Surgical Education and Assessment Modules (SEAM) - Nutrition

Module Overview

<table>
<tr><td>Rationale</td><td colspan="2">This module has been designed to introduce you to nutrition and the principles that underpin the delivery of nutritional care to surgical patients.

As a general surgeon you will require an adequate knowledge of the various components of nutrition, and an understanding of the impact of poor nutrition on a patient’s recovery, complications, and outcomes from surgery.</td></tr>
<tr><td>Learning Objectives</td><td colspan="2">By the end of this module you should be able to:

1. Apply nutritional principles to health and disease states relevant to surgery
2. Assess nutritional status
3. Evaluate the role of nutritional support in different clinical situations
4. Evaluate specific issues related to obesity in the surgical patient</td></tr>
<tr><td rowspan="5">Topics and keywords</td><td>Topic</td><td>Keywords</td></tr>
<tr><td>Principles of Nutrition</td><td>carbohydrates, proteins, fats, vitamins, minerals, deficiencies, disease</td></tr>
<tr><td>Nutritional status of the patient</td><td>Body Mass Index, malnutrition, MST, SGA, pancreatitis, malabsorption, diabetes, hyperglycaemia, malignancy</td></tr>
<tr><td>Nutritional requirements of the patient</td><td>nutritional support, feeding, nutritional status, access for feeding, enteral feeding, parenteral feeding, access, jejunal, PEG, formula, guidelines, re-feeding syndrome, dumping syndrome</td></tr>
<tr><td>Obesity</td><td>BMI, WHO, factors, mortality, non-surgical, surgical, complications, cultural considerations</td></tr>
<tr><td rowspan="5">Recommended Further Reading</td><td colspan="2">Educational material provided within this module is not intended to be complete, and is not a textbook. Trainees are expected to undertake further reading in order to complete the module successfully.</td></tr>
<tr><td>Recommended Reading</td><td>Learning Objective</td></tr>
<tr><td>Agarwal, E., Ferguson, M., Banks, M., Batterham, M., Bauer, J., Capra, S., & Isenring, E. (2012;2013;). Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: Results from the nutrition care day survey 2010. Clinical Nutrition, 32(5), 737-745. doi:10.1016/j.clnu.2012.11.021</td><td>1, 2</td></tr>
<tr><td>Australasian Pancreatic Club (2015). Australasian guidelines for the management of pancreatic exocrine insufficiency. http://pancreas.org.au/wp-content/uploads/2016/01/APC-GUIDELINES-2015.pdf</td><td>2</td></tr>
<tr><td>Camilleri, M., Parkman, H. P., Shafi, M. A., Abell, T. L., & Gerson, L. (2013). Clinical Guideline: Management of Gastroparesis. The American Journal of Gastroenterology, 108(1), 18–38. http://doi.org/10.1038/ajg.2012.373</td><td>3</td></tr>
<tr><td>Dieticians Association of Australia (DAA) (2018). Parenteral nutrition manual for adults in health care facilities. https://daa.asn.au/wp-content/uploads/2018/06/Parenteral-nutrition-manual-june-2018-website.pdf</td><td>3</td></tr>
</table>

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Recommended Further Reading	Recommended Reading	Learning Objective
	Dieticians Association of Australia (DAA) Malnutrition Guideline Steering Committee (2009). *Evidence based practice guidelines for the nutritional management of malnutrition in adult patients across the continuum of care. Nutrition & Dietetics 2009; 66* (Suppl. 3): S1. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1747-0080.2009.01383.x	1, 2
	The European Society for Clinical Nutrition and Metabolism: ESPEN Guidelines. http://www.espen.org/guidelines-home/espen-guidelines ○ http://www.espen.org/files/ESPEN-guideline_Clinical-nutrition-in-surgery.pdf ○ http://espen.info/documents/0909/Surgery.pdf ○ http://espen.info/documents/PEG.pdf ○ http://www.espen.info/wp/wordpress/wp-content/uploads/2012/10/ERAS-colonic.pdf ○ http://www.espen.info/wp/wordpress/wp-content/uploads/2012/10/ERAS-pancrduod.pdf ○ http://www.espen.info/wp/wordpress/wp-content/uploads/2012/10/ERAS-rectal.pdf	2, 3
	Guyenet, S.J., & Schwartz, M.W. (2012). Clinical review: Regulation of food intake, energy balance, and body fat mass: implications for the pathogenesis and treatment of obesity. *J Clin Endocrinol Metab*, 97(3), 745–755. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3319208/	4
	Lim, R.B. (2018). *Intragastric balloon therapy for weight loss*.https://www.uptodate.com/contents/intragastric-balloon-therapy-for-weight-loss	4
	Mozaffarian, D., & Wu, J.H.Y. (2011). Omega-3 Fatty Acids and Cardiovascular Disease: Effects on Risk Factors, Molecular Pathways, and Clinical Events. *Journal of the American College of Cardiology*, 58(20), 2047-2067. http://www.sciencedirect.com/science/article/pii/S0735109711031317	1
	National Health and Medical Research Council (NHMRC) (2013). *Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults, Adolescents and Children in Australia*. https://nhmrc.gov.au/about-us/publications/clinical-practice-guidelines-management-overweight-and-obesity#block-views-block-file-attachments-content-block-1	4
	National Institute for Clinical Excellence (NICE) (2006). *Nutrition Support for Adults, Oral Nutrition Support, Enteral Tube, Feeding, and Parenteral Nutrition: Methods, Evidence, and Guidance*. http://www.nice.org.uk/guidance/cg32	3
	Nightingale, J., Woodward, J. M., & Small Bowel and Nutrition Committee of the British Society of Gastroenterology. (2006). Guidelines for management of patients with a short bowel. *Gut, 55* (Suppl. 4), iv1-iv12. doi:10.1136/gut.2006.091108	2, 3
	Parry, B. R., & Hill, A. G. (2008;2006;). Nutrition and the surgical patient. (pp. 37-43). Oxford, UK: Blackwell Publishing Ltd. doi:10.1002/9780470757819.ch5	1, 2, 3, 4
	Sjöström, L., et al. (2007). *Effects of Bariatric Surgery on Mortality in Swedish Obese Subjects. N Engl J Med, 357(8), 741–752* http://www.nejm.org/doi/full/10.1056/NEJMoa066254	4

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Module Overview

Recommended Further Reading	**Recommended Reading**	**Learning Objective**
	Stroud, M., Duncan, H., Nightingale, J., & British Society of Gastroenterology. (2003). Guidelines for enteral feeding in adult hospital patients. *Gut, 52 (*Suppl. 7), vii1-12. doi:10.1136/gut.52.suppl_7.vii1	3
	Subjective Global Assessment (SGA). http://subjectiveglobalassessment.com/ and http://www.health.qld.gov.au/nutrition/resources/hphe_sga.pdf	2
	Touli, J. et. al. (2010). *Management of pancreatic exocrine insufficiency: Australasian Pancreatic Club recommendations*. *Med J Aust* 193(8), 461-467. https://onlinelibrary.wiley.com/doi/abs/10.5694/j.1326-5377.2010.tb04000.x?sid=nlm%3Apubmed	2
Prerequisites	N/A	
How this module will be assessed	The e-learning module comprises learning activities and opportunities for Formative Assessment, with feedback. The Summative Assessment comprises twenty (20) Type A, Type X, and Type R multiple choice questions.	

Surgical Education and Assessment Modules (SEAM) - Nutrition

Learning Activities & Formative Assessment

Cognitive level	Learning Objective	Module Topic	Learning Activity	Formative Assessment
Apply	Apply nutritional principles to health and disease states relevant to surgery	Principles of Nutrition	After reading about food, metabolism, and recommended daily intakes, the learner will complete a matching exercise to demonstrate knowledge of dietary deficiencies in macronutrients, micronutrients, micro minerals, and trace minerals. The learner is provided with an opportunity to reflect on their own practice or experience. Learners will be able to identify factors increasing the risk of cardiovascular disease, based on indicators learnt in the module.	Leaners will diagnose the micronutrient deficiency resulting in various disorders, based on indicators learnt in the module.
Evaluate	Assess nutritional status	Nutritional status of the patient	After reading about assessment methods, nutrition screening tools, disease states and catabolic processes, learners will be asked to review possible deficiencies for a patient, following pancreaticoduodenectomy for pancreatic cancer. The learner is provided with an opportunity to reflect on their own practice or experience.	Learners will assess the nutritional status of a patient with pancreatic exocrine insufficiency, and select appropriate tests to objectively diagnose malabsorption, based on assessment methods learnt in the module.
Evaluate	Evaluate the role of nutritional support in different clinical situations	Nutritional requirements of the patient	After reading about pre-operative and post-operative feeding, methods of access, complications, and nutritional products, the learner will be presented with clinical scenarios designed to evaluate knowledge of appropriate nutritional support. Free text responses will be compared to expert responses. Learners will be able to identify appropriate scenarios for PEG insertion, based on indicators learnt in the module.	Learners will assess contraindications for enteral supplemental feeding, based on indicators learnt in the module.

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Learning Activities & Formative Assessment

Cognitive level	Learning Objective	Module Topic	Learning Activity	Formative Assessment
Evaluate	Evaluate specific issues related to obesity in the surgical patient	Obesity	After reading about measures of adiposity, aetiology and epidemiology of obesity, complications, therapeutic, non-surgical, and surgical weight loss options, the learner will complete a matching exercise to demonstrate knowledge of average weight loss for different weight loss strategies. The learner is provided with an opportunity to reflect on their own practice or experience. Learners will be able to identify the BMI of a patient, based on measures learnt in the module.	Learners will be able to identify conditions where obesity is a risk factor, based on indicators learnt in the module.