

Academic Year/course: 2021/22

68427 - Introduction to paediatrics research

Syllabus Information

Academic Year: 2021/22

Subject: 68427 - Iniciación a la investigación en pediatría

Faculty / School: 104 - Facultad de Medicina

Degree: 530 - Master's in Introduction to Medical Research

ECTS: 5.0

Year: 1

Semester: Second semester

Subject Type: Optional

Module:

1. General information

1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

1. To initiate research in the science of nutrition during growth and development in each of its stages of childhood and adolescence.
2. Initiate research to assess and apply the techniques of exploration of nutritional status in children and adolescents.
3. Initiate research in the science of nutrition during growth and development in the perinatal stage.
4. To initiate research in the most current pathology during growth and development in the perinatal stage.
5. Initiate research into the most up-to-date pathology in endocrinology during growth and development in each of its stages children and adolescents
6. Initiate research into the most up-to-date clinical genetic pathology during growth and development in each of its stages children and adolescents

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The course has a fundamentally applied orientation. The teaching and learning tasks focus on the implementation of a number of fundamental principles of pediatrics at different stages of growth and development to specific cases in the field of clinical practice, notarization and / or clinical research.

4.2. Learning tasks

The course includes the following learning tasks:

- Lectures
- Discussion forums via the virtual platform Moodle
- Work on any of the topics developed in the subject from the bibliographic search of articles of the last two years in pub-med.

4.3. Syllabus

The course will address the following topics:

Topic 1. Nutrition and exploration of the nutritional status in children

- 1. Basic concepts in child nutrition
- 2. Body composition, anthropometric assessment, bioelectrical impedance . Absorptiometry and densitometry techniques.
- 3. Dietary surveys
- 4. Energy expenditure. Concepts and valuation. Rating activity and fitness.

Topic 2. Nutrition of newborns: normal and pathological

- 1. Evaluation of growth in the nutritional status and newborns
- 2. Breastfeeding for term and preterm newborn
- 3. Infant formula and special formula in feeding the newborn normal and pathological
- 4. Nutrition of preterm newborn

Topic 3. Advances in pediatric endocrinology

- Growth and puberty
- Childhood and adolescent obesity and its complications
- New aspects of type 2 diabetes in childhood

Topic 4. Advances in pediatric clinical genetics

- 1. Introduction to genetics in pediatrics: family tree
- 2. The dysmorphic child
- 3. Chromosomopathies

4.4. Course planning and calendar

Timetable

- Tuesdays 11, 18, 25 January, 1,8,15 and 22 February 2022 from 16 to 20h.
- The final exam will take place on February 22, 2022.

Part of the course will be taught via Moodle, classroom materials will be available, including a participation forum. For the rest of the course, students will bring their work for class discussion.

Further information concerning the timetable, classroom, assessment dates and other details regarding this course, will be provided on the first day and doubts will be solved through the moodle platform.

The non-classroom teaching of the subject will be carried out following the appropriate methodology, respecting, in any case, the guidelines approved by the Governing Council of the University of Zaragoza.

4.5. Bibliography and recommended resources

1. Nutrients. 2017 Aug 7;9(8). pii: E843. doi: 10.3390/nu9080843. "Omics" in Human Colostrum and Mature Milk: Looking to Old Data with New Eyes. Bardanzellu F, Fanos V, Reali A.
2. Acta Paediatr. 2016 May;105(5):462-7. doi: 10.1111/apa.13308. Epub 2016 Jan 19. Milk kinship is not an obstacle to using donor human milk to feed preterm infants in Muslim countries. Khalil A, Buffin R, Sanlaville D, Picaud JC.
3. J Pediatr Gastroenterol Nutr. 2019 May 13. doi: 10.1097/MPG.0000000000002397. [Epub ahead of print] Feeding the Late and Moderately Preterm Infant: A Position Paper of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition. Lapillonne A, Bronsky J, Campoy C, Embleton N, Fewtrell M, Mis NF, Gerasimidis K, Hojsak I, Hulst J, Indrio F, Molgaard C, Moltu SJ, Verduci E, Domellóf M; ESPGHAN Committee on Nutrition.
4. Nutr Hosp. 2018 Apr 3;35(Spec no2):18-26. doi: 10.20960/nh.1956. Role of prebiotics and probiotics in the functionality of the microbiota in the patients receiving enteral nutrition. Ballesteros Pomar MD1, González Arnaiz E.
5. Nutr Hosp. 2015;31(2):716-729ISSN 0212-1611 318. Original/PediatríaEfecto de la nutrición sobre el crecimiento y el neurodesarrollo en el recién nacido prematuro; revisión sistemática. María José Aguilar

Cordero, A. M. Sánchez López, N. Mur Villar, E. Hermoso Rodríguez y J. Latorre García

6. Rodríguez G, Moreno LA, García M. Sedentarismo y riesgo cardiovascular. En: Moro M, Málaga S, Madero L, eds. Tratado de Pediatría Cruz (11ª ed). Madrid: Panamericana, 2014: 461-465.
7. Moreno LA, Rodríguez G. Valoración del estado nutricional. En: Moro M, Málaga S, Madero L, eds. Tratado de Pediatría Cruz (11ª ed). Madrid: Panamericana, 2014: 1031-1038.
8. Galera-Martínez R, Moráis-López A, Rivero de la Rosa C, Escartín-Madurga L, López-Ruzafa E, Ros-Arnal I, Ruiz-Bartolomé H, Rodríguez-Martínez G, Lama-More RA. Reproducibility and inter-rater reliability of two paediatric nutritional screening tools. *J Pediatr Gastroenterol Nutr* 2017; 64: e65-e70.
9. Aguirre CA, Salazar GD, Lopez de Romaña DV, Kain JA, Corvalán CL, Uauy RE. Evaluation of simple body composition methods: assessment of validity in prepubertal children. *Eur J Clin Nutr* 2015; 69:269-73
10. Burns RD, Fu Y, Constantino N. Measurement agreement in percent body fat estimates among laboratory and field assessment in college students: use of equivalence testing. *PloS One* 2019; 14: e0214029
11. Thompson and Thompson genetics in Medicina. Nussbaum RL, McInnes RR, Willard HF and Amos A. Eds. 8th Edition. Elsevier. Philadelphia, 2016.
12. Emery and Rimoin's Essential Medical Genetics. Rimoin DL, Pyeritz RE and Korf BR. Eds. Elsevier. Oxford, 2013.
13. Medical Genetics An integrated approach. Schaefer GB and Thompson JN Jr. Eds. McGraw Hill. New York, 2014.
14. Practical Genetic Counseling. Harper P Ed., 7th ed. Hodder Arnold. London, 2010.
15. Bennett RL, Steinhaus KA, Uhrich SB, O'Sullivan CK, Resta RG, Lochner Doyle D, Markel DS, Vincent V and Hamanishi J. Recommendations for standardized human pedigree nomenclature. *Am J Hum Genet* 1995. 56:745-752.
16. *J Pediatr Gastroenterol Nutr*. 2019 May 13. doi: 10.1097/MPG.0000000000002397. [Epub ahead of print] Feeding the Late and Moderately Preterm Infant: A Position Paper of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition. Lapillonne A, Bronsky J, Campoy C, Embleton N, Fewtrell M, Mis NF, Gerasimidis K, Hojsak I, Hulst J, Indrio F, Molgaard C, Moltu SJ, Verduci E, Domellöf M; ESPGHAN Committee on Nutrition.
17. *Nutr Hosp*. 2018 Apr 3;35(Spec no2):18-26. doi: 10.20960/nh.1956. Role of prebiotics and probiotics in the functionality of the microbiota in the patients receiving enteral nutrition. Ballesteros Pomar MD1, González Arnaiz E.
18. *Nutr Hosp*. 2015;31(2):716-729 ISSN 0212-1611 318. Original/Pediatría Efecto de la nutrición sobre el crecimiento y el neurodesarrollo en el recién nacido prematuro; revisión sistemática. María José Aguilar Cordero, A. M. Sánchez López, N. Mur Villar, E. Hermoso Rodríguez y J. Latorre García
19. Rodríguez G, Moreno LA, García M. Sedentarismo y riesgo cardiovascular. En: Moro M, Málaga S, Madero L, eds. Tratado de Pediatría Cruz (11ª ed). Madrid: Panamericana, 2014: 461-465.
20. Moreno LA, Rodríguez G. Valoración del estado nutricional. En: Moro M, Málaga S, Madero L, eds. Tratado de Pediatría Cruz (11ª ed). Madrid: Panamericana, 2014: 1031-1038.
21. Galera-Martínez R, Moráis-López A, Rivero de la Rosa C, Escartín-Madurga L, López-Ruzafa E, Ros-Arnal I, Ruiz-Bartolomé H, Rodríguez-Martínez G, Lama-More RA. Reproducibility and inter-rater reliability of two paediatric nutritional screening tools. *J Pediatr Gastroenterol Nutr* 2017; 64: e65-e70.
22. Aguirre CA, Salazar GD, Lopez de Romaña DV, Kain JA, Corvalán CL, Uauy RE. Evaluation of simple body composition methods: assessment of validity in prepubertal children. *Eur J Clin Nutr* 2015; 69:269-73
23. Burns RD, Fu Y, Constantino N. Measurement agreement in percent body fat estimates among laboratory and field assessment in college students: use of equivalence testing. *PloS One* 2019; 14: e0214029
24. Argente J. Challenges in the management of short stature. *Horm Pres Paediatr* 2016; 85:2-10
25. Styne DM, Arslanian SA, Connor EL, Farooqi IS, Murad MH, Silverstein JH, Yanovski JA. Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline.
26. Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine So...
Styne DM, et al.
27. *J Clin Endocrinol Metab*. 2017 Mar 1;102(3):709-757. doi: 10.1210/jc.2016-2573. Consensus Development Conference;

28. Codner E, Acerini CL, Craig ME, Hofer SE, Maahs DM. ISPAD Clinical Practice Consensus Guidelines 2018: What is new in diabetes care? *Pediatr Diabetes*. 2018 Oct;19 Suppl 27:5-6.
29. Mayer-Davis EJ, Kahkoska AR, Jefferies C, Dabelea D, Balde N, Gong CX, Aschner P, Craig ME. ISPAD Clinical Practice Consensus Guidelines 2018: Definition, epidemiology, and classification of diabetes in children and adolescents.
30. ISPAD Clinical Practice Consensus Guidelines 2018: Definition, epidemiol... Mayer-Davis EJ, et al. *Pediatr Diabetes*. 2018 Oct;19 Suppl 27:7-19. doi: 10.1111/pedi.12773. Editorial
31. Sherr JL, Tauschmann M, Battelino T, de Bock M, Forlenza G, Roman R, Hood KK, Maahs DM. ISPAD Clinical Practice Consensus Guidelines 2018: Diabetes technologies. *Pediatr Diabetes*. 2018 Oct;19 Suppl 27:302-325.
32. Zeitler P, Arslanian S, Fu J, Pinhas-Hamiel O, Reinehr T, Tandon N, Urakami T, Wong J, Maahs DM. SPAD Clinical Practice Consensus Guidelines 2018: Type 2 diabetes mellitus in youth. *Pediatr Diabetes*. 2018 Oct;19 Suppl 27:28-46.
33. Harrington J, Palmert MR, Hamilton J. Use of local data to enhance uptake of published recommendations: an example from the diagnostic evaluation of precocious puberty. *Arch Dis Child*. 2014 Jan;99(1):15-20.
34. Palmert MR, Dunkel L. Clinical practice. Delayed puberty. *N Engl J Med*. 2012 Feb 2;366(5):443-53
35. Bueno G, Jiménez P, Garagorri JM. Diabetes tipo 1 y tipo 2. En: M. Rivero et al, eds. Libro blanco de la nutrición infantil en España. Ed. Prensas de la Universidad de Zaragoza, 2015; pp 211-218. ISBN 978-84-16515-24-0
36. Thompson and Thompson genetics in Medicina. Nussbaum RL, McInnes RR, Willard HF and Amosh A. Eds. 8th Edition. Elsevier. Philadelphia, 2016.
37. Emery and Rimoin's Essential Medical Genetics. Rimoin DL, Pyeritz RE and Korf BR. Eds. Elsevier. Oxford, 2013.
38. Medical Genetics An integrated approach. Schaefer GB and Thompson JN Jr. Eds. McGraw Hill. New York, 2014.
39. Practical Genetic Counseling. Harper P Ed., 7th ed. Hodder Arnold. London, 2010.
40. Energy Dense Salty Food Consumption Frequency Is Associated with Diastolic Hypertension in Spanish Children. Pérez-Gimeno G, Rupérez AI, Vázquez-Cobela R, Herráiz-Gastesi G, Gil-Campos M, Aguilera CM, Moreno LA, Leis Trabazo MR, Bueno-Lozano G. *Nutrients*. 2020 Apr 9;12(4):1027. doi: 10.3390/nu12041027. PMID: 32283662
41. *Adv Ther*. 2020 May;37(Suppl 2):29-37. doi: 10.1007/s12325-019-01176-1. Epub 2020 Mar 31.
- Genetic Diagnosis of Rare Diseases: Past and Present Feliciano Ramos-Fuentes, Antonio González-Meneses, Elisabet Ars, Julio Hernández-Jaras
42. The Evolving Microbiome from Pregnancy to Early Infancy: A Comprehensive Review. Mesa MD, Loureiro B, Iglésia I, Fernandez Gonzalez S, Llorba Olivé E, García Algar O, Solana MJ, Cabero Perez MJ, Sainz T, Martinez L, Escuder-Vieco D, Parra-Llorca A, Sánchez-Campillo M, Rodriguez Martinez G, Gómez Roig D, Perez Gruz M, Andreu-Fernández V, Clotet J, Sailer S, Iglesias-Platas I, López-Herce J, Aras R, Pallás-Alonso C, de Pipaon MS, Vento M, Gormaz M, Larqué Daza E, Calvo C, Cabañas F. *Nutrients*. 2020 Jan 2;12(1):133. doi: 10.3390/nu12010133.
43. <https://www.aeped.es/comite-nutricion-y-lactancia-materna/nutricion-infantil>
44. https://www.aeped.es/sites/default/files/documentos/manual_nutricion.pdf