

Individualizing Lifestyle Therapy for Patients With Obesity – Eating Patterns, Physical Activity, and Behavior Efficacy

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Disclosures

- **Industry support**
 - None
- **Off label drug use**
 - None



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Objectives

- **Why focus on obesity?**
 - Weight loss is an issue that endocrinologists must address
 - Evidence suggests lifestyle interventions for healthy eating and regular activity can benefit patients with obesity



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Lifestyle Therapy for Obesity AACE Obesity Clinical Practice Guidelines

- **An evidence-based lifestyle treatment plan includes three components**
 - Dietary meal plan (R64-66)
 - Physical activity (R64, R68-71)
 - Behavior modification (R64, R72-75)



AACE Obesity CPG

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AACE 2016 Obesity CPG's Evidence-based lifestyle treatment program

LIFESTYLE THERAPY		
Evidence-based lifestyle therapy for treatment of obesity should include three components:		
MEAL PLAN	PHYSICAL ACTIVITY	BEHAVIOR
<ul style="list-style-type: none"> Reduced-calorie healthy meal plan ~500-750 kcal daily deficit Individualize based on personal and cultural preferences Meal plans can include: Mediterranean, DASH, low-carb, low-fat, volumetric, high protein, vegetarian Meal replacements Very low-calorie diet is an option in selected patients and requires medical supervision <p>Team member or expertise: dietitian, health educator</p>	<ul style="list-style-type: none"> Voluntary aerobic physical activity progressing to >150 minutes/week performed on 3-5 separate days per week Resistance exercise: single-set repetitions involving major muscle groups, 2-3 times per week Reduce sedentary behavior Individualize program based on preferences and take into account physical limitations <p>Team member or expertise: exercise trainer, physical activity coach, physical/occupational therapist</p>	<p>An interventional package that includes any number of the following:</p> <ul style="list-style-type: none"> Self-monitoring (food intake, exercise, weight) Goal setting Education (face-to-face meetings, group sessions, remote technologies) Problem-solving strategies Stimulus control Behavioral contracting Stress reduction Psychological evaluation, counseling, and treatment when needed Cognitive restructuring Motivational interviewing Mobilization of social support structures <p>Team member or expertise: health educator, behaviorist, clinical psychologist, psychiatrist</p>

Lifestyle Therapy for Obesity #1. Dietary meal plan (R64-66)

• Features

- A healthy reduced-calorie meal plan
 - 500 to 750 calorie daily deficit
 - Individualized to personal and cultural differences
- Meal plan types
 - Mediterranean, DASH, low-carbohydrate, low-fat, high protein, vegetarian
 - VLCD option requires close medical supervision
 - Meal replacements

Diets and Macronutrient Composition

- Reducing total energy (caloric) intake should be the main component of any weight loss intervention
 - However, there is insufficient clinical data to support one dietary pattern over another for weight loss
 - Selection of a specific meal pattern type may be helpful in select patient groups
 - Higher-protein: can enhance satiety
 - Low-fat: ↓es energy dense foods & overeating
 - Low-carb: complex carb + fiber can ↓ calories



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Macronutrient Pattern and Effect on Weight Loss

Eating Pattern or Macronutrient Change	Effect
Low glycemic index load	↑ Endothelial function, ↓ glycemic variability, effects on energy metabolism, decreased adipocyte diameter, no incremental effect on weight loss ¹
Low carbohydrate	Improved lipids and glycemic status, improved cardio-metabolic risk factors, improved renal function, no incremental effect on weight loss (some studies show more short-term weight loss ²)
High protein	Longer benefit on waist circumference and % fat, decreased adipocyte diameter, improved cardio-metabolic risk factors, animal (not plant) proteins associated with markers of inflammation, less relative loss of muscle mass, no incremental effect on weight loss
Moderate carbohydrate – moderate protein	Improved body composition, improved lipids, improved postprandial insulin response
Low fat	Beneficial effects on lipids, benefits on lipids replacing with unsaturated fats, improved renal function, no incremental effect on weight loss
High fat	With lactation: when hypocaloric, better weight loss compared with hypocaloric low-carbohydrate diet

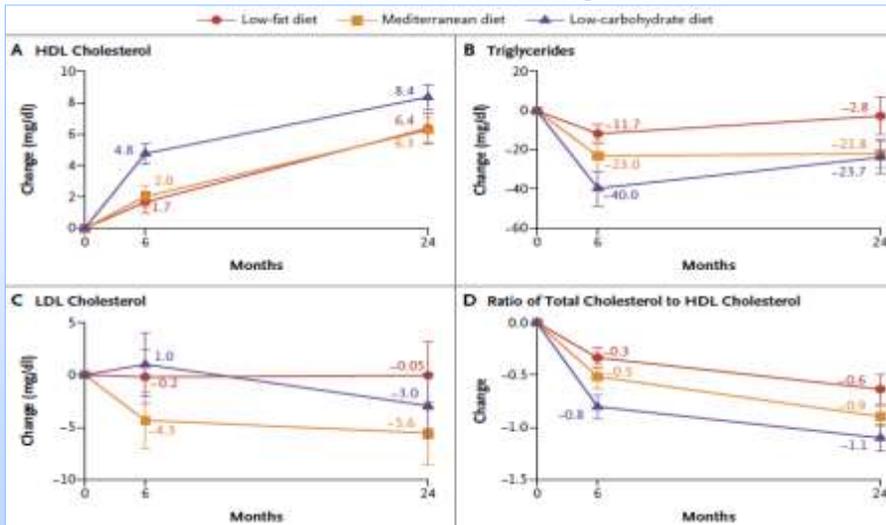
¹Incremental effect in comparison to an isocaloric control diet does not occur or is inconsistent.
²Short term is <1-year.



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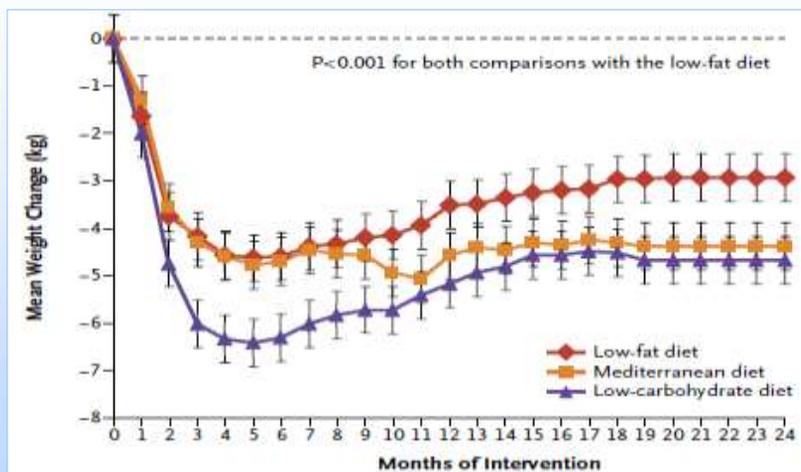
DIRECT Trial: Low-fat, Low-carb, and Mediterranean Diets and Lipids



Dietary Intervention Randomized Control Trial (DIRECT), 322 adults with obesity, 1-year results. Shai I, et al. *N Engl J Med.* 2008;359:229-241

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DIRECT Trial: Low-fat, Low-carb, and Mediterranean Diets and Weight Loss



Dietary Intervention Randomized Control Trial (DIRECT), 322 adults with obesity, 2-year results. Shai I, et al. *N Engl J Med.* 2008;359:229-241

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Macronutrient Pattern and Effect on Weight Loss

Specific Meal or Eating Pattern	Effect
Mediterranean diet¹	<ul style="list-style-type: none"> • Decreased risk of certain cancers • Reduces cardio-metabolic risk factors • Reduces risk of the metabolic syndrome • Reduces markers of inflammation • Improves hepatic steatosis • Improves insulin sensitivity • Improves renal function • No incremental effect on weight loss²
DASH diet³	<ul style="list-style-type: none"> • Decreased systolic BP and diastolic BP (especially in those with baseline HTN and African Americans) • Effective weight loss when combined with (minus 500 calorie/day) reduced energy intake

¹Use of olive oil as fat source, with monounsaturated fat oleic acid as ~75% of fatty acids (EVOO; extra virgin olive oil, with no effect on weight).

²Incremental effect in comparison to an iso-caloric control diet does not occur or is inconsistent.

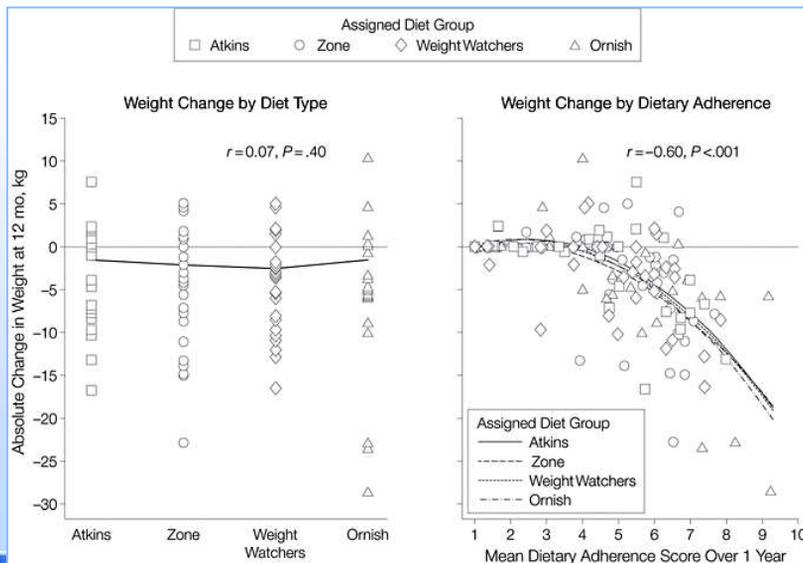
³Rich in fruits, vegetables, and low-fat dairy foods, low in fat content, with limited salt, red meats, sugar and sugar-containing beverages.



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Weight Loss is Related to Diet Adherence



Dansinger ML, et al. *JAMA*. 2005;293(1):43-53.

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Lifestyle Therapy for Obesity

#2 Physical activity (R64, R67-71)

• Features

- Aerobic physical activity
 - Progressing to >150 min/wk, on 3-5 days/wk
- Resistance exercise
 - Single set repetitions of major muscle groups on 2-3 days/wk
- Reduce sedentary behavior
 - Increase non-exercise and leisure activities
- Individualize program
 - As per preferences and physical limitations



AAACE CPG

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Physical Activity & Weight Loss

Recommendations

- Modest (1 to 3 kg) weight loss with >150 min/wk aerobic activity
 - Additional 1-3% total body weight loss when higher intensity aerobic exercise added to a weight loss diet plan
- Resistance exercise training recommended with aerobic activity in patients with obesity and T2DM
 - 2-3 times/wk for major muscle groups
 - Results in more fat loss, with improved body composition and cardio-metabolic risk factors
 - Greater fat loss and less fat-free mass loss

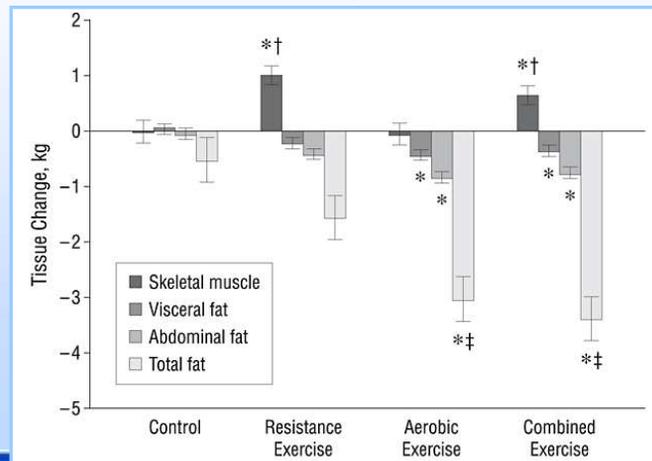


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Exercise Type and Body Composition

MRI measured change in fat and muscle mass

136 sedentary men and women with obesity.
Randomized to 1 of 4 groups for 6 months.



Davidson LE et al. Arch Intern Med. 2009;169:122

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Physical Activity & Weight Maintenance

- More intensive activity often required to maintain weight loss
 - Less weight regain than those less active
 - Equivalent to 30-35 min/day vigorous activity (i.e., jogging/running)
 - Greater amounts of activity associated with longer-term weight loss maintenance
 - DPP trial, Look AHEAD trial, HUNT study
 - In patients with T2DM, intense activity lowers weight (3.6%) more than diet alone
 - Can improve A1c even without change in BMI



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Physical Activity & Weight Maintenance

• Exercise strategies

- Group vs home exercise – ns difference¹
- Structured vs lifestyle exercise – ns difference²
- Short vs long-bouts of exercise³
 - Frequent, intense exercise best
 - Improved weight maintenance with resistance exercise



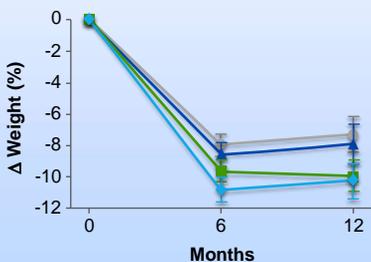
¹Perri M et al. JCCP 1997;65:278. ²Anderson et al. JAMA 1999;281:335. ³Jakicic et al. JAMA 1999;282:1554.
⁴Perri M et al. Diabetes Care; 1993:200.

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Exercise Type and Participation Effect on weight loss

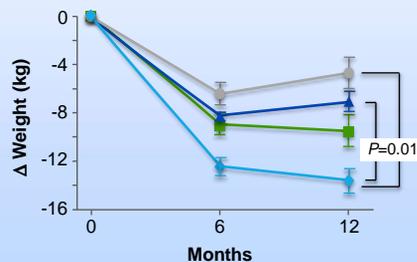
Type of Exercise

- Moderate intensity/moderate duration
- Vigorous intensity/moderate duration
- Moderate intensity/high duration
- Vigorous intensity/high duration



Level of Participation

- <150 min/wk at 6 and 12 mos (n=31)
- Variable* (n=81)
- ≥150 min/wk at 6 and 12 mos (n=33)
- ≥200 min/wk at 6 and 12 mos (n=51)



* ≥150 min/week at 6 months but <150 min/week at 12 months.
 Jakicic JM, et al. JAMA. 2003;290:1323-1330.

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Weight Loss & Maintenance Strategies

- **How much exercise is needed?**
- **For weight loss**
 - DPP >150 min/wk
 - Look AHEAD >175 min/wk
- **For weight maintenance**
 - 200 to 300 min/wk



Jakicic, et al, Obesity 2011

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Lifestyle Therapy for Obesity

Behavior modification

Weight maintenance vs relapse after weight loss in women with obesity

Maintenance of average weight (n=30)

- Regular exercise 90%
- Problem solving 95%
- Social support 70%
- Personalized diet 70%

Relapse to >20% of overweight (n=44)

- Limited exercise 67%
- Escape-avoidance 90%
- Limited support 62%
- Emotional eaters 70%



Kayman S et al. *Am J Clin Nutr* 1990;52:800

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Lifestyle Therapy for Obesity

#3 Behavior modification (R64, R72-75)

• Features

- Goal setting
- Self monitoring
- Problem solving strategies
 - Stimulus control
 - Stress reduction
- Psychological counseling as needed
 - Motivational interviewing
 - Mobilization of social support systems
 - Education and monitoring (face-to-face, group sessions, remote technologies)



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Lifestyle Therapy for Obesity

Behavior modification – individualized

• Getting your patient focused on health

- Ask – raise the question
 - What are you doing now for ____?
 - What has worked for you had in the past?
 - What makes it difficult for you to ____?
 - What are some benefits for you in ____?
- Set realistic expectations
 - Expect relapse, and be supportive
- Behavioral approaches
 - Trans-theoretical theory
 - Social-cognitive theory



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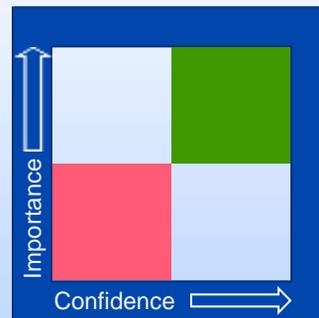
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Building Motivation for Behavior Change

Trans-theoretical model

- **Five stages of changing behavior**

- Pre-contemplative
- Contemplative
- Preparation
- Action
- Maintenance



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Behavior Modification

Social-cognitive model

- **Behavior change is influenced by**

- Environmental factors
 - Avoid cues that promote negative behavior
 - Promote cues that promote positive change
- Personal factors
 - Goal setting – be realistic, with achievable and incremental goals
 - Self-monitoring - for diet and activity
 - Problem solving
 - What is the problem? When and where does it occur? Who else is involved?



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Structured Lifestyle Therapy for Obesity

Critical components and venues for success

- **Healthy, reduced calorie meal plan (R64-66)**
 - Dietitian visits and structured diets, commercial programs, replacement meals
- **Aerobic and resistance exercise (R64, R68-71)**
 - Trainer, health coach, sports medicine
- **Behavior change interventions (R64, R72-75)**
 - Face-to-face office meetings
 - Group sessions
 - Remote technologies (telephone, internet, text messaging)



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Commercial Weight Loss Program

Greater Weight Loss Than Self-help

Weight Watchers Trial (N=423)

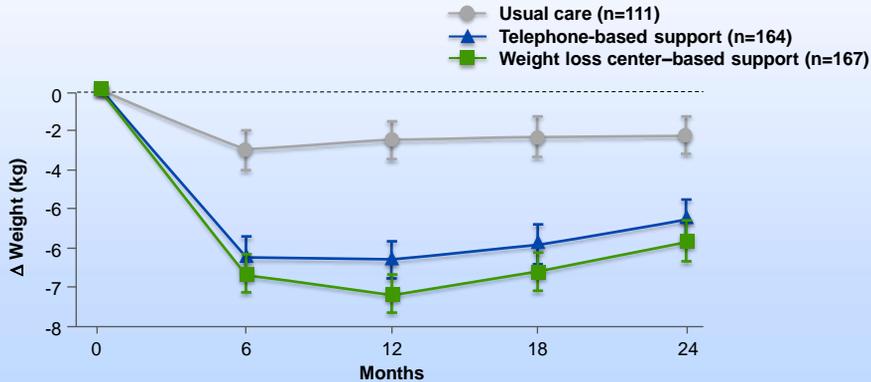


Heshka S, et al. JAMA. 2003;289:1792-1798.

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Commercial Meal Replacement Program Greater Weight Loss Than Usual Care

Jenny Craig Trial (N=442)



Rock CL, et al. *JAMA*. 2010;304:1803-1811.

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Behavior Support Interventions

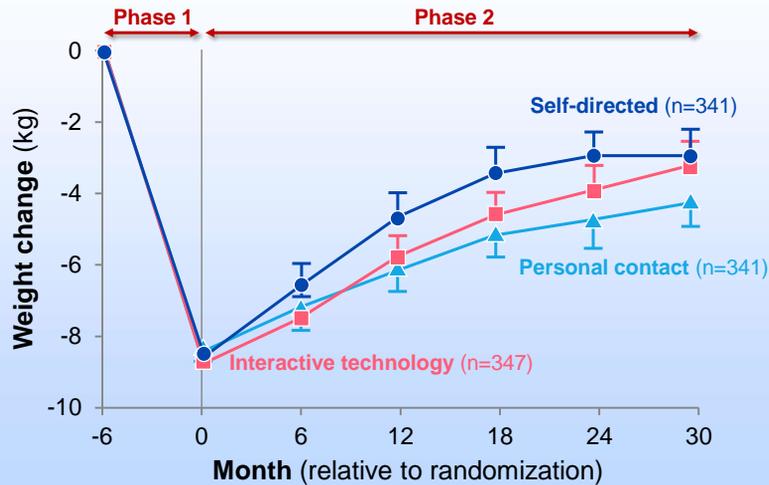
- Behavior lifestyle intervention and support should be intensified if patients do not achieve a 2.5% weight loss in the 1st month
 - DPP – early weight loss predicted long-term weight loss success
 - Weight loss of >5% needed for beneficial effects on A1c, BP, lipids in patients with T2DM
 - A stepped care approach should teach skills for problem solving, and evaluate outcomes
 - The intervention and support should be tailored to ethnic, cultural and educational background



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Weight Loss Maintenance

Adjusted weight change by treatment group



Svetkey et al: JAMA 299(10):1139, 2008

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Lifestyle Therapy for Obesity

NWCR study of successful weight loss

- **77%** had a trigger event
 - Men-medical, and women-emotional life event
- **89%** used both diet and exercise, and 75% weighed regularly once/wk
 - **Diet:** 92% limited calorie intake, 44% limited portion size, 44% counted calories, 23% used a food exchange
 - **Activity:** 92% exercised at home, 72% used aerobic activity (equivalent to ≥ 1000 kcal/wk)
- **95%** had improved QOL – for health, energy level, mobility, mood, and self-confidence



NWCR: National Weight Control Registry. Klem M et al. *Am J Clin Nutr* 1997;66:239.

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Summary: Lifestyle Therapy for Obesity AAACE Obesity Clinical Practice Guidelines

- An evidence-based lifestyle treatment plan includes three components
 - Dietary meal plan (R64-66)
 - Physical activity (R64, R68-71)
 - Behavior modification (R64, R72-75)



AAACE Obesity CPG

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Summary AAACE 2016 Obesity CPG's

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<ul style="list-style-type: none"> • Reduced-calorie healthy meal plan • ~500-750 kcal daily deficit • Individualize based on personal and cultural preferences • Meal plans can include: Mediterranean, DASH, low-carb, low-fat, volumetric, high protein, vegetarian • Meal replacements • Very low-calorie diet is an option in selected patients and requires medical supervision <p>Team member or expertise: dietitian, health educator</p>	<ul style="list-style-type: none"> • Voluntary aerobic physical activity progressing to >150 minutes/week performed on 3-5 separate days per week • Resistance exercise: single-set repetitions involving major muscle groups, 2-3 times per week • Reduce sedentary behavior • Individualize program based on preferences and take into account physical limitations <p>Team member or expertise: exercise trainer, physical activity coach, physical/occupational therapist</p>	<p>An interventional package that includes any number of the following:</p> <ul style="list-style-type: none"> • Self-monitoring (food intake, exercise, weight) • Goal setting • Education (face-to-face meetings, group sessions, remote technologies) • Problem-solving strategies • Stimulus control • Behavioral contracting • Stress reduction • Psychological evaluation, counseling, and treatment when needed • Cognitive restructuring • Motivational interviewing • Mobilization of social support structures <p>Team member or expertise: health educator, behaviorist, clinical psychologist, psychiatrist</p>



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Thank You !

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