

Diets don't work

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Definition

- BMI < 18.5 Underweight
- BMI 18.5-24.9 Normal weight
- BMI 25-29.9 Overweight
- BMI 30-34.9 Obesity (Class I)
- BMI 35-39.9 Obesity (Class II)
- BMI > 40 Morbid obesity (Class III)

Epidemiology

- 64.5% in US are overweight
- 30.5% in US are obese
- 4.7% in US are morbid obese

JAMA 2002 (NHANES)

- 30% of men and 40% of women are obese in Greece (Rossner 2002).

- 75% increase in obesity in the last 15 years

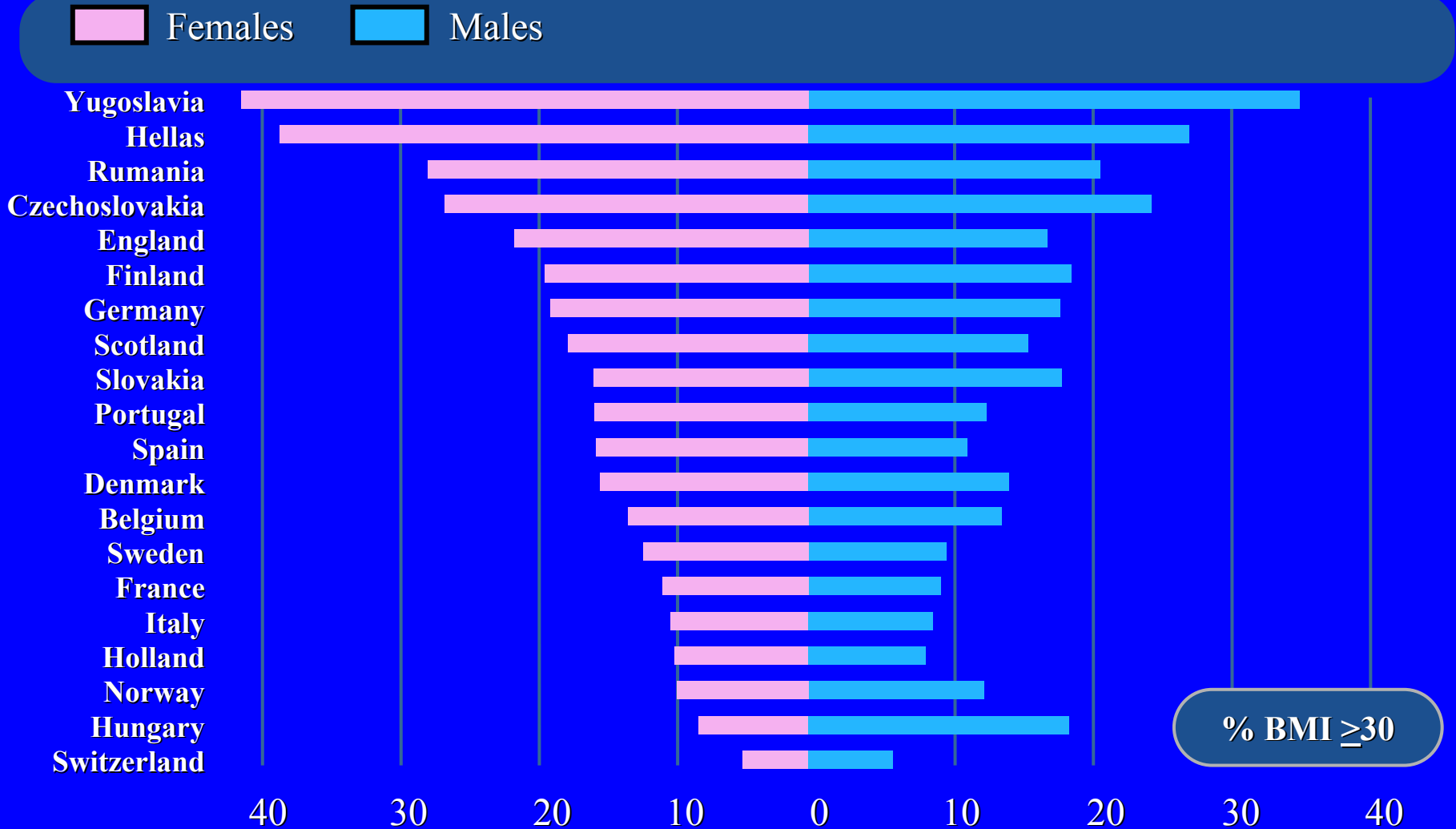
(Wadden 2000)

- Morbid obesity is doubled every 5-10 years

(Hedley 2004)

Obesity in Europe

(Collated by the IOTF from recent surveys)



Does diet work ?

«Most obese persons will not stay in treatment of obesity. Those that do stay in treatment, most will not lose weight and of those who do lose weight most will regain it»

Stunkard 1959

History

Mason (1924)

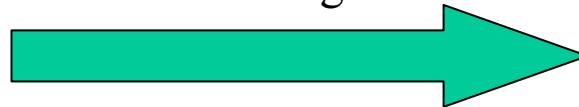
500 kcal (100 days)



31-43 kg

Evans and
Strang (1929)

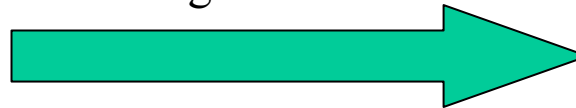
5-6 kcal/kg



↑Weight loss
(safe ?)

70'

Ketogenic diet



2 kg/wk
60 deaths related

VLCD

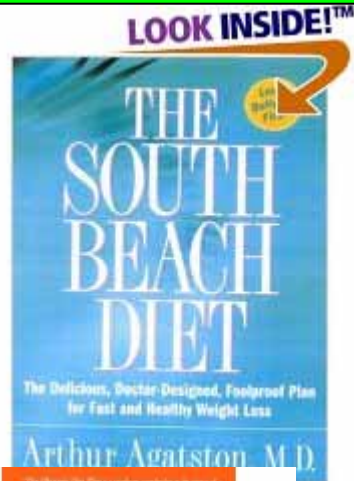
(....-800 kcal/d)

LCD

(800-1200 kcal/d)

Energy deficit diets

Popular diets

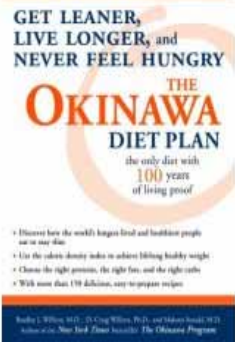


Annual turnover of \$35 billions in the US diet industry

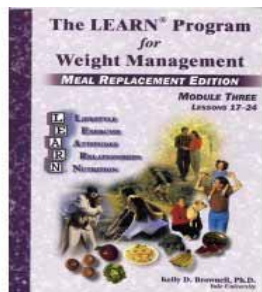
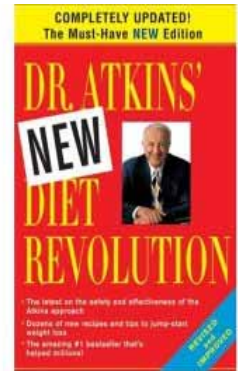
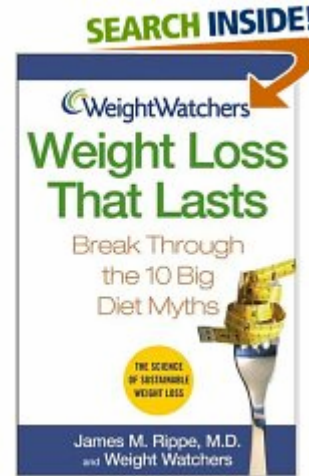
(Market Data 2002)

Annual turnover of \$93 billions in the European diet industry

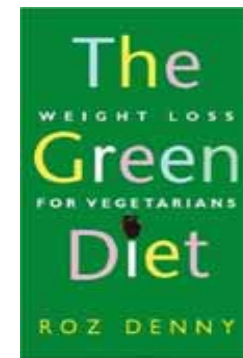
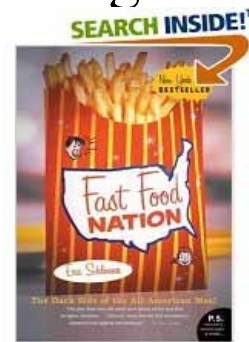
(Datamonitor 2003)



«In 2002, 231 million Europeans attempted some form of diet. Of these only 1% will achieve permanent weight loss»



(Hill, Br.J.Nutr. 2004)



Ayyad and Andersen *(Obes Rev 2000)*

- 17 publications **Out of 898 papers**
- Diet + Group Therapy (27% success)
- Diet alone (15% success)
- Diet +BT (14% success)

**Overall median
success rate 15%**

✓ Criteria

- ✓ ≥ 3 years
- ✓ Follow up rate $\geq 50\%$ of participants **Drop out = failures (?)**
- ✓ Maintenance of all weight initially lost or at least 9-11 kg.

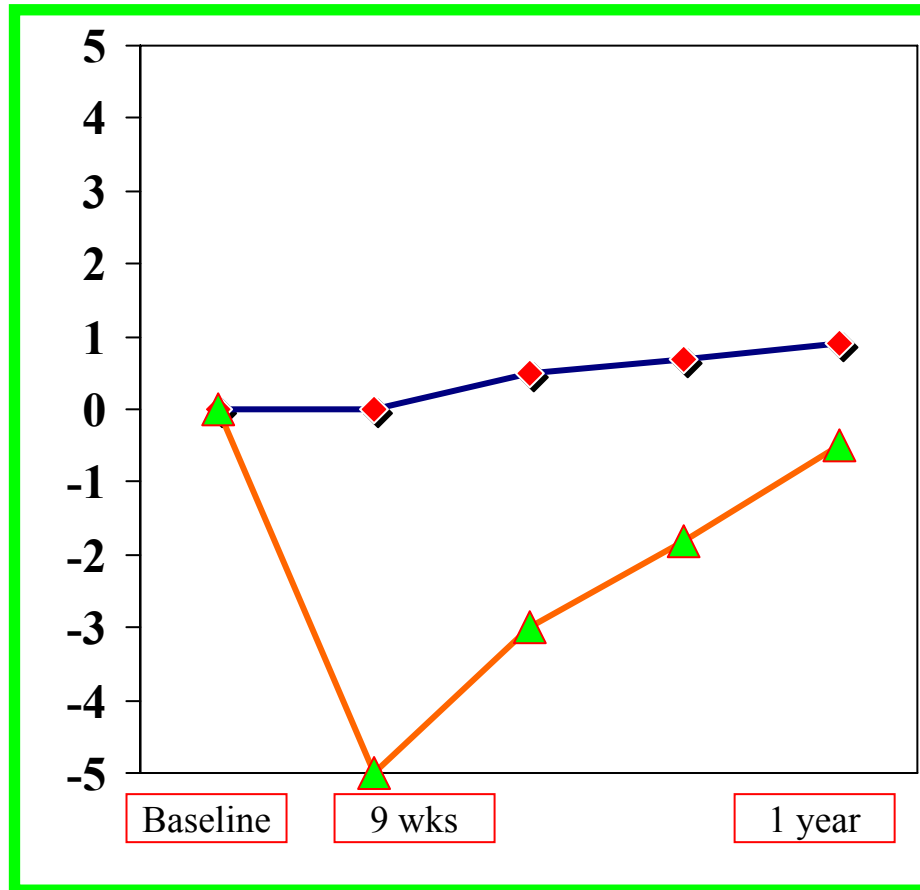
Reviews

Review	No of studies	Follow up period	Kg lost and maintained
NIH (1998)	29	>1 year	3,3
NHS (1997)	24	12-60 months	3
CTFPHC (1999)	6	24-84months	2,1
Douketis et al (Cochrane Library) (2006)	7	1-5 years	1,7

Jehn et al 2006.

(Br.Diet.Assoc)

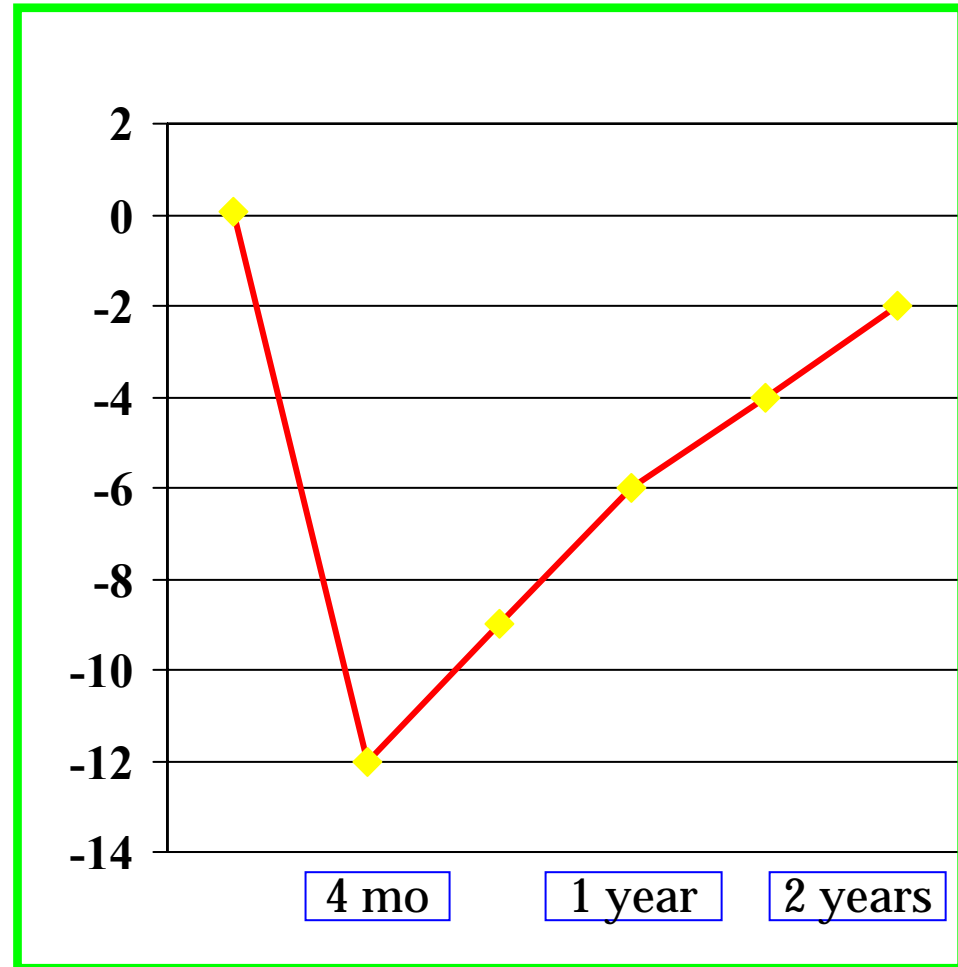
- ✓ 44 subjects
- ✓ W=93,6 (80,1-115)
- ✓ LCD for 9 wks
- ✓ Meals provided
- ✓ 1 year follow up period



Kaukua, Pekkarinen, Mustajoki

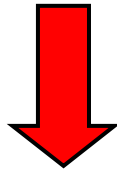
(Int.J.Obes. 2003)

- ✓ 10 wks VLED(2200 KJ/D)
- ✓ 4 mo BT
- ✓ 100 out of 126 completed
- ✓ Age : 48,2(11,1)
- ✓ BMI : 42,8(6,2)

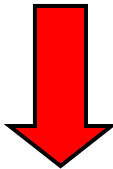


Dieting

Dieting



Binge eating / Bulimia



Increase weight

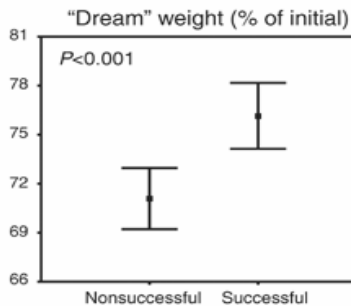
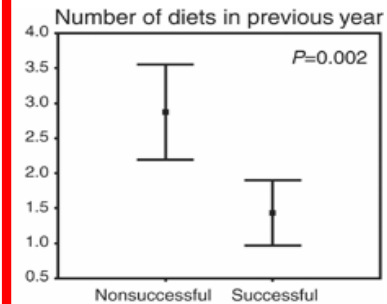
(Brownel & Rodin 1994, Paton 1999, *Cooper 2000*,
Fairburn 2002, *Gregg & Williamson 2002*).

Moderate dieters are 5 times more likely
than their non-dieters peers to develop an eating disorder
(*Patton 1999*)

Predictors of successful weight management

(*Texeira et al Int.J.Obes. 2004*)

- ✓ 158 healthy overweight women
- ✓ BMI 31 (3,8)
- ✓ 16 wks lifestyle weight loss program
- ✓ 1 year follow up



- Successful >5% of initial weight for 16 mo
- Nonsuccessful drop out or <5% of initial weight for 16 mo

Only BT

(Blissmer et al 2006)

- ❑ 144 overweight and obese (BMI 32,4)
- ❑ BT for 6 mo w/out diet → 5,6 kg (6,1%)
- ❑ 12 mo → 3,4 kg (3,7%)
- ❑ 24 mo → 2,7 kg (3%)
- ❑ 1/3 of subjects maintain **>5% loss of initial weight**

Only BT

(Knowler et al 2002)

DPP (Diabetes Prevention Programme)

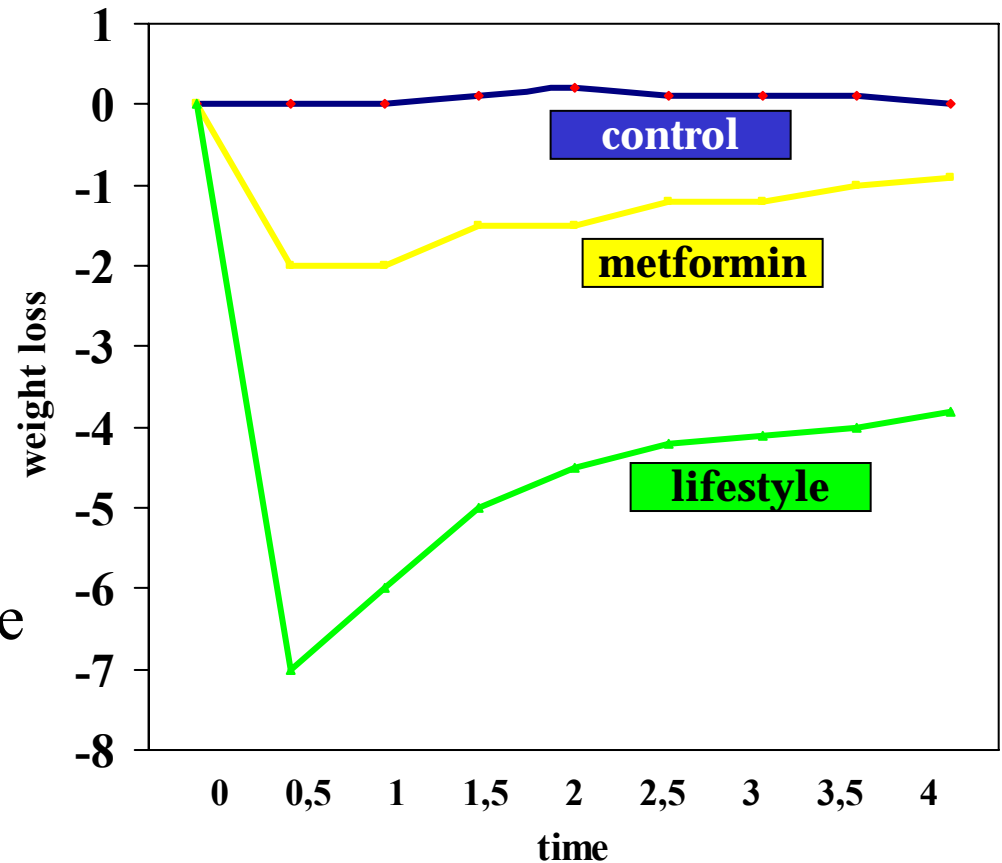
3234 overweight

-7 kg(7%) in 6 mo

-6 kg(6%) in 1 y



-4 kg(4%) in 3 y

37% maintained a 7% at the end of the period (2,8 y. average)



CBT

➤ Review

- ✓ Weight loss phase  10,6% (9,6 kg) in 21 wks
- ✓ Maintenance period  8,6%(6.0kg) in 18 mo

(Wing et al 2002)

➤ More recent studies confirm same results

Jefrey et al Am.J.Clin.Nutr. 2003

Melin et al Int.J.Obes.Rel.Met. Dis 2003

Watkins et al Arch. Int.Med 2003

Dietary focused Behavioral modification model (df-BM)

Goals of df-BM	Intervention strategies
Nutritional education	Discussed calorie value of all food groups, value of mediterranean diet, importance of decreasing the consumption of foods high in fat, sugar and sodium contents in foods, necessity of both breakfast and snack meals, healthy cooking ways.
Increase in physical activity	Emphasized the value of exercise for the purpose of weight loss and health. Strategies for this included increasing physical activity in everyday activities at home, the office or even during vacation time.
Improvement of eating habits	Stressed the importance of avoiding rigid, restrictive diets as well as the notion of 'forbidden' foods. Also, we discussed the definition of appropriate portion sizes with the help of food models and the appropriate nutritional behavior during meals, in restaurant and buffet settings.
Avoiding the influence of external eating stimuli	Patients were shown techniques for grocery shopping, reacting to the smell and visualization of a tempting meal as well as when offered such a meal or when watching others eat.
Setting goals	The dietician would set goals at every session the fulfillment of which was examined during the following session.
Relapse control	Confidence was encouraged, stress was managed and worked towards accepting body image

Effect of df-BM in morbid obese after VBG

- 24 females
- VBG
- Age 34,33(21-45)
- BMI 49,86(40,02-66,40)
- Initial weight 135,60
(106,5-183)

	3 months	6 months	12 months
ΔBMI controls	10,10(1,46)	11,97(2,11)	13,87(2,13)
ΔBMI intervention	10,04(2,12)	12,39(2,06)	16,78(2,69)
WL(kg) controls	27,48(4,28)	32,59(6,31)	37,75(6,57)*
WL(kg) intervention	27,42(7,01)	33,68(6,94)	45,54(8,97)*
EWL(%) controls	42,88(9,46)	50,51(11,24)	59,49(17,40)**
EWL(%) intervention	45,32(13,88)	56,01(15,81)	74,71(17,30)**

* $p=0,024$ ** $p=0,040$

Effect of df-BM in morbid obese after VBG

	Preoperational	3 months	12 months
DEBQ (controls)	3,25(0,48)	3,33(0,47)	3,29(0,26)
DEBQ (intervention)	3,20(0,36)	2,51(0,43)*	2,35(0,43)*
Restraint (controls)	3,14(0,69)	3,85(0,58)*	3,66(0,40)*
Restraint (intervention)	2,67(0,76)	2,40(0,39)	2,30(0,40)
External (controls)	3,58(0,64)	3,68(0,42)	3,76(0,36)
External (intervention)	3,45(0,55)	2,63(0,62)*	2,35(0,57)**
Emotional (controls)	3,19(0,73)	2,59(0,54)*	2,58(0,49)*
Emotional (intervention)	3,48(0,80)	2,57(0,43)*	2,37(0,56)*

* $p < 0,05$ from preoperational ** $p < 0,05$ from 3 months

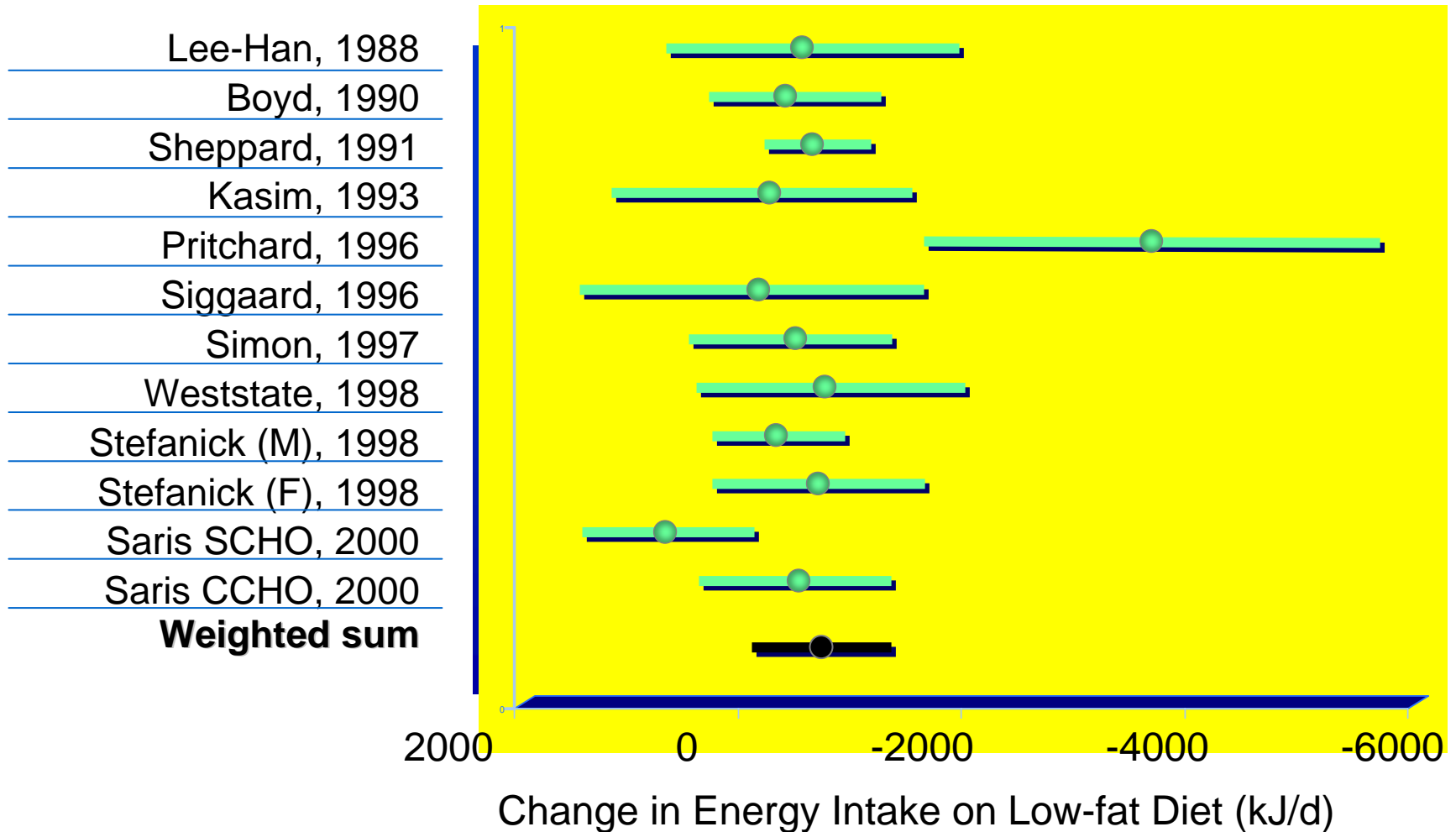
Successful maintenance

- **National Weight Control Registry (>4000)**
 - ✓ ↑ levels of physical activity
 - ✓ Diet ↓ in calories and fat
 - ✓ Regular eating breakfast
 - ✓ Weight monitoring on a regular basis.
 - ✓ Maintaining a consistent eating pattern
 - ✓ ↓ disinhibition
- **HealthStyle respondents(1958)**
 - ✓ ↑ Levels of physical activity
 - ✓ Planned meals
 - ✓ Measured food on plates
 - ✓ Diet ↓ in calories and fat
 - ✓ Weight monitoring on a regular basis

Ad Libitum Low-Fat Diets Decrease Daily Energy Intake

Meta-analysis of 12 Intervention Trials (1074 ♀, 654 ♂).

Astrup et al. Int J Obes Relat Metab Disord 2000;24:1545

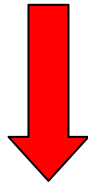


For every 1% reduction in dietary fat intake, there was a 0,37 kg lost.

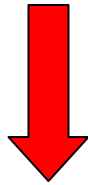
Fat intake

Prentice et al Am.J.Clin.Nutr 1998.

Fat intake



Addiction



↑ Food intake

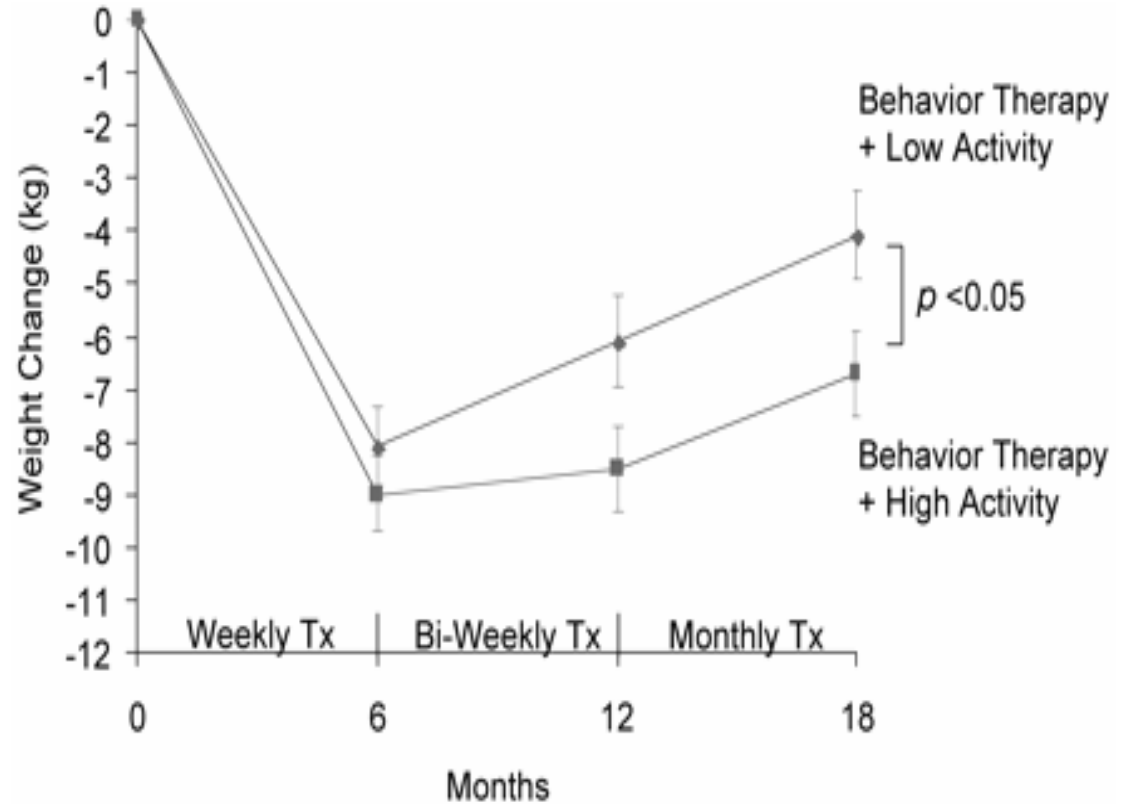


Palatability increases food intake through a positive-feedback reward mechanism that involves the opioid and GABA/benzodiazepine systems

Contribution of activity

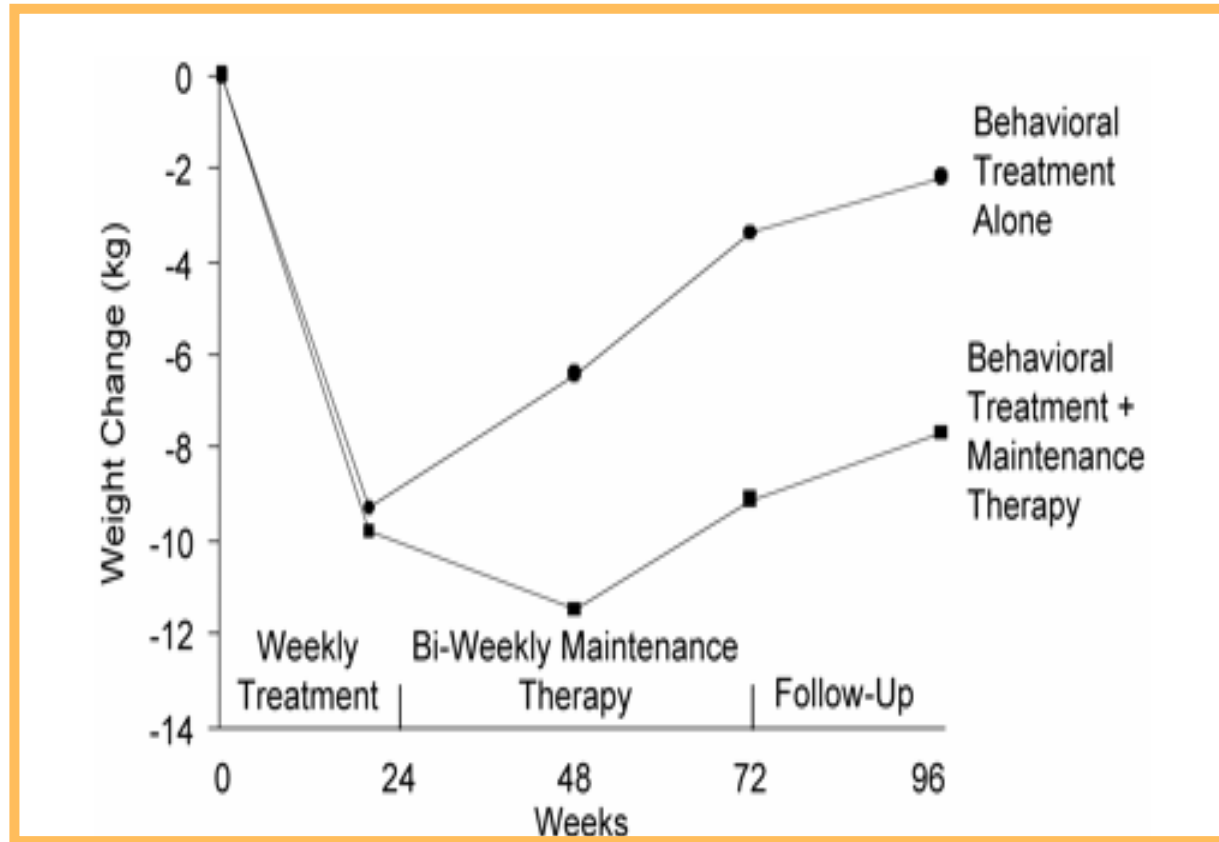
(Jeffery et al Am.J.Clin.Nutr. 2003)

High activity 2500Kcal/wk
Low activity 1000kcal/wk



Active follow up

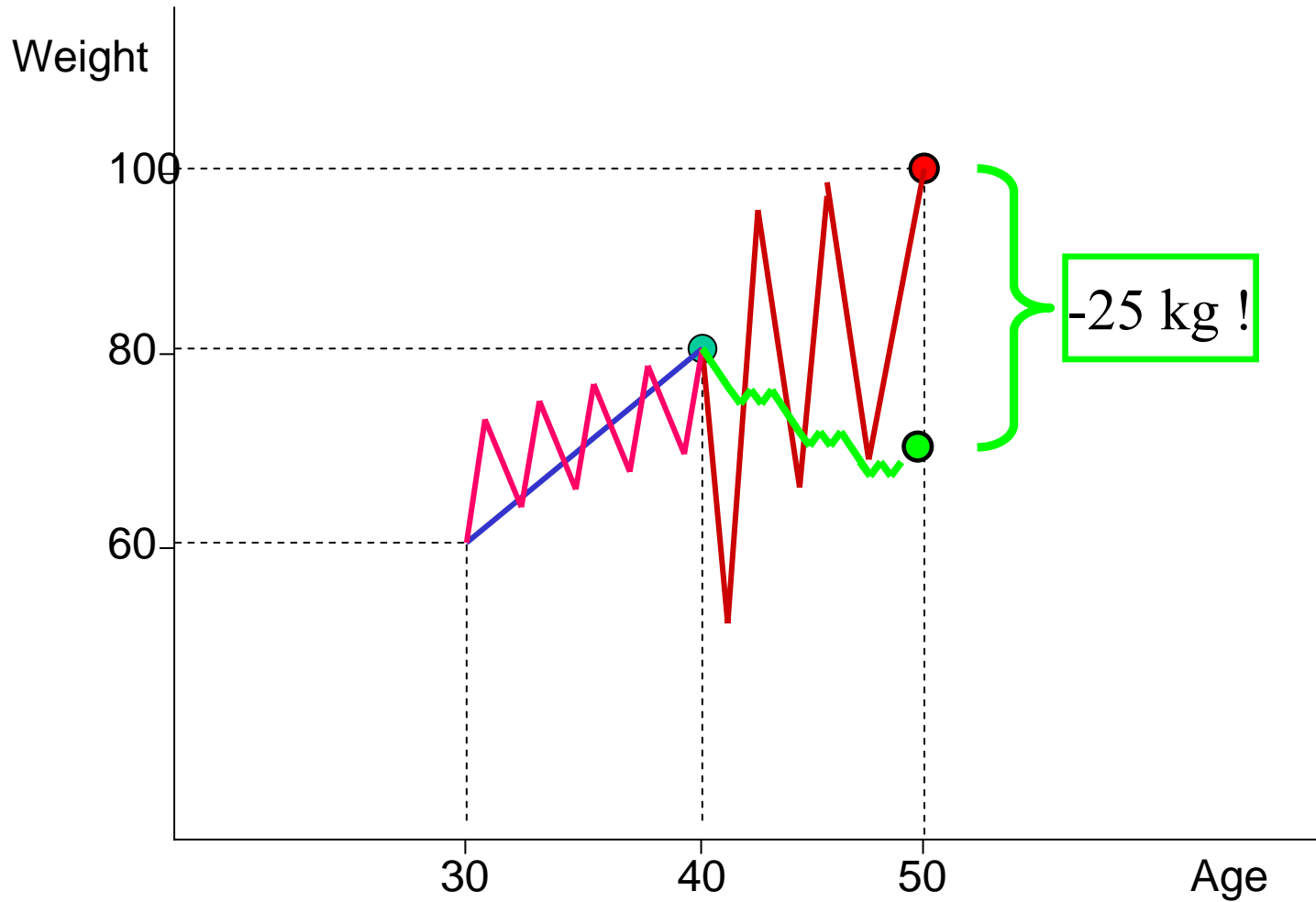
(Perri et al J Consult Clin Psychol.1988, review -13 studies)



Patients who received long-term treatment, which averaged 41 sessions over 54 weeks, maintained 10.3 kg of their initial 10.7-kg weight loss

(Perri and Corcsica 2002)

Setting weight loss goals



Conclusions



- ✓ No diet
- ✓ ↑↑ levels of physical activity
- ✓ ↓↓ fat intake
- ✓ Active follow up
- ✓ Normal eating patterns
- ✓ Achievable weight loss goals