Nutritional Recommendations in Gestational Diabetes

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- The global rise in the gestational diabetes mellitus (GDM) prevalence and have led to the search for a realistic, feasible, and widely adaptable approach to nutrition therapy to help control maternal glycemia effectively along with promoting normal fetal growth[1].
- Women with GDM have similar nutritional requirements to non-GDM pregnancies but demand a special focus on dietary modification to ensure healthy and mindful eating to achieve and maintain maternal euglycemia, prevent wide glycemic excursions and ensure appropriate gestational weight gain (GWG) and fetal growth[1].

NUTRITIONAL RECOMMENDATIONS

Carbohydrate Restriction

- Carbohydrate restriction is a frequent component of medical nutrition therapy (MNT) in GDM[1].
- The American College of Obstetricians and Gynecologists (ACOG) and the Endocrine Society recommend restricting carbohydrate intake for all GDM women under the MNT program[1].
- The International Federation of Gynecology and Obstetrics (FIGO) recommends monitoring the carbohydrate intake, the quality of carbohydrates consumed and dispersing them throughout the day to achieve and maintain euglycemia[1].
- The amount of permissible carbohydrates varies from 35% to 40% of total calories in the lower carbohydrate range to 50%-60% in the moderate carbohydrate range[1].
- Moreover, the general agreement recommends not limiting carbohydrate intake to <175 g/day[1].

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Reproductive age women who follow a low-carbohydrate dietary pattern are likely to benefit from consuming vegetables rather than animal sources of protein and fat as it minimizes their risk of GDM[1].

Low Glycemic Index Diets

- Diets higher in unrefined/complex carbohydrates can effectively blunt postprandial glycemia, reduce the need for insulin therapy, lower fasting low-density lipoprotein (LDL) cholesterol levels and free fatty acids (FFAs), and improve insulin sensitivity, glycated hemoglobin (HbA1c) and systolic blood pressure in GDM[1].
- Thus a low-to-moderate gastrointestinal diet is recommended in GDM[1].

Dietary Fiber

- Fiber intake helps to lower serum lipid levels and reduce glycemic excursions[1].
- High fiber intake also reduces constipation, a common problem in pregnancy[1].
- Up to 28-g daily fiber intake is recommended for women[1].

Fat

- Increased consumption of total and saturated fat could worsen insulin resistance (IR) and increase fetal nutrient exposure, promoting overgrowth patterns[1].
- The recommendations from most GDM guidelines for fat intake fall in the range of 20% to 35% of daily energy intake (EI)[1].

Protein

- Adequate protein intake during pregnancy is important to rescue maternal stores depletion and muscle breakdown to supply for the fetal needs[1].
- Most nutrition guidelines recommend a protein intake ranging from 10% to 20% of daily EI or about 60 to 80 g of protein intake daily[1].

- The Indian guidelines recommend an additional 23 g of protein intake daily during pregnancy for adult women[1].
- However, it may be restricted in presence of renal failure[1].

Mediterranean Diet

- Mediterranean diet interventions advised early in the pregnancy or to pre-pregnant women can reduce GDM incidence and maternal-fetal adverse outcomes[1].

Non-nutritive Sweeteners

- A few guidelines recommend the use of aspartame, saccharin, acesulfame, and sucralose in moderate amounts[1].
- The Academy of Nutrition and Dietetics also accept using advantame, neotame, luo han guo extracts and steviol glycosides as per the FDA acceptable daily intake limits in women with GDM[1].
- The use of cyclamates is not approved[1].

Interventions to Prevent GDM: Probiotics and Myoinositol

- Studies have shown that probiotics (*Lactobacillus rhamnosus* and *Bifidobacterium lactis* Bb12) can reduce the incidence of GDM[1].
- Probiotic protects against GDM as these micro-organisms can modify intestinal microbiota, altering the fermentation of dietary polysaccharides and improving intestinal barrier function[1].
- Myoinositol, an isomer of inositol, has a potential beneficial effect on improving insulin sensitivity and thus may be useful for women in preventing GDM[1].

In women at high risk of developing GDM, dietary advice, probiotics, and myoinositol supplementation might reduce the incidence of GDM[1].

Carbohydrates

- Opt for high-fiber, whole-grain carbohydrates[2].
- Avoid eating simple carbohydrates like potatoes, french-fries, white rice, candy, soda, etc[2].

Grains, Beans, and Starchy Vegetables

Eat 6 or more servings/day with 1 serving equals[2]:

- 1 slice bread
- 1 ounce (28 g) ready-to-eat cereal
- 1/2 cup (105 g) cooked rice or pasta
- 1 English muffin.

Opt for foods loaded with vitamins, minerals, fiber, and healthy carbohydrates like[2]:

- Whole-grain breads and crackers
- Whole-grain cereals
- Whole grains, such as barley or oats
- Beans
- Brown or wild rice
- Whole-wheat pasta
- Starchy vegetables, such as corn and peas.

Vegetables

Eat 3 to 5 servings/day with 1 serving equals[2]:

- 1 cup (340 g) leafy, green vegetables
- 1 cup (340 g) cooked or chopped raw leafy vegetables
- 3/4 cup (255 g) vegetable juice
- 1/2 cup (170 g) of chopped vegetables, cooked or raw.

Opt for healthy vegetable choices like Fresh or frozen vegetables without added sauces, fats or salt; Dark green and deep yellow vegetables, like spinach, broccoli, romaine lettuce, carrots, and peppers[2].

Fruits

Eat 2 to 4 servings/day with 1 serving equals[2]:

- 1 medium whole fruit (such as a banana, apple or orange)
- 1/2 cup (170 g) chopped, frozen, cooked, or canned fruit
- 3/4 cup (180 mL) fruit juice.

Opt for healthy fruit choices like whole fruits rather than juices; Citrus fruits like oranges, grapefruits and tangerines; Fruit juices without added sugar; Fresh fruits and juices instead of frozen or canned varieties[2].

Milk and Dairy

Eat 4 servings of low-fat or nonfat dairy products/day with 1 serving equals[2]:

- 1 cup (240 mL) milk or yogurt
- 1 1/2 oz (42 g) natural cheese
- 2 oz (56 g) processed cheese.

Opt for healthy dairy choices like low-fat or nonfat milk or yogurt[2].

Protein (Meat, Fish, Dry Beans, Eggs, and Nuts)

Eat 2 to 3 servings/day with one serving equals[2]:

- 2 to 3 oz (55-84 g) cooked meat, poultry or fish
- 1/2 cup (170 g) cooked beans
- 1 egg
- 2 tablespoons (30 g) peanut butter.

Opt for healthy protein choices like fish and poultry (discard the skin from chicken and turkey); Lean cuts of beef, veal, pork, or wild game[2].

Sweets

- Limit the sweet intake with small portion sizes[2].
- Moreover, sugar-free sweets too may not be the best choice[2].

Fats

Limit your intake of fatty foods[2]:

- Spare much use of butter, margarine, salad dressing, cooking oil, and desserts[2].
- Adopt healthy oils, like canola oil, olive oil, peanut oil, and safflower oil. Include nuts, avocados, and olives[2].

REFERENCES

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