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# **How to lose weight through dieting (and not gain it back)**

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(Bantam 1999)**

# Calories from the Per Capita Food Supply Increased $\approx 450$ kcal/d Between 1983 and 2000

Calories per person per day

3,000

Food supply adjusted for spoilage,  
cooking losses, plate waste, and other  
losses

2,500

2,000

1970

1980

1990

2000

Source: USDA food supply data in Putnam et al. Food Rev 2002;25:1

# The extra calories came from a few primary sources

- +130 kcal/d from sweeteners (including 180 kcal/d from soda/soft drinks)
- + 260 kcal/d white flour
- + 170 kcal/d added fats
- + 50 kcal/d cheese

**Total = 600 kcal/d**  
**= 450 kcal/d (adjusted for waste)**

# Why Has Calorie Consumption Gone Up Since 1983?

- Less personal responsibility or a difficult/impossible environment?



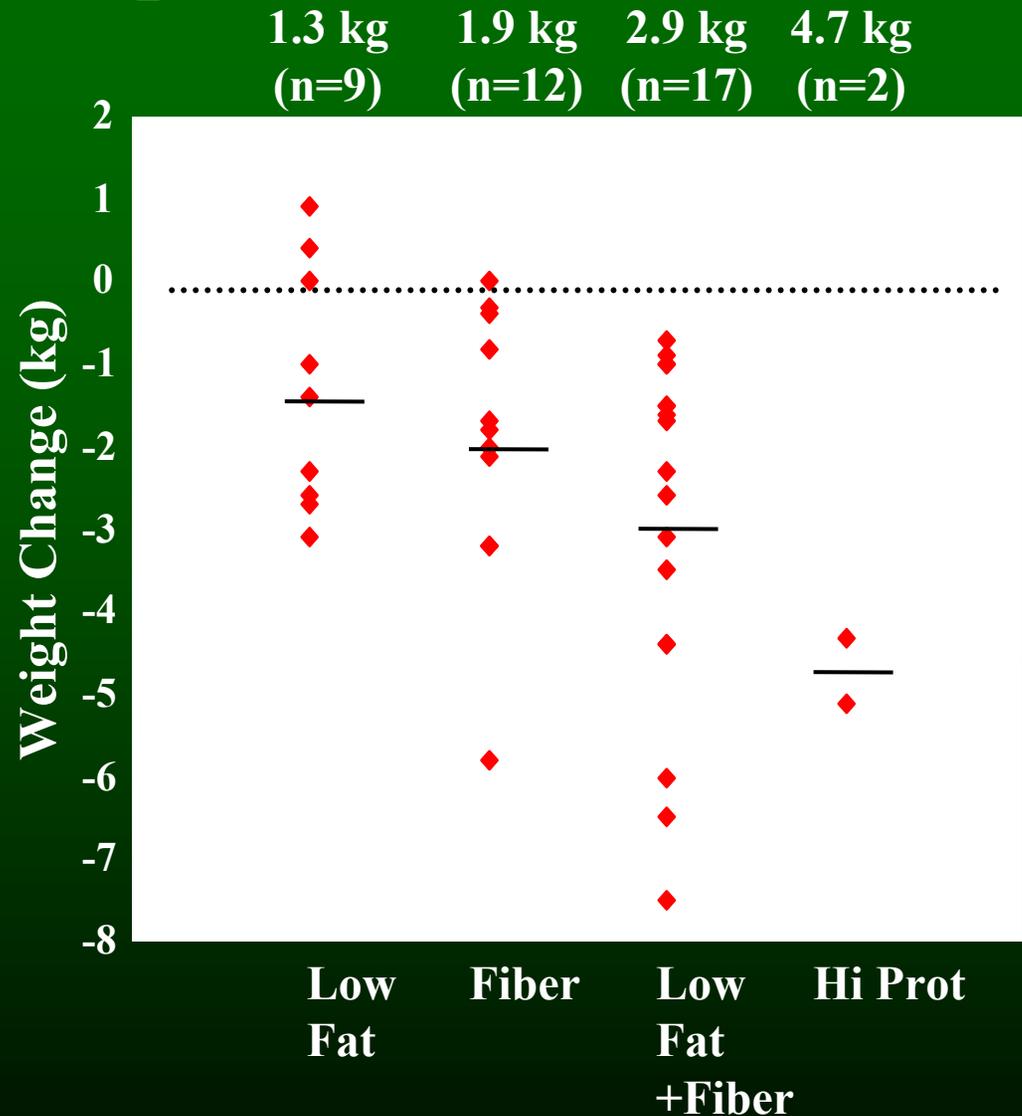
- Most overweight people want to lose weight.
- Even extreme inducements don't work. You can *lose your job* in the US Military if you are overweight and don't respond to treatment. 20% US Army exceed the internal weight standard of BMI 26.5 and  $\approx 1500$  service personnel lose jobs annually for persistently not meeting weight standards.

# Bottom Line for Weight Loss: Becoming lean can only happen gradually, and depends cutting calories and/or increasing activity

- Only  $\approx 3$  lb/week fat can be lost.
- Overweight/obese individuals eat more to maintain their extra weight (average +75 kcal/10lb).
- Not much difference in weight loss between different diets if calories are standardized (+ 3 oz/month for HP diets, no detectable effect ketogenic diets).
- It takes about 5 minutes to eat 500 kcal, and about 2 vigorous hours to burn them off...

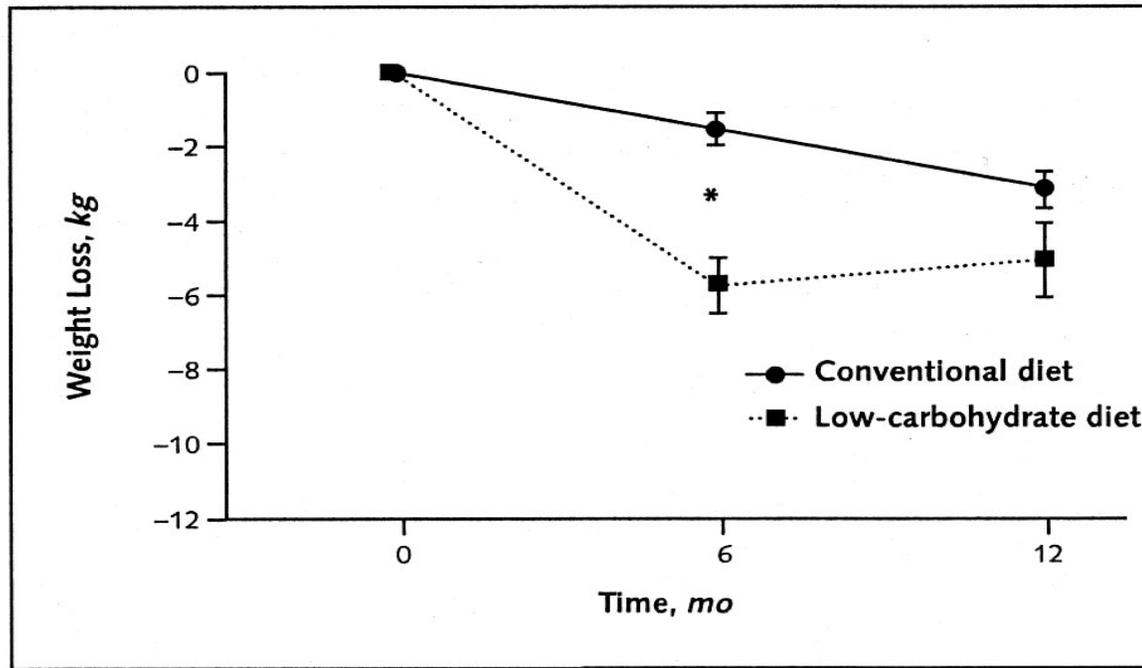
# Losing Weight: Effects of Dietary Composition

- Conclusion 1 – need to make decisions based on *several* studies, not just one
- Conclusion 2 – there is clearly more than one way to lose weight, not sure yet which is most effective



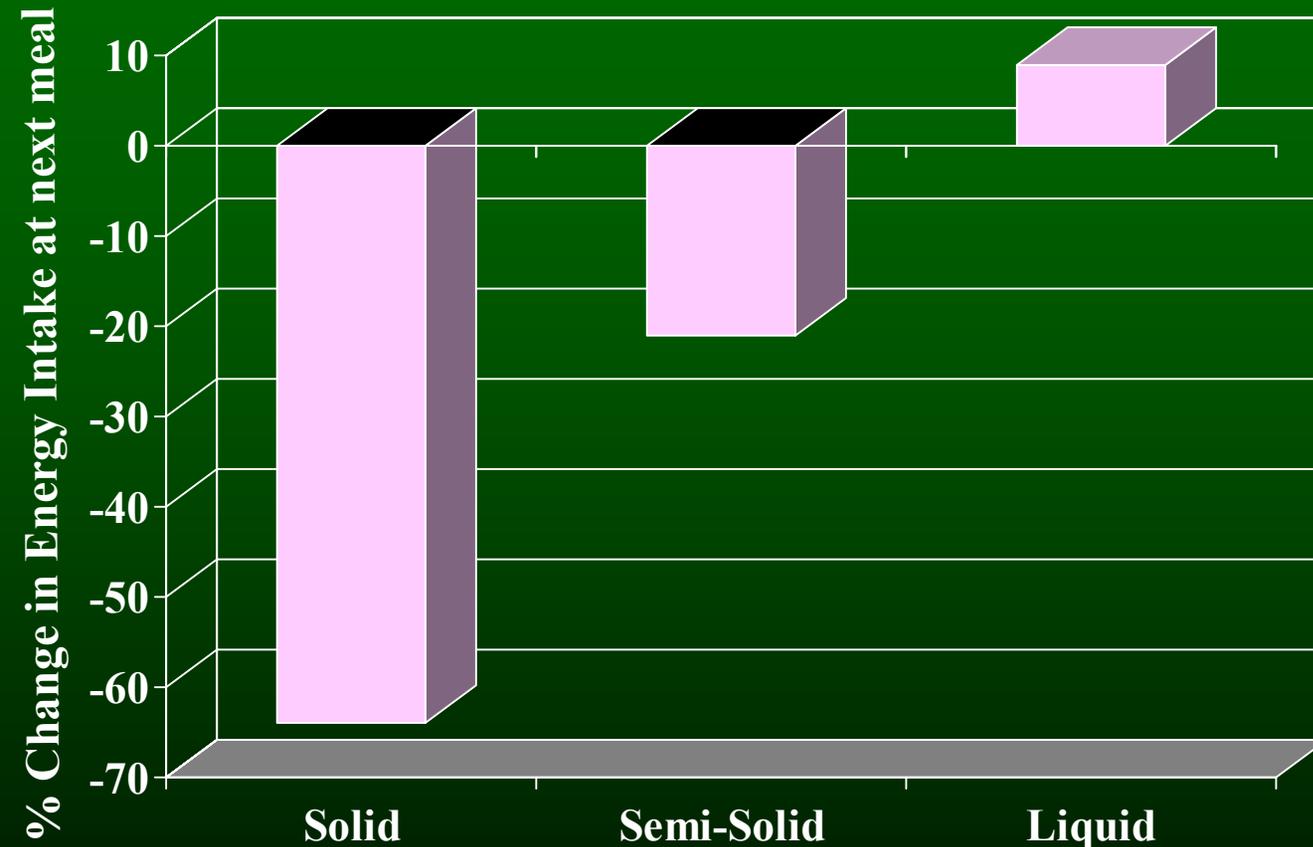
Data adapted from Yao & Roberts, Nutr Rev 2001;59:247, Stern et al. Ann Int Med 2004;140:778; Foster et al. New Eng J Med 2003;348:2082. Yancy et al 2004 not included due to supplement use.

# Keeping Weight Off: Effects of Dietary Composition



\*  $P = 0.003$  for comparisons between diet groups by random-coefficient analysis. The difference in weight loss was not significant between the 2 diet groups by 1 year ( $P = 0.195$  before and  $P > 0.2$  after adjustment for baseline variables, by random-coefficient analysis). Error bars represent SDs.

# Keeping Weight Off: Effects of Liquid Calories



Liquid calories poorly regulated.

- 180 kcal/d increase in soft drinks.
- Sugar sweetened beverage consumption predicted weight gain in an observational study and caused weight gain in an intervention study.
- Theoretical calculations indicate you could lose 14-20 lb weight just from drinking water instead of a daily 12 oz with-sugar soda!

Data from Mattes, *Physiol Behav* 1996;59:179;  
Ludwig et al, *Lancet* 2001;357:505; Tordoff & Alleva 1990;51:963.

# Conclusion

- Relying on personal responsibility alone to solve the obesity epidemic is a failed experiment. We need environmental improvements to make it easier to lose weight and keep it off.
- Right now we can't conclusively say which diet composition works best for weight loss in any given individual.
- We do know that cutting calories causes weight loss, and standard dietary recommendations as well as all popular diets can potentially do this. Cutting liquid calories may be especially helpful.

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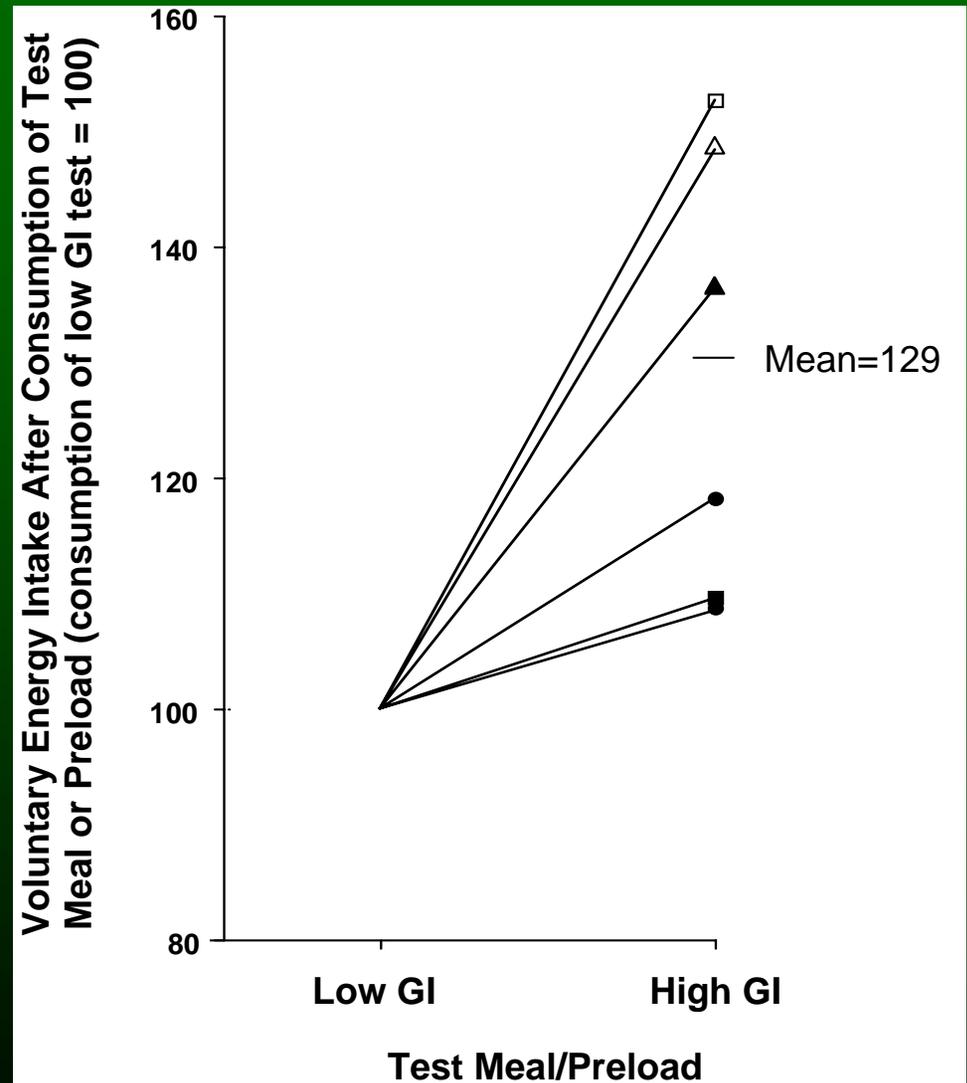


# How Different Diets Stack Up (Sue's Personal Rating System)

	<b>Fat /Protein/Carbs</b>	<b>Issues</b>	<b>Sue's PR</b>
<b>Ornish (Eat More...)</b>	<b>V low fat, unrefined carbs, plant-based</b>	<b>≈Healthy ?Sustainable</b>	<b>(out of 5)</b>
<b>Agatston (South Beach)</b>	<b>High fat, protein, animal- based, then more balanced later</b>	<b>≈ Healthy ?Sustainable</b>	<b>***</b>
<b>Atkins</b>	<b>High fat, protein, animal- based</b>	<b>- Healthy ?Sustainable</b>	<b>***</b>
<b>Sears (The Zone)</b>		<b>≈ Healthy ?Sustainable</b>	<b>**</b>
<b>Cutting any unhealthy kcal, especially sodas</b>	<b>Moderate protein/fat,carb, low GI mixed diet</b>	<b>≈ Healthy ?Sustainable</b>	<b>***</b>
	<b>Depends on what you cut, mixed diet</b>		<b>***</b>

# Losing Weight: What about Glycemic Index?

- No long-term intervention studies.
- In single-day controlled studies, energy intake after high-GI test meals averaged 29% more than after low GI test meals of the same macronutrient composition.  $P=0.005$  by paired t test (Roberts, Nutr Rev



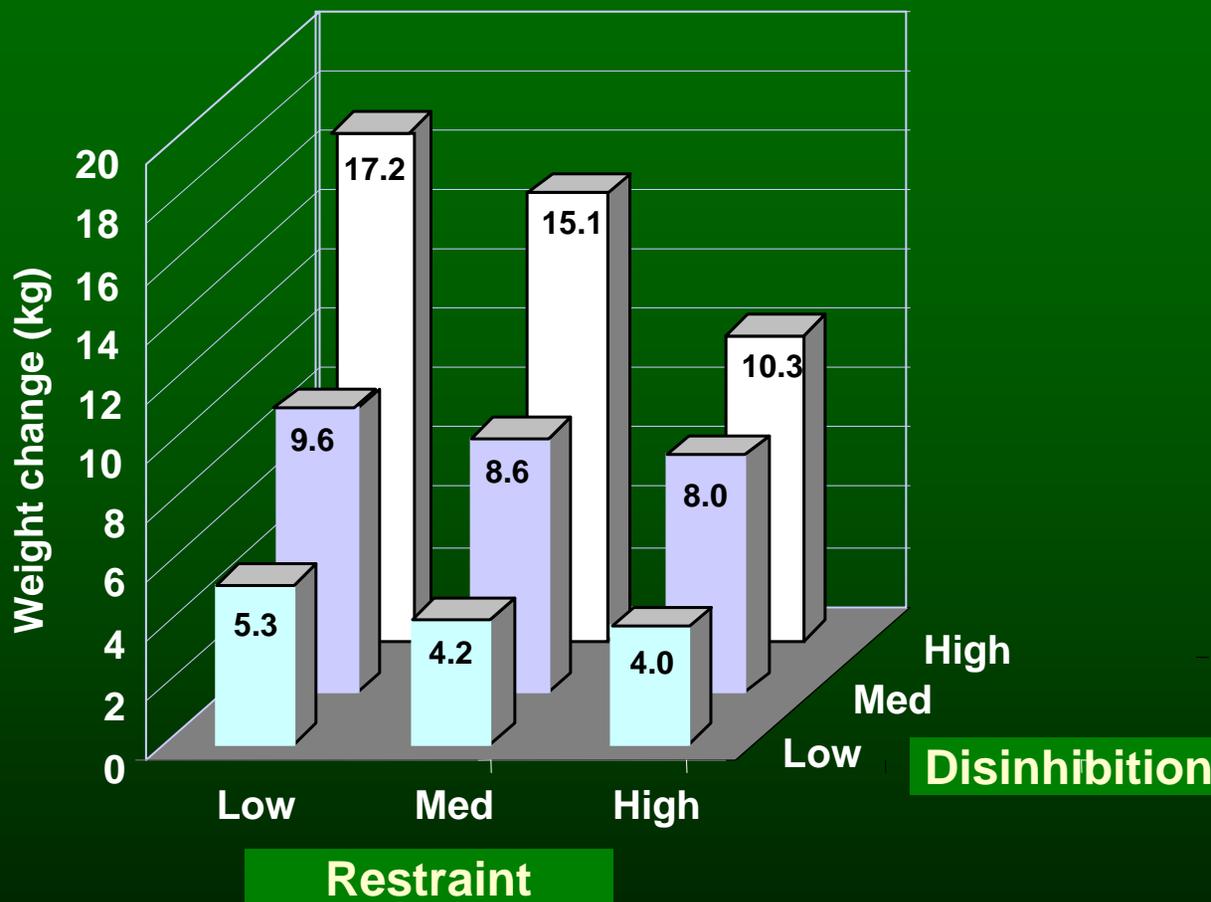
# Summary

- Relying on personal responsibility *alone* is extremely unlikely to cure the obesity epidemic.
- We need to substantially improve our food environment so that responsible eating isn't so difficult.
- We need to work out what changes to the food environment will have the biggest impact on obesity. Targets likely to be biologically effective include:
  - a) requiring prepared foods to be sold in healthy portion sizes (preferably at the same cost-per-calorie as larger portions);
  - b) discouraging the use of sugar-sweetened beverages.

# Keeping Weight Off: Effects of Eating Style from 35 to 58 years

**“Disinhibition”** - tendency to overeat in the presence of particular stimuli. “I usually eat too much as social occasions, like parties and picnics.”

**“Restraint”** - tendency to restrict food intake to prevent weight gain/promote loss. “I deliberately take small helpings as a



Data from Hays et al. AJCN 2002;75:470