# Carbohydrate Recommendations- Summary

### 5.7 Carbohydrate Recommendations- Summary

In this chapter, you learned what carbohydrates are, the different types of carbohydrates in your diet, and that excess consumption of some types of carbohydrates cause disease while others decrease disease risk. Carbohydrate recommendations may vary from organization to organization. Throughout this course, we will focus on the guidelines given in the 2020-2025 Dietary Guidelines for Americans and the Dietary Reference Intakes (DRIs) published by the Food and Nutrition Board. General carbohydrate recommendations are summarized in Table 3.

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| --- | --- |
|  | Carbohydrate Intake Recommendations |
| Total Carbohydrates (gm) | 130 g/day: This is the minimum amount of carbohydrate recommended per day for proper neurological function. Most people need substantially more carbohydrate per day to sustain typical activity levels. |
| Carbohydrate as a Percentage of Calories (AMDR) | 45-65% of total Calories (adults) |
| Added Sugars | Less than 10% of total Calories |
| Fiber | 38 g/day (adult men), 25 g/day (adult women), or 14g/1000 calories |
| Type of Carbohydrate Intake | Make at least half of your grains a whole grain |

 Table 3: Recommended carbohydrate intake2,14

#### Dietary Fiber Recommendations

The adequate intake (AI) for Total Fiber is based on data which showed that 14 grams per 1000 Calories (14g/1000 Calories) reduced the risk of coronary heart disease.15 Age and gender-specific AIs were set by taking 14 g/1000 Calories and multiplying it by the median energy intake for each group. For example, you will find that the Total Fiber AI on the DRI tables for adult men and adult women ages 19-50 is 38 g/day and 25 g/day, respectively. However, some diet analysis programs recommend individual Total Fiber intake based on the 14 g/1000 Calories and multiply it by the individual’s recommended calorie intake. Either AI recommendation, the gender-specific age recommendation or the calorie-based recommendation, can be used and is helpful to ensure adequate consumption of fiber.15

#### It’s the Whole Nutrient Package

In choosing dietary sources of carbohydrates, the best ones are those that are nutrient dense. This means they contain substantial amounts of essential nutrients per calorie of energy. In general, nutrient-dense carbohydrates are minimally processed and include whole-grain bread and cereals, low-fat dairy products, fruits, vegetables, and legumes (beans). In contrast, dietary carbohydrates that are not nutrient dense are often referred to as “empty-calorie” foods. They are highly processed and often contain added sugars and fats. Soda, cakes, cookies, and candy are examples of empty-calorie carbohydrates. Unfortunately, some products can masquerade as healthy, but contain a lot of added sugars. For example, many dairy products, granola bars and bread products contain substantial amounts of added sugars. Collectively, foods containing high amounts of added sugars are often referred to as ‘bad carbohydrates,’ as they are known to cause health problems when consumed in excess; but if eaten in moderation these types of products can still be included as part of a healthy diet.

#### Nonnutritive Sweeteners

Sweeteners can be sub-divided into two group: **nutritive** and **non-nutritive**.16 Nutritive sweeteners contain carbohydrate and energy (usually 4 kcal/gram) and include the simple sugars that have already been discussed (mono and disaccharides in their various forms). The **sugar alcohols** (polyols) are also a type of nutritive sweetener that has not yet been touched on. They provide ~2 kcals/gram and have some physiological benefits when compared to the other nutritive sweeteners. For example, they have fewer calories per gram (2 verses 4 kcal/gram), they have a minimal effect on blood sugar levels (which may have benefits for individuals with diabetes), and they either don’t cause cavities or may inhibit cavity production. The sugar alcohol “xylitol” has been promoted as actually being anti-cariogenic (or cavity preventing). Examples of the sugar alcohols are listed in Table 4.

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| --- | --- |
| Example of Sugar Alcohols | Relative Sweetness Compared to Sucrose |
| Sorbitol | 50%-70% |
| Mannitol | 50%-70% |
| Xylitol | 100% |
| Erythritol | 60%-80% |
| Lactitol | 30%-40% |
| Malitol | 90% |
| Isomalt | 45%-65% |

  Table 4: Some common sugar alcohols17

Because of their properties, they have been added to food products for many years as a means of decreasing amounts of added sugars while maintaining a certain level of sweetness. Sugar alcohols are useful, but they are not as sweet as other non-nutritive sweeteners and in some cases can cause gastrointestinal distress when used heavily. 15

Nonnutritive sweeteners have taken the forefront in the market as an option to provide sweetness without the negative health effects of sugar. For example, nonnutritive sweeteners have little to no effect on blood sugar levels, they do not promote tooth decay and they make a lower contribution to total caloric intake. Generally, the nutritive sweeteners come from natural sources and the nonnutritive sweeteners are made by chemical methods. Exceptions to this rule are stevia and monk fruit (lua han gua extract) which are both extracted from plants. The nonnutritive sweeteners that are chemically produced (also called artificial sweeteners) have to be tested for safety and then approved by the FDA before they can be marketed in the United States. For each of the sweeteners an **Acceptable Daily Intake (ADI)** is also established. The ADI represents the amount of the sweetener (by body weight) that can be safely consumed every day over a lifetime without adverse effects.16 The values are set with a generous safety factor. Some of the approved non-nutritive sweeteners and their ADI’s are listed in Table 5. None of these sweeteners contain any appreciable calories.

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| --- | --- | --- |
| Example of Non-Nutritive Sweeteners | Relative Sweetness compared to Sucrose | Acceptable Daily Intake (ADI) |
| Acesulfame K | 200 x sweeter | 15 mg/kg body weight |
| Aspartame | 200 x sweeter | 50 mg/kg body weight |
| Neotame | 7000-1300 x sweeter | 0.3 mg/kg body weight |
| Saccharin | 200-700 x sweeter | 15 mg/kg body weight |
| Stevia | 200-400 x sweeter | 4 mg/kg body weight |
| Sucralose | 600 x sweeter | 5 mg/kg body weight |

 Table 5: Some common nonnutritive sweeteners16

Because nonnutritive sweeteners contribute sweet taste but with greatly reduced calories compared to sugar, it seems logical to conclude that they might be a helpful tool for weight loss. However, research provides mixed results. The 2015-2020 Dietary Guidelines Advisory Committee states, "There is insufficient evidence to recommend the use of low-calorie sweeteners as a strategy for long-term weight loss and weight maintenance.”

The use of non-nutritive sweeteners in the management of diabetes has provided options for those with this disease. It has allowed individuals with diabetes to enjoy sweet flavored products more often in a manner that allows better dietary control and overall diet quality. It is important to note that while these products do provide a sweet sensation, they do not provide all the textural qualities nutritive sweeteners provide.

References (see below)

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