Unintentional Weight Loss in Parkinson's Disease

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Objectives

Describe causes of weight loss in PD.

Identify complications of weight loss in PD.

Describe interventions to treat unintentional weight loss.

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Outline

Definition

Prevalence

Causes

Negative consequences

Malnutrition

Tips & Strategies

Patient example

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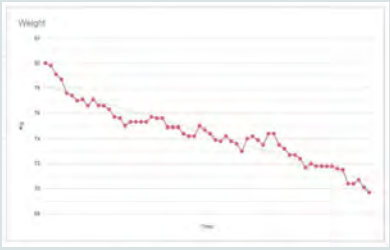
What is significant weight loss?

- **Severe** weight loss:
  - *>5% in 1 month*
  - *>7.5% in 3 months*
  - *>10% in 6 months*
  - *>20% in 1 year*
- Ex: 150 lb female
  - *5% = 7.5 lbs*
  - *20% = 30 lbs*

- Progressive, gradual weight loss over multiple months
- 5% of usual body weight is considered significant regardless of timeframe



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Prevalence

- Can precede PD diagnosis
- Common to be seen in mid-stages of disease and later

- When compared to controls, 41.6% with PD lost ≥5% from baseline weight versus 18.8% of controls over 3-year period.[3]
- In a study of 125 individuals with PD with 6-year average disease duration, 38% of men and 50% of women experienced unintentional weight loss.[6]
- Average weight loss 9 years after diagnosis was 5.7 kg.[4]

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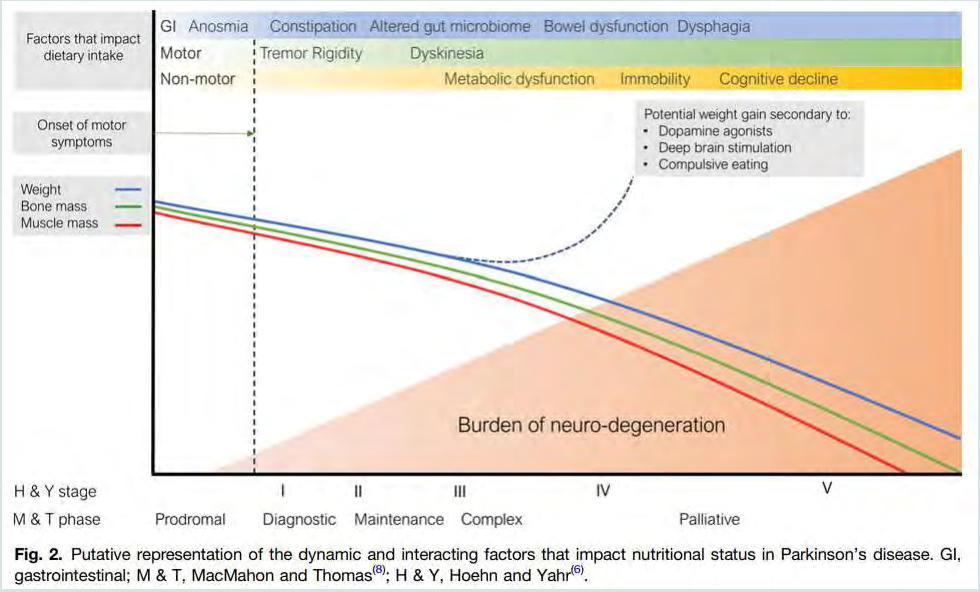

Fig. 2. Putative representation of the dynamic and interacting factors that impact nutritional status in Parkinson's disease. GI, gastrointestinal; M & T, MacMahon and Thomas[8]; H & Y, Hoehn and Yahr[6].

Ó Breasail M, Smith MD, Tenison E, Henderson EJ, Lithander FE. Parkinson's disease: the nutrition perspective. *Proc Nutr Soc*. 2022;81(1):12-26. doi:10.1017/S0029665121003645

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Causes of Weight Loss

- Overall negative energy balance

Decreased intake

+

Increased energy expenditure

- Dysphagia
- Poor appetite
- Self-feeding difficulties
- Impaired ability to prepare meals
- Hyposmia
- Medication side effects
- Tremors and rigidity
- Depression
- Constipation
- Cognitive impairment
- Mitochondrial dysfunction

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Negative Consequences[3,4]

- Reduced quality of life
- More severe parkinsonism
- Osteoporosis and fractures
- Pressure ulcers
- Poor mental function
- Higher comorbidity & mortality
- Decreased energy levels
- Muscle loss
- Frailty
- Mobility issues

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Malnutrition

- Use ASPEN (American Society for Enteral and Parenteral Nutrition) and AND (Academy of Nutrition and Dietetics) criteria
  - *Must meet 2 of the 6 criteria to be diagnosed*
- 24.9% were at risk for malnutrition & 11.1% were malnourished in 2022 review of 5613 patients.[1]
  - *Prevalence of malnutrition ranges from 0-24%*[5]
  - *Risk of malnutrition ranges from 3-60%*[5]
- Do not assume well-nourished if overweight or obese
- Malnourished had poorer quality of life than well-nourished. Improvements in nutritional status improved quality of life.[2]

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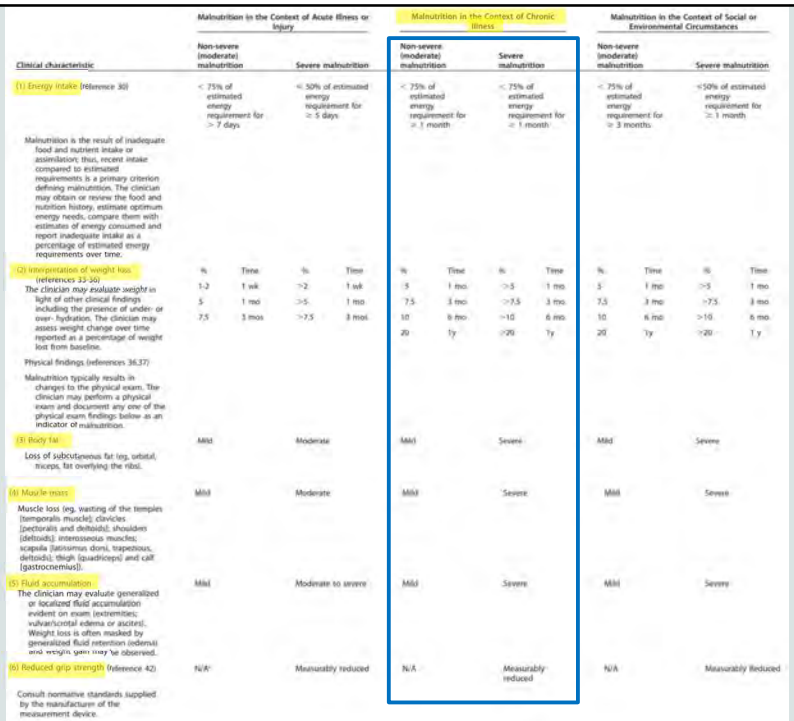

Clinical characteristic	Malnutrition in the Context of Acute Illness or Injury		Malnutrition in the Context of Chronic Illness		Malnutrition in the Context of Social or Environmental Circumstances	
	Non-severe (moderate) malnutrition	Severe malnutrition	Non-severe (moderate) malnutrition	Severe malnutrition	Non-severe (moderate) malnutrition	Severe malnutrition
(1) Energy intake (reference 30)	< 75% of estimated energy requirement for > 7 days	≤ 50% of estimated energy requirement for ≥ 5 days	< 75% of estimated energy requirement for ≥ 1 month	< 75% of estimated energy requirement for ≥ 1 month	< 75% of estimated energy requirement for ≥ 3 months	≤50% of estimated energy requirement for ≥ 1 month
Malnutrition is the result of inadequate food and nutrient intake or assimilation; thus, recent intake compared to estimated requirements is a primary criterion defining malnutrition. The clinician may obtain or review the food and nutrition history, estimate optimum energy needs, compare them with estimates of energy consumed and report inadequate intake as a percentage of estimated energy requirements over time.						
(2) Interpretation of weight loss (references 33-36)	% Time	% Time	% Time	% Time	% Time	% Time
The clinician may evaluate weight in light of other clinical findings including the presence of under- or over- hydration. The clinician may assess weight change over time reported as a percentage of weight lost from baseline.	1-2 1 wk 5 1 mo 7.5 3 mos	>2 1 wk >5 1 mo >7.5 3 mos	5 1 mo 7.5 3 mo 10 6 mo 20 1y	>5 1 mo >7.5 3 mo >10 6 mo >20 1y	5 1 mo 7.5 3 mo 10 6 mo 20 1y	>5 1 mo >7.5 3 mo >10 6 mo >20 1 y
Physical findings (references 36,37)						
Malnutrition typically results in changes to the physical exam. The clinician may perform a physical exam and document any one of the physical exam findings below as an indicator of malnutrition.						
(3) Body fat	Mild	Moderate	Mild	Severe	Mild	Severe
Loss of subcutaneous fat (eg, orbital, triceps, fat overlying the ribs).						
(4) Muscle mass	Mild	Moderate	Mild	Severe	Mild	Severe
Muscle loss (eg, wasting of the temples [temporalis muscle], clavicles [pectoralis and deltoids]; shoulders [deltoids]; interosseous muscles; scapula [latissimus dorsi, trapezious, deltoids]; thigh [quadriceps] and calf [gastrocnemius]).						
(5) Fluid accumulation	Mild	Moderate to severe	Mild	Severe	Mild	Severe
The clinician may evaluate generalized or localized fluid accumulation evident on exam (extremities; vulvar/scrotal edema or ascites). Weight loss is often masked by generalized fluid retention (edema) and weight gain may be observed.						
(6) Reduced grip strength (reference 42)	N/A*	Measurably reduced	N/A	Measurably reduced	N/A	Measurably Reduced
Consult normative standards supplied by the manufacturer of the measurement device.						

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Monitoring Weight

- Look at weight trend in EMR

  Do not wait for a large weight loss, low BMI or appearing frail
- Ask patients to monitor weight at home if possible
- Educate patients!

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Optimizing Intake

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Tips to Increase Intake

Have frequent meals and snacks	Breakfast, morning snack, lunch, afternoon snack, dinner, evening snack
Drink beverages with calories	Milk, fruit juice, vegetable juice, sports drinks, lemonade
Add extra condiments and sauces to foods	Mayonnaise, salad dressings, cheese sauce, alfredo sauce, gravy
Make smoothies or milkshakes	Frozen fruit + milk + ice cream

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Tips to Increase Intake

Drink pre-made nutrition shakes	
Add fat sources to meals and snacks	Oils, butter, mayonnaise, salad dressing, peanut butter, cheese, cream cheese, sour cream, heavy cream, coconut cream, and avocados
Provide new meal and snack ideas	
Eat with others when possible	

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Ideas & Examples

*Disclaimer

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Snacks

- Great opportunity for an extra nutritional source
- Targets open time between meals
- Can be fun!

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High Calorie Snacks (high protein)

- Aim for >200 calories for a snack
- Eat snack at least 30 minutes after or 1 hour before taking carbidopa-levodopa

Food Item	Calories	Protein
4 Oreo cookies and 1 glass Fairlife chocolate milk	420	14
3 oz chicken salad with 10 crackers	370	13
Hummus and pretzel pack	370	10
10 crackers with 2 Tbsp peanut butter	350	9
1 cup 4% milkfat cottage cheese and 1 fruit cup	270	24
1 Greek yogurt with ¼ cup granola	250	14
2 deviled eggs (4 halves)	250	14
1/3 cup mixed nuts	230	8

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High Calorie Snacks (low protein)

- Aim for >200 calories for a snack
- Okay to eat with carbidopa-levodopa

Food Item	Calories	Protein
1 banana with 2 Tbsp Nutella	300	3
½ cup dried mixed fruit	260	0
1 coconut milk yogurt with ¼ cup granola	250	2
1 apple with 2 Tbsp caramel dip	240	0
15 crackers	240	2
1 slice toast with 1 Tbsp butter and 1 Tbsp jelly	220	2
¼ cup chocolate covered raisins	220	2
2 pieces Fig Newtons	200	2

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High Calorie Modifications
-Condiments-

Serving size	Lower calories	Higher calories
1 Tbsp	Light mayonnaise *(35 calories)*	Mayonnaise *(90 calories)*
2 Tbsp	Light sour cream *(35 calories)*	Sour cream *(60 calories)*
1 Tbsp	Light butter *(35 calories)*	Butter *(100 calories)*
8 oz	Skim milk *(90 calories)*	Whole milk *(150 calories)*
5.3 oz	Nonfat Greek yogurt *(80 calories)*	Whole milk Greek yogurt *(140 calories)*
2 Tbsp	Light ranch dressing *(60 calories)*	Ranch dressing *(130 calories)*






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Oral Nutrition Supplements

- Provide extra calories and protein
- Usually work well with dysphagia symptoms
- Can be easier to have instead of solid food when appetite is low
- Convenience

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Oral Nutrition Supplements

High Calorie & Protein Supplement Drinks

If you are looking for a quick drink, try these:

Supplement	Calories	Protein (grams)
Boost Plus®	360	14
Boost VHC®	530	22
ENU Nutritional Drink® *	480-490	25
Ensure Enlive	350	20
Ensure Complete	350	30
Huel® Ready-to-Drink Supplements *	400	22
Kate Farms® Peptide 1.5 *	500	24

- Clear liquid options: Boost Breeze (250 calories) & Ensure Clear (180 calories)

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Oral Nutrition Supplements

Plant-Based Calorie & Protein Supplements

If you prefer a plant-based supplement, try these:

Supplement	Calories	Protein (grams)
Soylent Meal drinks	400	20
Orgain™ Plant Based Protein Powder	150	21
OWYNTM Protein Shake	180	20
EVOLVE® Protein Shake	140	20
Orgain® Plant-Based Protein Shake	150	20
Clean Vegan Protein Powder *	150	24

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"Too expensive"

- Often $2-3 per 8 oz bottle
- Medicare does NOT cover oral nutrition supplements
  - *Medicaid often will*
  - *Private insurance varies on coverage*
- Look for store brand versions
- Whole chocolate and strawberry milk are similar nutritionally to Boost and Ensure Original
  - *$0.35 per 8 oz serving*

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High Calorie Modifications
-Yogurt-

1 yogurt = **110 calories**

1 yogurt + ¼ cup granola + 2 Tbsp ground flax seed = **300 calories**

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High Calorie Modifications
-Pretzels-

1 oz pretzels (28 sticks) = **110 calories**

1 oz pretzels (28 sticks) + 2 Tbsp peanut butter = **300 calories**

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High Calorie Modifications
-Pudding-

1 box instant pudding + 2 cups skim milk
Yields 2 cups pudding

1 cup pudding = **245 calories**

1 box instant pudding + 1 cup whole milk + 1 cup heavy whipping cream
Yields 2 cups pudding

1 cup pudding = **635 calories**

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High Calorie Modifications
-Oatmeal-

1 packet instant oatmeal made with water = **150 calories**

½ cup oats, ¼ cup chopped walnuts, 2 Tbsp peanut butter, 1 Tbsp honey, & 1 Tbsp ground flax seed = **630 calories**

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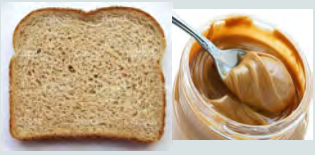
High Calorie Modifications
-Eggs and toast-

2 eggs + 1 slice toast with 1 Tbsp jelly = **320 calories**



2 eggs, 2 Tbsp olive oil, 2 Tbsp heavy whipping cream & ¼ cup cheese + 1 slice toast with 1 Tbsp peanut butter = **815 calories**

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High Calorie Modifications
-Spaghetti-

2 cups noodles, 3 oz ground beef & 1 cup marinara sauce = **590 calories**

2 cups noodles, 1 Tbsp olive oil, 1 cup alfredo sauce, 3 oz chicken & 2 Tbsp parmesan cheese = **880 calories**

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High Calorie Modifications
-Oral Nutrition Supplement-

1 Premier Protein = **160 calories**

1 Boost Very High Calorie = **530 calories**

1 Boost Very High Calorie + 1 cup ice cream = **810 calories**

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Enteral Nutrition Support

- If unable to safely and efficiently consume enough orally, may need to consider a feeding tube.
- Would likely be occurring in later stages of disease.

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Patient Example

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- Patient Example

72 yo female with PD
Onset of tremor at age 60
122 lbs, BMI 18.8 kg/m2

August 2020: Referred by SLP & MD

- 20 lb weight loss over 6 months
- Poor appetite, food gets stuck in throat, early satiety, constipation
- Eating 3 meals + 1 snack
- Recommendations: Frequent meals/snacks, include energy dense foods, Naked Juice Protein/Bolthouse Farms Protein Plus

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Patient Example

December 2020

- Maintained weight at 120 lbs
- Added shake made with Bolthouse Farms Protein Plus + ice cream daily & eating something every 1-2 hours

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Patient Example

May 2021: Contacted by SLP

- Additional 10 lb weight loss after diarrhea from new antidepressant, feels like food backs up into esophagus, constipation
- Eating 3 meals + 3 snacks
- Recommendations: Frequent meals/snacks, chia seed pudding, add second Bolthouse Farms Protein Plus drink

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Patient Example

November 2021

- Maintained weight around 110 lbs
- Added heavy whipping cream to shakes, energy balls, baked goods from friends

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Patient Example

May 2023: Referred by MD

- Gastroparesis, reflux, abdominal pain all day
- Been following gastroparesis diet for several months, but not eating enough
- Weight down to 94 lbs, BMI 14.6 kg/m2
- Recommendations: Sent samples of Kate Farms 1.4 (455 calories), include other calorie-containing fluids, gastroparesis education

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Patient Example

May-August 2023

- Used some Kate Farms and Naked Juice drinks
- Created list of gastroparesis-friendly foods based on preferences to expand options
- Worked with GI team on medication adjustments
- Down to 90 lbs

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Patient Example

December 2023 to present

- Tolerating oral intake much better
- GI symptoms improved
- 3 meals + 2 snacks + 1 bottle Naked Juice + 1 bottle Bolthouse Farms Protein Plus
- Last weight up to **115 lbs**!

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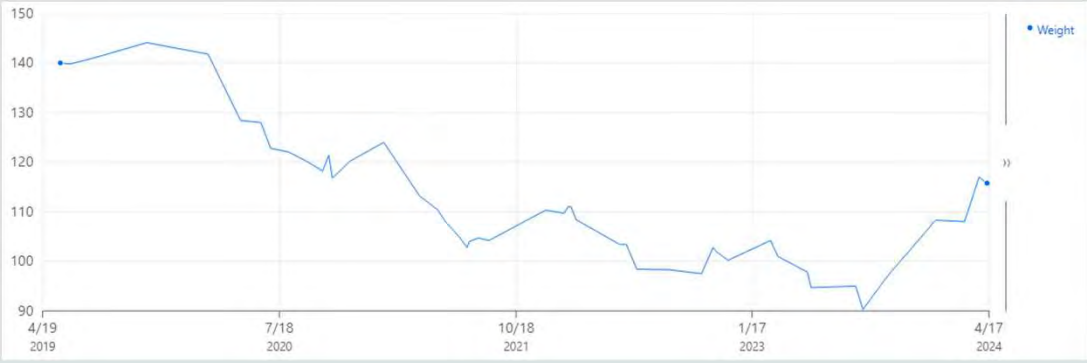
Weight Trend



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What Can You Do?

- Ask some questions
  - *Have you had any weight changes?*
  - *Is your appetite low?*
  - *Are you eating any less than normal?*
  - *Is anything affecting your ability to eat?*
- Let referring MD know
- Try to catch it early!

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References

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Thank you
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