



# Nutritional Rehabilitation In the Anorexic Patient

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## Objectives



- **At the conclusion of the session, the participant will be able to:**
  - Identify common nutritional deficiencies in the anorexic patient
  - Describe the role of Nocturnal Nasogastric Feeding in the eating disordered patient
  - Determine an ideal body weight in a patient with an eating disorder
  - Identify warning signs and describe risk of refeeding syndrome

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## Nutritional Rehabilitation in AN



- Common Nutritional Deficiencies in the Adolescent
- Determining Nutritional Needs and Ideal Body Weight
- Refeeding Syndrome

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## Common Nutritional Deficiencies



- Hypocaloric
- Deficient in macronutrients
  - Fat
  - Protein
- Micronutrients
  - Calcium
  - Iron
  - Folate
  - Vitamins A & E
  - Zinc
  - Magnesium
  - Fiber

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## Complications With Malnutrition



Delayed gastric emptying  
+  
Impaired intestinal motility  
=  
More difficult to reach nutritional goals by oral  
intake alone

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## The Role of NNGR in the Malnourished Patient



- Complements oral intake
- Helps to meet total calorie and fat needs for reasonable rate of weight gain
- Improves dietary quality
- Correct micronutrient deficiencies
- Decrease risk of nutrition related diseases (e.g. osteopenia)

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## Determining Nutritional Needs



- **Total Calories:** based on dietary reference intake (DRI) per kilogram body weight
- **Total Protein:** based on DRI/kg body weight
- **Micronutrients:** DRI for age group + sex
- **Fluids:** based on body weight

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## Determining Ideal Body Weight



- **Rule of thumb:**  
IBW = 50% ile for BMI based on age & height x ht (m<sup>2</sup>)
- **Range: 90-110% of IBW**
- **Assess growth history and developmental stages and use clinical judgment**

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## Determining IBW in the AN patient



- Consider developmental/Tanner stage
- Breast development/menarche in females
- Hair growth patterns/shaving in males

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## Group 1: Normal Weight before AN Onset



- **Divided into:**
  - A) Those who have not yet begun puberty
  - B) Those who are early-mid puberty
  - C) Those who are in end stages of puberty
  - D) Those who have completed puberty

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## Group 1A



- Most uncompleted growth potential
- Goal weight = moving target
- 1<sup>st</sup>: return them to highest weight ever experienced
- Increase weight as growth accelerates, height begins to increase
- Child is “done with gaining weight” when height growth is completed and menstruation has been regular for 2 years (or fully shaving in boys)

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## Group 1B



- Still growing, farther along in growth potential than previous group
- Look in chart to determine growth %ile patterns 2 years before onset of ED
- Aim to return rate to previous %ile before onset
- Continue to gain weight as they gain height

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## Group 1C



- Some, reduced height potential
- Brain development still occurring
- Return to previous growth % ile
- Continue weight gain as height potential is reached

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## Group 1D



- Kids fully grown in height before ED started
  - Brain growth still continuing
- Unless they were obese, resist AN demands of returning to “lowest possible weight”
- Cannot alleviate anxiety by allowing child to keep a “low-end” weight
- Returning to growth percentile prior to ED is healthiest weight

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## Group 2: Obese Prior to ED



- Consider family history and growth history
- Return child to “state” rather than “weight”
- “State” = normalization of heart rate, blood pressure, temperature, normal social behavior
- Girls: normalization/start of menstruation
- Resumption of growth in height
- Size acceptance can be part of family treatment challenge

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## Group 3: Growth Stunted



- Often occurs when AN is untreated
- Look at growth % ile along which the child grew before they showed signs of growth slow-down
- Do not accept partial treatment as growth and brain development are being stunted

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## Determining Nutritional Needs



- **Kcals/kg**
  - Influenced by activity level, basal metabolic rate (BMR), increased requirement to support pubertal growth & development
  - Use DRI's for total kcal based on IBW
- **Protein g/kg**
  - Influenced by the amount of protein required for existing lean body mass and accrual of additional lean body mass during growth spurt
  - Highest need: 9-13 year olds
  - Needs are not as high as you'd think!

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## Determining Vitamin/Mineral Needs



- **Vitamin and minerals are based on Dietary Reference Intake (DRI) for age group set by Institute of Medicine (IOM)**
- **Average diet is inadequate in folate, vitamins A and E, iron, zinc, magnesium, calcium, fiber**
- **Patients meet 80% of vitamin & mineral DRIs through NNGR when on hospital protocol**

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## Re-feeding Syndrome



- Risk when patient has had a period of malnourishment
- Characterized by severe shift in fluid and electrolyte levels (most notably phosphorous)
- Can result in cardiovascular, neurological and hematological complications associated with significant morbidity and mortality
- Serum  $\text{PO}_4$  should be closely monitored
  - Electrolytes, calcium, magnesium

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## Refeeding Syndrome



- Most effective way to treat is be aware
- NNGR is started slowly with supplementation of PhosNac (8mmol  $\text{PO}_4$ , 7 mEq Na, 7 mEq K)
- NNGR increases slowly until needs are met
- Electrolyte abnormalities should be continually monitored for changes
- In some instances, thiamine supplementation may be necessary due to increased requirements upon initiation of nutrition support

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