

### **Course title**

**MODERN SCIENTIFIC KNOWLEDGE OF THE EFFECT OF NUTRITION ON DENTAL AND ORAL HEALTH OF CHILDREN AND ADOLESCENTS**

### **Department**

Department of Pediatrics, Sestre milosrdnice University Hospital Center

### **Address**

Vinogradska cesta 29, 10000 Zagreb

### **Total ECTS points**

### **Course leader**

Assoc Prof Gordana Stipancic , PhD, MD, pediatrician, subspecialist of pediatric endocrinology and diabetology

### **Course associates**

Assoc Prof Orjena Zaja, PhD, MD, pediatrician, subspecialist of pediatric gastroenterology and hepatology

Assist Prof Iva Mihatov Stefanovic, PhD, MD, pediatrician, subspecialist of pediatric pulmonology

### **Teaching plan**

	<b>No. classes</b>
<b>Lecture</b>	5
<b>Seminar</b>	6
<b>Practical</b>	2
<b>Total</b>	

1 class = 45 minutes

### **Course description**

The recent decades of major changes in lifestyle, especially in the lifestyles of families, have significant health effects, including effects on dental and oral health of children and adolescents. On the one hand, poverty, restriction of food intake willingly or special dietary regimes under the media influence and on the other hand binge eating and unhealthy eating habits resulting in overweight and obesity, both leads to changes in overall health status including the dental and oral cavity health.

The aim of the subject is to explain the proper diet plan that will provide normal growth and development of children and adolescents and result in health of all organic systems. Situations in which so-called dietotherapy due to the primary illness is needed will be emphasized and alternative new diet forms such as vegetarian and vegan diet which are increasingly encountered among children and adolescents will be specifically analyzed. There will also be an emphasis on the possible macro- and micronutrient deficits, including vitamin and mineral deficits that can develop during the certain dietary regimes or dietotherapy, with a negative effect on health. Particular attention will be given to preventing negative health outcomes in conditions when dietotherapy is necessary. Students

of this subject will be specifically taught how to evaluate nutritional status and determine the risk of developing a health disorder in children and adolescents..

### Learning outcomes

- Appraise the elements of healthy and balanced diet, and according to recent guidelines create a diet plan that will ensure proper growth and development of children and adolescents.
- Assess the level of nutritional disorder using the body mass index percentile curve for the general population of children and adolescents and explain how the contrast such as malnutrition and obesity can affect health condition, especially oral health.
- Classify the differences between diet and special dietary forms such as vegetarian and vegan and identify their potentially negative effects on microbiota, health condition and oral health of children and adolescents.
- Identify and analyze risk factors in nutrition such as vitamin and mineral deficits, responsible for the development of the most common oral diseases in children and adolescents.
- Demonstrate existing and recommend new measures in the diet that contribute to the prevention of deficient condition and protect health condition, especially oral health.

### Course content

#### Lecture

	Lecture topics	Number of classes/hours
1.	- Assoc Prof Gordana Stipancic , PhD, MD Growth and development of children and adolescents, the significance of daily caloric intake and quality of nutrition	1
2.	- Assist Prof Orjena Zaja, PhD, MD Balanced healthy diet, dietotherapy	1
3.	- Assist Prof Orjena Zaja, PhD, MD Alternative dietary lifestyles, vegetarian and vegan diets and their effect on health of children and adolescents	1
4.	- Assist Prof Iva Mihatov Stefanovic, PhD, MD Consequences of dietary vitamin and mineral deficiencies	1
5.	- Assoc Prof Gordana Stipancic, PhD, MD	1

	Frequency of overweight and obesity and their effects on health of children and adolescents	
6.	-	-
7.	-	-
8.	-	-
9.	-	-
10.	-	-

1 sat = 45 minuta

#### Seminari

	Seminar topics	Number of classes/hours
1.	- Assist Prof Orjena Zaja, PhD, MD Consequences of malnutrition on dental and oral health of children and adolescents	1
2.	- Assist Prof Iva Mihatov Stefanovic, PhD, MD Vitamine deficiency – effect on oral health	1
3.	- Assist Prof Iva Mihatov Stefanovic, PhD, MD Mineral deficiency – effect on oral health	1
4.	- Assist Prof Orjena Zaja, PhD, MD The effect of alternative diet forms, vegetarian, vegan and ketogenic diet, on oral health	1
5.	- Assoc Prof Gordana Stipancic, PhD, MD Consequences of overweight and obesity on oral health	1
6.	- Assoc Prof Gordana Stipancic, PhD, MD Role of pediatrician and dentist in evaluating the risk for oral health due to the nutritional status.	1
7.	-	
8.	-	-
9.	-	-
10.	-	-

1 sat = 45 minuta

#### Vježbe

	practicals topics	Number of classes/hours
1.	- Assist Prof Orjena Žaja, PhD, MD Evaluation of nutritional status in children and adolescents - the role of pediatrician and dentist	-
2.	- Assist Prof Iva Mihatov Štefanović, PhD, MD Creating a balanced and healthy nutrition diet with a protective effect on oral health	1
3.	-	-

4.	-	-
5.	-	-
6.	-	-
7.	-	-
8.	-	-
9.	-	-
10.	-	-

1 class = 45 minutes

### Literature

1. Mardešić D i sur. Pedijatrija., osmo, prerađeno i dopunjeno izdanje. ISBN: 978-953-0-31592-1. Školska knjiga, Zagreb, 2016. 1. Rast i razvoj: 25. do 44 st. 2. Poremećaji prometa kalcija i fosfata: 218. – 229. St. 3. Prehrana: 231. do 308. St.
2. Fewtrell M, Bronsky J, Campoy C, Domellöf M, Embleton N, Fidler Mis N, Hojsak I, Hulst JM, Indrio F, Lapillonne A, Molgaard C. Complementary Feeding: A Position Paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) Committee on Nutrition. J Pediatr Gastroenterol Nutr. 2017 Jan;64(1):119-132. (<http://www.espghan.org/guidelines/nutrition/>)
3. Iva Hojsak, Tena Niseteo, Sanja Kolaček, Ranka Despot, Oleg Jadrešin, Nevenka Jelić, Vlatka Konjik, Ana Močić-Pavić, Goran Palčevski, Irena Senečić-Čala, Duška Tješić-Drinković, Jurica Vuković, Orjena Žaja, Zrinjka Mišak. Vegetarijanska i veganska prehrana – smjernice Hrvatskog pedijatrijskog društva za gastroenterologiju, hepatologiju i prehranu. Liječ Vjesn 2018;140:279-332.
4. Gahagan S. Overweight and obesity. In Kliegman RM, Stanton BF, St Geme JW, Schor NF ed. Nelson textbook of pediatrics, 20th edition, Philadelphia: Elsevier; 2016. 307-316.
5. Greenbaum LA. Micronutrient mineral deficiencies. In Kliegman RM, Stanton BF, St Geme JW, Schor NF ed. Nelson textbook of pediatrics, 20th edition, Philadelphia: Elsevier; 2016. 343-345.
6. Parks E, Maqbool A, Shaikhkhalil A, Groleau V, Dougherty KA, Stallings VA. Nutritional Requirements. In Kliegman RM, Stanton BF, St Geme JW, Schor NF ed. Nelson textbook of pediatrics, 20th edition, Philadelphia: Elsevier; 2016. 268-285.
7. Parks E, Maqbool A, Shaikhkhalil A, Groleau V, Vendel D, Stallings VA. Feeding healthy infants, children and adolescents. In Kliegman RM, Stanton BF, St Geme JW, Schor NF ed. Nelson textbook of pediatrics, 20th edition, Philadelphia: Elsevier; 2016. 286-294.
8. Shah D, Sachdev HPS. Vitamin C. In Kliegman RM, Stanton BF, St Geme JW, Schor NF ed. Nelson textbook of pediatrics, 20th edition, Philadelphia: Elsevier; 2016. 329-331.

### CV (*curriculum vitae*) and bibliography of course leader

Assoc Prof PhD, MD Gordana Stipančić, was born in Zagreb in 1957. She graduated from the School of Medicine, University of Zagreb in 1981. Since 1992, she has been working at the Department of Paediatrics in the Sestre milosrdnice University Hospital Center, where she completed her paediatric residency. She is currently the Head of the Department of Endocrinology, Diabetology, Pulmonology and Allergology.

She received her master's degree in 1998 and her PhD in 2010 from the School of Medicine, University of Zagreb. She has been an assistant professor at the School of Dental Medicine, University of Zagreb since February 2014 and an associate professor since January 2020.

She was partly educated abroad; 1994 in Hamburg, Kinderklinik, Universitäts-Krankenhaus Eppendorf, Universität Hamburg, in the paediatric endocrinology department. She completed a course focused on clinical paediatric endocrinology "The Henning Anderson Education Program, Clinical Paediatric Endocrinology" in 1999 in Copenhagen, Denmark. She attended the Annual Diabetes Medical Specialists' Program, May 1999, Indianapolis and Phenix, USA. She completed the "Practical Diabetology Course" organized by the Steno Diabetes Centre, Denmark in 2007. In order to improve insulin therapy with the help of new technologies, she attended the course "Advanced Tools in Insulin Pump Treatment Workshop for the Experts" in 2007 in Switzerland, as well as the course "Advanced Pump School" in Baden, Austria in June 2011, Ljubljana 2014, Hanover 2016 and Budapest 2018.

The narrow area of her scientific and professional work is paediatric endocrinology and diabetology. During her work in this field so far, she has shown special interest and scientific contribution to the issue of diabetes in children. The epidemiology of the disease, its frequency in our area determined by genetic and environmental factors, are constantly the subject of her research. Linking the problems of growth and diabetes, she researched the impact of the quality of metabolic control on the growth and development of children with diabetes. For the last 15 years she has been actively involved in the introduction of the diagnostic method of continuous glucose monitoring and therapy with permanent subcutaneous insulin infusion in children with type 1 diabetes, which was a novelty in Croatia and a sign of monitoring current world achievements in this field. At the same time, she applies the latest achievements in the diagnosis, treatment and monitoring of other endocrinological diseases, with special emphasis on the issue of children's growth and pubertal development.

She has published more than 190 professional and scientific papers and conference papers, most of them in internationally indexed journals. She is the editor of the textbook "Pediatrics" of the University of Zagreb, published in 2022 by Naklada Slap.

She has participated in numerous national and international congresses, gatherings and symposia, mostly as an active participant.

She actively participates in undergraduate courses at the School of Dental Medicine, University of Zagreb and postgraduate courses in "Family Medicine", "School and University Medicine" and "Endocrinology and Diabetology" at the School of Medicine, University of Zagreb.

Since 2015, she and her team have been participating in the international SWEET e.V. a project aimed at optimizing the quality of care for children and adolescents with diabetes through the process of creating centres of excellence with a multidisciplinary approach to care. The project leader is Prof. PhD, MD Tomas Danne, Kinderkrankenhaus auf der Bult, Hannover, Germany. In August 2017, based on the preliminary assessment of the pre-review expert group, the Department of Endocrinology, Diabetology, Pulmonology and Allergology was awarded the title of "Centre of Reference for Paediatric Diabetes" with ISPAD (International Society for Paediatric and Adolescent Diabetes) and IDF certification (International Diabetes Federation).

CROSBİ: <https://www.bib.irb.hr/pretraga?operators=and|Stipan%C4%8Di%C4%87.%20Gordana%20%2827255%29|text|profile>