Growth, Development, Nutrition & Ageing Module – Year 2 Semester II (2014/15 Batch)

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Concept	Objectives	Time	Department	T / L Activity
	At the end of the module, the students should be able to:			
2014-2/SBM-9/01				
Introduction to growth and Development	1. define growth and development 2. emphasize the relevance of learning growth and development 3. fascinating complexities of natural growth and development 4. introduce the module and its objectives	1h	Paediatrics	Lecture
	5. describe the factors affecting growth and development. i.e. genetic, hormonal, nutritional, immunological and metabolic factors	1h	Biochemistry	Lecture
2014-2/SBM-9/02				
Cell Growth	1. recall the function of somatic cell division in cell replacement and growth	Recall	Biochemistry	
a) DNA replication	2. recall the basic events of DNA replication and DNA repair			
b) Cell Cycle	3. recall the phases of the cell cycle			
c) Protein synthesis	4. briefly state how the cell cycle is regulated and the consequences of deranged cell cycle 5. recall the basic events of protein synthesis			
2014-2/SBM-9/03				
Prenatal growth	1. describe the factors affecting and regulating fetal growth 2. state the significance of healthy prenatal growth 3. describe common mechanisms resulting in congenital abnormalities and intra uterine growth retardation	1h	Obs.& Gynaecology	Lecture

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2014-2/SBM-9/04 **Prenatal Growth**				
Clinical, Anthropological, and Laboratory (Imaging, biochemical and Haematological) assessment of Congenital abnormalities and IUGR	1. describe the importance of the biochemical identification of the fetal defects 2. describe the importance of early identification of fetal defects based on biochemical investigations	1h	Biochemistry	Lecture
	3. explain the rationale for providing special nutritional requirements during pregnancy and lactation	1h	Biochemistry	Lecture
2014-2/SBM-9/05				
New born baby	1. physical characteristics of a new born baby _ wt, length, OFC 2. deference from an adult – Proportions, physiology 3. changes at the time of birth – CVS, RS, Gut 4. normal Growth during neonatal period 5. normal development during neonatal period 6. needs of a new born baby for optimum growth and development	1h	Paediatrics	Lecture
2014-2/SBM-9/06				
Normal growth and growth charts	1. what is normal growth pattern – phases of growth 2. methods of evaluation of growth 3. Growth charts and their uses 4. needs for normal growth	1h	Paediatrics	Lecture Demonstration
2014-2/SBM-9/07				
Abnormal growth patterns	1. define – FTT, wasting, obesity, short stature, tall stature 2. abnormal growth patterns in growth chart – Crossing centile, unstable growth pattern, 3. evaluation of height and prediction of adult height - Parental size , pubertal stage, bone age 4. introduce Gomus and waterlo classification	1h	Paediatrics	Lecture

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	5. describe the radiological assessment of skeletal development and estimation of age	1h	Radiology	Lecture
	6. identify laboratory and clinical features associated with malnutrition including kwashiorkor, marasmus, mineral and vitamin deficiencies	2h	Biochemistry	Lecture
	7 identification of clinical problems based on biochemically test 8. identification of deficient nutrients in food defects	3h	Biochemistry	PD (3hx2)
2014-2/SBM-9/08				
Growth chart	1. introduce the practical assessment of growth and development 2. draw a man tests 3. correlation – anatomical diagnosis, etiological diagnosis 4. introduce CHDR	5h	Paediatrics	CCR on a growth retarded child
2014-2/SBM-9/09				
Normal Development	1. what is normal development and normal pattern 2. brief introduction to development theories 3. introduce domains of development - Gross motor, Fine motor and vision, hearing and speech, social emotional and behavioral 4. intellectual and spiritual development 5. needs for normal development	1h	Paediatrics	Lecture
2014-2/SBM-9/10				
Abnormal development pattern	1. introduce development delay 2. deviations of development - bottom shufflers, commando crawlers 3. concept limit age 4. global development delay and specific development delay	1h	Paediatrics	Lecture
2014-2/SBM-9/11				
Normal Sexual Development	1. introduce normal maturation process and its normal range of deviation 2. sex determination at birth 3. sexual maturation physical and psychological changes	1h	Paediatrics	Lecture

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	4. tanner staging 5. needs for normal sexual maturation			
2014-2/SBM-9/12				
Abnormal Sexual Development	1. introduce precocious puberty and delayed puberty 2. introduce central & peripheral precocious puberty 3. introduce isosexual and hetero sexual precocious puberty	1h	Paediatrics	Lecture
2014-2/SBM-9/13				
Ageing	1. describe the factors affecting the process of ageing and the consequences of ageing on the individual family and community	2h	Medicine/ Biochemistry/ Com. Med.	Staff Seminar
	2. describe the special nutrition requirements of elderly	1h	Biochemistry	Lecture
	3. outline the Physical neurological, sexual and psychological changes that occur with aging in females	1h	Gyn. & Obs.	Lecture Demonstration
	4. describe the changes in the tissue composition in ageing (general & specific) 5. describe the general changes in the cell, apoptosis and nutritional problem in ageing.	1h	Biochemistry	Lecture
2014-2/SBM-9/14				
Why living beings have to eat	1. state the characteristics of a balanced diet.	3h	Biochemistry	Lectures: 1h + SGD - 2h
a. Balanced diet **b. Nutrients and how they are used in the body – fate of nutrients**	2. describe the functions of different nutrients absorbed from the alimentary tract (with special reference to glucose, lipids, amino acids, vitamins and minerals). 3. state the fate of nutrients absorbed.			
	4. classify the dietary fibre, describe the soluble and insoluble fibres, describe the benefits of fibre	1h	Biochemistry	Lecture
		1h	Com. Medicine	Lecture
2014-2/SBM-9/15				
Do you eat enough	1. explain why energy is required. 2. list the sources of energy. 3. explain what is BMR.	5h	Biochemistry	Lectures: 3h SGD: 2h
a. Energy requirement	4. state the methods available to assess energy requirement. 5. explain how energy requirement could be calculated using BMR and type of physical activity. 6. describe the variations in the basic nutritional requirements in the various phases of life (fetal, infancy, child hood,			

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	adolescents, adulthood, pregnancy, lactation, and elderly) 7. describe the special requirements of nutrition for the young and growing child.			
b. Protein requirement	1. explain why protein is essential in the diet. 2. list the indicators available to define quality of proteins: - BV, NPU, amino acid score). 3. compare the quality of proteins in commonly used foods in Sri Lanka. 4. explain zero, negative and positive nitrogen balance giving examples. 5. explain how protein requirement is derived from nitrogen balance studies. 6. state the recommended allowance of protein for adult male and female, pregnant and lactating women and preschool child.			
2014-2/SBM-9/16				
General				
Food intake during Pregnancy and lactation	1. describe external factors – nutritional, infection, social, cultural, emotional and other factors affecting growth and development in pregnancy and lactation	1h	Gyn. & Obs.	Lecture
2014-2/SBM-9/17				
Relevance of learning nutrition	1. healthy nutrition promotes healthy growth, development and resistance to diseases (communicable and non communicable) 2. growth and nutrition 3. development and nutrition – nutritional factors and feeding habits /practices for development, Breast feeding for development 4. communicable diseases and nutrition 5. non communicable diseases and nutrition - DM.HT, obesity, asthma, psychiatry 6. clinical methods of evaluation of nutrition and malnutrition	1h	Paediatrics	Lecture
	7. describes the methods used to minimize losses of nutrients during processing and increase the bio-availability of nutrients	2h	Biochemistry	Student Seminar

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2014-2/SBM-9/18				
Nutrition	1. describe the epidemiology of nutrition in Sri Lanka and world. 2. describe the role of health visitor in monitoring nutritional status of members in the community 3. describe the strategies available to improve the nutritional status of a community 4. describe how monitoring of the nutritional status of a community is carried out (children, pregnant lactating mothers and old age) 5. describe the special needs in physiological status in sports	4h	Com. Medicine	Lecture
2014-2/SBM-9/19				
A. Diet and nutrient intake	1. describe the nutritional value of breast milk, cow milk, and milk products	2h	Biochemistry	Lecture
		1h	Paediatrics	Lecture
	2. discuss the advantages and disadvantages, structure, nutritional characteristics and processing of cereals	1h	Biochemistry	Lecture
	3. discuss the advantages and disadvantages, structure, nutritional characteristics and processing of pulses	1h	Biochemistry	Lecture
	4. discuss the advantages and disadvantages, and nutritional characteristics of vegetable and fruits	1h	Biochemistry	Lecture
	5. discuss the advantages and disadvantages, structure, nutritional characteristics and processing of oil seeds and nuts	1h	Biochemistry	Lecture
	6. discuss the advantages and disadvantages, and nutritional characteristics of meat and fish	1h	Biochemistry	Lecture
B. Dietarily important nutrients	7. discuss the biochemical importance of minerals-Se, Zn, Cr, Mg, Mn, Co, Ni	2h	Biochemistry	Lecture
	<u>Fat soluble vitamins: A, D, E, and K</u> 8. describe the biochemical functions of the vitamins 9. state the sources 10. describe the requirments at different physiological functions	9h	Biochemistry	2h – Lectures
	<u>Water soluble vitamins: B-complex and C</u>			2h-Lectures

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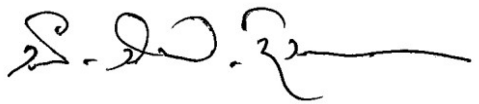
	11 describe the biochemical functions of the vitamins 12 Sate sources 13. describe the requirments at different physiological functions 14. summarise the basic nutritional properties of major foods in our diet			2h – SGD PD (3hx2)
2014-2/SBM-9/20				
Principles of causation of Malnutrition	1. causes of malnutrition – food availability, ingestion, digestion and assimilation 2. food availability – Global, national, domestic practices 3. ingestion – feeding practices – care givers and baby 4. method of assessing adequacy of food intake – history + 24 hour recall 5. digestion 6. assimilation	1h	Paediatrics	Lecture
2014-2/SBM-9/21				
Round up session	1. discuss the results of a MCQ paper done at home 2. summarize the module 3. feed back	1h	Lecture	Paediatrics

Module Coordinator – Dr. CNRA Alles, Dept. of Biochemistry



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