

## Complete Summary

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### GUIDELINE TITLE

Dietary carbohydrate (amount and type) in the prevention and management of diabetes: a statement of the American Diabetes Association.

### BIBLIOGRAPHIC SOURCE(S)

Sheard NF, Clark NG, Brand-Miller JC, Franz MJ, Pi-Sunyer FX, Mayer-Davis E, Kulkarni K, Geil P. Dietary carbohydrate (amount and type) in the prevention and management of diabetes: a statement by the American Diabetes Association. Diabetes Care 2004 Sep;27(9):2266-71. [80 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

Diabetes mellitus

### GUIDELINE CATEGORY

Management  
 Prevention

### CLINICAL SPECIALTY

Endocrinology  
 Family Practice

Internal Medicine  
Nutrition  
Preventive Medicine

## **INTENDED USERS**

Dietitians  
Physicians

## **GUIDELINE OBJECTIVE(S)**

To review the available scientific data regarding the effect of the type or source of carbohydrate on the prevention and management of diabetes and to clarify the position of the American Diabetes Association on this important topic

## **TARGET POPULATION**

Individuals with diabetes

## **INTERVENTIONS AND PRACTICES CONSIDERED**

Regulation of blood glucose by monitoring the amount and type of carbohydrates in food

## **MAJOR OUTCOMES CONSIDERED**

- The effectiveness of glycemic index on overall blood glucose control
- The utility of glycemic load

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Searches of Electronic Databases

### **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

Not stated

### **NUMBER OF SOURCE DOCUMENTS**

Not stated

### **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Not stated

### **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

Not applicable

## **METHODS USED TO ANALYZE THE EVIDENCE**

Review  
Review of Published Meta-Analyses

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Not stated

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Not stated

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Not applicable

## **COST ANALYSIS**

A formal cost analysis was not performed and published cost analyses were not reviewed.

## **METHOD OF GUIDELINE VALIDATION**

External Peer Review  
Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

American Diabetes Association Statements are reviewed externally and also by the Professional Practice Committee for overall content.

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

- Regulation of blood glucose to achieve near-normal levels is a primary goal in the management of diabetes, and, thus, dietary techniques that limit hyperglycemia following a meal are likely important in limiting the complications of diabetes.
- Low-carbohydrate diets are not recommended in the management of diabetes. Although dietary carbohydrate is the major contributor to

postprandial glucose concentration, it is an important source of energy, water-soluble vitamins and minerals, and fiber. Thus, in agreement with the National Academy of Sciences-Food and Nutrition Board, a recommended range of carbohydrate intake is 45-65% of total calories. In addition, because the brain and central nervous system have an absolute requirement for glucose as an energy source, restricting total carbohydrate to <130 grams/day is not recommended.

- Both the amount (grams) of carbohydrate as well as the type of carbohydrate in a food influence blood glucose level. The total amount of carbohydrate consumed is a strong predictor of glycemic response, and, thus, monitoring total grams of carbohydrate, whether by use of exchanges or carbohydrate counting, remains a key strategy in achieving glycemic control.
- A recent analysis of the randomized controlled trials that have examined the efficacy of the glycemic index on overall blood glucose control indicates that the use of this technique can provide an additional benefit over that observed when total carbohydrate is considered alone.
- Although this statement has focused primarily on the role of carbohydrate in the diet, the importance of achieving/maintaining a healthy body weight (particularly in type 2 diabetes) in the management of diabetes should not be ignored. Moderate weight loss in overweight/obese individuals with type 2 diabetes results in improved control of hyperglycemia as well as in a reduction in risk factors for cardiovascular disease.
- Because much of the risk of developing type 2 diabetes is attributable to obesity, maintenance of a healthy body weight is strongly recommended as a means of preventing this disease. The relationship between glycemic index and glycemic load and the development of type 2 diabetes remains unclear at this time.

### **CLINICAL ALGORITHM(S)**

None provided

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The type of supporting evidence is not specifically stated for each recommendation.

## **BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS**

### **POTENTIAL BENEFITS**

- Improved glycemic control based on knowledge regarding the effect of the type or source of carbohydrate on the prevention and management of diabetes
- The findings of a meta-analysis indicate that implementing a low-glycemic index diet lower A1C values by 0.43% when compared with a high-glycemic index diet.

### **POTENTIAL HARMS**

Not stated

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

At this time, there is insufficient information to determine whether there is a relationship between glycemic index or glycemic load of diets and the development of diabetes. Prospective randomized trials will be necessary to confirm the relationship between the type of carbohydrate and the development of diabetes.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Living with Illness  
Staying Healthy

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

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### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2004 Sep

### GUIDELINE DEVELOPER(S)

American Diabetes Association - Professional Association

## **SOURCE(S) OF FUNDING**

American Diabetes Association (ADA)

## **GUIDELINE COMMITTEE**

Not stated

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

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## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Janette C. Brand-Miller, PHD is on the board of directors of Glycemic Index Limited.

## **GUIDELINE STATUS**

This is the current release of the guideline.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available from the [American Diabetes Association \(ADA\) Web site](#).

Print copies: Available from the American Diabetes Association, 1701 North Beauregard Street, Alexandria, VA 22311.

## **AVAILABILITY OF COMPANION DOCUMENTS**

None available

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on April 19, 2005.

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