Lecture 5

PART 1

By: Dana Khlayfat

Community Notes

Topic: Nutrition in Adolescence
Dr. Ahmad Bataineh

By your colleague, Dana Khlayfat

These notes are written as bullet points from the slides with the additional notes added by the doctor next to each and every point. There is no need to study these sheets along with the slides as I have copied all the information from the slides in here.

Anything marked with asterisks (**) are of high importance. There is a good chance the Doctor would get questions from those.

Best of luck. Your feedback would be highly appreciated.

Slide1: Nutrition in Adolescence

- Adolescence growth and development include both rapid physical growth and dramatic psychosocial development with sexual maturing.
- Normal adolescent growth and development require increased nutritional support.
- Adolescence physical activities and health problems lead to specific nutritional needs
- Personal need guide approaches to adolescent nutrition assessment, counseling, and management.

*No additions were made by the doctor for this slide.

Slide2: Adolescent Growth & Development

- Definition of Puberty: the process of physical developing from a child to an adult is called puberty. Puberty referring to maturation of the total body, is initiated by poorly understood physiologic factors.
- **The individual will gain about 20% of adult height and 50% of adult weight during pubertal growth.
- **Most of the body organs will double in size: Growth at this stage is steady and slow.

Slide3: Initiation of Pubery

- What causes the upsurge in hormonal activity that initiates pubertal development?
  It is known, by default, that a sudden increase in steroid/sex hormones for females (estrogen & progesterone) and males (testosterone) will cause body changes leading to puberty, yet another question is to be held here on the source of this "sudden increase" in sex hormones. In other words, what drives this increase in steroid/sex hormones?
  It has been devised that NO specific causative agent was identified, but theories were made. One of them was the mechanism of feedback inhibition to be a possible cause for this increase in hormones.
- The exact factors or combination of factors that trigger these changes is still unknown. Many theories have been suggested. One popular theory proposes that there is a "gonadostat", an area in the brain that is extremely sensitive to the sex steroids estrogen, testosterone, and progesterone. This "gonadostat" governs the release of these hormones by a feedback mechanism that allows increased production with the onset of puberty.

- An interpretation of the above: Gonadostat –a center found in the brain that is very sensitive to the sex hormones- will be the main target here. The brain will receive signals from the peripheral tissues and organs that the body is deprived from "growth"; growth hormones are low in levels. These signals will directly hit the gonadostat (the hormone-sensitive center in the brain) to release excess amounts of steroid/sex hormones. This will lead to physiological changes = puberty.

An illustration on Negative feedback mechanism:
LOW levels of Growth hormones → Signals to the center (gonadostat) → HIGH levels of Growth hormones → OOPS! Instead of returning the body to its previous state, it caused Physiological changes → Puberty

Slide4: Growth & Development

- Physiologic changes
- Puberty
- Sexual maturity rating (Tanner Stage)
- Growth velocity
- Independence and autonomy
- **Body Image: A disoriented body image for female teenagers. Female teenagers are not satisfied with the way they are. They feel that they are not good enough and will NEVER be good enough. They often set these perfect, unrealistic images in their heads that will never be achievable, and this is will have a large negative impact on their psych.

Slide5: Cognitive and Emotional Development

- **Early Adolescence (ages 13-15)
- **Middle Adolescence (ages 15-17)
- **Late Adolescence (ages 18-21)

Slide6: Nutrient Requirements

- Energy
- Proteins
- Carbohydrates & Fibers
- Fat
- Minerals & Vitamins: calcium, iron, zinc and folic acid

Slide7: Supplement Use

- Variety of foods preferred over supplements: It is advised to eat nutritious diets and NOT supplements that come in the form of pills (example: herbal and botanical supplements/pills).
- Most adolescents do NOT consume nutrient-dense foods: The reasons for this will be discussed later on during this lecture.
- Use of Herbal and botanical supplements: mostly used by females for weight loss. Those types of supplements cause health problems.
- Q) Well then, what is a well-balanced nutrient-dense diet?
  It is a diet that is very nutritious having all the minerals, vitamins, proteins, carbohydrates and fats in the correct proportional amounts. Low-fat diet. Frequent physical activity/sports (at least, 3 times a week for 30 minutes).

Slide8: Food Habits (Bad food habits)

- Irregular meals: having one big meal a day (regardless if it were fast-food or home-made) and depending mostly on the snacks.
- Excessive snacking
- Eating away from home (especially fast food): that is very high in energy (calories) and not clean
- Dieting and Meal Skipping

Slide9: Factors influencing Food Habits

- Decrease influence of family: The parents have this thought in their heads that their child is grown enough to be responsible for what he/she eats. They find it difficult to lecture their grown child on having the best nutritious diet.
- Increasing influences of peers: your peers could influence you negatively
- Increase in Media exposure
- Increasing prevalence of employment outside home
- Greater discretionary spending capacity: due to a job that he has, so we might as well buy something with that money, like fast food for example.
- Increasing responsibilities (less time to eat with the family)

Slide10: Dieting and Body Image

- Disturbance in body image: the female woman is not satisfied enough with herself (mentioned in more details previously)

- High prevalence of dieting: especially with females. They go for supplements/pills without any balance or advice on proper use.

Slide11: Nutrition Screening, Assessment and Counseling

- Recommend annual screening
- Include weight, height, and BMI
- Nutritional assessment should include an evaluation of the nutritional environment, including parental, peer, school, cultural and personal lifestyle factors: Environmental factors that include your parents and peers effects' on you, your school's ability to provide the best evaluation on your diet all can affect your diet's status. Other effects on your diet will include your personal lifestyle, how YOU choose to live. Would you rather eat fast food or homemade food? Would you rather be sitting on a chair all day long instead of exercising? It is your call, and your call only.

Slide12: Vegetarian Dietary Patterns

- Well-planned vegetarians diets can provide adequate nutrients: If the vegetarian's diet was not well-balanced to include all the essential nutrients and minerals, then it will lead to malnutrition and many other health problems.
- Very restrictive diets may signal disordered eating: eating specific types of food (fruits only for example) will not give you ALL the nutrients your body needs.
- Vegan diets do not provide vitamin B12, and may be low in calcium, vitamin D, zinc and iron

Definitions of "vegetarian" and "vegan" according to the website www.vrg.edu :

1. **Vegetarians** do not eat meat, fish, or poultry. **Vegans**, in addition to being **vegetarian**, do not use other animal products and by-products such as eggs, dairy products, honey, leather, fur, silk, wool, cosmetics, and soaps derived from animal products.

- Inappropriately selected vegetarians diets can result in malnutrition.

**Additional information provided by the Doctor:
There are 4 types of vegetarian diets → lacto vegetarian
→ Fruitarian vegetarian (A.K.A Fruitarianism)
→ Pure Vegan
→ Lacto-ovo vegetarian

1- Lacto vegetarian: the doctor did not provide any additional information for this type.
From Wikipedia: A **lacto vegetarian** (sometimes referred to as a lactarian; from the Latin root lact-, milk) diet is a **vegetarian** diet that includes dairy products such as milk, cheese, yogurt, butter, ghee, cream, and kefir, but excludes eggs.

2- Fruitarian Vegetarianism: a type of diet that includes fruits and vegetables (could also include seeds and nuts).

3- **Pure Vegan: Source of food is plant-derived ONLY. It can cause the body to be low in essential minerals and vitamins (like Vitamin B12).

4. Lacto-ovo vegetarianism: The doctor did not provide any additional information for this type.
From Wikipedia: An **ovo-lacto vegetarian** (or **lacto-ovo vegetarian**) is a vegetarian who does not eat animal flesh of any kind, but consumes dairy and egg products.

The terminology stems from the Latin *lac* meaning "milk" (as in 'lactation'), *ovum* meaning "egg", and
the English term *vegetarian* (see Etymology of vegetarianism for the etymology of "vegetarian"), so as giving the definition of a vegetarian diet containing milk and eggs.

Slide13: Eating Disorders

Third most common chronic illness in adolescent females, they are classified into:
1. Anorexia Nervosa
2. Bulimia Nervosa
3. Eating disorders not otherwise specified
Classification was done by the APA (American Psychological Association)
(The details of these eating disorders will be discussed in the next lectures)

Slide14: Obesity

- Increasing prevalence of overweight and obese teenagers
- Multifactorial health issues
- Short-term and long-term health outcomes
- Importance of early identification and intervention
- Concern over bariatric surgery: it is a weight-loss surgery that could be liposuction or stomach surgery (by tying up the stomach to make it smaller). Those types of surgeries are expensive.

Slide15: Hyperlipidemia and Hypertension

- Onset of CVD's (cardiovascular disease) during youth
- Many risk factors are co-morbid conditions
- Diagnosis and treatment
- NCEP and DASH diets: The DASH diet is a diet of proteins and vegetables devised by a nutritionist in California. Some people found that diet very beneficial in fighting off cholesterol and CVDs. Others did not respond at all. Eating in moderation is the best solution for avoiding any diet-related diseases such as hyperlipidemia, hypertension and CVDs.

Slide16: Physical Activity

- Numerous health benefits from physical activity: exercising, at least, 3 times a week for 30 minutes.
- Decline in Physical activity in adolescents: unfortunately, physical inactivity has taken over the adolescents, and with inactivity come bad consequences.

Slide17: Sports nutrition

- Unique nutrient needs
- Adequate fluid intake to prevent dehydration
- Vulnerable to eating disorders

- Female athlete triad

Slide18: Teen Pregnancy

- Recommended weight gain based on BMI. Weight gain during teen pregnancy is at the upper end of the recommended range, 16-18 kgs: teen pregnancy will be discussed in more details in the following lectures. What you need to know here is that the weight gained during pregnancy for adolescents is much greater than the weight gained by other women at different ages. 16-18 kilograms will be gained during pregnancy for a delivery that is safe for the infant and the mother.
- Young gynecologic age or undernourished at time of conception = greatest nutritional needs
- Importance of nutritional assessment and referral

Slide19: Focal Points

- Adolescence is a period of tremendous physical and cognitive changes.
- Teens are nutritionally vulnerable because of increased need for all nutrients at a time when changes in lifestyle and food habits greatly affect nutrient intake.
- Adolescents with special needs, such as those who participate in sports, have a chronic illness, are pregnant, diet excessively, or use alcohol and drugs, are at a high risk for nutritional inadequacies and have the greatest need for nutrition education and counseling
- Educating adolescents about the optimal energy and fat intake and level of physical activity helps them to develop a healthy body and lifestyle and avoid overweight, obesity and its co-morbidities of hypertension and hyperlipidemia.

Lecture 5

PART 2

By: Dana Khlayfat

Community Notes

Topic: Eating Disorders
Dr. Ahmad Bataineh

By your colleague, Dana Khlayfat

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Slide1: Eating Disorders

- Debilitating psychiatric illnesses characterized by a persistent disturbance of eating habits or weight control behaviors: Very common in females due to their constant distorted body image.
- Anorexia Nervosa
- Bulimia Nervosa
- Eating disorders not otherwise specified (EDNOS): diseases that don't fall under the classification of anorexia and Bulimia nervosa.
- Binge eating disorder (BED): very similar to Bulimia.

Difference between Binge eating and Bulimia Nervosa (from http://www.wisegeek.com/what-is-the-difference-between-bulimia-and-binge-eating.htm):
While bulimia and binge eating are both eating disorders and can be treated in fairly similar ways, there are important differences between each one. Bulimia is a disorder in which a person will typically obsess about food and eating to the point that he or she will binge and eat a great deal at once, and then follow that binge with a purge. Binge eating, on the other hand, involves obsession over food and binging, but does not involve purging afterward. Both conditions can be very destructive disorders with serious medical consequences if left untreated.

Slide2: Diagnostic Criteria

- American Psychiatric Association (APA) criteria are the standard.
- Diagnostic and statistical Manual (DSM and TR-IV)

*No additions were made by the doctor for this slide.

Slide3: Anorexia Nervosa

- A disease characterized by:
  -Refusal to maintain a minimally normal body weight: she is never satisfied with her weight.

-Body image distortion
-Amenorrhea in post-menarchal females

- May be one of 2 sub-types:
  -Restricting: only very little and specific food is eaten; the amount eaten is very small and barely enough for her.
  -Binge eating/purging

Slide4: Prevalence of Anorexia Nervosa

- 0.3% to 0.7% of women, rate is about one-tenth in men: Prevalence rate in the Arab countries are very small.
- Initial presentation usually during adolescence or young adulthood
- Genetic, environmental and psychosocial factors
- 5% to 25% of patients die: in hospitals, we rehydrate the patient and force-feed them through the nasogastric tube. Unfortunately, there is no control over the K+ electrolyte. This will lead to a prolonged misbalance in the levels of potassium, and of course this is deadly.

Slide5: Psychological features of Anorexia

- **NOT FOR MEMORIZING**
- Perfectionism
- Compulisivity
- Harm avoidance
- Feelings of ineffectiveness
- Inflexible thinking
- Overly restrained emotional expression
- Limitied social spontaneuity
- May coexist with major depression, anxiety disorders, obsessive-compulsive disorders, personality disorders, and substance abuse.

Slide6: Bulimia Nervosa

- An illness characterized by repeated episodes of binge eating followed by inappropriate compensatory behaviors to prevent weight gain
  - Self-induced vomiting, laxatives misuse, diuretic misuse, compulsive exercise, or fasting
- 2-4% incidence of Bulimia Nervosa (in the original slides, it is written as 1-3%, but then the doctor corrected it)
- Binge = consumption of unusually large amount of food in a discrete period
- Psychiatric co-morbidities: many other psychiatric diseases come along with Bulimia Nervosa.
-

Slide7: Bulimia Nervosa(2-4%)

- APA Criteria:
- The official diagnostic criteria established by the American Psychiatry Association (APA) includes the following behaviors:
- -Recurrent episodes of binge eating, rapid consumption of a large amount of food in a discrete period.
- **Lack of control over binges
- -Regular self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise.
- **Average of two binge-eating episodes a week for at least 3 months (and in other places for 6 months)
- -Overconcern with body shape and weight.
- **Incidence of bulimia nervosa is 2-4%. (V.IMP)
- **As many as 20 % of college-age females may engage in bulimic behaviors

Slide8: Eating Disorder Not Otherwise Specified (EDNOS)

- A diagnostic category for eating disorders that meet most, but not all, criteria for either anorexia nervosa or bulimia nervosa

Slide9: Binge Eating Disorder (BED)

- A disorder characterized by the occurrence of binge eating episodes at least twice a week for a 6-month period
- No inappropriate compensatory behaviors after a binge
- Feeling of powerlessness: feeling weak. No control over oneself
- Emotional distress: anxiety and worry
- Most are overweight
- Night eating syndrome and sleep disorders

Slide10: Eating Disorders in Childhood

- Symptoms of childhood eating disorders
- Warning signs of a childhood/early adolescent eating disorder

Slide11: Eating Disorders in Specific Groups

- Athletes
  - Activities that emphasize lean body type, male bodybuilders and competitive wrestlers
  - Internal and external pressures to achieve unrealistic body weight
  - Female athlete triad
- Individuals with diabetes mellitus
  - Complex medical, nutritional, and psychological management

Slide12: Treatment Approach

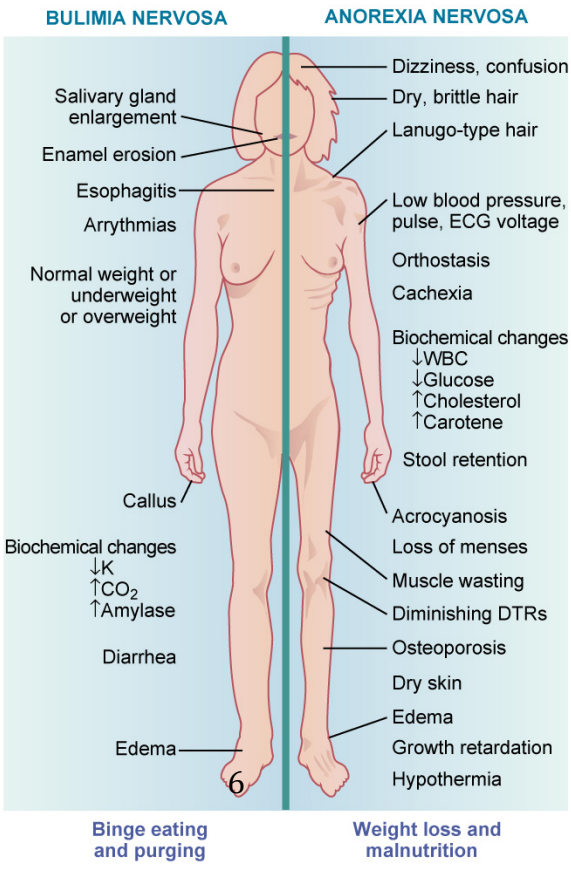
- Multidisciplinary: psychiatric/psychological, medical, nutritional: a whole diverse team is required for treatment.
- Treatment includes inpatient hospitalization, residential treatment, day hospitalization, intensive outpatient treatment, and outpatient treatment: treatments are in hospitals and outside.

Slide13: Clinical Characteristics and Medical Complications

- Anorexia nervosa
- Cachectic and prepubescent body habitus:
  cachectic: to be very skinny and bony. Bones are outlined and protruding, especially at the ribs area.
- Lanugo, dry and brittle hair
- Hypercarotenemia
- Cold intolerance, cyanosis of the extremities
- PEM and cardiovascular complications
  PEM: Protein Energy Malnutrition.
  Cardiovascular complications: like strokes, for example.
- GI complications
- Osteopenia
- Effects on growth and development in children and adolescents

Slide14: Physical Signs and Symptoms of Anorexia Nervosa and Bulimia Nervosa

- **Figure is NOT required for memorization



Slide15: Clinical Characteristics and Medical Complications–cont'd

- Bulimia nervosa
  - Usually normal weight and secretive behavior
  - Signs of self-induced vomiting: teeth and gums will be mostly affected due to the acidity of the vomit.
  - Results of chronic vomiting
  - Effects of laxative and diuretic abuse

  - Laxatives (from Wikipedia):
  Laxatives (purgatives, aperients) are substances that loosen stools and increase bowel movements. They are used to treat and prevent constipation. Laxatives vary based on how they work and the side effects they have.

Slide16: Psychological Management

- Goals
  - Help patients understand and cooperate with nutritional and physical rehabilitation
  - Help patients understand and change behaviors and dysfunctional attitudes
  - Improve interpersonal and social functioning
  - Address psychopathology and psychological conflicts: make the patient more social and interactive with people.
- Behavioral re-inforcers
- Psychotherapy, cognitive behavioral therapy, family/marital therapy
- Assessment instruments

Slide17: Nutrition Assessment

- Diet history
  - Over- and under-reporting
  - Calories retained from binges
  - Specific dietary practices and chaotic eating
  - Nutritional adequacy
- Eating behavior
  - Food aversions: patient prefers a specific type of food to another.
  - Unusual or ritualistic behaviors
  - Trigger foods: Food that has many bad effects on the body when eaten in excess like fatty food, for example.

Slide18: Nutrition Assessment–cont'd

- Laboratory assessment
- Vitamin and mineral deficiencies
  - Hyper-carotenemia, iron deficiency anemia, osteopenia and osteoporosis
- Fluid and electrolyte balance: we look at the levels of Na+ and K+ in the body
  - Significant problems with vomiting and laxative and diuretic abuse
- Energy expenditure
  - Low REE in AN, unpredictable in BN
- Anthropometric assessment
  - Skinfolds, DEXA, BIA, body weight: DEXA is used to test bone density.
  - Long-term monitoring

Slide19: Medical Nutrition Therapy and Counseling: Anorexia Nervosa (AN)

- Goals: correct biological and psychological sequelae of malnutrition, restore body weight, normalize eating patterns, normalize hunger/satiety cues
- **Hospitalize when patient is medically unstable, severely malnourished, or growth retarded
- Institutional protocols: patient participation in menu planning and meal planning approaches
- Outpatient: RD's counseling skills are important
- Most patients are precontemplative
- Reasonable weight-gain goals: 2-3 lb/week for inpatient, 0.5-1 lb/week for outpatient

Slide20: Medical Nutrition Therapy and Counseling: AN–cont'd

- Progressive increase in caloric prescription: +100 to 200 kcals every 2 to 3 days
- Aggressive refeeding of severely malnourished AN patients (<70% standard body weight); care to avoid refeeding syndrome
- May need 3,000 to 4,000 kcals/day to achieve goal weight
- Intake of macronutrients and micronutrients
- Use of snacks and supplements

Slide21: Medical Nutrition Therapy and Counseling: Bulimia Nervosa

- Reasonable plan of controlled eating
- Most patients receive outpatient counseling
- Goal to interrupt binge-and-purge cycle, restore normal eating behavior, stabilize body weight
- Assessment of energy needs
- Macronutrient and micronutrient intake
- Restoration of hunger and satiety cues
- Cognitive behavioral therapy
- Stages of readiness to change

Slide22: Medical Nutrition Therapy and Counseling: Binge Eating Disorder

- Nutrition counseling and dietary management
- Individual and group psychotherapy
- Medication
- Goals: self-acceptance, improved body image, increased physical activity, better overall nutrition

Slide23: Topics for Nutrition Education

- Impact of malnutrition on growth and development
- Impact of malnutrition on behavior
- Set-point theory
- Metabolic adaptation to dieting
- Restrained eating and disinhibiting
- Causes of bingeing and purging
- What does “weight gain” mean? Educate people (especially the teenagers)

Slide24: Topics for Nutrition Education–cont’d

- Impact of exercise on caloric expenditure
- Ineffectiveness of vomiting, laxatives, and diuretics in long-term weight control

- Portion control
- Food exchange system
- Social dining and holiday dining
- Food Guide Pyramid
- Hunger and satiety cues
- Interpreting food labels: read the food labels on the cover/containers of food. Know the percentage of carbohydrates, fats (how much saturated and unsaturated). Palm oil is full of saturated fat, unlike what people tell you.
- Nutrition misinformation

Slide25: Prognosis

- Relapse in AN: up to 50% of patients require re-hospitalization
- Enduring morbid food and weight preoccupation
- Outcomes are better in younger patients
- High mortality rates associated with AN
- Relapse in BN
-
- AN: Anorexia Nervosa
- BN: Bulimia Nervosa

Slide26: Focal Points: *the Doctor does NOT read them, so these are not important.*

- Anorexia nervosa and bulimia nervosa must be understood and appreciated as potentially chronic disorders characterized by periods of relapse.
- Refeeding in eating disorders requires the collaborative effort of medical and mental heath professionals, with the support of friends and family.
- Nutrition rehabilitation can correct some (i.e., hypometabolic state, vital sign instability) but not all (organ mass, bone mass, and growth) of the pathophysiologic consequences of malnutrition in eating disorders.

- Successful long-term treatment can take years, and the expectation of a quick cure should be dispelled.