Adolescents and Young Adults

I. Factors to Consider

A. Psychological
   1. Autonomy
   2. Rebellion
   3. Testing and Searching Behaviors

B. Physiological
   1. Growth Spurt
   2. Sexual development

II. Nutrients of concern

A. Iron
   1. Factors Affecting Iron Absorption
      a. Positive
         i. Heme vs. non heme
         ii. MFP factor or meat factor
         iii. pH- reduction of ferric to ferrous iron
         iv. Organic acids-ascorbic, malic and lactic
      b. Negative
         i. Phytates
         ii. Polyphenols
         iii. Fiber
         iv. Calcium

III. Calcium
A. Calcium in Foods
B. Calcium Intake
C. Calcium Deposition
D. Risk factors for Osteoporosis
   1. Female Sex
   2. Race
   3. Leanness
   4. Small Stature
   5. Early menopause
   6. Family History
   7. Cigarette Smoking
   8. Excessive alcohol
   9. Excessive coffee, caffeine
  10. Excessive protein
  11. Inadequate exercise
  12. Inadequate dietary calcium
E. Calcium Supplements
IV. Nutrients of concern
   A. Iron
   B. Calcium
   C. Fats and Sodium
V. Case 9912: Phil
   A. Principle complaints
1. “fad diet”
2. Fatigue
3. Weight loss

B. Family History
1. Hypertension and hypercholesterolemia - father
2. Fatal Heart attack - maternal grandfather

C. Social History
1. Lives at home with mother, father and two brothers
2. Exercise- very active, soccer and tennis
3. Education - high school freshman, doing well academically

D. Recently adopted a “vegetarian diet”

E. Diet History- 24 Hour recall
1. 2599 Kcal  89% RDA
2. 97 g protein  165% RDA

F. Anthropometrics
1. Weight -117 pounds
2. Height- 5’6”

G. Phil's  Resting Energy Expenditure
1. REE for a male (kcal/day) = 66 + 13.7(W) + 5(H) - 6.8(A)

2. Phil = 66 + 13.7 (W) + 5 (H) - 6.8(A)
   = 66 + 13.7 (53) + 5 (168) - 6.8 (15)
   = 1530
H. Physical Activity

1. Assume about 20% of REE for other activities:

   \[ 1530 \times 0.2 = 306 \text{ kcal} \]

   Soccer and Tennis

   \[ 1339 + 120 = 1460 \text{ kcal} \]

   A conservative estimate of energy expenditure for Phil:

   \[ 1530 + 306 + 1460 = 3296 \text{ kcal/day} \]

I. Comparison to Food Pyramid

J. Treatment

K. Education

   1. Vegetarian diet - include Mom
   2. Adequate Calories

VI. Nutrients Limited in a Vegetarian Diet

A. Vitamin B_{12}--fortified soy beverages and cereals

B. Vitamin D--fortified soy beverages and sunshine

C. Calcium--tofu processed with calcium, broccoli, seeds, nuts, kale, bok choy, legumes (peas and beans), greens, lime-processed tortillas, and soy beverages, grain products, and orange juice enriched with calcium

D. Iron--legumes, tofu, green leafy vegetables, dried fruit, whole grains, and iron-fortified cereals and breads, especially whole-wheat.
1. Zinc--whole grains (especially the germ and bran), whole-wheat bread, legumes, nuts, and tofu

VII. Disordered eating

A broad spectrum of complex behaviors, core attitudes, coping strategies, and conditions that share the commonality of an emotionally-based, inordinate, and often pathological focus on body shape and body weight.

A. Types of disordered eating

1. Anorexia Athletica
2. Anorexia Nervosa
3. Bulimia Nervosa
4. Binge - Eating Disorder

B. Beliefs

1. Disturbance in body image
2. Excessive fear of becoming obese

C. Guilt about eating

D. Behaviors

1. Restricted caloric intake
2. Excessive exercise
3. Binging
4. Purging

E. Effects

1. Delayed puberty
2. Menstrual irregularity
3. Osteoporosis
4. Impaired athletic performance
5. Cardiovascular problems
6. Digestive problems

VIII. Case 9911: Karen

A. Principal complaints
   1. amenorrhea
   2. Fatigue
   3. Weight loss

B. Family History
   1. Osteoporosis - grandmother

C. Social History
   1. Lives at home with mother, father, brother and sister
   2. Exercise- very active, ballet and aerobics
   3. Education - high school freshman, doing well academically, some anxiety
   4. Concerned about hip size
   5. Diet History- 24 Hour recall
      a. 584 Kcal  26% RDA
      b. 44 g protein  99% RDA

D. Anthropometrics
   1. Weight - 118 pounds
   2. Height- 5’ 7 1/2”

E. Karen's Resting Energy Expenditure
REE for a female (kcal/day) = 655 + 9.7(W) + 1.8(H) - 4.7(A)

Karen = 655 + 9.7 (W) + 1.8 (H) - 4.7(A)

= 655 + 9.7 (53.2) + 1.8 (171) - 4.7 (15)

= 1408 kcal /day)

F. Physical Activity

Assume about 20% of REE for other activities:

1408 x 0.2 = 282 kcal

Dancing and Aerobics:

540 + 214 = 745 kcal

G. A conservative estimate of energy expenditure for Karen:

1408 + 282 + 745 = 2435 kcal/day

H. Comparison to Food Pyramid

I. Treatment

1. Education

   a. Exercise and energy requirements

   b. Adequate Calories-diet

   c. Birth Control and STD’s

2. Counseling