

Module B12: Nutrition, exercise and obesity

Entry scenario The entry scenario addresses a variety of issues and problems associated with the module topic. It may be used at the beginning of the course to stimulate the students to identify their own needs and interests. The results may be utilized by the individual to assess own learning process, or be integrated with class objectives.

A 13 year-old girl who comes to the clinic with her mother was referred by the school physician because she is gaining weight although she has practically stopped growing. There are 3 other younger children in the girl's Hispanic family, which left their South American country three years ago for political reasons. The father is unemployed and the mother works as a housekeeper. The girl started regular menses two years ago. She never eats breakfast, eats few vegetables and fruits, and no meat. She is quite sedentary, does not like the school exercise class, and spends several hours a day watching TV. Although the mother says her daughter complains about the size of her hips, the girl denies this. She has very few friends. Past history is unremarkable except mild asthma treated with antihistamines and inhaled corticosteroids. There is no family history of early cardiovascular disease or type II diabetes. From the school visit report, you calculate a BMI of 26, which is above the 97th centile for age and gender and is in excess of 36 % above normal weight for height. The girl did not want to come and does not want to be examined. The mother insists on an exam, and wants a blood test to rule out a hormonal problem.

After the mother has left the examining room, the girl explains that having gained weight rapidly bothers her and that she feels different from her peers. She thinks a dietician cannot help her and she doesn't know what to do. You propose that she make another appointment at the clinic, at which time you will examine her. You explain the possible options, emphasizing to her how important it is that she reflects on her choices and her future, and ask her to be open to discussing the situation with other professionals. At the end of the visit you summarize your findings for the mother, indicating that a blood test, which the daughter would not easily accept, is not required at this time and could be discussed at a later date.

General Goals for Learners *By completing the module the participant will be able to:*

- I. Evaluate the nutritional and exercise status in an adolescent in the context of bio-psychosocial development
- II. Identify and assess common deviations (excluding anorexia and bulimia nervosa) from normal eating and activity habits, and sort out the causes and consequences
- III. Plan appropriate intervention for, and manage the adolescent who deviates from normal eating and activity habits
- IV. Assess the need in different settings for health promotion regarding nutrition and exercise, and develop relevant strategies

Goal I. Evaluate the nutritional and exercise status in an adolescent in the context of bio-psychosocial development

	Training Objectives Priority content		Educational methodology	Activities, Issues, and Questions
Know.	<p>A. Specify general guidelines for an optimal diet consonant with pubertal growth in adolescence</p> <ul style="list-style-type: none"> - Meal distribution + content - Nutrients needed - Alterations for athletes, vegetarians, pregnant adolescents <p>B. Understand the positive and negative impacts of physical activities on physical and mental health</p>		<p>Mini-presentation with hand-outs (such as Food Pyramid or meal guidelines) Group discussion</p> <p>Discussion Group work</p>	<p>Trainer gives a short presentation according to skill level of audience. Group discusses how the growth processes of adolescence generate nutritional needs that differ from childhood and adulthood needs. Link the needs to the recommendations of the guidelines, generally and for the special cases under “alterations”. Indicate which recommendations are specifically related to the adolescent growth period (e.g. increased energy needs, sufficient calcium, vitamin D and iron intake) and which apply to all individuals but need repeating to adolescents because of their behavior (e.g. the need for 3 main meals, prioritized complex carbohydrates and limited fast sugars).</p> <p>In preparation for group work, class discuss the “dual-natured” impact of physical activities on physical health (endurance, resistance, lowered susceptibility to injury versus increased risk of injury); on psychological health (self-assurance vs. stress of training and performance); and on social health (group contact vs. social isolation due to restricted free time).</p> <p>Group work suggestions:</p> <ol style="list-style-type: none"> 1. List the major sports activities chosen by adolescents of the participants’ countries, and discuss the possible positive and negative impacts. 2. Based on a listing of different problems presented by teens, discuss which sport or physical activity could be recommended (e.g. for a back problem: swimming better than diving; for asthma: indoor activities during winter rather than outdoor activities; for hypertension: jogging or cycling better than weight lifting.) 3. Discuss the issue of the “female athletic triad” (bone density, menstrual disorder, eating disorder) and appropriate sport choices such as dancing or gymnastics.

<p>Attit.</p>	<p>C. Recognize the factors influencing attitudes and practices of adolescents and parents regarding diet and activity, including sedentary behaviors</p> <ul style="list-style-type: none"> - Cultural, religious, socio-economical aspects - Adolescent- specific behaviors and concerns - Family influence 		<p>Readings Small group work</p>	<p>Small group exercise: Participants list lifestyle attitudes and behaviors in their countries that specifically impact food and activity habits. Which behaviors and attitudes appear to be particular to one country or group, and what may cause these? Which behaviors and attitudes seem to be common to adolescence across cultures (e.g. risk-taking, limit-testing)?</p> <p>Note “sensitive” cultural/religious issues that a health practitioner may be confronted with (e.g. the wearing of an Islamic veil during sports or sharing showers after sports).</p>
<p>Skill</p>	<p>D. Describe and apply the methods used to calculate normal weight, excess or deficit, and to estimate fat distribution</p> <ul style="list-style-type: none"> - Normal weight for height -Body Mass Index - Waist-hip ratio - Definition of obesity and underweight <p>E. Indicate key questions when taking history, and</p>		<p>Handouts (such as calculation methods, charts, definitions) Class discussion</p> <p>Group work Case studies</p>	<p>Discuss the strengths and limitations of each of the methods in relation to pubertal status. Have the students calculate their waist-hip ratio, BMI, and weight for height; compare with curves and charts.</p> <p>Discuss which information is most relevant for an adolescent patient, and how to obtain it (e.g. time and frequency of weighing).</p> <p><u>Case study:</u> A 13 year-old girl involved in gymnastics, or a 16 year-old boy involved in body-</p>

	<p>key findings at physical exam to be used in the assessment of diet, physical activity, fitness and self-perception in adolescent</p> <ul style="list-style-type: none"> - Appropriate language - Timing/sequence of events in consultation - Adapt consultation to the patient's reason for coming 		<p>Role play</p>	<p>building, comes to the outpatient clinic to have a sports club health certificate signed. <u>Case study:</u> A 15 year-old girl who is training to be a beautician, and hoping to become a model, is dieting. Her mother is concerned and seeks your opinion. Take history and list key parameters of physical exam.</p> <p><u>Role-play:</u> Two or three participants from a group can stage a case study to demonstrate the use of relevant questions and appropriate language in the consultation, as well as the timing and execution of an examination.</p>
--	---	--	------------------	--

Goal II. Identify and assess common deviations (excluding anorexia and bulimia nervosa) from normal eating and activity habits, and sort out the causes and consequences

	Training Objectives Key topics to be covered		Educational methodology	Activities, Issues, and Questions
Know	A. Examine theories of causes of obesity, within the context of changing epidemiology		Reading Mini-lecture Class discussion Class exercise and	Trainer adapts lecture to knowledge level of class; highlight the many contributing factors (e.g. endocrine, genetic, psychological, environmental) and put them in an epidemiological perspective (secular trends, link with socio-economic factors). Participants indicate which theories/factors are most relevant to the situation in their own countries. Trainer provides the students with a list of deviations from normal diet (e.g. insufficient calcium,

	<p>B. List the short-term and long-term risks of an inappropriate diet and insufficient activity in adolescence, with special attention to obesity</p> <p>- Growth and body functions - Diseases, comorbidity</p> <p>C. Identify common energizing or performance-enhancing strategies of adolescents related to sports and competition activities</p> <p>D. Identify chronic health conditions possibly associated with disorders of diet and activity</p>		<p>discussion</p> <p>Class discussion</p> <p>Class discussion</p>	<p>fiber or iron, or excess of saturated fat or simple carbohydrates, binge eating) and have them list the possible short-term and long-term consequences. Emphasize that most consequences are “silent or hidden” such as osteopenia, mild anemia, dyslipidemia and glucose intolerance, or “delayed” such as increased incidence of colon cancer, atherosclerosis and diabetes. Briefly mention the rising incidence of Type 2 diabetes. What is the incidence in the countries represented by the participants?</p> <p>Class “brainstorm” strategies, listing them as either natural (e.g. meal content) or artificial (e.g. pain maskers). Refer to case examples, and construct other examples. Discuss the strategies and their limits of safety; What promotes the use of these different strategies? (A detailed discussion of doping is not a goal here.)</p> <p>Case examples:</p> <ol style="list-style-type: none"> 1. A highly ambitious 16 year-old boy appears to be over exerting himself at a local health club. He has bought many different body-building supplements, and may be considering doping. 2. An adolescent involved in judo at the international level has received vitamin prescriptions from the coach. He is convinced that supplements are needed to reach the top level of fitness. <p>Participants: Explain the possible consequences of inappropriate diet and activity on chronic conditions such as diabetes, asthma and cystic fibrosis. Trainers: Highlight how variable the spectrum of consequences can be depending on the disease and its management.</p>
--	--	--	---	---

Goal III. Plan appropriate interventions for, and manage the adolescent who deviates from normal eating or activity habits

	Training Objectives Key topics to be covered		Educational methodology	Activities, Issues, and Questions
Skill	<p>A. Select among the possible interventions those appropriate for overweight adolescents in a multidisciplinary setting</p> <ul style="list-style-type: none"> -Education -Diet and activity - Medications -Surgery -Psychological counseling - “wait and see” <p>B. Prioritize the intervention choices for an adolescent, considering the factors that may interfere with the management of nutritional or activity disorders</p> <ul style="list-style-type: none"> - Biological considerations 		<p>Class discussion or small group work with plenary review Example of a program</p> <p>Class discussion</p>	<p>Class/groups discuss what are the pros and cons of each intervention strategy listed at left when applied to adolescents in general. What are the medical or ethical considerations? What factors will affect the final choice for an individual patient? Note that the adolescent’s input is a factor in compliance.</p> <p>Issue: What are the rationale for and the practicability of a “multidisciplinary approach” to obesity?</p> <p>Case study: A grossly obese 16 year-old girl who has already seen three dieticians and a couple of doctors comes to the private practice. Discuss the choice of treatment for this obese adolescent and how to optimally design a multidisciplinary management.</p> <p>Briefly review several case situations and discuss:</p> <ol style="list-style-type: none"> 1. If and when exceptional treatment such as long term hospitalization or gastric by-pass should be considered, and 2. If and how to involve or not to involve the family or peers in the different interventions with an obese adolescent (planning diet, promoting physical activity, providing support, and counseling). <p>Case examples</p> <ol style="list-style-type: none"> 1. A 15 year-old who is mildly retarded weighs 140 kg and has complications (type 2 diabetes, joint injuries, hypertension and breathlessness during moderate exercise). His parents are obese, not supportive, and had gastric bypass surgery. They want the same for their son.

<p>Attit.</p>	<p>- Motivational, psychological context - Environmental factors, family eating habits, lifestyle</p> <p>- Peers and family opinion</p> <p>C. Increase skill in communication with adolescents on the subjects of nutrition, exercise, and obesity</p> <p>D. Increase personal awareness that private attitudes and experience may influence the health professional's motivation to intervene, as well as the choice of treatment for an overweight adolescent who has unhealthy eating or activity habits</p>		<p>Small group discussion and role play Invited adolescents</p> <p>Self-reflection exercise, small group discussion</p>	<p>2. A moderately obese 14 year-old girl lives in a boarding school during the week, and spends weekends with her grandparents. Her mother and father are divorced.</p> <p>Discuss simple techniques and tricks to assist the adolescent adhere to a diet (food diary, item replacement, self-monitoring, nutrition and “fast food”, behavior modification tips, websites). Use the Activity Pyramid to discuss daily activity needs with an adolescent.</p> <p>How do you communicate with an adolescent who is fanatic about sports achievement and may be engaging in harmful behavior? How do you deal with the case of a coach or sports physician who prescribes a regime or substance you do not agree with?</p> <p>Select one or more of the “sensitive” cultural/religious issues identified by participants in Goal I, Objective C, and role-play counseling an affected adolescent on healthy life style choices for eating and activity.</p> <p>Self-reflection exercise: Examine the influence of one’s own professional background and experience on one’s attitude about weight and lifestyle. For example, what would be the significance to you and to your patient of prescribing thyroxin (substitution doses) or metformin in a euthyroid euglycemic obese adolescent?</p> <p>Group discussion: Recent studies have shown that physicians counsel only 29% of overweight patients and fail to participate in the primary prevention of overweight and obesity (American Medical Student Assoc.). What personal factors, including having previous unsuccessful cases, are likely to interfere with treating weight problems professionally? Share and discuss the results of the self-reflection exercise. What are the reactions to hearing that there is no evidence-based successful weight loss strategy to date? How do the participants feel when faced with the powerful marketing of “junk food”, and the popularity of immobilizing pastimes?</p>
----------------------	--	--	---	---

Goal IV. Assess the need in different settings for health promotion regarding nutrition and exercise, and develop relevant strategies

	Training Objectives Key topics to be covered		Educational Methodology	Activities, Issues, and Questions
Skill	<p>A. Identify the potential facilitators and barriers in the community that need to be taken into account in the development of an anti-obesity program</p> <p>B. Develop a health promotion program with a focus on healthy eating and exercise</p>		<p>Small group work with plenary review</p> <p>(Objectives A and B together)</p>	<p><u>Case study</u></p> <p>A secondary school director is concerned by the increasing incidence of obesity among the students. You are asked to examine the possible contributing factors.</p> <p>Relevant issues: access to sports facilities, parental support, shops and “fast foods” in the neighboring area, snacks and soda drinks available at school, information to students, food and activities available at lunch break.</p> <p>Follow up to the above case study: You have been appointed by a school health official to help develop a program to promote healthy eating and exercise among 12 to 14 years-old students. (Ideas: teach reading food labels, address food packaging, fast food marketing, reflect with small groups of adolescents on body image and dieting).</p>



Resources

Maternal Child Health Program, School of Public Health and Community Medicine University of Washington

<http://faculty.washington.edu/jrees/adolescentnutrition.html>

European Food Information Council Child and adolescent nutrition

<http://www.eufic.org/article/en/page/BARCHIVE/expid/basics-child-adolescent-nutrition/>

University of Washington - Information on Adolescent Nutrition

<http://faculty.washington.edu/jrees/adnutriinfo/adnutriinfo1.html>

Nicholls D, Viner R. Eating disorders. BMJ 330 2005 pp. 950-953

<http://www.bmj.com/content/330/7497/950.full.pdf>

Spruijt-Metz D. Etiology, Treatment, and Prevention of Obesity in Childhood and Adolescence:

A Decade in Review. J Res Adolesc., 2011, 21(1), 129 – 152

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3102537/>

Greydanus, Donald E.; Patel, Dilip R. Medical aspects of the female athlete at puberty : review article. International SportMed Journal, 2004, Vol.5(1), p.1-25 [Peer-Reviewed Journal]

Schag, K ; Schönleber, J ; Teufel, M ; Zipfel, S ; Giel, K E. Food-related impulsivity in obesity and binge eating disorder--a systematic review. Obesity reviews : an official journal of the International Association for the Study of Obesity, 2013, Vol.14(6), pp.477-95 [Peer-Reviewed Journal]