Fibre
What is Dietary Fibre?

• Non-digestible part of plant foods

• Consists of one or more of edible CHO polymers and synthetic CHO polymers
Types of Dietary Fiber

• There are many different types of fiber, in general fibers can be divided into two types based on their physical properties.

• Soluble fibers
• Insoluble fibers
Soluble Fibers

- Soluble fibers dissolve in water, form gels and are easily digested by bacteria in the lower intestine.
  - Provides a feeling of fullness.
  - Slow down the rate food leaves the stomach.
  - May have a role with heart disease, diabetes and colon cancer.

- Found in legumes and fruits.
Insoluble Fibers

- Insoluble fibers absorb water and swell up resulting in a larger softer stool that is easier and quicker to pass.
  - Provides a feeling of fullness
  - Helps with intestinal function
  - May help with colon cancer

- Found in grains and vegetables
Recommended allowances

• The National Research Council set a Dietary Reference Intake (DRI) for dietary fiber.

• An adequate Intake (AI) for dietary fiber was set at 20 grams dietary fiber per 1,000 calories.

• Thus for a reference 2,000 calorie diet recommended intake would be 40 grams per day.
Problems due to excess intake of Fiber in the diet

• Dietary fiber can bind some minerals and decrease their absorption. However, if mineral intake is adequate a recommended dietary fiber intake will not compromise mineral balance.

• Fiber intake is like all nutrients - “more” is not always “better.” Consuming a diet that provides a variety of nutrients is the key.
Problems due to lack of fiber in the diet

**Constipation** a condition in which there is difficulty in emptying the bowels, usually associated with hardened faeces.
Causes of constipation

- Our busy, modern lifestyles may be responsible for most cases of constipation
  - not eating enough fibre or drinking enough water,
  - not getting enough exercise, and
  - not taking the time to respond to an unmistakable urge to go to the toilet.
Fiber and Health

• Both fiber types are important for health.

• Fibers are beneficial for many conditions:
  - constipation,
  - diarrhea,
  - diverticular disease,
  - heart disease,
  - diabetes and
  - colon cancer.

• Fiber is only one factor involved in these conditions.
Role of fibre in Intestinal Function

- Insoluble fibers absorb water resulting in a larger, softer stool that is faster and easier to eliminate, which can help with:
  - Constipation
  - Hemorrhoids
  - Diverticular disease
Role of fibre in Colon Cancer

- Both insoluble and soluble fibers may protect against colon cancer

- Insoluble fibers absorb water making a larger, softer stool which can:
  - Dilute potential carcinogens
  - Reduce transit time so the colon is exposed to any cancer causing substance for less time.

- Soluble fibers can bind bile acids, potential carcinogens, and increase their excretion.
Role of fibre in Heart Disease

• As mentioned, soluble fibers can bind to bile acids and increase their excretion.

• With fewer bile acids in the intestine, less fat is absorbed.

• Also by increasing bile acid excretion, the liver must use its cholesterol to make new bile acids.
Role of fibre in Diabetes

• Soluble fibers may have a favorable effect on blood glucose.

• Soluble fibers decrease the rate at which food is released from the stomach and delays glucose absorption into the blood.

• This may help prevent wide swings in blood glucose throughout the day.
Role of fibre in Weight Management

• Foods rich in complex carbohydrates tend to be low in fat and added sugars which can help with weight management by providing fewer calories.

• In addition, as fibers absorb water they swell up creating a feeling of fullness and delaying hunger.
Food sources

• Foods are the best source of fiber, get both soluble and insoluble fiber.

• Food sources of fiber include fruits, vegetables, whole grain products, legumes, nuts and seeds.

• Cooking processing and removing peels can lower fiber content.