

## Weight Reduction

Why is it so hard???

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## Topics

- Factors that impact weight
- Popular diets, such as Paleo, Keto
- What we know about weight reduction
- Physiology of hunger
- Case study: Food Bucket Eating Plan
- Case study: Chip-away Reducing Plan

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**Why is  
weight management  
so tough...?**

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## We live with an enticing food environment...

The foods most commonly over-eaten are:

- Chocolate
- Cookies
- Ice cream
- Chips
- French fries
- Cake
- Pizza
- Buttered popcorn

*Highly processed foods with fat, salt and/or sugar  
can easily be more attractive than natural foods*



Schulte EM et al. Which Foods May Be Addictive? The Roles of Processing Content, and Glycemic Load. PLoS ONE. 2015. 10(2): e0117959

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Causes of obesity

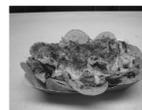
**We get too little physical  
activity, thanks in part to  
computers and TVs**



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## Sedentary lifestyle + Abundant food

*“Faturday” ... “Football Sunday”*



- Why do you feel like you deserve to splurge on Friday, Saturday, and Sunday?
- What about splurging do you really love?
- What would the weekend look like if you continued your week-day eating habits?
- What if you ate more yummy food during the week?

Lynn Greiger RD, Health Coach

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## Even athletes can be sedentary

What are you doing with the other non-exercise hours in your day?



Be aware of compensatory changes in daily activity!

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Causes of obesity

## Do antibiotics play a role in obesity?

For years, farmers gave antibiotics to cattle and poultry, because the animals gained weight quicker with antibiotics than without them.

Does the same happen when humans take antibiotics too often?



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Causes of obesity

## Stress and depression

- Are you happy?
- Do you feel successful?
- Are you accomplishing what you want in your life?



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## Is weight about eating — or about *what is eating us*?

*“Overweight people lose body fat not because they go on a diet, but because they feed their souls and take care of their bodies.”*

Dr. Mona Villapiano, Therapist

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## What percent of weight issues really have anything to do with food...?

- Gut microbes
- Loneliness
- Impulsivity
- Alcohol (+ snacking +less sleep)
- Sexual abuse
- Endocrine disruptors, BPA
- Sleep deprivation
- Food packaging (Pizza, popcorn bags)

*Is weight the problem — or the symptom?*

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## Men's simplified approach to dieting

*Weight loss success in overweight or obese men (n=65) was associated with:*

- choosing smaller portions
- cutting back on sugary soft drinks
- eating fewer high fat snack foods
- consuming less alcohol

Callister, ACSM 2010

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## Women's complex approach to weight loss

- Nature prefers women to have body fat
- Dieting triggers feelings of being denied, deprived...
- PMS cravings for chocolate derail healthy choices...
- Exercise can activate some women's appetite...



Callister, ACSM 2010

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## Weight loss success varies from person to person...



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## Physiologically, some people are "hard losers"

- 6-week NIH study - 50% calorie reduction - 12 obese people
- Those who lost the least weight had a bigger drop in metabolism compared to the "faster losers."
- "Hard losers" seem to have a "thrifty gene"
- Is this inborn or developed over time?
- What is the most effective rate of calorie restriction?

Reinhardt. A Human Thrift Phenotype Associated with Less Weight Loss During Caloric Restriction. *Diabetes* 2015

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## Physiologically, some people are "hard losers"

- People with obesity sit 2.5 hours more /day than sedentary lean peers
- Sitting can save people with obesity 350 calories per day
- NEAT: Non-Exercise Activity Thermogenesis  
(Daily activity—working, puttering, moving—apart from purposeful exercise)
- NEAT can vary by 2,000 calories per day

Levine. *Arterioscler Thromb* 2006

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## Psychologically, some people are "hard losers"

Q: "Is there something about losing weight that would feel scary to you?"

A. Having excess body fat might—

- be a good way to rationalize being unmarried.
- help avoid some real issues and sadness.
- end the fear of regaining weight and failing (again).

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## Teens who diet get fatter

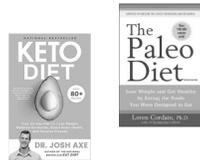
- Survey of Jr and Sr HS students (n= 4,746)
  - 57% of girls and 25% of boys reported dieting
- Five years later (n = 2,516) —
  - Dieting was associated with weight gain, overweight status, disordered eating, and eating disorders
  - None of the weight control behaviors had any benefits

Obesity, Disordered Eating, and Eating Disorders in a Longitudinal Study of Adolescents: How Do Dieters Fare 5 Years Later?  
D. Neumark-Sztainer. *J Amer Diet Assoc* April, 2006

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## What about the Paleo Diet...? Is Keto better...?

- A set of rules with *good* and *bad* foods  
--No refined sugar, white flour, grains, dairy foods....
- Do you really want to *never* eat bagels, pasta or birthday cake ever again?



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## Are Paleo and Keto a way for some people to manage dysfunctional eating?

Comments from an ultramarathoner....

"I love my Paleo Diet. I live on meats, nuts, and fats and eat only a very few low-carb fruits and veggies, such as berries and spinach..."

**"This keeps me from bingeing on bagels and crackers and pasta..."**

"I've lost 8 pounds and I feel great..."

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## Keto Diet for serious athletes who have to make weight?

- Possible *pre-event* diet for wrestlers, body builders, gymnasts, athletes in power sports?
- Satiating diet despite reduced calories
- Preferable to dehydration, saunas, rubber suits, etc.?



Ketogenic diet does not affect strength performance in elite artistic gymnasts  
A. Paoli et al. *J Int Soc Sports Nutr* 2012: 9:34

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## Ketogenic Diets: Benefits & Costs

- Soldiers in 12-week training program on ad lib keto diet:
  - Maintained their ability to perform well.
  - Lost 7.7 kg and improved their % body fat.
  - Soldiers in the "normal diet" group lost no weight.

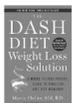
LaFountain R. et al *Mil Med* 2019
- Endurance athletes (4 F, 1 M) in 10-week keto diet study:
  - Ran *slower* —but lost weight (4 kg).
  - Reported enhanced well-being
  - Chose to maintain the diet post-study.

Zinn *J Int Soc Sports Nutr* 2017
- Caution: might impair bone health  
Heikura, Burke et al. *Front Endocrinol* 2020

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## Comparison of 14 popular diets: Systematic review and meta-analysis of randomized trials

- 14 name diets and control diets
- Low Carb and Low Fat: similar wt. loss in 6 months (~4.5 kg)
- Jenny Craig, Atkins, Paleo, Zone: most effective for short-term weight loss
- Weight loss diminished at 12 months for all diets

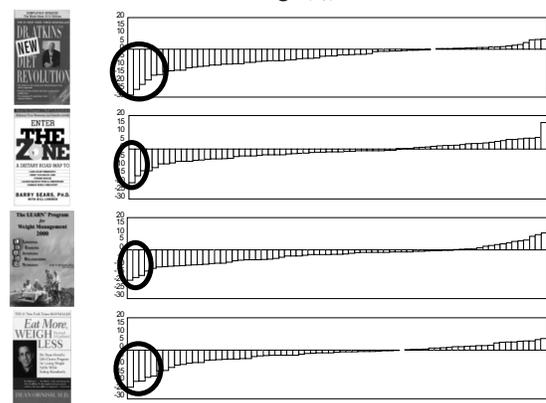


Long Ge. *Br Med J* 2020;369:m696

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## 12-month Wt Change (kg): Individual Results

Gardner, JAMA, 2007; 297:969-77



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What we do know:

### Diets Do Not Work!

- Going “on a diet” does not teach people how to manage food, stress, and today’s food supply
- For people who go “on a diet”, the only way to enjoy treats is to “cheat”



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### Do we even know the best ways to study weight reduction?

- Well controlled research studies are not “real life”
- Observational studies are not well controlled
- Self-reported data is questionable
- Short-term studies are too short
- Long term studies are very expensive....

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### Different types of obesities need different types of treatments

Obesity should be treated as a medical (not a personal) problem

High insulin secretion	High protein diet works well
Low response to fullness (genetic)	Pre-portioned food
High response to food cues	Keep food out of sight
Learned preference for junk food	Unlearn them! (starts early in life)
Binge eating	Tailor treatment to the cause
Dislike of exercise	Find pleasurable movement

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### Some exercisers get hungrier than others

Overwt/obese men & women (n=35) did supervised exercise x 12 weeks

Weight changes ranged from losing 32 lbs to gaining 4 lbs!

**Subjects successful with weight-loss lost, on average, 14 lbs:**

–ate ~130 calories less than baseline; no change in appetite.

**Less-successful subjects lost, on average, only 3.5 lbs:**

–ate ~270 calories more than baseline; got hungrier

**CONCLUSION:** The subjects who got hungrier with exercise ate more and lost less weight!

King. Individual variability following 12 weeks of supervised exercise: identification and characterization of compensation for exercise-induced weight loss. *Int J Obes* 2006; 32(1):177-84

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### Gender differences: Exercise & appetite?

18 women burned 350 calories with easy or hard exercise  
Researchers monitored their food intake for 3 days

**Conclusion:**

--Hard exercise does not suppress hunger the same way for women as for men.

--Hard exercise increases attractiveness of food for women



Pomerleau, *Am J Clin Nutr* 2004; 80:1230-6

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CASE STUDY:

### Dieter who gains weight with exercise

*Email:* “I am 53 and have been struggling with my weight my entire life. About 5 years ago, I started doing triathlons with my sister. I enjoy them, but find it stressful and demanding. I gain weight while training and I am overweight as it it. I am looking for a healthy way to train, lose weight, and not always be hungry...”

5' 8"    210 lbs    Her goal: 180 lbs

Mother of 3 teens    Taking 2 classes for graduate school

Trains 7:00-8:00 a.m.

Afternoon “snack attacks”    Has a bad “sweet tooth”

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### Typical daily intake

7-8:00 Run, bike or swim  
 8:00 Breakfast: Special K, skim milk, berries  
 11:00 Snack Granola bar ("I'm hungry!")  
 2:00 Lunch Turkey wrap, potato chips (100-cal bag)  
 3-5:00 "Snack-attack": Almonds, hummus, candy, cup cakes...  
 7:00 Dinner: Chicken, veggies, 1-2 glasses wine, fat-free fro-yo...

Attempts only ~1,500 calories • Deserves about ~2,600 calories  
 Consumed only 800 calories between 6:00 a.m.-3:00 pm

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### Getting too hungry reduces compliance

193 women and men with obesity (47 y.o.); free-living  
 1,400-1,600 cals x 16 weeks supervised; then follow-up at 32 wks

Calorie Distribution: **B 600** L 500-600 D 300-400  
**B 300** L 500-600 D 600-700

Bigger breakfast: more satisfied, less hungry; sustainable  
 Fewer cravings for sweets, starches, fast foods

B' fast	16 weeks	32 weeks	Total lost
300 calories	-33 lbs	Regained 25.5 lbs	<b>-7.5 lost</b>
600 calories	-30 lbs	Lost add'l 15.5 lbs	<b>-45.5 lost</b>

Jakubowicz *Steroids* 77:323-331 2012

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### Fuel by day & lose weight by night

*Do not:*

- "Delay eating" until later in the day
- Try to lose weight while exercising

#### Eating patterns of elite runners and gymnasts:

Athletes who routinely under-ate during the day had higher body fat than those who fueled evenly throughout the day.

Deutz, Benardot *Med Sci Sports Exerc* 32:695, 2000

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What we do know....

### Sleep Deprivation = Weight Gain

- Sleep deprivation and obesity are concurrent issues
- Nearly 30% of adults report sleeping <6 hours/day
- Sleep deprivation affects—
  - appetite hormones; more grehlin (feel hungry)
  - the brain; food excites the brains' pleasure centers
- Sleep deprivation erodes well-being (Db, CVD, HBP)
- Sleep is restorative and needed to align circadian rhythms

**Dieters: How can you make sleep more of a priority?**

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What we do know....

### More sleep = Less "junk food"

Three-week study with tired, overweight adults

Slept for 1.5 hours more per night x 3 weeks:

- Cravings for sweet, salty "junk food" dropped 62%
- Overall appetite declined by 14%

Tasali E., *Appetite* Sept 2014

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Source of confusion

### Gender differences?

Does exercise help men (more than women) to control or lose weight ...?

- Men: High level of physical activity contributes to a lower % body fat.
- Women: No relationship between physical activity and % body fat

Westerterp *Int J J Obesity* 1997; 21(3):184

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With **supervised** and **measured** exercise,  
**no gender differences** in fat loss

- 12-week study
- 35 male and 72 female subjects with BMI 31 (average age: 41 y.o.)
- Measured changes in body composition, appetite, energy intake
- Males and females both lost 2.5% body fat

*“When exercise is supervised and energy expenditure is controlled, there are no gender differences in response to exercise ”*

Caudwell et al. No sex difference in body fat in response to supervised and measured exercise. *Med Sci Sports Exerc* Feb 2013

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**Exercise for Enjoyment, not to burn calories**

Exercise = to train, improve athletic performance  
= to feel good, relieve stress,  
improve health, build muscles

Exercise ≠ punishment for having body fat  
≠ motivated by the desire to burn calories



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Weight reduction strategies

**How much is OK to eat...?**

*What is an appropriate calorie intake that will—*

- prevent extreme hunger
- result in loss of body fat, yet
- allow adequate energy to exercise?



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Source of confusion....

**Weight-loss Apps...**

**Helpful aspects**

Educational, helps people be more accountable

**Harmful aspects...**

- Doesn't help with stress management, problem solving
- Disconnects people from their bodies; users can feel controlled by the app
- Self-reported input. How accurate are the measurements?
- Does not lead to greater weight loss

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**Energy (calorie) needs**

*The body needs fuel to function—*

- Resting metabolic rate
- Daily activities/fidgeting
- Purposeful exercise

Calories needed to be alive	
Organ	Cals/day/154 lb man
Brain	365
Heart	180
Kidney	120
Liver	560
Lungs	160
<b>Total</b>	<b>1,385 Calories</b> (50-65% of daily needs)

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**Your body is your best calorie counter**

*Goals: Eat mindfully and intuitively.*

*Honor hunger—*

*Eat when hungry; stop when content.*



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## Counting calories

*A teaching tool, not an obsession*

- Counting calories should become needless  
(*Your body can regulate your proper calorie intake*)
- Listen to your body to learn about hunger and fullness, and your personal hunger spectrum...

Starved			Content				Stuffed		
1	2	<b>3</b>	4	5	6	7	8	9	<b>10</b>

3 = Cold, tired, bored, moody, unable to focus, easily irritated...

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## Hunger: a signal the body needs fuel

- Hunger does *not* mean you will eat & “get fat”
- Hunger does mean your body needs fuel!
- *Prevent hunger! People who get too hungry--*



- tend to crave sweets and/or fats
- often make unhealthy food choices
- can easily overeat.

*Goal: Frontload — eat enough at breakfast & lunch*

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## Hunger is physiological

- If you hold breath for too long, you'll *gasp for air*
- If you withhold food for too long, you'll *grab for food*

*You will never win the war against hunger!*



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## To lose weight without intense hunger

1. Subtract 10 to 20% from total energy needs
2. Divide calories evenly throughout the day
3. Chip away at gradual fat loss

*Example: If a person maintains weight on 2,500 calories--*

Deduct 250-500 cals = 1,900 - 2,250 cals/day

Divide:	Breakfast	500 -550 calories
	Lunch	500-600
	<b>Lunch #2</b>	<b>400-500</b>
	Dinner	500-600

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## Teaching how to fill the food buckets

1. One food bucket per 4 hours; divide calories, if desired, for fueling-up before and refueling after workout
2. Calories in food are 0, 50 or 100. Use food labels, apps.
3. Include at least 3 if not 4 different kinds of foods/meal
  - Grains to fuel the muscles
  - Protein to build and repair muscles
  - Fruit / veggie for vitamins and minerals
  - Dairy/calcium-rich food for bones, blood pressure

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## Include healthy fat in each bucket

*Nuts and peanut butter: the best diet food around!*

- Nuts and peanut butter are satiating (protein, fiber)
- Nut-eaters do not have more body fat than nut-avoiders
- Anti-inflammatory (heart disease, diabetes)
- A handful of nuts a day (instead of a less healthful snack) can certainly fit into a winning sports diet



Jackson NS HU, AJCN July 2014

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## Filling the food buckets

What do you *want* to eat...?

Meal	Cals	Grain	Protein	Fr/Veg	Calcium
B' fast	500 -	Oatmeal	Peanut Butter	Banana	Latte
	550	150	150	100	100
Lunch	500 -	Bread, 2sl	Turkey, 3 oz	Carrots	Cheese
	600	200	150	50	100
L - #2	400 -	Granola	Almonds	Berries	Gr Yogurt
	500	200	100	50	150
Dinner	500 -	Rice	Chicken	Broccoli,oil	
	600	200	250	100	

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Case study

## Weight-conscious collegiate male rower

"I gained 15 pounds that I just cannot seem to lose ... "

Typical day:

7-8:30	Exercise	-1,000 calories
9:00	Oatmeal, melon, scr.eggs	500-600
11:00	Fruit (+ more)	100 (+)
1:00	Turkey Wrap, apple	550
2:00	Coffee	--
5:00	Fruit (+ more)	100 (+)
6:00	Chicken, rice, vegetable	600
PM	Whole jar of PB, box granola, etc...	

Attempted intake: 2,000 Estimated needs: 3,600-4,000

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## The Rower's Food Buckets

Calorie target: 3,200-3,600 per day

Every 4 hours a food bucket with 800-900 calories

3-4 kinds of food/bucket

1. **Protein**- to build and repair muscle, as well as satisfy
2. **Grains** - to fuel muscles
3. **Fruits & Veggies** - for vitamins, minerals
4. **Calcium-rich foods** - for bones, blood pressure

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Case study

## Collegiate rower

Follow-up one week later —

"I have been letting myself eat a satisfying breakfast with eggs, cottage cheese, oatmeal and fruit ... I feel content, not stuffed.

"I have a PB&J and glass of milk for my second lunch...

"I feel calmer, less anxious, and less worried about losing control of food. ...

"And I've even lost weight. Amazing!"

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Case study

## Collegiate rower

Follow-up four weeks later —

"I keep waiting for a binge to come, and it hasn't! I have a jar of peanut butter in my room that has lasted 1.5 weeks (instead of 1.5 days). I have a box of granola that I haven't devoured in one sitting...

"I have lost about 7 pounds—without trying!

"I feel so much better about myself ... and I've been rowing really well!"

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Case study

## Teaching Points

- Fuel by day, diet by night
- Eat on a schedule, at least every 4 hours
- Prevent hunger
- Eat the foods you truly want to eat in proper portions
- Goal: wake up ready for breakfast!

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Case study #2

### 42 y.o. Dieter who has regained weight.

Height: 5' 5" Highest wt: 242 lbs (4 years ago)

"I dropped to 185 lbs two years ago with a low-carb Atkins diet and no exercise. I've regained some weight; I'm now 210 lbs...

"I recently started doing CrossFit 6 days a week so I can lose fat and get rid of my bulges—but I am struggling...

"I've been trying to eat 1,300 calories. I am starving all the time. I get so cold that I wrap myself in a blanket at work..."

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### Dieter who regained weight

Current Wt: 210 lbs BMI: 36 ("Obese!!!")

Her goal: 150 lbs (college weight) BMI: 26

Sedentary phone job (7:00 am- 6:00 p.m) + Grad school on weekends

Exercise: CrossFit 6:30-7:30 pm ("I've gotten a lot stronger!!!")

Dad's side of the family: morbidly obese ("I take after my Dad")

Has dieted "all of her life" • Attends Overeater's Anonymous

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### Dieter's Typical (gluten-free) food plan

*"I'm hungry all the time" "I drink a lot of coffee"*

Time	Activity / Food	Calories
5:30	Wakes up	
6:00	Cornmeal (1/2 c uncooked) + 2 scr eggs	300
9:30	13 cheese cubes + 24 grapes	200
12:00	1.5 c broccoli + 3 oz. turkey burger	200
2:00	13 cheese cubes + 24 grapes	200
4:00	1 c almond milk + chia + Pro Powder	200
6:30	CrossFit	-500
8:00	Turkey burger + broccoli	200 (plus more...)

Attempted: 1,300 cals • Estimated energy needs: 2,500-2,800 cals

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### Teaching points

- Eating a semi-starvation is abusive. Stop!
- Allow appropriate intake; eat just a little less food

B/Sn: 700

L/Sn: 700

D/Sn: 700±

- You are lean for your genetics

*"Yes, I am lean compared to my Dad ... "but my skinny mom has always told me that no one likes fat people, so I've always tried very hard to not be fat."*

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### Follow-up: One week later

"I feel like a dog who has been let out of a cage."

"I'm eating 700 calories more than I was and I'm not hungry and cold all the time!"

"Reading the article about starvation was really helpful. I am eating more -- but I am not overeating! I even enjoyed just one slice of pizza!"

"I am so happy to discover I am not a compulsive overeater..."



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### Discussion points

- Keep experimenting and learning from each day
- Keep practicing eating intuitively
- Enjoy appropriate portions of any food you want — including "trouble foods" (to take the power away from them.)

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## Second Follow-up

*"I'm doing great!!!"*

*"I'm trying to get more sleep. I'm more relaxed about food."*

*"I haven't lost weight, but I feel so much better."*

### Teaching points:

Appreciate your body for all the good things it does for you.

Stop comparing and despairing.

Read books on body image ([www.EDcatalogue.com](http://www.EDcatalogue.com))

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Another approach

## The Small Changes Approach to Weight Loss

A National Weight-Gain Prevention Program

- Eat 100 calories less a day
- Walk a little more; add 2,000 steps a day

Research with healthy, overweight adults indicates they could successfully follow this plan because ***it is sustainable!!!***

Ross R, Hill J et al: Evaluating a small change approach to preventing long term weight gain in overweight and obese adults--Study rationale, design, and methods. Contemp Clin Trials. 2016 Mar;47:275-81.

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## Concluding Words of Wisdom

- Eat wisely and exercise enjoyably to enhance your health.
- Be as nice to your body as you are to your car
- Remember: No number on the scale will make you happy.
- Appreciate your body for all the good things it does for you.
- Don't struggle on your own. Consult with a sports dietitian.

Referral network: [www.SCANDpg.org](http://www.SCANDpg.org)

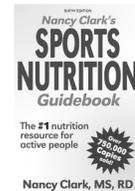
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Thanks for your attention!

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