as well as base).

- About 2.5 to 3.5 litres/per day of water required for an adult human.
- Ideal characteristics of water is colourless, tasteless and odourless. Some common importance of water.

1. In digestion: - Initially, when we consume the food then watery saliva helps in the lubrication and break down the food in smaller particles. When the smaller food particles reaches to the stomach/Intestine then it converted into absorbable form in the presence water. Finally, water helps in the softening of fecal matter for easily pass out from the rectum.

2. In circulation: - Nutrition absorbs by the blood/lymph vessels from the stomach and intestine directly from the one parts to another parts of the body, it is possible due to watery nature of blood and lymph.

3. Organ functioning: - Each and every organs requires the water for their proper working and metabolism. Ex- brain, heart, lungs, kidney, liver etc.

4. Regulation in body temperature: - Water play an important role in the thermoregulation.

(i) In Winter: - When we consume the water then metabolic activity are active and produce huge amount of heat and energy, thus it regulates the body temperature.

(ii) In Summer: - After the metabolism activity water are remove from the body in the form of sweat and shows the cooling effects, thus it regulates the body temperature.

5. Joint and muscles activity: - For the activity of muscles and joints water is very important.

A. Some joint and muscle activity works in the presence of ions so, some time water acts as an ion replacement factor and helps in the activity of contraction and relaxation.

B. Water acts as lubrication agents in between the joints so, it overcomes the frictions and damage between them.

6. Removal of toxins/excretory matters: - More of the toxics and excretory product are excrete out of the body in the form of watery fluid.Ex urine,sweat.