

# Clinical nutrition

This issue's special feature on which these questions are based was commissioned from independent authors. The scheme is supported by an educational grant from Mayne Pharma but the company has no editorial input. The scheme is open to all pharmacists. The information in the box below (right) should help readers to identify knowledge gaps and undertake continuing professional development. Readers are also invited to complete the questions overleaf on clinical nutrition, to test their knowledge of the articles, and send their answers, together with a stamped and addressed A5 envelope, to:

## Life-long Learning — Clinical nutrition Hospital Pharmacist

1 Lambeth High Street

London

SE1 7JN

Entries must be received by Monday, 28 February. Results will be returned with a certificate of completion which, in the case of College of Pharmacy Practice members, will count towards their continuing education requirements.

Mayne Pharma is offering a place as part of its delegation to the European Association of Hospital Pharmacists conference in spring 2006 to the entrant



who achieves the highest marks overall in this series of exercises. The best six scores from the eight exercises in the series (November 2004 – July/August 2005) will be taken into consideration. This is the second set of questions. The runner-up will receive travel, accommodation and registration for the *Hospital Pharmacist* conference in autumn 2005. Third and fourth place respectively will receive Pharmaceutical Press vouchers and British Society for the History of Pharmacy china mugs. Further details on this scheme can be found in *Hospital Pharmacist* (2004;11:436) and at [www.pjonline.com/noticeboard/lifelong](http://www.pjonline.com/noticeboard/lifelong)

Your name \_\_\_\_\_

College member: Yes  No

RPSGB registration number: \_\_\_\_\_

Address: \_\_\_\_\_

Post Code: \_\_\_\_\_

### Continuing education

This article is accredited as suitable for continuing education by the College of Pharmacy Practice. Completion of the questions will count towards the continuing education requirements of college members.

Completion of the questions entitles pharmacy undergraduates to one point towards the Professional Development Certificate, a joint initiative between the British Pharmaceutical Students' Association and the College of Pharmacy Practice



### Continuing professional development

#### Identify knowledge gaps

- ◆ The principles of management in intestinal failure
- ◆ An overview of the use of enteral and parenteral nutrition
- ◆ The arguments for and against immunomodulators in enteral and parenteral feeds

#### Act

- ◆ Read the articles in this issue
- ◆ Test your knowledge by answering the questions on clinical nutrition overleaf

#### Evaluate

- ◆ What have you learnt?

- ◆ How has it added value to your practice?
- ◆ What will you do now and how will this be achieved?

The Royal Pharmaceutical Society's areas of competence for pharmacists are listed in "Plan and record", (available at [www.rpsgb.org/education](http://www.rpsgb.org/education)).

The assistance of the College of Pharmacy Practice is acknowledged in producing the CPD elements of this month's special feature. The CPD feature of the Life-long Learning series will be undertaken in association with specialist pharmacy organisations.



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To answer the questions, tick either the True or False column.  
Although we will correct material errors, *Hospital Pharmacist* does not  
have the resources to enter into correspondence about the answers.

	True	False		True	False
<b>1. St Mark's electrolyte solution contains the following in each litre:</b>			<b>6. The following is believed to be an immunomodulator:</b>		
a) 10g glucose			a) Arginine		
b) 3.5g salt			b) Omeprazole		
c) 5g magnesium oxide			c) Omega-3 fatty acids		
d) 10g potassium chloride			d) Glutamine		
e) 2.5g sodium bicarbonate			e) Loperamide		
<b>2. The following is a cause of acute intestinal failure:</b>			<b>7. Regarding the amino acid glutamine:</b>		
a) Fistula			a) It acts as a "nitrogen shuttle", accepting ammonia where there are high concentrations and donating nitrogen at tissues where it is needed		
b) Enteritis caused by Crohn's disease			b) It is an essential amino acid		
c) Sepsis			c) It accounts for 10–15 per cent of circulating amino acid nitrogen		
d) Acute pancreatitis			d) Its supplementation in parenteral nutrition of critically ill patients is not recommended in Canadian clinical practice guidelines		
e) Jejunostomy formation			e) It is needed by lymphocytes in order to proliferate in response to antigenic challenge		
<b>3. Regarding the length of the intestine of an adult:</b>			<b>8. The amino acid arginine:</b>		
a) It is not normally more than 650cm in length			a) Is an essential amino acid		
b) It is not normally shorter than 275cm in length			b) Stimulates prolactin		
c) One of the most common reasons for patients to have surgery resulting in less than 200cm of bowel remaining is ulcerative colitis			c) Is produced in the liver		
d) Fluid and electrolyte balance is only a problem when less than 100cm of small bowel is remaining			d) Is increased in patients with sepsis		
e) One of the most common reasons for patients to have surgery resulting in less than 200cm of bowel is small bowel ischaemia			e) Stimulates glucagon		
<b>4. Regarding patients who have a jejunostomy:</b>			<b>9. Regarding the omega fatty acids:</b>		
a) They have a high output from their stoma			a) Omega-3 fatty acids are derived from alpha-linoleic acid		
b) Each litre of jejunostomy effluent contains about 50mmol sodium			b) Linoleic acid is a non-essential fatty acid		
c) "Secretor" patients are characterised by a residual jejunal length of <100cm and an increase in output in response to food			c) Omega-6 fatty acids are derived from linoleic acid		
d) St Mark's solution, used in these patients, is hypertonic			d) Omega-3 fatty acid diet supplementation in healthy patients has been shown to lead to less production of interleukin (IL) 1 $\alpha$ and 1 $\beta$		
e) Dioralyte, at double strength, can be used as an alternative to St Mark's solution			e) Substituting omega-3 fatty acids for omega-6 fatty acids may have an anti-inflammatory effect		
<b>5. Treatment of patients with a short bowel length include:</b>			<b>10. Results of meta-analyses and other studies involving enteral feeds supplemented with immunonutrients suggest:</b>		
a) Octreotide to reduce salivary, gastric, biliary and pancreatic secretions			a) Arginine may worsen hypotension		
b) Omeprazole to increase gastric emptying rate			b) Excessive suppression of inflammation using omega-3 fatty acids may leave the host unable to fight invading micro-organisms		
c) Loperamide to prolong transit time of chyme through the bowel reducing water and electrolyte loss			c) Arginine may inhibit the synthesis of endogenous glutamine available for the gut		
d) 1 $\alpha$ -hydroxycholecalciferol to reduce intestinal magnesium absorption			d) There is evidence of an improvement in mortality in all intensive care patients		
e) Ranitidine to inhibit gastric acid secretion			e) Effects of immunonutrition in critically ill patients are equivalent to effects in elective surgical patients		

