NUTRITON & DIGESTIVE HEALTH

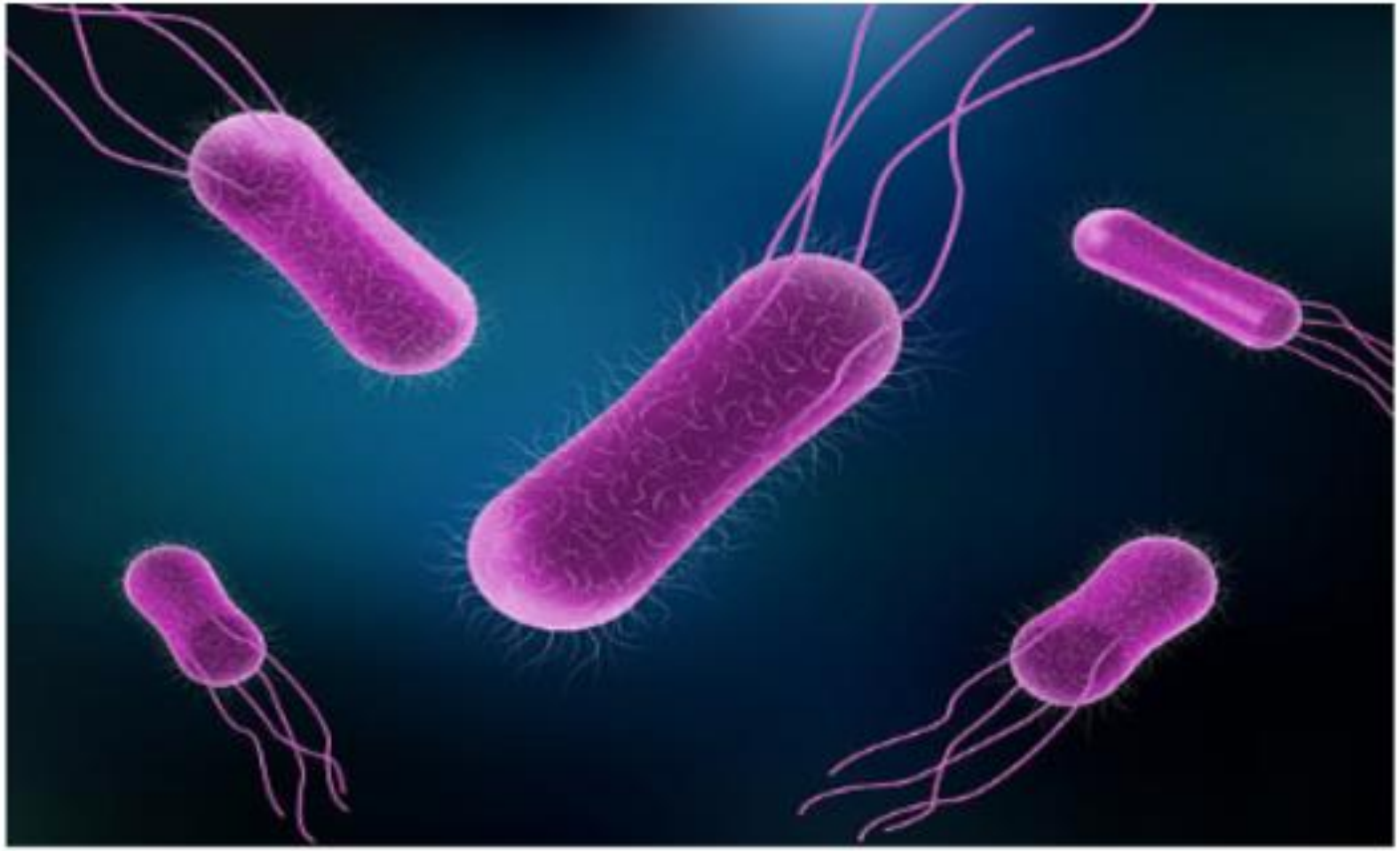




Nutrition for Gut Health

The human body is covered with microorganisms, including the skin, the lungs and other internal organs and throughout the digestive tract. The most populated area is our gut with over 100 trillion microorganisms found. These microorganisms, which mostly consist of bacteria, have genes just like our own cells and this is called the microbiome. Due to the high number of microorganisms in the gut, our bodies may be made up more from bacteria than human genes.

GUT MICROBIOTA



- The gut microbiome has many functions in our bodies from digesting nutrients, regulating how energy is used, supporting our immune system, and sending hormonal cues to the brain that control our hunger and mood. Factors that affect the gut start as early as birth and continue to change due to environment, stress and medications.

- Any changes in the gut that cause a decrease in beneficial microorganisms, increase in unwanted microorganisms, or reduction in the diversity of microorganisms can have poor effects on our health. These altered gut microbiotas are often found in those with inflammatory bowel disease, skin diseases like dermatitis, Type 2 diabetes, obesity, cardiovascular disease, Parkinson's disease and depression.

- The good news is we may be able to improve gut health by eating foods that benefit good microorganisms and support our immune system. Fiber, prebiotics, probiotics, polyphenols and Omega-3 fatty acids are five types of nutrients that can help to keep our gut healthy.

TYPES OF NUTRIENTS

- Fiber
- Prebiotics
- Polyphenols
- Omega-3 Fatty Acids
- Probiotics

Fiber

Fiber can be classified into two major types. Each kind has gut benefits.

Insoluble Fiber Benefits

- Absorbs water, which gives bulk to stool
- Can help with constipation
- Promotes regular bowel movements

Soluble Fiber Benefits

- Not digested in the gut, but forms a gel instead
- Slows blood glucose (sugar) and fat absorption
- It's fermented by good bacteria that produce by-products called short-chain fatty acids
- These byproducts reinforce the gut lining that protect against harmful microorganisms

Prebiotics

Prebiotics are specific fibers that are fermented by bacteria in the gut which selectively increase beneficial bacteria.

Prebiotic Benefits

- Improves bone health by increasing calcium absorption
- Enhances signaling of bowel movement frequency
- Heightens feelings of hunger and satiety
- Increases water content and bulk of stools for softer, more frequent stools
- Aids in weight loss
- Reduce cholesterol and regulate blood glucose control

Polyphenols

Polyphenols are naturally occurring compounds found in plants. They are not readily digested in the stomach and go to the colon to be metabolized by microorganisms.

Polyphenol Benefits

- Antioxidant properties, which lessen risk for chronic disease
- Reduces inflammation and possibly obesity
- May improve neurocognitive function and mood
- Some polyphenols are antimicrobial

Omega-3 Fatty Acids

Omega-3 fatty acids are polyunsaturated fatty acids that reduce inflammation throughout the body.

- May restore balance for a healthy microbiota
- Decreases inflammatory microorganisms
- Strengthens the integrity of the gut wall

Probiotics

Probiotics are live microorganisms that if consumed in adequate amounts have health benefits.

- Increase numbers of beneficial bacteria that prevent growth of harmful ones
- May help with digestion of lactose and reduce symptoms of intolerances
- Boost the immune response

FOOD SOURCES

Fiber Foods

The recommended fiber intake for adult females and males ranges between 22-38 grams (g) per day according to the Dietary Guidelines for Americans.

- **Beans:** Navy, kidney, black, white, pinto and lima
- **Lentils**
- **Peas:** Green, split, chickpeas, and black-eyed
- **Whole grains:** Barley, oats, bulgur, brown rice, buckwheat, popcorn, 100 percent whole wheat crackers, pasta and unsweetened cereals
- **Vegetables:** Avocado, corn, sweet potato, parsnips, pumpkin, winter squash, leafy greens and carrots
- **Fruits:** Raspberries, blackberries, passionfruit, kiwi, citrus, plums, figs and dates

Prebiotic Foods

Many cereals and fiber bars have prebiotic ingredients. Look for the words “chicory root fiber,” “inulin” or “fructooligosaccharides” find out if the food contains prebiotics.

- Artichokes
- Asparagus
- Bananas
- Dandelion Greens
- Garlic
- Maple Syrup
- Onions
- Leeks
- Yacon Root
- Jicama Roots

Polyphenol Foods

Fruits, vegetables, legumes, nuts and teas are common sources. Include a variety of these foods in the diet.

- **Fruits:** Apples, blueberries, cherries, grapes, pears and strawberries
- **Vegetables:** Broccoli, cauliflower, cabbage, tomatoes and Brussels sprouts
- **Spices:** Turmeric, ginger and red pepper flakes
- **Beverages:** Green tea, coffee and red wine
- **Other:** Dark chocolate, soy products and peanuts

Omega-3 Fatty Acids Foods

Fish is a major source of Omega-3s. We can also get small amounts from foods like nuts, seeds and oils.

- **Cold water fatty fish:** Salmon, mackerel, sardines, tuna and herring
- **Nuts and seeds:** Walnuts, flaxseeds and chia seeds
- **Oils:** Canola and soybean

Probiotic Foods

Fermented foods are made with live cultures. Common strains listed on labels are *lactobacillus* and *bifdobacteria*.

- Yogurt with live active cultures
- Pickles or pickled beets
- Kefir (fermented milk)
- Saurkraut
- Kombucha
- Sourdough
- Kimchi
- Miso

INFLUENCE OF FOODS AND NUTRITION ON THE GUT MICROBIOME AND IMPLICATIONS FOR INTESTINAL HEALTH

- Understanding the influence of the diet on the interaction of the gut microbiome and the host immune system will be useful in developing nutritional strategies to maintain gut health and restore a healthy microbiome in IBD & other disease
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- A nutritionally balanced diet is critical for maintaining a healthy gut microbiome, the integrity of the intestinal barrier, immune tolerance, and normal gut physiology, whereas an unbalanced diet, like the typical western diet, results in reduced diversity and dysbiosis of the gut microbiome, which can lead to a leaky gut and chronic inflammation, as seen in IBD

WHAT ARE COMMON DIGESTIVE DISEASES AND CONDITIONS?

- What people eat and how they eat can disrupt digestive health. In some people, their immune system mistakenly attacks the digestive system, causing various digestive problems.

- Here is a brief look at some common diseases and conditions that can affect digestive health:

GASTRO ESOPHAGEAL REFLUX DISEASE

- (GERD). GERD can cause a burning and squeezing sensation in the chest, commonly known as heartburn. Other symptoms can include nausea, sour or bitter taste in the mouth, difficulty swallowing, sore throat, coughing, wheezing, or repeatedly needing to clear your throat. In GERD, acid and digestive enzymes from the stomach flow backward into the esophagus, the tube that carries food from your mouth to your stomach. This backward flow of stomach acid is called reflux. These acids inflame the lining of the esophagus. If GERD is not treated, it can cause permanent damage to the esophagus

CELIAC DISEASE

- This condition occurs when the immune system mistakenly identifies gluten, a protein found in wheat, rye, and barley, as "foreign." As the immune system wages war against gluten, it damages the small, fingerlike projections in the small intestine called villi that help the body absorb nutrients from food.
- Symptoms of celiac disease include diarrhea, fatigue, abdominal bloating and pain, and weight loss,malabsorbtion.

DIVERTICULOSIS AND DIVERTICULITIS.

- In diverticulosis, small pouches develop and bulge out through weak spots in the walls of the colon. These small, balloon-like pouches are called diverticula. Most people with diverticulosis don't have any symptoms, but some experience mild cramps, constipation, or bloating.

- If the diverticula become inflamed or infected, the condition is called diverticulitis. Diverticulitis can lead to severe complications, such as abscess, perforation (tears in the colon wall), intestinal blockage from internal scarring, or fistula, an abnormal connection between two organs. The most common symptoms of diverticulitis are abdominal pain and tenderness, pressure in the lower abdomen, fever, nausea, vomiting, chills, cramping, constipation, and diarrhea.

INFLAMMATORY BOWEL DISEASE (IBD).

- IBD occurs when the immune system mistakenly attacks the intestines and triggers inflammation of the tissues. Two principal kinds of IBD exist: Crohn's disease and ulcerative colitis (UC).

- symptoms including:
- Abdominal pain,bloody diarrhea,abd cramp,fistul formation,weight loss,
- Complications including:
- Perforation,abscess,cancer,obstraction,rectal bleeding

IRRITABLE BOWEL SYNDROME (IBS).

- IBS is characterized by recurrent bouts of constipation or diarrhea (or both), abdominal pain, bloating, and gas. The severity and duration of symptoms vary. Some are mild and come and go, while others are severe and last several weeks. Some people can go months or years between episodes. Most people are never cured of IBS, but dietary changes, medication, and stress management can help manage the condition.

GALLSTONES.

- Gallstones are hardened bits of bile that form inside the gallbladder, a pear-shaped pouch that sits just below the liver. Bile makes it easier for the body to digest fat

GI CANCERS



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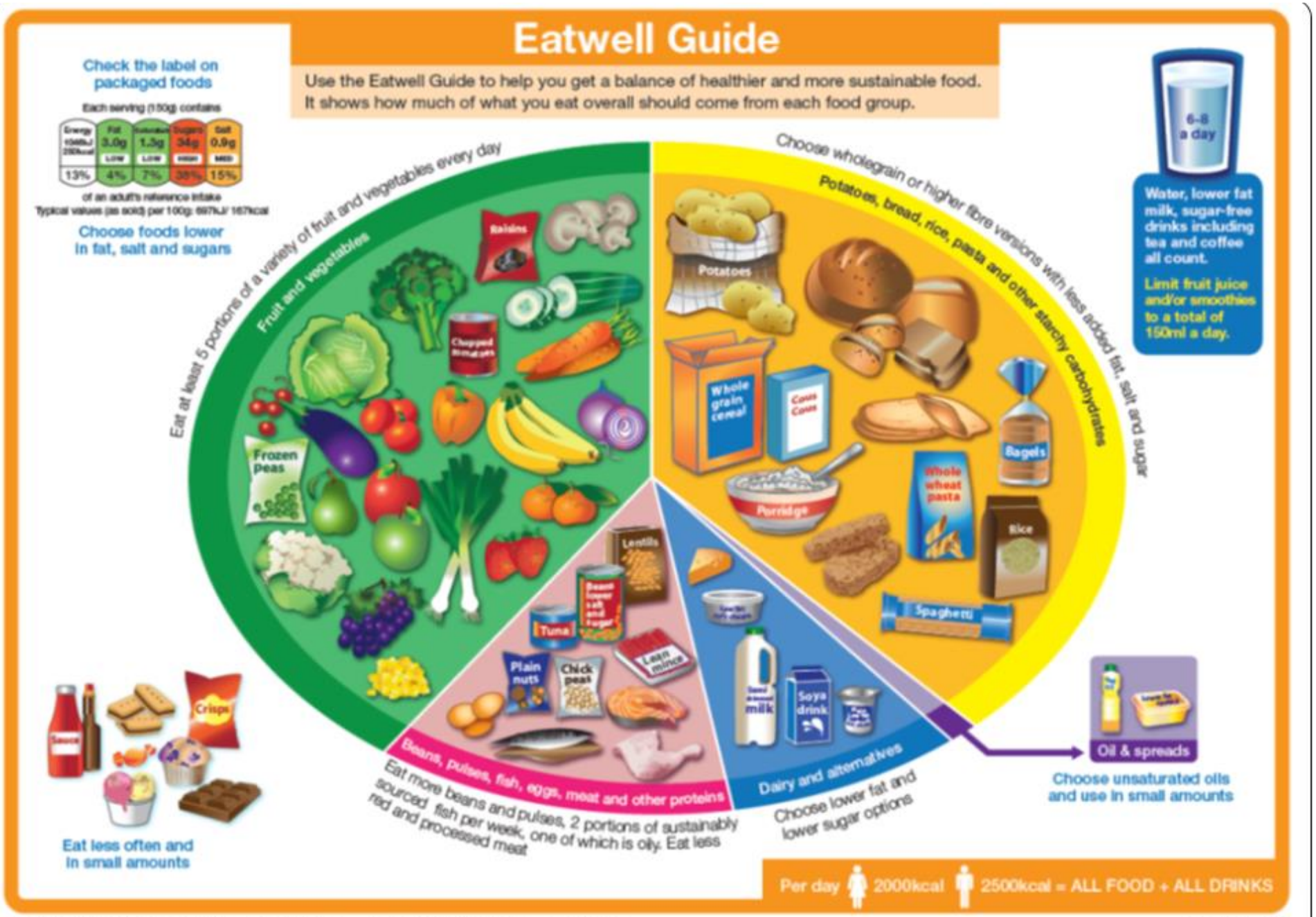
4. Are there other dietary considerations when keeping the gut healthy?

5. Food Hygiene

6. Research

WHAT IS A HEALTHY DIET?

- A healthy diet means a balanced diet. It involves eating a wide range of different foods from a variety of food groups. It also includes eating food in adequate portion sizes.
- Starchy foods, vegetables, and fruit should make up the bulk of meals. They contain fibre, an important nutrient in a healthy diet. Fibre is important for good gut health and functioning. It also provides other benefits, such as a lower risk of developing heart disease, Type 2 diabetes, and bowel cancer.


Eatwell Guide
Use the Eatwell Guide to help you get a balance of healthier and more sustainable food.
It shows how much of what you eat overall should come from each food group.
Check the label on packaged foods
Each serving (150g) contains
Fat 3.0g LOW
Sugars 34g HIGH
Salt 0.9g MED
13%
4%
7%
38%
15%
of an adult's reference intake
Typical values (as sold) per 100g: 697kJ/ 167kcal
Choose foods lower in fat, salt and sugars
Eat at least 5 portions of a variety of fruit and vegetables every day
Fruit and vegetables
Raisins
Chopped tomatoes
Frozen peas
Choose wholegrain or higher fibre versions with less added fat, salt and sugar
Potatoes, bread, rice, pasta and other starchy carbohydrates
Potatoes
Whole grain cereal
Cous Cous
Porridge
Bagels
Whole wheat pasta
Rice
Spaghetti
6-8 a day
Water, lower fat milk, sugar-free drinks including tea and coffee all count.
Limit fruit juice and/or smoothies to a total of 150ml a day.
Lentils
Tuna
Plain nuts
Chick peas
Lean mince
Beans, pulses, fish, eggs, meat and other proteins
Eat more beans and pulses, 2 portions of sustainably sourced fish per week, one of which is oily. Eat less red and processed meat
Soya drink
Dairy and alternatives
Choose lower fat and lower sugar options
Oil & spreads
Choose unsaturated oils and use in small amounts
Sauce
Crisps
Eat less often and in small amounts
Per day 2000kcal 2500kcal = ALL FOOD + ALL DRINKS
Source: Public Health England in association with the Welsh Government, Food Standards Scotland and the Food Standards Agency in Northern Ireland
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GREEN SECTION – FRUITS AND VEGETABLES

- Fruits and vegetables should be eaten regularly. At least five portions per day. A portion is either 80g, small handful or 2 to 3 tablespoons. You should aim for as much variety as you can. It also includes frozen and tinned options in natural juice. This might include mixed frozen fruit and vegetables for example.

YELLOW SECTION – STARCHY CARBOHYDRATES

- Starchy foods should be consumed regularly. Include one option per meal. Include wholegrain versions of bread, rice, oats and other grains.

PINK SECTION – PROTEIN FOODS

- Protein foods
- This group also includes fish, eggs, and meat. The World Health Organisation recommends avoiding processed meat. Examples are such as sausages, ham, bacon, salami, and cured red meat. There is an increased risk of developing bowel cancer with these foods. Red meat should be limited to no more than three portions per week. A portion is 70g per day or 160g three times a week

BLUE SECTION – DAIRY FOODS

- Dairy foods are rich in calcium, needed for healthy bones and teeth. It is recommended to have three servings a day from this food group.

PURPLE SECTION – FATS AND SPREADS

- Only a small proportion of foods should be made up of foods high in fat.

A GOOD GI RESIPES

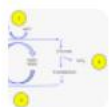




Yogurt



Kefir



Fermented foods



Oats



Ginger



Almond



Onions



Sauerkraut



Kimchi



Garlic



Whole grain



Kombucha



Asparagus



Vegetables



Tempeh



Bananas



Miso



Apple



Leafy greens



Beans



Artichokes