

1. Introduction and Who Guideline applies to

- 1.1. This Clinical Guideline defines the procedure for providing optimal and appropriate nutritional and dietary care for adult inpatients with diagnosed chronic liver disease, including those who require: nutritional support, and/or therapeutic diet due to the presence of ascites, steatorrhoea and/or who are at risk of re-feeding syndrome on admission.
- 1.2. This Clinical Guideline aims to reduce patient risk, improve quality of care and standardise nutritional care in adult inpatients' with chronic liver disease.
- 1.3. This Clinical Guideline provides advice on initiating nutritional management of adult inpatients' with chronic liver disease at ward/unit level, primarily within gastroenterology medicine wards on and during admission to Leicester Royal Infirmary, but may also include inpatients on other wards/units across University Hospitals of Leicester (UHL) NHS Trust.
- 1.4. This clinical guideline is for use by Medical and Nursing teams to enable them to initiate optimal nutritional care on an adult inpatient (over 16 years old) that has chronic liver disease.
- 1.5. This clinical guideline does not cover inpatients that have acute liver disease (fulminant hepatic failure). These patients should be referred directly to the ward Dietitian via the electronic referral system ICE where appropriate.

2. Guideline Standards and Procedures

- 2.1 Individuals with diagnosed chronic liver disease are frequently under-nourished. Re-feeding problems can occur when initiating nutrition in this group of patients. Therefore, it is important to identify and treat appropriately.
- 2.2 Each patient will require risk assessment for re-feeding syndrome by the medical team on admission to the ward to ensure appropriate management. Further information on re-feeding syndrome can be found in the 'Out of Hours Enteral Tube Feeding (Nasogastric) UHL Guideline' B55/2006.
 - 2.2.a. Feeding without adequate thiamine can lead to Wernickes Encephalopathy. **Wernicke-Korsakoff Syndrome is seen particularly frequently in alcoholics who may have low liver stores of thiamine.** It can also occur in any patients with chronic vomiting including those with hyperemesis gravidarum and gastric outlet obstruction.
 - 2.2.b. NICE guideline CG32 (NICE, 2006) provides criteria to determine level of refeeding risk. Guidance is also provided in A Pocket Guide to Clinical Nutrition (Mafri et al, 2018).
 - 2.2.c For Dietitians, further information on re-feeding syndrome can be found in the

'Guideline for the Clinical Dietetic Management of Adult Inpatients at Risk of Refeeding Syndrome' C55/2015.

- 2.3 This Clinical Guideline aims to also improve nutrition and dietetic clinical effectiveness and efficiency. Referral to a Dietitian may still be required if indicated as part of the Care Pathway (See Appendix 1). In this case, referral to a Dietitian should be made using the electronic referral system Integrated Clinical Environment (ICE).

All patients must be screened for malnutrition risk as per the 'Department of Health (2014) The Hospital Food Standards Panel's report on standards for food and drink in NHS hospitals', and the 'National Institute for Health and Care Excellence (2012) Nutrition support in adults', which was updated in 2020. The Malnutrition Universal Screening Tool (MUST) is the validated nutritional screening tool used in UHL hospitals. For further details see the Trust's Policy on 'Adult Nutritional Screening and First Line Nutritional Care Trust' B26/2015. In this patient group dry weight is required when calculating Body Mass Index (BMI) to avoid inaccurate MUST scoring. Dry body weight is the patient weight minus the estimated fluid weight from their ascites and/or peripheral oedema.

- 2.4 The European Society for Clinical Nutrition and Metabolism (ESPEN) practical guideline: Clinical nutrition in liver disease (2020) suggests that phase angle (measured by bioelectrical impedance analysis) or handgrip strength allows for assessment of mortality risk and/or complications. In NASH, cirrhosis and Liver Transplantation, ESPEN (2020) also suggests that sarcopenia should be assessed as it is a strong predictor of mortality and morbidity. Radiologic methods (dual energy X-ray absorptiometry (DXA) or when CT/magnetic resonance tomography (MRT) images are available for other reasons) should be used to diagnose sarcopenia.
- 2.5 A patient who has a diagnosis of Chronic Liver Disease should be referred directly to Dietitian via the ICE electronic referral system in the following circumstances:
- The patient is for nasogastric (NG), percutaneous endoscopic gastrostomy (PEG), radiological inserted gastrostomy (RIG) or jejunostomy feeding (including if required due to encephalopathy or has oesophageal varices)
 - The patient has had **NO** nutritional intake for more than 10 days
 - The patient reports food allergies or food hypersensitivity/intolerances
 - Specialist advice is required following diagnosis, or a full nutritional assessment is required in response to clinical judgement (i.e. steatorrhoea, high risk-of feeding syndrome)
 - Patient requires assessment and provision of a therapeutic diet e.g. metabolic
 - Acute liver disease (fulminant hepatic failure)

2.6 The procedure for implementing the Nutritional Care Pathway for adult inpatients with Chronic Liver Disease (Appendix 1) is tabled below. It details actions to be taken, who is responsible for ensuring it is actioned and the rationale for this.

No.	Action	Responsibility
1	Adult inpatients diagnosed with chronic liver disease that are for active medical treatment should commence the first line nutritional care plan for adult inpatients with chronic liver disease and bedtime snack menu (see Appendix 2 and 3) as indicated in the Nutritional Care Pathway flowchart (see Appendix 1).	Medical Team and Nursing Team
2	A copy of Appendices 1, 2, 3, 4 and 5 must be placed at the front of the patient's bed side notes.	Nursing Team
3	It must be documented on the electronic handover system if the patient is on the Nutritional Care Pathway for Adult Inpatients with Chronic Liver Disease.	Medical Team and Nursing Team
4	It must be documented in the patient's health records if they are on the Nutritional Care Pathway for Adult Inpatients with Chronic Liver Disease.	Medical Team and Nursing Team
5	<p>Estimate dry body weight after each time a patient is weighed (which must be at least twice a week).</p> <p>To use Appendix 4 to aid in estimating dry weight.</p> <p>To use Appendix 5 to document dry weight.</p> <p>This must be documented clearly and medical team informed prior to prescribing Fortisip Compact Protein.</p>	Nursing Team
6	<p>Complete screening for risk of refeeding syndrome on all adult inpatients with chronic liver disease on admission to the unit/ward. See Appendix 2 of Trust guidance B55/2006 'Out of Hours Enteral Tube Feeding (Nasogastric) Adults UHL Guideline' and place completed appendix in medical notes.</p> <ul style="list-style-type: none"> - If at risk of re-feeding syndrome, medical team are recommended to check potassium, phosphate and magnesium levels and, if indicated, correct as per UHL policy. - If at risk or high risk of re-feeding syndrome, the medical team are recommended to prescribe appropriate vitamin preparations as indicated in the Nutritional Care Pathway for Adult Inpatients with Chronic Liver 	Medical Team

	<p>Disease (see Appendix 1) and monitor biochemistry accordingly.</p> <ul style="list-style-type: none"> - For patients identified to be at high risk of re-feeding syndrome, they must be referred to the Dietitian via the electronic referral system ICE. 	Medical Team and Nursing Team
7	<p>If any of the criteria in the 'KEY POINTS' section of the Nutritional Care Pathway for Adult Inpatients with Chronic Liver Disease (see Appendix 1) are met, the patient must be referred to the ward Dietitian immediately via the electronic referral system ICE.</p>	Medical Team and Nursing Team
8	<p>For individuals with one or more of the following: ascites, oesophageal varices, hepatic encephalopathy, steatorrhea; follow the specific dietary advice for these symptoms as indicated in the Nutritional Care Pathway for Adult Inpatients with Chronic Liver Disease (see Appendix 1).</p>	Medical Team and Nursing Team
9	<p>Nurses should review food charts on Day 4 using Appendix 7: Food Record Chart 'Ready-Reckoner and refer to the Nutritional Care Pathway for Adult Inpatients with Chronic Liver Disease (see Appendix 1) to determine what action needs to be taken.</p> <ul style="list-style-type: none"> - If the individual has a poor intake or nasogastric (NG) tube feeding is indicated, a referral to the Dietitian via the electronic referral system must be made - If the individual has a good intake, current care should continue. <p>This should be repeated on Day 7 and every 3 days thereafter.</p>	Nursing Team
10	<p>Discharge Planning: If a patient has been prescribed oral nutritional supplements a 3 day supply should be provided with TTO's (or up to 7 days based on ward Dietitian advice).</p> <p>If patient has been following a low salt diet as an inpatient the diet sheet "Liver Disease - How to Reduce the Salt in Your Diet" should be provided (Appendix 6)</p> <p>If there are on-going nutritional concerns refer to Primary Care Dietitians if not already been referred to the ward Dietitians, via patient's GP on discharge letter.</p>	Medical and Nursing Team

3. Education and Training

- 3.1 Dietitians should ensure Healthcare Professionals e.g. Hepatology medical teams and nursing teams on appropriate units/wards are aware of this Clinical Guideline.
- 3.2 Dietitians should lead on training and education of appropriate individuals on the use of this Clinical Guideline through ward based training/education.
- 3.3 Dietitians can use this to aid student dietetic training for those who undergo their clinical placements as part of their undergraduate degree to become a registered Dietitian.

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Patients have been commenced on the Nutritional Care Pathway (Appendix 1) timely and have a completed care plan	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant meeting
Assessment of risk of re-feeding syndrome	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant meeting
Appropriate medication has been prescribed if identified as at risk of re-feeding syndrome i.e. thiamine, B vitamins and multivitamin and mineral preparations	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant meeting
Biochemistry relating to re-feeding syndrome has been checked and supplemented accordingly by the medical team	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant meeting
Fortisip Compact Protein has been prescribed appropriately based on estimated dry weight	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant

				meeting
Individuals are offered a 50g carbohydrate snack before bed	Audit	Dietitian in Hepatology area	2 Yearly	To be reported at educational section of gastroenterology consultant meeting

5. Supporting References

5.1 Nutrition Support and Enteral Nutrition

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5.3 Other

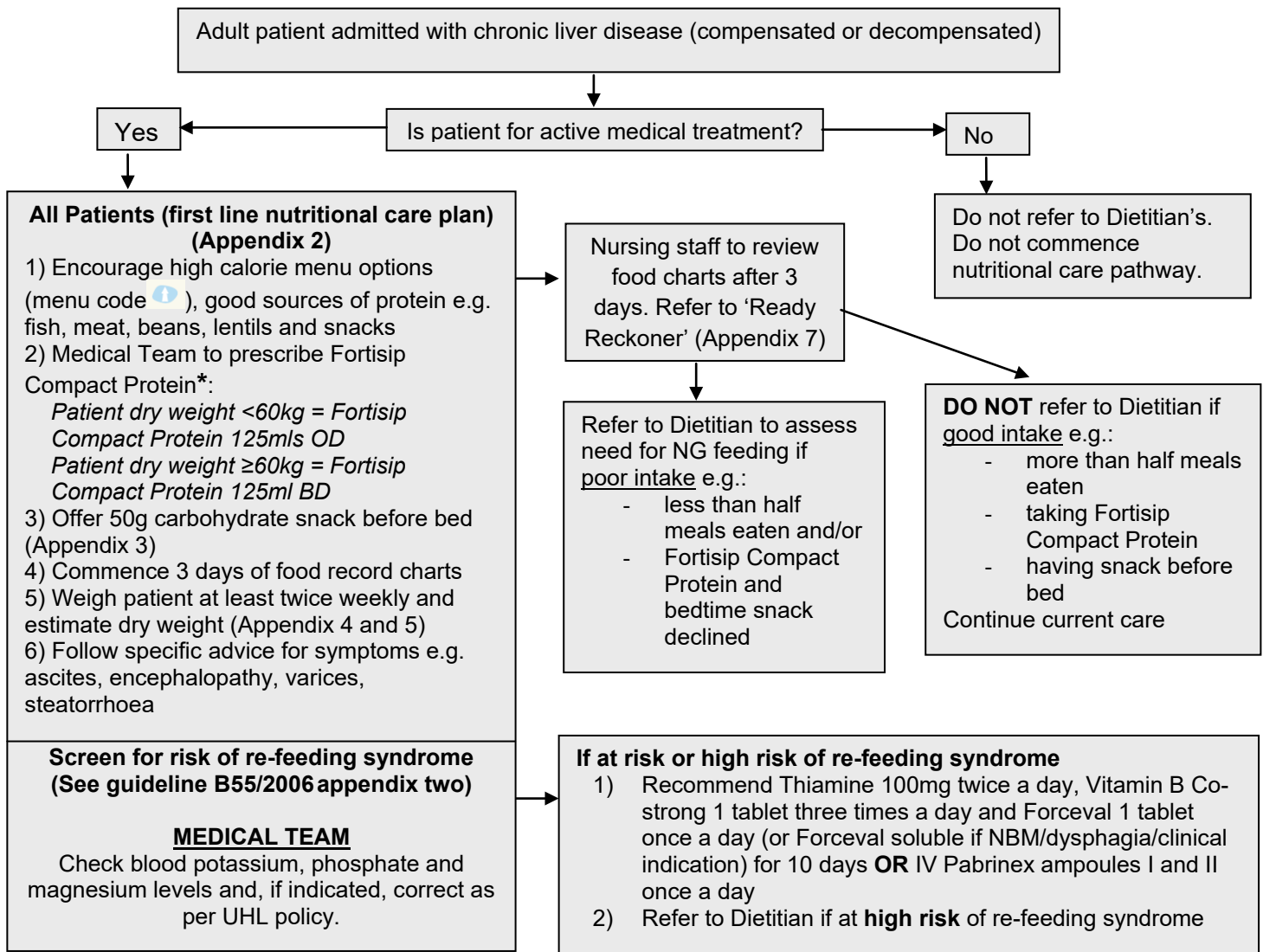
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6. Key Words Nutrition, Dietetic, liver disease, nutritional care pathway

Appendix 1: Nutritional Care Pathway for an Adult Inpatient with Chronic Liver Disease

Dietetic and Nutrition Service



Ascites

- 1) No added salt diet – choose from hospital menu
****NO SOUP OR CRISPS ALLOWED****
****NO SALT ADDED TO FOOD****
- 2) Daily body weights
- 3) Ensure any fluid restriction is adhered to (unless severely malnourished and receiving extra oral nutritional supplements as discussed with Consultant and Dietitian)
- 4) Provide "Liver Disease - How to Reduce the Salt in Your Diet" diet sheet (Appendix 6) on discharge

Oesophageal varices:

Evidence suggests fine bore NG feeding not contra-indicated – medical team to consider if required & refer to dietitians.

Steatorrhoea:

Please refer to Dietitian for therapeutic advice.

Encephalopathy:

Consider state of confusion and NG feeding and refer to Dietitian if required.

KEY POINTS

Please refer directly to the Dietitian (via ICE) if: -

- The patient is for nasogastric (NG), percutaneous endoscopic gastrostomy (PEG), radiological inserted gastrostomy (RIG) or jejunostomy feeding (including if required due to encephalopathy or has oesophageal varices)
- The patient has had **NO** nutritional intake for more than 10 days
- The patient reports food allergies or hypersensitivity
- Specialist advice is required following diagnosis, or a full nutritional assessment is required in response to clinical judgement (i.e. steatorrhoea, high risk-of feeding syndrome)
- Patient requires assessment and provision of a therapeutic diet e.g. metabolic
- Acute liver disease (fulminant hepatic failure)

*Contraindications to the use of Fortisip Compact Protein drinks include: intravenous use (not for intravenous administration), renal disease, lactose intolerance, milk allergy and galactosaemia. In this case, please refer to the Dietitian.

**Appendix 2: First Line Nutritional Care Plan
Nutritional Care Pathway for Adult Inpatients
with Chronic Liver Disease**

Patient Name.....
Hospital No.....
Date commenced.....

Patient Information sticker

Day 1 of admission to unit/ward	Outcome (Yes/No)	Date & Time	Signature & Initials
Prescribed Fortisip Compact Protein			
Offered 50g carbohydrate snack before bed (see Appendix Three)			
Weight measured			
Dry weight estimated (see Appendix Four)			
Commenced food charts			
Re-feeding syndrome risk assessed by medical team			
No soup/ crisps enforced if applicable (e.g. ascites)			
Day 4 of admission to unit/ward			
Food charts reviewed by nurses (Appendix 7: Food Record Chart 'Ready-Reckoner' can be used to aid this)			
If less than half meals eaten and / or Fortisip Compact Protein and bedtime snack declined, referred to Dietitian			
Day 7 of admission to unit/ward			
Food charts reviewed by nurses			
If less than half meals eaten and/or Fortisip Compact Protein and bedtime snack declined, referred to Dietitian			

Continue as per day 4 and 7 of care plan during inpatient stay.

NB: If the individual is for artificial/tube feeding e.g. nasogastric (NG), please refer to the Dietitian via the electronic referral system.

This appendix should be printed out, laminated and kept in patient's bedside folder as a reminder to nurses of the pathway.

Bedtime Snack for Adult Patients with Liver Disease

1. Two slices of medium bread with 1-2 pots of Jam or Marmalade
2. Mrs Crimbles Giant Macaroon plus 85ml carton of Apple or Orange Juice
3. Muller Rice pot plus Half tube of Wine Gums (approx. 6)
4. Any packet of 3 biscuits plus any packet of crisps, plus 85ml carton of Apple or Orange Juice
5. Muller Thick & Creamy Yogurt plus Lemon Drizzle Cake or Mini Original Flapjack, plus 85ml carton of Apple or Orange Juice
6. Any cake or any packet of biscuits, plus Complian Shake (made with full cream milk)
7. Half packet Wine Gums (approx. 6) or Kitkat plus Complian Shake (made with full cream milk)

Please order via the standard ward issue's sheet, Macaroon and Wine Gums to be ordered on a requisition form available on the ward, to be completed by the ward Housekeeper. In the absence of a ward Housekeeper can be completed by another member of the ward team i.e. Healthcare Assistant, Registered Nurse.

Ordering of stock and stock rotation is the wards responsibility. Ordering to be completed 24 hours in advance (e.g. ordering on Tuesday for ward delivery on Wednesday). Orders can be placed 7 days a week.

This menu is not designed for individuals diagnosed with coeliac disease. Please use the separate UHL gluten-free menu.

Appendix 4: Estimating Dry Body Weight for Adult Inpatients with Chronic Liver Disease

A dry body weight is the patient weight minus the estimated fluid weight from their ascites and/or peripheral oedema.

When considering the prescription of Fortisip Compact Protein and when calculating Body Mass Index (BMI) to assess nutritional status, it is important to use the individual's dry body weight. The following table provides a useful summary for estimating dry body weight for individuals who present with ascites and/or oedema. For dry body weight, subtract fluid weight of ascites and/or oedema from measured weight.

This table provides a guide only and in severe ascites or oedema, there may be an under-estimate of the amount of fluid. It is important to use weight histories or previous post-paracentesis weights where appropriate to estimate dry body weight more accurately.

Table 1: Likely fluid weights for ascites and oedema

Guide for assessing weight of:-	Ascites	Peripheral oedema
Minimal	2.2kg	1.0kg
Moderate	6.0kg	5.0kg
Severe	14.0kg	10.0kg

Extracted from Mafriqi et al. (2011) A Pocket Guide to Clinical Nutrition (5th edition), Section 2: Assessment, p2.4, Table 2.2.

Worked Example

Measured weight = 75Kg

On observation/ discussion with Medical Team individual has moderate ascites and a minor amount of bilateral leg oedema.

Estimated fluid weight = 6.0Kg (ascites) + 2.0Kg (oedema) = 8.0Kg

Estimated dry weight = 75Kg (measured weight) – 8.0Kg (estimated fluid weight) = 67Kg

Appendix 5: Recording Weight for Adult Inpatients with Chronic Liver Disease

Patient Name:	Hospital Number:	NHS No:	Ward:	Site:
WEIGHT CHART				

Frequency (please tick): Once a day Twice a week Once a week Signature (and print name) _____

Day(s): _____ Job Title: _____

Date & Time	Type of Scales used*	Measured weight (Kg)	Estimated fluid weight (Kg)	Estimated dry weight (Kg)	Clothing Details	Signature & Job Title

*E.g. Stand-on/Seated/Hoist Scales. Readings are more accurate if the same scales used each time

Why is reducing salt important in Liver Disease?

Fluid can collect around your middle (ascites) or around your feet, legs and arms (oedema). Having too much salt (sodium) in your diet can increase the rate this fluid builds up. It is not possible to avoid salt completely as it occurs naturally in many foods. However, by following this advice you can reduce your salt intake which may help reduce the build up of fluid.

How much salt?

Salt can be found in a variety of foods. It is recommended that you should not exceed 5.2g salt a day. Reading food labels can help tell you how much salt is in the food you are eating.

	Per 100g		
	Low	Medium	High
Salt	0-0.3g	0.3-1.5g	More than 1.5g
Sodium	0-0.1g	0.1-0.6g	More than 0.6g

Common foods where salt may be high include...

- Soups, gravy granules, cooking sauces, soy sauce, stock cubes, yeast extract
- Processed meats including some hams, sausages, bacon, smoked meat and fish
- Salted snacks including dry roasted nuts, pretzels, crisps, olives and pickles
- Cheese
- Processed foods including ready meals, tinned spaghetti, pizza, baked beans and tinned vegetables or meat in salted water/brine

How else can I reduce the amount of salt in my diet?

- Avoid using salt in cooking
- Do not add salt to food when about to eat
- Avoid low salt products e.g. Lo Salt, as these may contain salt substitutes which may not be suitable
- Avoid using flavoured salt e.g. garlic salt, celery salt
- Eat less processed foods e.g. ready meals, tinned meats, soups etc.

How can I flavour food?

There are lots of other ways you can add flavour to the food you eat instead of using salt which can include:

Basil	In stews, casseroles and pasta
Mint	Boil with potatoes or vegetables. Make mint sauce to serve with meat e.g. lamb
Parsley	In sauces or with fish dishes. Use as a garnish for dishes.
Rosemary	Use when roasting lamb or veal
Sage	In stews or as a stuffing with pork or duck
Mixed Herbs	In stuffing, omelettes or bolognaise sauces
Lemon Juice	Use in fish or chicken dishes
Garlic Cloves	Crush and use in any meat dish. Add to butter or margarine to make garlic bread
Curry Powder	Use in meat or with vegetables
Mustard	For mustard sauce with beef, rub surface of beef with dry mustard before cooking. Add a pinch to savoury white sauce for extra flavour.
Nutmeg	Grate over mashed potato, cabbage or cauliflower
Pepper	Add to savoury dishes, vegetables or salads

A few practical tips:

1. Make your own stock and gravy with juices from meats and water from boiled vegetables along with gravy browning instead of using cubes and granules
2. Use fresh, frozen, no added salt canned vegetables, or canned vegetables that have been rinsed before they are prepared
3. Marinade meat and fish with herbs/ spices in advance to give more flavour
4. Roast vegetables such as peppers, courgettes, fennel, parsnips and squash with some herbs listed above to bring out their flavour
5. For favourite recipes, you may need to use other ingredients instead of salt – remember that salt can be removed from any recipe except those containing yeast

Allow time to adjust to a lower salt intake!

The saltiness of foods depends on the salt content of the food as well as the sensitivity of salt receptors in the mouth. Initially when you reduce your salt intake the foods may taste bland, but after two or three weeks your taste receptors become more sensitive and will start to taste the real, delicious flavour of natural foods.

But, it is still really important in Liver Disease that you eat enough energy and protein to keep your body healthy. If you feel that you are struggling with your diet, please speak with your Doctor or Dietitian.

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 Access our website on www.linds.nhs.uk

FOOD RECORD CHART 'READY-RECKONER' FOR WARD STAFF

You should be concerned about a patient meeting their nutritional requirements if the food record chart shows:

- One or more mealtimes over the course of the day where nothing is eaten (including refusal of meals)
- No main course option is ordered / eaten (e.g. a pattern of only eating soup and a pudding)
- No hot main course is eaten during the day and no extras (snacks / milky drinks) between meals
- Only the main course is eaten with no starter, pudding or extras (snacks / milky drinks) between meals
- Less than ¾ of each component to the meals is eaten and no extras (snacks / milky drinks) between meals
- Less than ½ of each component to the meals is eaten
- If a snack box is being used regularly as a meal replacement
- Limited variety of foods being eaten (e.g. foods from each of the food groups should be included over the course of the day)

If any of these are occurring consistently, the patients nutritional care plan needs to be reviewed and extra nutritional measures considered.

Careful observation is particularly required for patients on a low residue, vegan, modified-texture or chylothorax menu.

Assessment of food record charts should be made alongside review of patients weight and using clinical judgement.

FOOD	ESTIMATED AVERAGE CALORIES	ESTIMATED AVERAGE PROTEIN (g)
Soup	140 kcal	5 g
Main Dishes	440 kcal	23 g
Asian Vegetarian Dishes	360 kcals	10 g
Halal meals	410 kcals	18 g
+ (2x) chapatti and (1x) natural yoghurt	+390kcals	+15 g
Jacket potato meal	400 kcals	15 g
Salad meal	450 kcals	23 g
Sandwiches	310 kcals	18 g
Snack	130 kcals	2 g
Hot dessert (with custard)	570 kcals	10 g
Cold dessert	100 kcals	3 g
Cheese and crackers	190 kcals	7 g

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title)	Executive Lead
Rhianna Goodwill and Leia Kenney (Senior Dietitians)	Cathy Steele, Dietetic Manager
Details of Changes made during review:	
Updated pathway in accordance with publication of: The ESPEN practical guideline: Clinical nutrition in liver disease (2020) and updated UHL policies.	