



## Complete Summary

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### GUIDELINE TITLE

Weight management through lifestyle modification for the prevention and management of type 2 diabetes: rationale and strategies.

### BIBLIOGRAPHIC SOURCE(S)

Klein S, Sheard NF, Pi-Sunyer X, Daly A, Wylie-Rosett J, Kulkarni K, Clark NG. Weight management through lifestyle modification for the prevention and management of type 2 diabetes: rationale and strategies. *Diabetes Care* 2004 Aug;27(8):2067-73. [105 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

SCOPE

METHODOLOGY - including Rating Scheme and Cost Analysis

RECOMMENDATIONS

EVIDENCE SUPPORTING THE RECOMMENDATIONS

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

QUALIFYING STATEMENTS

IMPLEMENTATION OF THE GUIDELINE

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

DISCLAIMER

## SCOPE

### DISEASE/CONDITION(S)

- Type 2 diabetes mellitus
- Overweight (body mass index [BMI] 25.0-29.9 kilograms per meter squared [kg/m<sup>2</sup>])
- Obesity (BMI  $\geq$ 30.0 kg/m<sup>2</sup>)

### GUIDELINE CATEGORY

Management  
Prevention

### CLINICAL SPECIALTY

Endocrinology  
Family Practice  
Internal Medicine  
Nutrition  
Preventive Medicine

### **INTENDED USERS**

Advanced Practice Nurses  
Dietitians  
Nurses  
Physician Assistants  
Physicians

### **GUIDELINE OBJECTIVE(S)**

To review the important role of weight management in the prevention and management of type 2 diabetes and to describe strategies for achieving and maintaining a healthy body weight through lifestyle modification

### **TARGET POPULATION**

Overweight and obese individuals at risk of or with type 2 diabetes

### **INTERVENTIONS AND PRACTICES CONSIDERED**

Weight management through lifestyle modification including:

- Diet
- Physical activity

### **MAJOR OUTCOMES CONSIDERED**

- Weight loss
- Glycemic control (fasting blood glucose concentrations)
- Use of diabetes medications
- Risk factors for cardiovascular disease (blood pressure, lipid concentrations, serum markers of inflammation)
- Development of type 2 diabetes in high-risk groups

## **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

Overweight and obesity are strongly linked to the development of type 2 diabetes and can complicate its management. Obesity is also an independent risk factor for hypertension and dyslipidemia as well as cardiovascular disease, which is the major cause of death in those with diabetes. Moderate weight loss improves glycemic control, reduces cardiovascular disease risk, and can prevent the development of type 2 diabetes in those with pre-diabetes. Therefore, weight loss is an important therapeutic strategy in all overweight or obese persons who have type 2 diabetes or are at risk for developing diabetes.

### Specific Recommendations

- Weight loss is recommended for all overweight (body mass index [BMI] 25.0-29.9 kilograms per meter squared [ $\text{kg/m}^2$ ]) or obese (BMI  $\geq 30.0 \text{ kg/m}^2$ ) adults who have, or who are at risk for developing, type 2 diabetes.
- The primary approach for achieving weight loss is therapeutic lifestyle change, which includes a reduction in energy intake and an increase in physical activity.
- A moderate decrease in caloric intake (500-1,000 kilocalories per day [kcal/day]) will result in a slow but progressive weight loss (1-2 pounds per week). For most patients, weight loss diets should supply at least 1,000-1,200 kcal/day for women and 1,200-1,600 kcal/day for men.
- Overweight or obese patients with diabetes are encouraged to adopt the dietary recommendations known to reduce the risk of coronary heart disease (outlined in Tables 3 and 4 of the original guideline document). In conjunction with a moderate reduction in caloric intake (500-1,000 kcal/day), this diet is likely to result in moderate weight loss as well as improvement in cardiovascular risk factors. Dietary guidance should be tailored to each person, allowing for individual food preferences and approaches to reducing caloric intake.
- Physical activity is an important component of a comprehensive weight management program. Regular, moderate-intensity physical activity enhances long-term weight maintenance. Regular activity also improves insulin sensitivity, glycemic control, and selected risk factors for cardiovascular disease (i.e., hypertension and dyslipidemia), and increased aerobic fitness decreases the risk of coronary heart disease.
- Initial physical activity recommendations should be modest, based on the patient's willingness and ability, gradually increasing the duration and frequency to 30 to 45 minutes of moderate aerobic activity, 3 to 5 days per week, when possible. Greater activity levels of at least 1 hour per day of moderate (walking) or 30 minutes per day of vigorous (jogging) activity may be needed to achieve successful long-term weight loss.

### 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

#### Benefits of Weight Loss

- Moderate weight loss (5% of body weight) can improve insulin action, decrease fasting blood glucose concentrations, and reduce the need for diabetes medications.
- Weight loss has important additional health benefits in patients with diabetes because it improves other risk factors for cardiovascular disease by decreasing blood pressure, improving serum lipid concentrations (decrease in serum triglycerides, total cholesterol, and low-density lipoprotein [LDL] cholesterol and increase in serum high-density lipoprotein [HDL] cholesterol concentrations), and reducing serum markers of inflammation.

#### Benefits of Physical Activity

Regular exercise and aerobic fitness improve insulin sensitivity and glycemic control, may decrease the risk of developing diabetes, and may reduce overall mortality in patients who have type 2 diabetes.

### POTENTIAL HARMS

Not stated

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

Although many different dietary approaches may result in short-term weight loss, the limitation of most diets is poor long-term compliance and weight regain. The optimal dietary macronutrient composition that facilitates lasting and safe weight loss is not known.

## 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  
Patient-centeredness

## 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 Aug

### GUIDELINE DEVELOPER(S)

American Diabetes Association - Professional Association  
American Society for Clinical Nutrition - Professional Association  
North American Association for the Study of Obesity - 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**

Samuel Klein, MD is a member of the Obesity and Diabetes Educational Council, which is funded by an unrestricted educational grant provided by Roche Laboratories, is on the Enteromedics Medical Advisory Board, has received honoraria from Merck, and has received research support from Transneuronix.

Judith Wylie-Rosett, EDD, RD has received research funding from the Dr. Robert C. Atkins Foundation.

## **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 18, 2005.

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Date Modified: 11/3/2008

