

Kingdom of Saudi Arabia

Alfarabi Private College



المملكة العربية السعودية
كلية الفارابي الأهلية



Title

Growth, development and aging

Course specification

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Code: GAD231

Title: Growth, development and aging

Year: Two

Level: Three

No of weeks: Six

Type of educational unit: Longitudinal course Integrated block

No of credit hours: 4 (2+1+1)

Pre-requisites for the course: Biology

Course principle coordinator: Dr/ Tamer Mohamed Shawky

Course support coordinator: Dr/ Josef Aziz

Members of the Coordinating Committee:

- 1- Dr/ Tamer Mohamed Shawky
- 2- Dr/ Josef Aziz
- 3- Dr/ Jabber Abdelsabour

Description

This block aims at introducing the students to the principles and stages of human growth from the time of gametocytes formation and conception through pre-natal, post-natal, childhood, adolescence, adulthood, and senescence

The block includes relevant basic sciences such as embryology (process of fertilization, implantation, and organogenesis), Physiology (physiological changes of pregnancy, sexual maturation, hormonal changes during adolescence and physiological changes in elderly), Pediatrics and Family medicine (growth charts, milestones, and health issues during childhood and adolescence), and community health (health care services provided to mothers, children and the elderly).



Objectives

	NQF learning domains and course learning outcomes	Course teaching strategies	Course assessment methods
1.0	knowledge		
1.1	Define normal structure and function of the body in relation to its organ systems with the human life cycle and its' effect on a human body's normal structure and function (such as pregnancy, birth, growth and development, and aging).	Practical sessions	
1.2	Label the various anatomical structures and landmarks of : a. The male reproductive organs. b. The female reproductive organs.	Practical sessions	
1.3	Describe the various anatomical structural, landmarks and the measurement of the female pelvis to recognize different types which are of practical importance in obstetrics.	Practical sessions	
1.4	Describe the relationship between the hypothalamus, pituitary hormones, the ovarian hormones and internal female reproductive organs during the menstrual cycle and pregnancy and also identify the endocrine glands in pre-dissected body.	Lectures	
1.5	Outline and describe the menstrual history and its relation to puberty issues including: a. Menstruation, menarche age, periodicity and duration,	Lectures	
1.6	Describe the normal process of development of the three germinal layers (Ectoderm, mesoderm & endoderm).	Lectures	



	the normal process of development of the foetal membranes and placenta and the normal process of differentiation of the three primary germ layers in relation to the number of days post-ovulation with the major organs and systems which derived from the three germinal layers		
1.7	Discuss the important factors which affect the intrauterine growth and the causes and effects of hypoxia on the fetus.	Lectures	
1.8	Describe the structural and functional changes in fetal circulation which occur in the immediate postpartum period.	Lectures	
1.9	Define the birth rate, maternal mortality rate, prenatal, neonatal and infant mortality rates.	Lectures	
1.10	Discuss the relations of hormones with secondary sex characteristic. Identify and describe change at puberty in both males and females.	Lectures	
1.11	Describe the physical, psychosocial changes in old age with the most important geriatric diseases.	Lectures	
1.12	Describe the congenital malformation of the fetus	seminars	
2.0	Cognitive skills		
2.1	Estimate The last normal menstrual period and calculate an estimate of the expected date of delivery. Gravidity & parity number.	Lectures	
2.2	Calculate the apgar score and evaluate the fetal condition.	Lectures	
2.3	Analyze the child growth curves and interpret the rate of growth.	Practical sessions	
2.4	Interpretation of the pregnancy test	Practical session	



2.5	Explain amniocentesis and its usage	seminar	
2.6	Explain and analyze the fetal ultrasound	seminar	

Content

Topics to be covered in this block:

1. Overview of the Male and Female Reproductive Systems.
2. Cell division (mitosis and meiosis) and Gametogenesis (Oogenesis and Spermatogenesis).
3. The 1st week of development of the human embryo (Fertilization, Cleavage, and Implantation).
4. The bilaminar and trilaminar germ disks, the trophoblast differentiation and embryonic cavities formation.
5. Derivatives of the endoderm, mesoderm and ectoderm
6. The placenta and fetal membranes
7. The fetal period
8. Pregnancy and Childbirth
9. The growth Chart and the Well-baby Clinic
10. Physical and physiological changes associated with the onset of puberty (including sexual maturity rating)
11. The stages of adolescence in males and females
12. Physical and physiological changes of aging in men and women (including the menopause)
13. Aging population and its effects on healthcare worldwide

Learning Strategy

The block will utilize the student-centeredness, integration, correlation, learning and retention of the learned knowledge, skills and attitudes. Lectures will be of the interactive type and as few as possible. Certain materials will be studied through practical sessions.

hours	lecture	seminars	practical	others	total
contact	24	12	12		48
credit	2	1	1		4

Timetable

Week one		
Type of activity	Code	Title of activity
Lecture 1	L1	Introduction to the block



Lecture 2	L2	Overview of the Male Reproductive Systems Overview of the Female Reproductive Systems
Lecture 3	L3	Cell division (mitosis and meiosis)
Lecture 4	L4	Gametogenesis (Oogenesis and spermatogenesis)
Seminar 1	S1	Introduction to seminars
Seminar 2	S2	Introduction to seminars
Practical session 1	PS1	Gross and microscopic structure of the testes
Practical session 2	PS2	Gross and microscopic structure of the ovary and uterus
Week two		
Type of activity	Code	Title of activity
Lecture 1	L5	The menstrual and ovarian cycles
Lecture 2	L6	Fertilization, Cleavage and Implantation
Lecture 3	L7	The bilaminar and trilaminar germ disks
Lecture 4	L8	The trophoblast differentiation and embryonic cavities formation
Seminar 1	S3	Amniocentesis (amniotic fluid test)
Seminar 2	S4	The pregnancy test
Practical session 1	PS3	Microscopic structure of the male reproductive system
Practical session 2	PS4	Microscopic structure of the female reproductive system

Week three		
Type of activity	Code	Title of activity
Lecture 1	L9	Pregnancy &labour
Lecture 2	L10	The placenta and fetal membranes
Lecture 3	L11	The fetal period
Lecture 4	L12	Fetal haematology Fetal endocrinology
Seminar 1	S5	Congenital anomalies
Seminar 2	S6	Foetal ultrasound



Practical session 1	PS5	Examination of the abdomen of a pregnant women (a mannequin)
Practical session 2	PS6	Listening to the fetal heart (a mannequin)

Week four		
Type of activity	Code	Title of activity
Lecture 1	L13	Physical development of the infant
Lecture 2	L14	Cognitive development of the infant Psychosocial development of the infant
Lecture 3	L15	Vaccination and immunization
Lecture 4	L16	Nutrition in infancy
Seminar 1	-	Revision
Seminar 2	-	Revision
Practical session 1	PS7	Preparing and interpreting growth charts
Practical session 2	PS8	Clinical examination of a child

Week five		
Type of activity	Code	Title of activity
Lecture 1	L17	Physical development of the young child
Lecture 2	L18	Cognitive & psychosocial development of the young child
Lecture 3	L19	Physical development of the adolescent and young adult
Lecture 4	L20	Cognitive development of the adolescent and young adult Psychosocial development of the adolescent and young adult
Seminar 1	S7	The teenager
Seminar 2	S8	The millennials
Practical session 1	PS9	The IQ & IQ testing I
Practical session 2	PS10	The IQ & IQ testing II



Week six		
Type of activity	Code	Title of activity
Lecture 1	L21	Physical changes in aging
Lecture 2	L22	Cognitive changes in old age Psychosocial changes in old age
Lecture 3	L23	Common diseases of old age
Lecture 4	L24	Care of the elderly (gerontology)
Seminar 1	-	Revision
Seminar 2	-	Revision
Practical session 1	PS11	The final spotter examination
Practical session 2	PS12	The final spotter examination
Week Ten	Final written Exam	

Assessment strategy

Assessment of students will employ a battery of assessment tools that are fit-for-purpose and reliable. Knowledge will be assessed through MCQ-type written exam and computer-based spotter exam. These will be conducted at the middle of the block & at its end. In addition to the mid-block written exam, continuous assessment will be done through quiz and seminar sessions and through assignments.

Schedule of assessment tasks for students during the course				
Assessment task			Week Due	% of Total Assessment
1	Class work (PSW)	Seminar evaluation (10%) Quiz exams (5%) Assignment (5 %)	All weeks	20%
2	Midterm Exam		6 th Week	20%
3	Spotter exam		9 th week	20%
4	Final Written Exam		10 th week	40%



Recommended reading

1. Clinical Anatomy. R. Snell, 7th edition. Lippincott, Williams and Wilkins, 2003.
2. Review of Medical Physiology. William Ganong, 23rd edition. McGraw Hill, 2010.
3. Textbook of Medical Physiology. Guyton and Hall, 11th edition, Elsevier Saunders, 2006.
4. Essential Reproductive Medicine. Bruce R. Carr, Richard E. Blackwell, and Ricardo Azziz, 1st edition. McGraw-Hill Professional, 2004.
5. The Developing Human: Clinically Oriented Embryology. K.L. Moore and T.V.N Persaud, 8th edition. W.B. Saunders Co., 2008.
6. Langman's Medical Embryology. T.W. Sadler, 11th edition. Lippincott, Williams & Wilkins, 2009.
7. Stedman's Medical Dictionary, 28th edition. Lippincott, Williams and Wilkins, 2005.
8. Nelson Essentials of Pediatrics. Robert Kleighman and Richard Behrman, 18th edition. Saunders, 2007
9. Fetal and Neonatal Physiology (2 volumes). Richard Polin, William Fox, and Steven Abman, 3rd edition. Saunders, 2004.
10. Basic Science in Obstetrics and Gynaecology: A Textbook for MROC Part 1. Michael de Swiet, Geoffrey Chamberlain, and Phillip Bennett, 3rd edition. Harcourt Publishers, 2002.
11. Developmental-Behavioral Pediatrics: Expert Consult. William B. Carey, Allen C. Crocker, Ellen Roy Elias, Heidi M. Feldman, William L. Coleman, 4th edition. W. B. Saunders, 2009.
12. Childhood and Adolescent Psychiatry. Melvin Lewis, 3rd edition. Lippincott Williams and Wilkins, 2002.
13. Psychology: Behaviour in context. L.F. Bourne and N.F. Russo, 1st edition. Norton Publishing, New York, 1998.
14. Global Health and Global Aging. Mary Robinson, William Novelli, Clarence Pearson, Laurie Norris, 1st edition. Jossey-Bass, 2007.

Recommended electronic resources

Embryology education

https://embryology.med.unsw.edu.au/embryology/index.php?title=Embryology_Education

Human embryology animations

http://www.indiana.edu/~anat550/embryo_main/

Embryology for medical students

<http://medstudent.net/embryology.html>

The fact of your creation

<https://www.wiziq.com/tutorial/32620-PART-1-THE-FACT-OF-YOUR-CREATION-Human-creation>

http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/S/Sexual_Reproduction.html

<http://www.pregnancy.org/pregnancy/fetaldevelopment1.php>

<http://www.epigee.org/fetal.html>

<http://www.planababy.com/INVESTIGATIONS%20TESTS.HTM>

<http://www.nlm.nih.gov/medlineplus/ency/article/002003.htm>

http://www.bma.org.uk/images/childhoodimm_tcm41-20002.pdf

http://www.bbc.co.uk/health/womens_health/body_menopause2.shtml#physical_symptoms

<http://www.womens-health.co.uk/menopause.html>

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<http://medlineplus.nlm.nih.gov/medlineplus/menopause.html>

<http://journals.cambridge.org/action/displayJournal?jid=ASO>

<http://www.accessmedicine.com/home.aspx>