



**Leveraging the Investment in Obesity Initiatives to Advance Diabetes Programs:**  
**National Heart, Lung, and Blood Institute Activities**

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 National Heart, Lung, and Blood Institute

Diabetes Mellitus Interagency Coordinating Committee, April 8, 2004

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**Conceptual Frameworks for Obesity Research**

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**Phases of Research to Inform Clinical and Public Health Applications**

<u>Etiologic &amp; determinants research</u> to ID potential RFs, influences, modifiers	RCTs to determine <u>efficacy</u> of RF change	Clinical & community trials of intervention <u>effectiveness</u>	Clinical & community studies of <u>dissemination &amp; translation</u> approaches
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•NGHS	•RCTs of wt loss on HTN & chol	•Pathways	•Environ. RFA (w/ DK)
•Framingham	•Look AHEAD (w/ DK)	•GEMS	•Worksite Obesity RFA
•CARDIA		•PREMIER	
		•WLM	

**Obesity Studies**

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## The Natural History of Disease and Levels of Prevention: NHLBI Obesity Research

<i>Level of Prevention:</i>	Primordial	Primary	Secondary
<i>Disease Stage:</i>	No Risk Factors	Risk Factors Present	Disease Present
<i>Purpose of Intervention:</i>	Prevent Risk Factor Onset	Reduce Risk Factors To Prevent Disease	Prevent Adverse Disease Outcomes




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## The Natural History of Disease and Levels of Prevention: NHLBI Obesity Research

<i>Level of Prevention:</i>	Primordial	Primary	Secondary	
<i>RF/disease:</i>	Determinants	Obesity	•Diabetes •HTN •Cholesterol CVD	
<i>Obesity Studies:</i>	•NGHS •Pathways •GEMS	•Environ. RFA (w/ DK) •WLM •Worksite RFA	•Framingham •CARDIA •PREMIER	•Look AHEAD (w/DK)




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## Efficacy of Interventions to Reduce Weight

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## Methods Used in Successful Lifestyle Interventions for Weight Loss

- Individual sessions, often with group sessions also
- Target both diet and physical activity, focusing on calorie balance
- Behavioral approaches, e.g., self-monitoring, feedback, problem-solving
- More intensive initial intervention phase followed by less intensive “maintenance” phase

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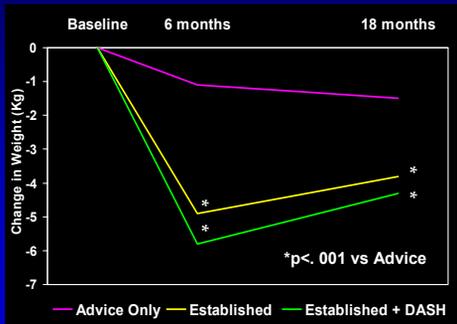
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## PREMIER Results: Change in Weight

(Baseline Wt = 97 kg)

(Elmer et al, AHA Epi Council, March, 2004)




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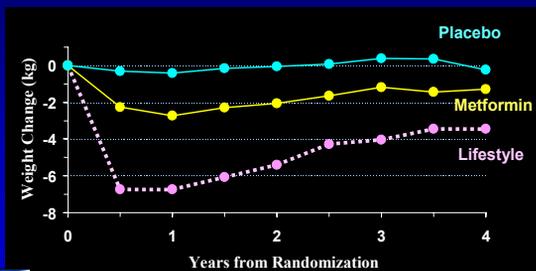
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## Diabetes Prevention Program: Results of Interventions on Weight

(DPP Research Group, NEJM, 2002)




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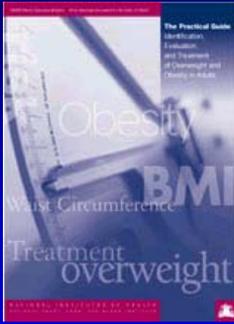
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## NHLBI Obesity Education Initiative: The Practical Guide




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## Obesity Education Initiative: Classification of Overweight and Obesity

Classification of Overweight and Obesity by BMI, Waist Circumference, and Associated Disease Risk*				
	BMI (kg/m <sup>2</sup> )	Obesity Class	Disease Risk* (Relative to Normal Weight and Waist Circumference)	
			Men ≤40 in (≤ 102 cm) Women ≤ 35 in (≤ 88 cm)	> 40 in (> 102 cm) > 35 in (> 88 cm)
Underweight	< 18.5		-	-
Normal†	18.5–24.9		-	-
Overweight	25.0–29.9		Increased	High
Obesity	30.0–34.9	I	High	Very High
	35.0–39.9	II	Vary High	Vary High
Extreme Obesity	> 40	III	Extremely High	Extremely High

\* Disease risk for type 2 diabetes, hypertension, and CVD.  
† Increased waist circumference can also be a marker for increased risk even in persons of normal weight.

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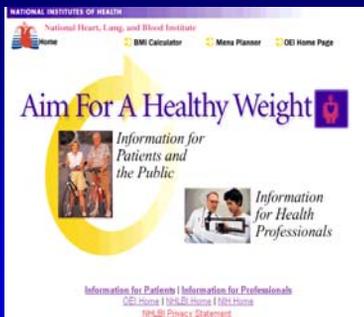
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## Obesity Education Initiative Web Page... [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)




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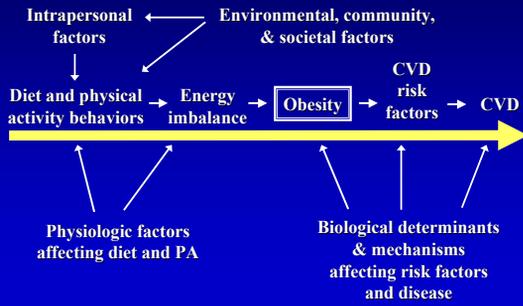
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## Obesity and Cardiovascular Disease: Relationships and Determinants



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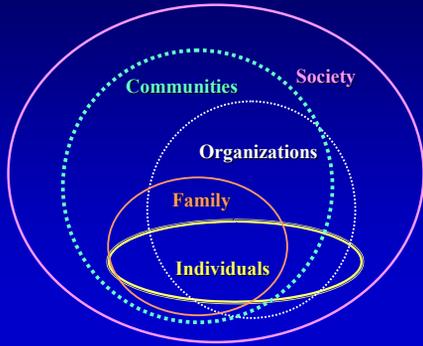
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## Social & Environmental Influences on Health Behaviors




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## Multi-Level Model for Health Promotion Interventions




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## What more do we need to know?

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### Think Tank on Enhancing Obesity Research at the NHLBI January 2004

Executive Summary

[http://www.nhlbi.nih.gov/health/prof/heart/obesity/ob\\_res\\_exsum/](http://www.nhlbi.nih.gov/health/prof/heart/obesity/ob_res_exsum/)



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### Think Tank on Enhancing Obesity Research at the NHLBI January 2004

- **Basic biological issues related to etiology and metabolic consequences of obesity**
  - Genetics
  - Adipose tissue biology
  - Critical periods in obesity development
  - Diet and physical activity
- **Developing effective, practical prevention and treatment interventions**
  - Environmental and social determinants of diet and PA
  - Family environment
  - Applications to clinical practice and community settings

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## Conclusions

- Obesity is an important and proven causal risk factor for DM and CVD.
- Lifestyle interventions can reduce obesity, which can reduce DM and other CVD risk factors.
- Successful weight-loss interventions:
  - Employ behavioral approaches for diet and PA
  - Do not generally sustain the initial weight lost
  - Are intensive, so are of limited utility for “real world” settings
- Environmental changes and multi-level approaches are probably needed:
  - To enhance delivery and effectiveness of weight-loss interventions
  - To promote obesity prevention

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“Entities must not be multiplied beyond what is necessary.”

Occam's Razor, or the law of parsimony

William of Occam, 1284-1347



“For every complex problem, there is a single solution that is simple, neat, and wrong.”

HL Mencken



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