

Exercise, Fat Loss and Weight Management: The Real Story

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I. The obesity epidemic (CDC 2018 data)

- A. 39.8% of adult population is obese
- B. BMI (kg/m²) ≥ 25 for overweight and ≥ 30 for obese
- C. 93.3 million adults in the U.S. are obese
- D. 13.7 million children (2-19 yrs) obese
- E. Medical costs ~ \$147 billion
- F. Single most important predictor of Type 2 Diabetes: overweight/obesity
- G. Associated risk factors: hypertension, abnormal cholesterol, type 2 diabetes, heart disease, stroke, cancer (endometrial, colon, kidney, gallbladder, liver), osteoarthritis, gallbladder disease, respiratory problems, sleep apnea, body pain, impaired physical function, lowered quality of life
- H. Single most important predictor of Diabetes: overweight/obesity
- I. 50% of the population does not attain basic recommendation of physical activity (150 min of moderate aerobic physical activity on most days of the week and at least 2 or more times a week of muscle strengthening); 30% of population does no physical activity

II. Special Focus: Insulin resistance

- A. Insulin binds with protein receptor on muscle cell; receptor sends a message to GLUT4 transporter protein to shuttle glucose into the cell
- B. With insulin resistance, insulin and the receptor no longer react effectively
- C. Aerobic exercise and resistance training independently activate the GLUT4 protein

III. Modest weight loss works: 5% - 10% loss of initial body weight (Turk et al. 2009)

- A. Lowers blood pressure (if high)
- B. Improves glucose metabolism
- C. Improves lipid profiles
- D. Improves mood states

IV. What is the genetic link (and other factors)?

- A. Genetic link to several obesity disorders (Alstrom-Halligren, Cohen's, Prader-Willi, Turner's syndromes)
- B. Genetic factors may regular a person's tendency to store extra calories as fat
- C. Genetic factors influence your resting metabolism
- D. "Healthy lifestyle choices mitigate genetic risk." (Hruby et al. 2016)

V. What is an "Obesogenic" Environment? (Hruby et al. 2016)

- A. An environment that promotes and produced weight gain through various mechanisms (super sizing, sedentary lifestyle, sedentary occupations, fast food consumption)
- B. Areas with high physical activity (walking paths, hiking trails, cycling lanes) have 31% lower odds of overweight/obesity
- C. Question: Over the course of a decade, a typical adult consumes how many calories?

VI. Why is there a difference in fat distribution between males (android) and females (gynoid)

- A. Fat cells: two types of norepinephrine receptors (alpha-inhibit lipolysis; beta-stimulate it)
- B. 1) Women have more alpha receptors in hips/thighs/buttocks; 2) Women have more lipoprotein lipase (LPL) in the hips/thighs/buttocks

VII. Question: Does dieting make you fat? (Hill 2004)

- A. RMR suppressed up to 20%, very-low-calorie diets suppress most
- B. Physical exercise (aerobic and resistance) has a protective effect on metabolic rate
- C. Post-dieting weight gain rebound from dietary restraint of the diet is major concern

VIII. Overall goal of weight management: Helping people of all sizes be healthy; Len's philosophy is Inch by inch, it's a cinch; yard by yard it's much too hard! Small changes approach presented by Hill 2009)

IX. Behavioral research on the 10,000 real life biggest losers from the National Weight Control Registry, started in 1994 (80% women, age 45, wt 145 lbs; 20% men, age 49, wt 190 lbs) all have lost at least 30 lbs and maintained this weight loss for 1 year

- A. 4 key strategies: doing high levels of physical activity on a daily basis, consuming a lower-calorie diet, weighing themselves frequently (monitoring weight), eating breakfast, typically cereal (low-fat and low-sugar breakfast foods) and fruit, everyday
- B. Exercise strategies: Attain about one hour of exercise each day; often break up the exercise into two 30-minute sessions; exercise at a 'somewhat hard intensity'; 75% report walking as main exercise
- C. Best diet strategy: no two people lost weight in exactly the same way in the registry. In many ways, this gives clients the permission to explore different kinds of weight-loss options; just know that there is a weight management plan, strategy, or program out there that will work
- D. Bottom line diet message: Whether they came to it on their own, or from joining a weight loss group or program, all members of the registry modified their diet in a way to take in few calories
- E. Unique finding: Perhaps a most unique (if not most inspiring) finding is that members who were successful at maintaining their weight loss for two or more years had significantly greater chances of keeping weight off throughout the subsequent years. Scientists believe they have developed very good coping skills that help them manage their weight.
- F. What happens if they gain back 5 lbs or more? They found that those who regain weight tend to periodically lose control of their eating. As well, those with higher levels of depression showed greater odds for regaining weight.
- G. Most common prompts to lose weight: The three most common prompts for weight loss and continued maintenance include medical conditions (23%), reaching an all-time high in body weight (21.3%), and observing oneself in a mirror or a picture (12.75). The next two motivators that follow the top three include wanting to live a longer life and/or having more time to spend with loved ones.
- H. Interesting finding: It's interesting that simply getting a slimmer body isn't what motivates the majority of registry members.
- I. Inspiring message: Quite a few members acknowledge that they had previously made several failed attempts to lose weight before finding what really works for them. Many can attest that they are quite familiar with "yo-yo" dieting (losing and regaining weight in a cyclical manner). This is important for everyone starting a fitness, health and/or weight loss program to know!

J. Inspiring message #2: The majority of the NWCR members kept their motivation up during the trying times (when they gained back weight) until they finally succeeded.

K. Notable finding: Notably, NWCR members who are most consistent with their diet during the week and weekend are 1.5 times more likely to maintain weight loss during the next year. Message is don't let your diet stray away during the weekend.

L. Self-monitoring works: Besides weighing themselves often, many keep dietary and exercise journals. This may be very helpful for clients to track their own journey.

M. Stay on track, or get back on track: Members get back on track if they see they are "sliding" off their program. In other words, they do not let a small lapse turn into a big relapse.

N. Members keep their emotions from affecting their diet and exercise. When faced with emotional challenges, they avoid using food as an escape.

O. How much TV viewing? The majority of the NWCR members watch less than ten hours per week of TV, a major victory in the battle to combat sedentary behavior.

P. Most important message: The most important message to take from these 10,000 real life biggest losers is that losing weight and getting fit is really doable--for anyone who truly seeks this goal!

Q. Tips for breaking problematic behavior chains: you can break the chain at the weakest link

X. Social (Ongoing) support: family, friends, and professionals

A. Things the family can do: keep positive attitude, discuss openly with other family members, keep the home and family relaxed, forgive lapses, tell the family things they can do to help, develop new interests away from food with the family

B. Friends and professional can do? Social support is highly associated with adherence to a weight management program. (Lemstra et al., 2016)

C. Social support: what we all can help our clients do. American swallows 350-470 calories of added sugars each day (soft drinks, sugar/candy, cakes/cookies/desserts, fruit drinks, dairy desserts, sweet grains).

D. Question: Do you believe you are what you eat?

XI. Nutrition education

A. Individualize the dietary (LIFE) style with a mindful approach; try some new eating behaviors

B. Smaller places

C. Eating slowly

D. Creating a pleasant meal-time ambience

D. Focus on eating for health

E. Eat to fill satisfied, not full

F. Remove serving dishes from table

G. 'Serve in kitchen; eat in dining room'

H. Leave table after eating and go for a walk

I. Try to wean yourself from 'second helpings'; What hormone tell you that you are full? Peptide Tyrosine Tyrosine

J. Schedule your meal and your exercise

- K. Try eating with your non-dominant hand
- L. Every once in awhile eat in front of a mirror
- M. Put your eating utensils down after each bite
- N. Smart swapping works
- O. Enjoy your desserts, but go 'mini' size: The following are Nutrition education Tips
- P. Reduced consumption of saturated and trans fats; eat fish and lean meats
- Q. Limit sugar, sweets and salt intake
- R. Eat more whole grains and dietary fiber
- S. Reduce sugar-sweetened beverages; choose fat-free and low-fat milk products
- T. Increase consumption of fruits, vegetables, whole grains and nuts
- U. Do less frying and switch to baking and grilling
- V. You don't have to give up your favorite comfort foods!
- W. Mindful eating is all about balance: find a healthy balance with your comfort foods and healthy food choices
- X. Tips for comfort foods: eat them less often; eat smaller amounts; try a low-calorie version

XII. Daily physical activity

- A. Most adults in U.S. sit 9-12hrs daily (of a 16hr day)
- B. Strong association with sitting and CV disease and all causes of mortality (Diaz et al. 2017)
- C. NEAT study overview by Levine et al 2005: Non-Exercise Activity Thermogenesis (spontaneous movement)
- D. The lean 'couch potatoes' were moving 150 minutes more each day as compared to the obese couch potatoes: On average, they were expending 352 additional kcals/day (which is 36 lbs of fat in a year)
- E. Dr. Levine's philosophy: Move a little, lose a lot
- F. Action plan to combat sedentary behavior: Metabolic profiling (track waking day activity in 30minute blocks of time)
- G. Creating a Metabolic Profile for a Client: Action Plan to Combat Sedentary Behavior
- H. Case study explanation: Interventions at work to combat sedentary lifestyle at work: 1) stand up and walk around the office every 30 minutes, 2) stand up and move every time the client needs to get some water, 3) walk to the farthest bathroom in the worksite facility, 4) take a walk break with every coffee and tea break,
Case study: Interventions at home to combat sedentary lifestyle: 1) get up and move during every commercial, 2) stand up and move for the opening segment of each TV show, 3) at the end of reading 4,6 or 8 pages, get up and walk around the room or house
- I. Introducing a NEW Movement Slogan: "For every 30 get your 3". For every 30minutes of waking behavior get your 3minutes of movement." Diabetes care 2016.
- J. Len's movement philosophy: Move a little faster, lose a lot more!
- K. Len's favorite innovative walking styles to boost metabolism and burn calories: 30-Three (30 seconds brisk, then 3min comfortable); 30-30 (3 seconds brisk then 30 seconds comfortable); Fartlek walking (constantly vary walking speeds); Tempo walking (maximal sustainable walking speed)

XIII. Regular exercise is the #1 predictor of weight loss success. ACSM recommends up to 300 minutes/week of somewhat hard intensity

A. I've heard if I do cardio first thing in the morning I will burn more fat. Is this true?

B. Fed or Fast study: 8 exercise-trained men (27 yrs), 36-min treadmill run under 2 conditions separated by 1 week; Breakfast either BEFORE OR AFTER run, Breakfast-Mediterranean (25% protein, 53% carbohydrate, 22% fat); did 12 and 24-hour oxygen consumption and respiratory exchange ratio (RER): FED burned more calories and more fat calories! Paoli et al. (2011).

XIV: 8 Workouts that burn a lot of calories! Mix them up.

A. High volume metabolic base training: incorporate at a 'somewhat hard' intensity, longer (metabolic base) workouts. Mitochondrion (energy factory of the cell) can get 35% bigger and the cell can make 15%-50% more (fat burning factory of the cell)

B. Fast continuous training: runners call this tempo training (often referred to as a lactate threshold training bout). Tell client to "Exercise at your maximal steady state pace" on any mode of exercise

C. Spring interval training (SIT): 4-6 spring intervals lasting 30 seconds at a hard to very hard intensity. Recover interval is 4.5 minutes at a very light intensity. 30min workout or less is called LVIT for low volume interval training

D. Multi-mode interval play: slow, medium and fast training over a variety of times/distances. No set structure (20-40min). Use multiple modes and mix light, somewhat hard, hard and very hard intensities

E. 3/3 HIIT training: alternate 3min bouts of high intensity (hard to very hard intensity) with 3min bouts of recovery (light intensity). Self-select length of workout to fitness level of client. On any mode of exercise.

F. Cycling HIIT plus running steady state: 10min cycling (hard to very hard) followed by 5min cycling (self-selected intensity) completed 1 to 2x; followed by 15-25min low-intensity run (self-selected intensity)

G. Hill training HIIT: Set treadmill at 5% to 8% grade. During each interval increase speed to brisk walk or jog or run for 1min (hard to very hard intensity). Keep grade of treadmill and recover for 2min (adjust speed for self-selected recovery). 3-6 intervals

H. Peripheral heart action (PHA) training. Developed in 1940's by Dr. Arthur Steinhaus; popularized in 1960's by legendary body builder (Bob Gajda, Mr. America title holder);

*Goal of PHA is to keep blood circulating through the body during the entire workout; typically alternates one exercise for the upper torso and one for the lower extremities with no rest between exercises;

*New research (Piras et al. 2015. European J. Appl Physiol.) utilizing a bench press, leg extension, lat pull, leg curl, shoulder press, calf raise sequence

*9 men, 9 women (24yr, recreationally active) in a 12-week study; 3x/week: 15 reps at 55-60% of 1RM; Did four circuits and rested 1min after each circuit:

*Results showed increase in VO2max by 8% and improvement in several cardiovascular variables

XV: Final recommendations: "Inch by inch, it's a cinch!" The road to successful health, fitness and weight management has no finish line. Thank you for coming to this session