

Care Home Malnutrition Resource Pack

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Introduction to the Care Home Malnutrition Resource pack

Nutrition is a fundamental aspect of care. Food is necessary to life, it is also an opportunity for enjoyment, socialisation and positive interactions between residents and staff. However, eating difficulties and malnutrition are common in the residential care sector.

This resource pack is intended for all care home staff and contains guidance which should assist nursing, care and catering staff. It can be used in staff induction, and individual sections can be consulted as needed to help with specific issues.

Section one offers a background introduction to malnutrition.

The second section highlights the importance of screening for malnutrition and monitoring weight and food intake and how to practically screen for malnutrition risk on a monthly basis. It also contains practical advice on implementing the 'MUST' management guidelines for those at risk of malnutrition. Introducing the concept of 'Food First' by boosting the nutritional content of meals and snacks. In addition there is information to support the development of nutritional care plans.

Section three has further advice for specific situations e.g. swallowing issues, poor food intake in dementia, and boosting hydration.

We hope you find this pack helpful and please do not hesitate to contact your GP, Care Home Dietitian or Prescribing Support Dietitian if you would like further specific advice and support on the management of malnutrition in your care home.

Section 1: Introduction to Malnutrition

What is Malnutrition?

Malnutrition is a state of nutrition in which a deficiency of energy, protein and/or other nutrients causes measurable adverse effects on the body including its composition, the way it functions and clinical outcome¹.

Groups at risk of malnutrition include individuals with¹:

- Acute illness e.g. chest infections, UTIs
- Chronic diseases e.g. COPD, cancer, inflammatory bowel disease
- Chronic progressive diseases e.g. dementia, neurological conditions
- Debility e.g. frailty, immobility, depression, recent hospital discharges
- Social issues e.g. poverty, inability to cook and shop, poor support

More than **3 million** people in the UK are malnourished or at risk of malnutrition; of these, **93%** are living in the community².

The cost of malnutrition in England was estimated to be **£19.6 billion per year**, or more than 15% of the total public expenditure on health and social care. About half of this is spent on people over the age of 65³.

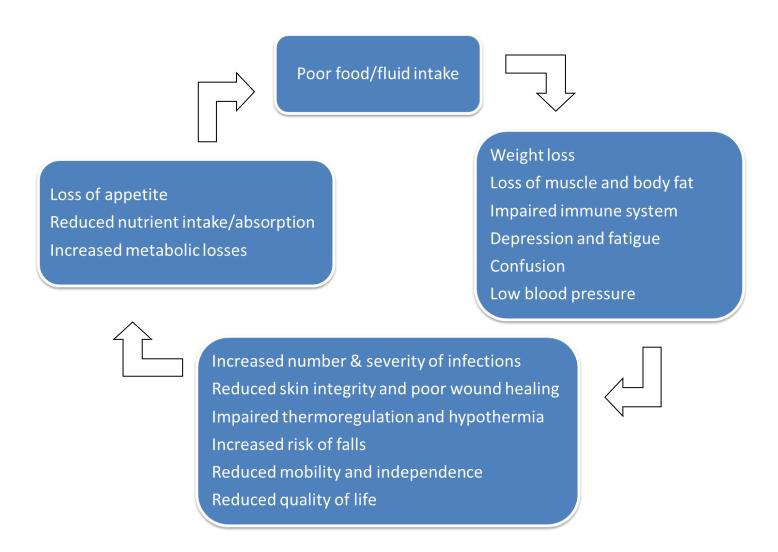
37% of people aged 70 years and over who had recently moved into a care home were found to be malnourished or at risk of malnutrition⁴.

Research has shown that the cost of treating care home residents diagnosed with malnutrition is **twice** that of screening and monitoring the general care home population⁵.

The Care Quality Commission's (CQC) Dignity and Nutrition Inspection Programme inspected 500 care homes for the quality of nutritional care and found that 1 in 6 care homes did not meet the required standard⁶.

Causes & Consequences of Malnutrition

When the body does not get the right combination of food and fluid to work properly, things can quickly deteriorate into a vicious circle where the consequences of malnutrition can make the problem worse. This is why it is important that malnutrition is detected and treated as soon as possible.



Key Standards and Guidance Documents for Care Homes

Regulation 14: Meeting nutritional and hydration needs (Regulation 14 of the Health and Social Care Act 2008 (Regulated Activities) Regulations 2014)

Key Line of Enquiry under 'Effective' domain (E3) for CQC Inspections

The intention of this regulation is to make sure that people who use services have adequate nutrition to sustain life and good health and are protected from the risks of malnutrition nutrition and dehydration. To meet this regulation, where it is part of their role, service providers must make sure that:

- ☑ Service users have their nutritional needs assessed and that they are provided with sufficient food and drink to meet those needs
- ☑ Service users receive the support needed to eat and drink sufficient amounts
- ☑ Preferences, religious and cultural backgrounds are taken into account when providing food and drink.

For further information visit www.cqc.org.uk/content/regulation-14-meeting-nutritional-and-hydration-needs#quidance

Nursing and Midwifery Council 2015: The Code - Professional standards of practice and behaviour for nurses and midwives

'The fundamentals of care include, but are not limited to, nutrition, hydration, bladder and bowel care, physical handling and making sure that those receiving care are kept in clean and hygienic conditions.

This includes making sure that those receiving care have <u>adequate access</u> to nutrition and hydration, and making sure that you <u>provide help</u> to those who are not able to feed themselves or drink fluid unaided.'

For further information visit www.nmc.org.uk/standard

National Institute for Health and Care Excellence (NICE) has developed clinical guidance and quality standards for nutrition in all settings, including care homes.

- Nutrition support in adults (CG32)
- Nutrition support in adults (QS24)
- Patient experience in adult NHS services (QS15) Quality Statement 10

For further information visit www.nice.org.uk

Section 2: Malnutrition Screening ('MUST') & Management Guidelines

'Malnutrition Universal Screening Tool'

Nutritional screening is essential to identify and implement appropriate care plans for individuals who are malnourished or at risk of malnutrition.

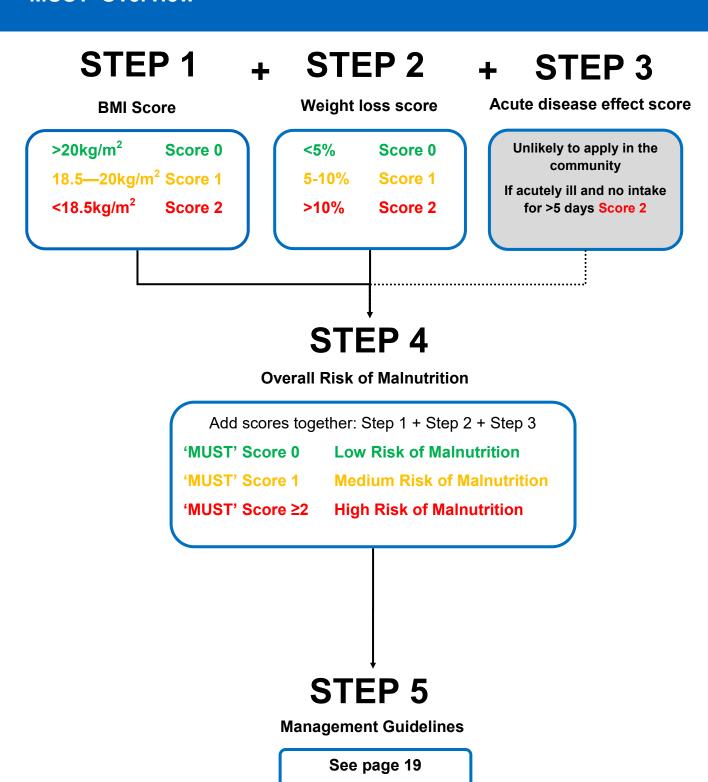
An individual is considered at risk of malnutrition if they have:

- A body mass index (BMI) of less than 20kg/m²
 and/or
- Unintentional weight loss of greater than 5% in the last 3-6 months

The 'Malnutrition Universal Screening Tool' ('MUST') is a validated screening tool that can be used across care settings to identify individuals aged 18 years and over who are malnourished or at risk of malnutrition.

An individual should be screened on admission to your care home and then at monthly intervals (minimum) to monitor their level of risk.

The following pages will guide you through the process of calculating a 'MUST' score and appropriate care planning depending on the determined level of risk.



Weighing & Measuring Residents

To use the 'MUST' tool you will need:

- ☑ Current weight
- ✓ Weight history (past 3-6 months ideally)
- ☑ Height

What if my resident refuses to be weighed?

Being weighed is a procedure that can cause physical discomfort and/or distress, particularly if the resident requires significant manual handling. Weighing and measuring should only be done to help inform your care planning, not just to 'tick the box'.

If your resident refuses to be weighed, discuss the importance of monitoring and why the procedure is necessary. It may be easier or more convenient to do it at a different time.

Measuring Height

- Use a height stick/stadiometer where possible.
- The individual should be stood upright and looking straight ahead, with shoes removed and feet flat with heels against height stick
- Measure in metres (m) where possible or use the Height Conversion Chart (Appendix B)
- If you are unable to measure height:
 - use self-reported height (if reliable)
 - use visual assessment
 - consider using **ulna length** (see Appendix E) although be aware that this measurement is only an estimation to be used alongside visual assessment

Weighing & Measuring Residents

Measuring Weight

- Ensure your scales are regularly calibrated (at least yearly)
- Use the same scales and try to weigh under consistent conditions e.g. same time of day, same clothing
- If using chair or hoist scales, ensure the individual's body is not touching the bed or floor whilst taking the measurement
- Measure in kilograms (kg) if possible or use the Weight Conversion Chart (Appendix A)
- If you are unable to weigh the individual consider using **mid-upper arm circumference (MUAC)** to estimate BMI (see Appendix E)

Other Factors to Consider When Measuring Weight

- If your resident appears to have lost a lot of weight (more than 4kg in a month or less), <u>re-weigh</u> them to ensure the reading is accurate.
- Consider other potential causes of significant weight loss or gain:
 - **Fluid disturbances**: Oedema/fluid retention can affect weight by as much 10kg in severe cases. If a resident is started on a diuretic e.g. furosemide and loses fluid initially this may cause rapid weight loss.
 - Plaster casts can weigh up to 4kg depending on material, size and site
 - Amputations: use the following calculations to estimate 'actual body weight' for amputees:

Below knee	Current weight (kg) x 1.063
Full leg	Current weight (kg) x 1.18
Forearm	Current weight (kg) x 1.022
Full arm	Current weight (kg) x 1.05

Step 1: Body Mass Index (BMI) Score

Step 1 looks at Body Mass Index (BMI) which provides an indication of whether an individual is underweight, healthy weight or overweight based on height and weight measurements.

You can use **BMI Score Chart (Appendix C)** to determine step 1 score Find individual's height along the top (in feet/inches) or bottom (in metres)

- 1. Find individual's weight along the left side (in kg) or right side (in stones/pounds)
- 2. Determine where the height and weight measurement cross on the chart
 - the black number is the individual's BMI (kg/m²)
 - the coloured bands (red, yellow, green, white) relate to step 1 score

See page 11 for a worked example of using the BMI Score Chart

Step 1 (BMI) Score

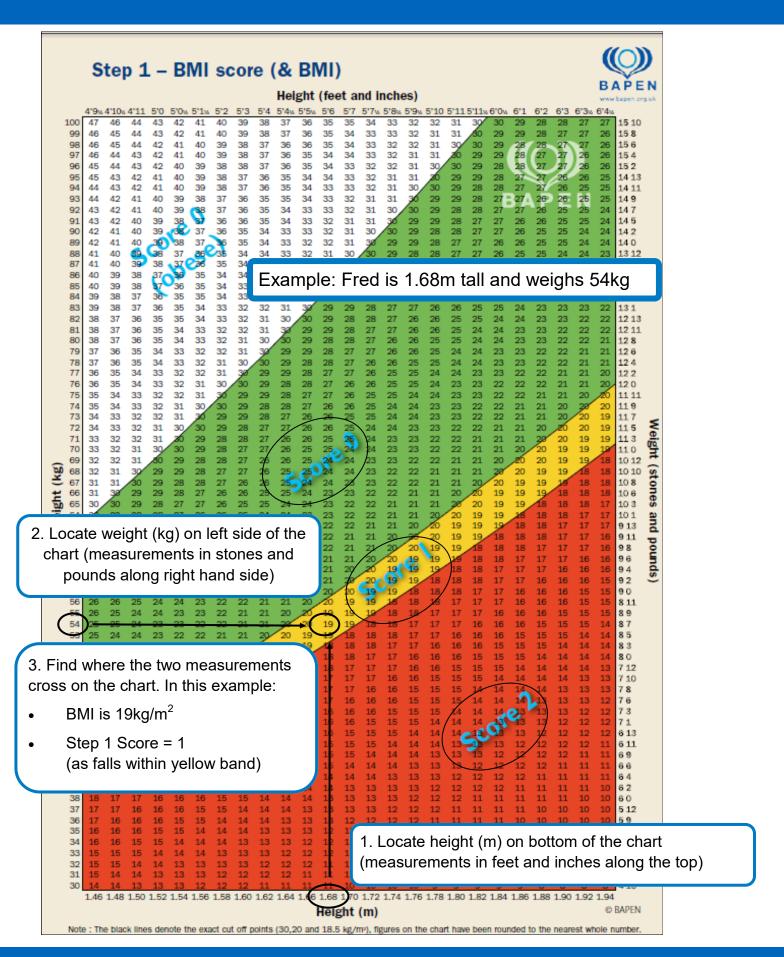
Once you have calculated BMI, you can calculate the Step 1 score:

BMI 20kg/m² or more Score 0

BMI between 18.5 – 20kg/m² Score 1

BMI below 18.5kg/m² Score 2

Step 1: BMI Score Chart - Example



The 'Malnutrition Universal Screening Tool' ('MUST') is adapted and reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For further information on 'MUST' see www.bapen.org.uk.

Step 2: Weight Loss Score

Step 2 looks at the amount of **unintentional** weight loss in the past 3-6 months. To calculate percentage weight loss you need:

- The individual's current weight
- The individual's previous weight:
 - If available, use the highest weight measured in the last 6 months
 - If less than 6 months of weights available, use the highest weight measured
 - If you only have weights from more than 6 months ago, use the most recent
 - If you have no weight history at all, use clinical judgement and visual assessment to estimate if patient has recently lost a lot of weight and to determine high, medium or low risk (NB you will not be able to generate a score)

You can use Weight Loss Score Chart (Appendix D) to work out step 2 score

- Find current weight in left hand column (rounding up/down to nearest whole kg)
- 2. Read across the coloured columns and find where the individual's previous weight lies to determine step 2 score

Step 2 (Weight Loss) Score

Once you have calculated percentage weight loss you can calculate Step 2 score:

Less than 5% weight loss Score 0

Between 5-10% weight loss Score 1

More than 10% weight loss Score 2

Step 2: Weight Loss Score Chart - Example

		Weight	t 3 to 6 m	ontl	ıs ago	
_	kg	Less than (kg)	Betweer (kg)	n	More than (kg)	
	20	21.6	21 6 22		၁၁ ၁	
	Examp	le: Daphne wa	as 45.3kg three	e mont	ths ago and r	now weighs 43.9kg
Ī	32	33.7	33.7 - 35	.6	35.6	
_	33	34.7	34.7 - 36	.7	36.7	
	34	35.8	35.8 - 37	.7	37.8	
_	35	36.8	36.8 - 38	.9	38.9	
	36	37 a	27 Q ₋ 10		40 N	
	37		urrent weight is locate this in the	• •	• ,	
-	38	40.0	40.0 - 42		44.4	
-	39	41.1	41.1 - 43	.3	43.3	
	40	42.1	42.1 - 44	.4	44.4	
_	41	43.2	43.2 - 45	.6	45.6	
	42	44.2	44.2 - 46	.7	46.7	
	43	45.3	45.3 - 47	.8	47.8	_
	44	46.3	46.3 - 48	.9	48.9	4
=	45	47.4	47.4 - 50	.0	50.0	1
Ŋ	46	48.4	48.4 - 51	2	Dood carees	ad find where presien
≥ C	47	49.5	49.5 - 52			nd find where previou etermine step 2 score.
_	48	50.5	50.5 - 53	In this	example, if he	r previous weight was
ourrent weign	49	51.6	51.6 - 54	- less	than 46.3kg S c	core 0
	50	52.6	52.6 - 5		een 46.3 - 48.9	
3	51	53.7	53.7 - 56		than 48.9kg S	
	=-	- 4 -			•	y weighed 45.3kg she s is less than 46.3kg)

Step 3: Acute Disease Effect Score (ADE)⁵

The ADE Score is unlikely to apply to individuals in care homes

therefore Score 0

Score 2 only if the individual is <u>acutely</u> unwell and there has been or is likely to be <u>no nutritional intake</u> for 5 days or more as they will be at risk of malnutrition.

This includes those who are critically ill and those who have swallowing difficulties (e.g. after stroke).

Step 4: 'MUST' Score

Add scores together to calculate 'MUST' score and overall risk of malnutrition.

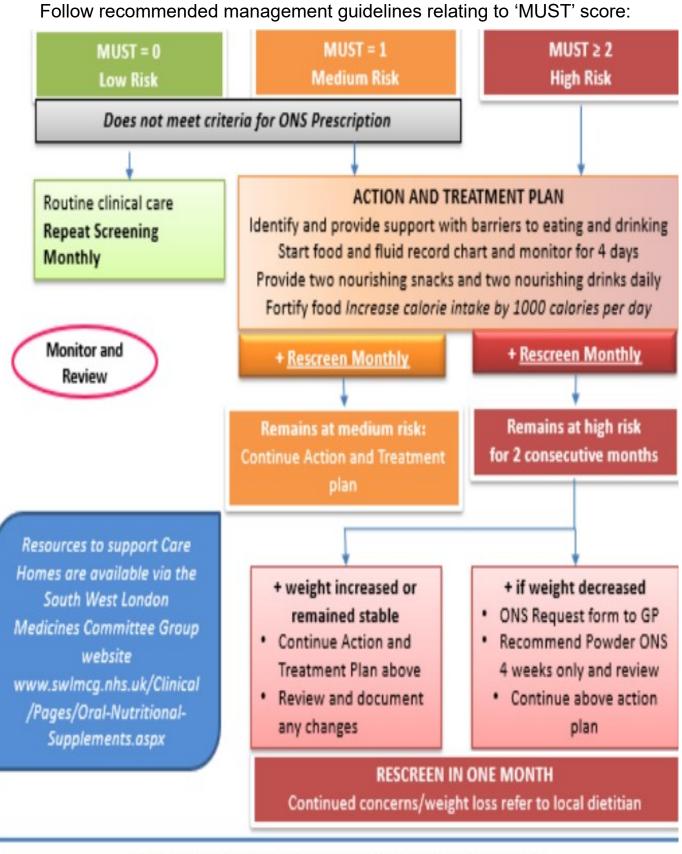
Step 1+Step 2+Step 3Step 4BMIWeight LossAcute Disease='MUST' scoreScoreScoreEffect Score

'MUST' Score 0 Low Risk

'MUST' Score 1 Medium Risk

'MUST' Score 2 or more High Risk

Step 5: Management Guidelines



FOR ALL RESIDENTS COMPLETE THE ABOVE PATHWAY MONTHLY

SCREEN & IDENTIFY, ACTION & TREAT, MONITOR & REVIEW

The 'Malnutrition Universal Screening Tool' ('MUST') is adapted and reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For further information on 'MUST' see www.bapen.org.uk.

Implementing Guidelines

The management guidelines on page 19 are the recommended first-line actions to take after 'MUST' screening.

The following pages discuss these guidelines in more detail and provide practical information:

- Setting nutritional aims
- Considering underlying causes of malnutrition
- Food & fluid charts
- Principles of 'Food First' for residents at medium or high risk of malnutrition
- Over-the-counter supplements
- Oral nutritional supplements
- Frequently asked questions

Setting Nutritional Aims

The 'MUST' score only indicates the <u>risk</u> of malnutrition.

This risk must be discussed and considered with the individual and/or others involved in their care to develop an appropriate care plan.

A **nutritional aim** is the overall target for nutritional intervention. This could be:

- Preventing further weight loss
- Promoting weight gain
- Improving strength/function
- Promoting wound healing
- · Promoting good quality of life

Consider the individual's condition and ensure the aim is realistic and achievable. In some cases e.g. residents requiring palliative care and those in the advanced stages of illness, nutritional intervention may not result in any physical improvement but it may help improve quality of life.

Once nutritional aims have been agreed for your resident

- Document clearly in their care plan along with action points agreed to achieve this aim
- Monitor progress regularly where possible
- Modify the care plan according to your residents progress



Consider Underlying Causes of Malnutrition

Malnutrition can be caused by a variety of physical, mental and social issues. If you have identified that a resident is at risk of malnutrition, it is important to consider the reasons why.

Below and overleaf are some common causes of poor intake and actions that may help.

Medical condition causing poor appetite, nausea or diarrhoea

- Seek GP advice
- Review medication

Poor emotional or mental health e.g. depression, isolation, bereavement

- Seek GP or Mental Health team advice
- Check hydration is adequate

Nausea & Vomiting

- GP review, consider medication if appropriate
- Check hydration is adequate
- Small, frequent meals/snacks/ dry foods
- Try offering fizzy drinks or citrus or ginger flavoured foods/drinks
- Remain upright for at least 30 mins after meal

Constipation

- Check hydration is adequate
- Increase fibre intake gradually to avoid discomfort/bloating
- Encourage resident to mobilise (if safe)
- GP review, consider if laxatives required

Consider Underlying Causes of Malnutrition

Poor dentition

- Dentist assessment
- Check oral hygiene routine is adequate
- Ensure dentures fit

Swallowing difficulties (dysphagia)

- Speech & Language Therapist assessment
- Check oral hygiene routine is adequate

Difficult/unable to communicate preferences

- Consider pictorial or larger print menus
- Ensure residents have their hearing aids, glasses and dentures at mealtimes

Unable to feed self or difficulty using utensils

- Occupational Therapist assessment
- Review need for assistance with eating and drinking

Drowsiness throughout the day

- GP review of medication (could be side effect)
- Maximise intake when alert
- Always try to rouse the resident to offer food and fluids

Food and Fluid Charts

What are food and fluid charts?

Food and fluid charts are a record of the food and fluids that are offered and taken by an individual. If a resident is at risk of malnutrition, a food and fluid chart can be useful for spotting eating and drinking patterns or issues.

When should a resident be on a food and fluid chart?

Regular records are not necessary for low risk/stable individuals. Usually 4-7 days worth of records are enough to get an overview of eating and drinking patterns. You may choose to monitor a resident's intake for longer periods if they have having particular issues; make sure you are using the information to help with effective care planning.

What should be documented on a food and fluid chart?

- 1. Type of food/fluid offered; be as descriptive as possible and ideally list all the items served separately writing 'cooked meal' or 'pudding' could mean different things to different people
- 2. Amount of food/fluid offered e.g. 1 scoop, 3 spoonfuls, 100ml tea
- 3. Amount of food/fluid taken; be as accurate as possible and <u>always document</u> <u>refusal</u>
- 4. Any comments that may assist with care planning e.g. noting clinical condition e.g. nausea, or physical issues such as spitting food out or struggling to chew

Food and fluid charts should assist you in nutritional care planning for your residents. Review this regularly and update the care plan as and when needed.

Food and Fluid Charts

Below is an example food and fluid chart with guidance on how and what to record.

Noting the time is useful as it can help to identify patterns and problems. Here, the individual was offered a snack only an hour after eating a good breakfast. Timings of meals and snacks may need to be altered in order to increase intake.

Here, there is lots of useful description and items are listed individually, which makes it easy to review intake.

'Amount Taken' can be documented in different ways depending on the type of food. Try and be as accurate as possible whatever you use.

Time	Description of Food/Fluid Offered	Amount Taken	Comments	Signature
10.00	2 Weetabix, full fat milk and 2 sugars	AU	Ate well	ABC
	2 pieces of toast, butter and jam	3/4		
	Cup of tea	AU		
11:00	Cup of tea and biscuit	Declined	Feels full	ABC
13:00	Chicken casserole - small	1/2	Struggled	ABC
	2 scoops mashed potato with 2 teaspoons extra butter	1 scoop	to chew \leftarrow meat	
	3 tablespoons carrots/peas	None		
	Rice pudding	AU	Enjoyed	
17:30	Dinner and pudding	Not all		DEF
20:00	Horlicks made with full fat milk	200ml	Enjoyed	DEF

This provides <u>no</u> description of what dinner and pudding consisted of and how much was eaten, therefore making it difficult to review intake.

It is important to include details of drinks as they can account for a significant amount of calories.

Comments can also help identify patterns and problems. Here, the individual struggled to chew the meat and enjoyed the pudding. You could provide a softer meat choice and/or offer more pudding to help increase intake.

Food and Fluid Charts

Below are some of the typical problems you may identify using a food and fluid chart along with some suggestions on how to deal with them.

Refusing meals

- Review and discuss references
- Check consistency
- Provide assistance if needed
- Review timing of snacks/drinks

Poor intake at certain times of day

- Maximise intake when does eat well
- Offer preferred foods
- Try snacks and drinks rather than full meal
- Finger foods may also be useful

Preference for sweet over savoury foods (or vice versa)

- A nutritious diet can be met with both
- Offer extra portions of preferred dishes

No snacks eaten during the day

- Review and discuss preferences
- Discuss importance of snacking (may not be normal for resident)
- Offer at specific times during the day

Often leaves meat provided in meals

- Review and discuss preferences
- Check consistency, may require softer options or extra sauces
- Encourage other protein foods e.g. eggs, beans, lentils, dairy

Lack of a particular food group e.g. dairy, fruit & vegetables

- Discuss and review preferences
- Identify other means of providing food groups
- Consider vitamin and mineral supplement

Improving Nutritional Intake - The 'Food First' Approach

The 'Food First' approach is a way of adding extra calories and protein to an individual's diet using everyday food items. It is important to try and do this with anyone at medium or high risk of malnutrition ('MUST' score of 1 or more) or those with a small appetite.

The basic principles of 'Food First' include trying to include the following to an individual's diet on a daily basis to maximise their nutritional intake:

- 1 pint of fortified milk
- 2 nourishing snacks
- 3 fortified meals

The following pages describe these in more detail and provide hints for incorporating them into daily routine for those that need it.

All of the information sheets on the following pages can be downloaded from the SWL IMO Website:

https://swlimo.swlondonccg.nhs.uk/clinical-guidance/oral-nutritional-supplements/food-first-in-care-homes-resources/

1 - Offer 1 Pint Fortified Milk Daily

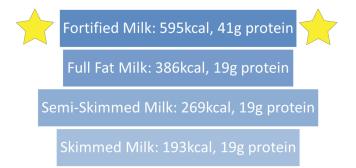
It is vital to drink enough fluid during the day. Whilst fluids such as water and squash are hydrating, they are not very high in calories.

Use the recipes and hints on this page and overleaf to boost the nutritional value of drinks and liquid-containing foods (scaling up recipes as required).

Fortified Milk

Four tablespoons (~60-70g) dried skimmed milk powder 1 pint of full fat milk

- 1. Mix the powder with a small amount of milk to make a paste
- 2. Whisk in the rest of the milk



Aim for an intake of at least **1 pint of fortified milk per day** for each resident at medium or high risk of malnutrition. Fortified milk can be used to make many foods that the resident may already eat or drink, including:

- Tea/coffee and hot milky drinks e.g. hot chocolate, Horlicks, Ovaltine
- Porridge and cereal
- Custard and milky puddings e.g. Angel Delight, blancmange
- White sauce
- Mashed potato
- Milkshakes

1 - Offer Fortified Drinks and Pudding Recipes



Food First in Care Homes: Fortified Drinks and Puddings Recipes

This leaflet was designed to provide residential home and care home catering staff with standardised recipes for high calorie and protein drinks and puddings. These recipes should be offered to those residents who struggle to eat enough to maintain a healthy weight (MUST≥1)

Fortified milk



A basic recipe for boosting the calorie and protein content of milk.

Fortified milk should be used instead of milk on breakfast cereals, porridge, hot drinks or just taken as a drink.

Ingredients Four tablespoons (~60-70g) dried skimmed milk powder 1 pint of full fat milk	Directions 1. Mix the powder with a small amount of milk to make a paste 2. Whisk in the rest of the milk

Nutritional content per pint of fortified milk — 595 kcal and 45g protein

Standard fortified milkshake



Ingredients for single portion

180 ml full fat milk

30g skimmed milk powder

20g vitamin enriched milkshake powder eg Nesquik/ Ovaltine/ Horlicks

For 5 portions:

900ml full fat milk

150g skimmed milk powder

100g vitamin enriched milkshake powder eg Nesquik/ Ovaltine/ Horlicks

Directions

Mix the skimmed milk powder and the milkshake powder together in a large glass. Gradually add the milk, stirring thoroughly. **OR**: add all ingredients to a blender and mix for a few seconds.

Nutritional content per portion

1 portion= 220ml

305 kcal, 17g protein, 44 g carbohydrate, 7.5g fat. Cost: 40p per portion

1

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1 - Offer Fortified Drinks and Pudding Recipes



Fruity fortified milkshake



Ingredients for single portion

50g strawberry yoghurt, 50g plain ice cream, 25g milk powder, 50g full cream milk, ½ banana

Ingredients for 5 portions

250g strawberry yoghurt 250g plain ice cream 125 milk powder 250g full cream milk 2 large bananas

Directions

Add all ingredients to a blender and mix for up to 30 seconds

Nutritional content per portion

265 kcal 16g protein 32g carbohydrate 17g fat

Fortified fruit juice

For those who do not like milk, or who have lactose or milk intolerance

Ingredients for single portion

180ml fruit juice

40ml undiluted squash/ cordial – do not use sugar free or diet squash

10g/ 2x5g sachets of egg white powder **Ingredients for 5 portions:**

900ml fruit juice

200ml undiluted squash/ cordial- do not use sugar free or diet squash

Directions

Mix cordial slowly into egg white by hand then gradually add fruit juice. **Do Not** whisk or use a blender as it will froth up enormously

Try the following flavour combinations:

Cranberry juice and high juice blackcurrant squash or Apple juice and elderflower cordial.

Nutritional content 1 portion= 220ml

Cranberry juice and high juice blackcurrant squash

212 kcal, 8.4g protein 42.4g carbohydrate, 0g fat. Cost:80p per portion

Apple juice and elderflower cordial



2

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1 - Offer Fortified Drinks and Pudding Recipes



Coconut and date shake

A plant- based fortified shake



Ingredients for single portion

60g smooth peanut butter, 5 medjool dates, 200ml coconut milk, 50ml cold water/ a few ice cubes Ingredients for 5 portions 300g smooth peanut butter 25 medjool dates

1L coconut milk 250 ml cold water/ a trayful of ice cubes

Directions

Add all ingredients to a blender and mix for up to 1 minute. **Please note**, the dates may not blend thoroughly and small pieces may remain in the finished shake.

Nutritional content 1 portion= 300ml

458 kcal, 15g protein, 32g fat, 38g carbohydrate. Cost: £1.54 per portion

Fortified pudding

A smooth textured high protein and calorie pudding



Ingredients for 1 portion

½ packet Angel delight (or similar instant pudding mix), 3 tbsp skimmed milk powder, 75ml double cream,

75 ml whole milk

Ingredients for 5 portions

2 ½ packets angel delight (or similar instant pudding mix)
15 tbsp skimmed milk powder

375ml double cream

375 ml whole milk

Directions

Add milk powder to Angel Delight powder, then gradually add milk, then stir in cream. Leave to rest 5 minutes in refrigerator before serving. Will keep up to 24 hours in refrigerator.

Nutritional Content 1 portion= approximately 250ml

383 kcal, 11g protein, 36.5g fat, 13g carbohydrate (not including nutritional content of Angel Delight powder)

*All prices based on Sainsbury's ingredient prices, correct as of August 2020.

3

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2 - Offer 2 Nourishing Snacks Daily



Food First: Nourishing Snacks 100kcal Snacks

Snacks are a great source of energy and nutrition!

Fruit

A great source of energy, <u>vitamins</u> and minerals!

1 small banana 5 dried apricots 6 prunes 2-3 dates 1 heaped tablespoons of sultanas /raisins

Nuts

A great source of energy and protein!

1 small handful of peanuts 5 brazil nuts 2-3 walnuts 7 almonds 1 small handful of cashew nuts

A great source of energy!

Savoury

1 small bags of crisps 2 tablespoons of hummus ½ a crumpet and butter ½ a mini pork pie 1 small sausage roll

Confectionary

5 jelly babies
3 squares of chocolate
2 kit kat fingers
1 fudge bar
½ a crunchie

Dairy

A great source of energy, calcium and vitamin D

1 scoop of ice cream 1 small pot of full fat/creamy yogurt 1 medium slice of cheese 30mls of condensed milk

Biscuits/Cakes

1 slice of malt loaf 2 jaffa cakes 1 shortbread finger ½ croissant 2 custard creams 1 jam tart 2 digestives

Tips to help you snack wise

- Aim to have at least small snacks daily
- If your appetite is poor, snacks and nourishing drinks are a great way to make sure you are getting enough calories and protein!
- . Try to have snacks between your meals or 'little and often' throughout the day
- Have small bowls of your favourite snacks close by (e.g. crisps, nuts, dried fruit or sweets)
- Be prepared! Many snack foods have a long shelf life, try to have a variety of snacks available at home
- Enjoy a warm milky drink or glass of pure fruit juice with your snack!

My Snack Plan!

My favourite snacks are:
Ideas for bowls of snacks to leave close by:
Snacks I have at home:
Snacks to purchase:

Adapted from a resource created by Oviva, NHS South West London CCG includes the boroughs of Croydon, Kingston, Merton, Richmond, Sutton and Wandsworth Final V1 May 2021. Review date May 2023



Food First: Nourishing Snacks 300-400 Kcal Snacks

Cold Savoury Snacks:

Egg in a Cup! Boiled egg Mayonnaise Salt and pepper to taste Hummus with Breadsticks Or a small bread roll Two cream crackers with one match box size of cheddar cheese or cream cheese

Croissant with one slice of cheese and ham

Warm Savoury Snacks:

1 slice of toast and peanut butter

1 slice of toast with butter and grated cheese

Cheese Scone with butter

2 boiled eggs

Cold Sweet Snacks:

Pot of full fat creamy yogurt with tinned fruit

Slice of Cake with cream or ice cream Chopped fruit and ice cream

Fruit trifle and double cream

Warm Sweet Snacks:

Stewed fruit with custard, full fat yogurt or double cream

1 slice of toast with butter and honey or jam Scone or Tea Cake with butter, jam and cream

Crumpet with Peanut butter or butter and jam

Other Ideas:

Malt loaf with butter Handful of dried fruit and nuts with a glass of full fat milk

2 digestive biscuits with butter and jam Pot of full fat rice pudding, yogurt or custard with a spoonful of jam or dried fruit

Adapted from a resource created by Oviva, NHS South West London CCG includes the boroughs of Croydon, Kingston, Merton, Richmond, Sutton and Wandsworth Final V1 May 2021. Review date May 2023

2

3 - Offer 3 Food Booster Recipe Ideas



Fortified Recipes

The Catering Department in your care home should include these fortified recipes in the menu plan for malnourished residents and use this in conjunction with the Fortified Drinks and Pudding recipe sheet

Porridge

Porridge made with water only = 80 Kcals.



Add 1 tablespoon of milk powder and 1 tablespoon of butter or margarine.

Porridge made with full cream milk, plus milk powder and butter/ margarine = 300 calories.

Soup



1 tablespoon of cream of tomato soup = 80 Kcals

⇒ Add 1 tablespoon of milk powder note: this will sweeten the soup, so may work better with sweeter soups eg cream of tomato, carrot, sweetcorn

Soup with 1 tablespoon milk powder =135 calories

Soup with 1 tablespoon full cream = 180 calories.

Soup with both 1 tablespoon milk powder and 1 tablespoon full cream = 235 calories.

Mashed Potato

1 portion of mashed potato= 200 calories.



⇒ Add butter/milk powder /cheese:

Mashed potato with 1 tablespoon butter=260 calories.

Mashed potato with 1 tablespoon butter plus 1 tablespoon milk powder= 315 calories.

Rice pudding or custard

1 bowl rice pudding= 110 calories.



⇒ Add cream or milk powder:

Rice pudding with 2 tablespoons full/ double cream= 310 calories.

Rice pudding with 2 tablespoons cream plus 1 teaspoon milk powder= 365 calories.

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'Food First' Summary—Checklist

- Discuss with residents their likes and dislikes and identify foods they would like to eat
- ☑ Check they are happy with mealtime environment
- ☑ Arrange for fortified milk to be added to the drinks trolley and be used on drinks rounds for medium and high risk residents
- ☑ Discuss high risk residents with catering staff and arrange for homemade milkshakes to be made available for them
- ☑ Ensure that there is a variety of sweet, savoury and dysphagic snacks available at all times
- ☑ Ensure cream, butter, cheese, jam available to fortify meals
- ☑ Discuss with catering the use of standardised fortified recipes for porridge, mashed potatoes, mousse etc
- ☑ Keep accurate food records for one week for high risk residents you are concerned about

Over-the-Counter Supplement Soups/Milkshakes

Another option for nourishing drinks are over-the-counter nutritional supplement milkshakes and soups which are available from most pharmacies and supermarkets.

Most products can be made up with water (if not ready to drink). However, making up the products with **full fat/fortified milk** where possible to maximise nutritional content is recommended.

Available brands (at time of writing) include Complan[®], Meritene Energis[®], Nurishment[®] and Aymes[®]. For further information please visit the manufacturer websites (listed on page 52).







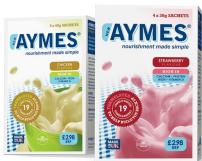














Don't forget, other ingredients e.g. cream, ice-cream can also be added to increase the nutritional content further.

Oral Nutritional Supplements (ONS)

ONS are classified as foods for special medical purposes which are available on prescription. They may be required to increase energy and/or protein intake when diet alone is insufficient to meet nutritional requirements. Most supplements will also contain vitamins and minerals.

ONS should only be used <u>alongside</u> the 'Food First' approach, unless otherwise advised. They should <u>not</u> be used to replace food.

ONS are only effective if taken as prescribed on a regular basis. If the individual is struggling to take their ONS consider the following:

- Taste preferences e.g. sweet/savoury and prevent 'taste fatigue'
- Serve milkshake-style ONS cold and savoury ONS warm (do not boil)
- Serving ONS in a glass/cup may make them more appealing
- Encourage ONS use between meals to avoid filling up on them
- Once opened, store ONS in refrigerator and use within 24hours

Remember that ONS are prescription products and should <u>not</u> be given to residents who have not been prescribed them.

First-line ONS (usually a powdered milkshake) can be prescribed by a GP. This can be mixed with either 200ml or 125ml full fat milk if a resident has a problem drinking larger volumes

The individual may be referred to the dietitian if there is no improvement or if further advice is required.

Meeting the needs of recovering Covid-19 residents

Residents recovering from Covid –19 may need specific dietary advice and support to prevent further weight loss and have higher energy and protein requirements.

Promoting weight gain and improved muscle mass will aid mobility and quality of life.

How to manage Covid-19 symptoms which may affect oral intake:

Breathlessness

Take small amounts of food at a time. Pause between mouthfuls. Soft foods may be easier to manage.

Dry mouth

Ensure foods are moist or served with sauces such as gravy/ mayonnaise/ salad cream/ ketchup.

Keep well hydrated between meals, aim for 8 drinks per day.

Chewing gum or sugar free sweets can help boost saliva production.

Reduced taste sensation

Offer sauces with meals, or try adding spices. Sharp flavours such as lemon juice eg on fish dishes or as a drink (lemonade/ lime juice/ cordials) can help with taste perception.

Resources for Covid-19 residents

The following resources can be downloaded for residents recovering form Covid-19 dependent on the severity of illness from

https://www.malnutritionpathway.co.uk/covid19-resourcetool

Green leaflet: **EATING WELL DURING AND AFTER COVID-19** eating a balanced diet to help maintain your strength and fitness, as well as helping your body to fight infection.

Yellow leaflet: **IMPROVING YOUR NUTRITION DURING AND AFTER COVID- 19 ILLNESS** is aimed at those with a poor appetite and/or recent unintentional weight loss. Includes tips to help get the most from your food.

Red leaflet: <u>NUTRITION SUPPORT DURING AND AFTER COVID-19</u> <u>ILLNESS</u> is for those who are very unwell or have recently been discharged from hospital, or are struggling to eat enough, are underweight and/or have lost weight recently without meaning to.

The role of exercise and good nutrition

Exercise in addition to nutritional support has been proven to improve functional ability and is required in the rehabilitation of COVID-19 patients especially those with ITU-associated weakness, muscle mass loss and sarcopenia https://pubmed.ncbi.nlm.nih.gov/31349606/.

Refer to local physiotherapy services if advice is required on suitable exercises.





FAQs: 'Food First' & Dairy Allergy/Intolerance

The 'Food First' approach can be more difficult if the individual is allergic or intolerant to milk or if they simply do not like it. Try to include dairy-free alternatives e.g. milk, cream, spread where possible, although bear in mind that they may not be as high in calories as the dairy-containing products.

Consider the alternatives below when following the management guidelines for residents at medium or high risk of malnutrition:

Fortified Milk Alternatives: try the dairy-free nourishing drink recipes below by blending the ingredients together for 15 seconds and serving. Adjust the ingredients and flavours according to personal preference.

Fruit Boost

150ml orange juice
50ml pineapple juice
1 banana
100g berries (fresh or frozen)

Fruit Blast

100mls fresh fruit juice
100mls lemonade
1 scoop dairy free ice cream
1 tablespoon sugar

Citrus Chiller

150g soya yoghurt or alternative
2 tablespoons soya cream
1 tablespoon lemon curd
1 scoop lemon sorbet
Juice of lemon or lime to taste

Coconut Date Shake

60g peanut butter 5 medjool dates 200ml coconut milk 5 ice cubes

Nourishing Snacks: dairy free ice-cream, fruit, nuts, savoury snacks

Food Boosters: peanut butter, oil, jam/honey, soya cream

FAQs: 'Food First' & Diabetes

Poorly controlled diabetes is likely to result in weight loss therefore it is important to try and stabilise blood sugars. However, restricting food intake to stabilise blood sugars is likely to result in further weight loss and increased risk of malnutrition.

Consider reviewing diabetic medication and consider other causes of poor control, such as underlying infections, before considering food restriction.

For individuals at risk of malnutrition, 'sugary' food and drink should still be limited. Use of products labelled specifically for diabetics e.g. diabetic chocolate or diabetic jam is NOT recommended.

A high protein/fat diet can still be recommended for residents with diabetes who are at risk of malnutrition, including:

- Full fat dairy products (milk, cheese, yoghurt)
- 'Food boosters' such as butter, cream, mayonnaise, peanut butter
- 'Cream of' soups
- Eggs, meat & fish with sauces

If considering ONS for residents with diabetes:

- Use savoury/milk-based ONS instead of sweeter juice-based varieties
- Encourage individuals to sip ONS slowly
- Increase frequency of blood glucose monitoring
- If you have any concerns, refer to the Dietitian

FAQs: 'Food First' & Heart Disease

In the short-term, a high fat diet is unlikely to cause significant increase in cholesterol levels. If a resident requires a long-term high fat diet for malnutrition and there is concern regarding their cholesterol levels, try to use products high in monounsaturated fats e.g. olive oil, olive oil-based spreads, nuts and oily fish. These fats have been shown to have a positive effect on cholesterol levels and overall heart health, whilst containing similar amounts of calories.

'Food First' & End of Life Care

Nutrition and hydration towards the end of someone's life can be an emotive issue. During this process, the body begins to shut down and the desire for someone to eat and drink naturally begins to decrease. It is important to remember that the person is not dying because they are not eating and drinking, they are not eating and drinking because they are dying.

The use of 'Food First' and ONS in end of life care should be decided on an individual basis and will be informed by the individual's condition i.e. whether they are at an early or late stage of care, and their treatment plan.

Early Palliative Care

- 'Food First' and/or ONS may be helpful if food intake is compromised e.g. if the individual is fatigued, or has an impaired ability to chew or swallow
- Prevention of weight loss and maintenance of good nutritional status can sometimes be a realistic aim and may help maintain or improve the individual's condition

Late Palliative Care

- The main aim should be maximising quality of life
- Encourage intake of foods and drinks that the individual most enjoys
- Anxiety around eating and nutrition is common, particularly for carers
- Be aware that there may be tension between individuals and their carers/ family about how much intake can be managed
- Weight gain and/or reversal of malnutrition are not realistic goals avoid giving the individual and carers false hope that ONS will improve nutritional status and/or prolong life
- Aggressive feeding is unlikely to be appropriate, especially if eating and drinking cause discomfort or anxiety. Avoid making the individual feel that they must take ONS

Section 3: Related Topics

Dementia

Dementia is a syndrome associated with memory loss, thinking speed, understanding and judgement, which can all have an impact on nutritional intake. Common issues that may affect eating and drinking in individuals with dementia include:

Cognitive & Sensory Difficulties may include problems with recognising food/ drinks and concentration at mealtimes.

- Encouragement and prompting to eat, using pictures to explain menus and engaging person in mealtime-related activities e.g. laying the table
- Calm, relaxed environment, limiting distractions
- Finger foods, regular snacks and more frequent/flexible mealtimes may be helpful for individuals who become distracted or lose focus
- Ensure the individual is wearing hearing aids and glasses if required
- Ensure food/drink is not too hot

Motor/Coordination Difficulties may include problems with co-ordination or chewing/swallowing issues.

- Consider 'finger foods' to promote independence
- Consider adapted cutlery refer to Occupational Therapist for further advice or appropriate equipment
- Ensure dentures fit properly
- May require softer diet and/or thickened fluids

Behavioural Difficulties may include changes in behaviour or eating habits and preferences.

- It can be difficult to identify the problem, particularly if the individual has communication difficulties
- Try not to rush the individual, look for non-verbal cues
- If the individual becomes agitated, wait until the person has calmed down before encouraging more food and drink

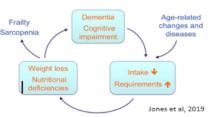
Always consider underlying causes for poor appetite e.g. pain, depression, constipation, infection, fatigue, medication.



Optimising Nutrition for Dementia Patients

There's a strong link between dementia and malnutrition amongst care home patients. Sarcopénia 60% of all patients in care homes may have a diagnosis of dementia with up to 40% of them at high risk of malnutrition requiring higher nursing and care needs.

This leaflet aims to provide ideas on how to optimise nutrition in dementia patients and to prevent/manage their risk of malnutrition. There are several factors which may affect nutrition which are listed below:



Dentition and swallowing

These are two common problems which often occur with age and dementia. They may affect the amount a patient is able to eat and drink and can be really distressing for both the patient and carers. Signs include coughing and choking on food, as well as being unable to chew and swallow hard textured foods. Swallowing difficulties can also lead to weight loss, malnutrition and dehydration.

Management:

- Referral to Dentist (if dental issues identified)
- If the patient wears dentures, they should be comfortable and fitted properly. People with dementia can get tired easily (eating soft, moist food that needs minimal chewing can help).
- · Include more sauces/gravies to soften foods.
- Referral to SALT (if swallow difficulties suspected or persistent coughing while eating)
- If the patient is holding food in their mouth, chewing continuously, leaving foods that are harder to chew (e.g. hard vegetables) on the plate, try softer/pureed/smooth textured foods and refer to SALT for an assessment.

Change in taste and smell

Dementias, such as Alzheimer's, can impair the areas of the brain that enable the sense of smell and taste and the ability of the individual to process them. When this occurs, eating and drinking can become less pleasurable.

Management:

- Ask the patient's family for food preferences including cultural diets
- Try strong flavours (herbs and spices) and smells, sweeter foods maybe preferred.
- · Serve familiar and traditional foods and smells
- Everyone is different, some may opt for sugary foods others for salty; be observant on the person's preferences and provide more of what they seem to enjoy.
- If a patient has a preference for sweet foods, adding small amounts of honey or sugar / sweet sauces and chutneys to savoury foods may be helpful Offering fruits /fruit compotes or naturally sweet vegetables (such as carrots or sweet potato) may be a healthier option.

Forgetfulness and behaviour

A patient with dementia may refuse to eat food or may spit it out. This may be because they dislike the food, are trying to communicate something such as the food being too hot, or they are not sure what to do with the food. The patient may become angry, agitated or behave differently during mealtimes in a way that can be challenging. They may be forgetful with the process of using cutlery, chewing, swallowing or even what the food is.

Management:

- Colour contrasting plates, tablecloths and placemats may be helpful. For liquids it may be better to use clear glass/cup in order for the patient to see what's
- If the patient is struggling with dexterity, adapted cutlery and glasses/cups with handles may be useful.
- Offer encouragement talk and feeding assistance.
- If they refuse assistance, may be helpful to offer finger foods such as mini sandwiches, mini pizzas, mini burgers, chips/sweet potato chips, cut up vegetables/fruits, cheese, crackers, cocktail sausages, falafels, meatballs, toast soldiers with dips, cakes, biscuits for the patient to help themselves.

Environment and social eating

Eating is a social activity and for some being amongst others may be what they need to eat better. For others it may be too chaotic and stressful. Please consider the individual patient and what their preference may be. It may also be that they do not want to settle in one place for too long (pacing), in which case having small meals often and finger foods, may be useful

Management:

- Comfortable environment, creating a mealtime experience, napkins, plates and trays
- Involving patients in meal preparation or setting the table
- Social eating studies have shown improved results in shared meals between caregivers and patients
- Serve familiar and traditional foods and smells
- Consider distraction free environment, if the patient is getting agitated/overwhelmed.
- Evidence suggest that relaxing music during mealtimes can improve eating in dementia patients.

Adapted from a resource created by Cwiva, NHS South West London CCG includes the boroughs of Croydon, Kingston, Merton, Richmond, Sutton and Wandsworth Final V1 May 2021. Review date May 2023

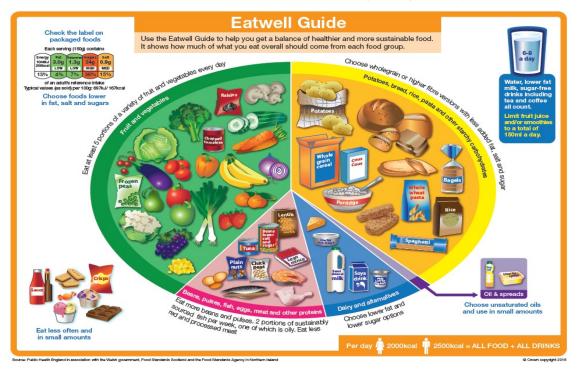
Mealtime Environment

The mealtime environment can have a significant impact on eating and drinking experience for residents. Consider the following to promote a positive mealtime experience for your residents:

- Maintain a calm, relaxing eating environment with minimal background noise (although appropriate music can be used to create a pleasant atmosphere)
- Try to encourage individuals to take part in tasks to help maintain interest e.g. preparing food, laying the table, folding napkins
- Ensure the individual has all the aids needed to experience the environment e.g. glasses, hearing aids, dentures. Adapted cutlery/crockery may also help promote independence with feeding
- Use familiar sights, sounds and smells of cooking and food preparation to help stimulate the individual senses
- Try not to worry about mess; wipe clean mats and covers may helpful
- Encourage the individual to make choices (if they are able to) about e.g. where they would like to sit, what they would like to eat
- Ensure tables and chairs are positioned so that individuals can see who they are sitting with
- Allow staff to eat and drink with residents to make it more of a social activity;
 residents may react positively by copying those around them

Weight management

If your resident is not at risk of malnutrition, then it is important that they eat a balanced diet and are as active as possible in order to maintain a healthy weight and BMI (ideally between 20-25kg/m²) to avoid obesity and associated health problems such as cardiovascular diseases (CVD) and type 2 diabetes.



The Eatwell Guide shows how much of what we eat during the day should come from each food group to achieve a balanced diet. Please see below for further information sources on healthy eating and weight management advice:

Age UK - Healthy eating

http://www.ageuk.org.uk/health-wellbeing/healthy-eating-landing/

The British Nutrition Foundation - Later life

https://www.nutrition.org.uk/healthyliving/lifestages/later-life

NHS Choices - Healthy eating

http://www.nhs.uk/livewell/healthy-eating/Pages/Healthyeating.aspx

Public Health England

Healthier and More Sustainable Catering: toolkit for older people in residential care

https://www.gov.uk/government/publications/healthier-and-more-sustainable-catering-a-toolkit-for-serving-food-to-adults

Oral Health

Good oral health is essential for pain free eating, drinking and talking, as well as good overall general health.

- ☑ Residents should have an oral health needs assessment within 24 hours of arrival and a suitable care plan that is reviewed regularly
- ☑ Be observant for any change in eating, speaking or any behaviour that may indicate pain and seek medical or dental advice if this occurs
- ☑ Each resident should see a dentist at least once a year

Caring for Natural Teeth

- Clean teeth twice daily using a small headed toothbrush and a small blob of fluoride-containing toothpaste
- Brush in a circular motion, covering all tooth surfaces and gum edges
- Power/electric toothbrushes just need guiding around each tooth
- Encourage spitting out of froth but <u>do not rinse</u> so that the fluoride continues to strengthen teeth
- If a carer needs to assist with brushing ensure the individual is comfortable with their head supported, possibly seated in front of a mirror. Putting another toothbrush in their hand may trigger memory and aid co-operation

Caring for Dentures

- Clean twice each day with brush and liquid soap
- Soak as per product instructions, preferably left in water overnight
- Clean gums with soft toothbrush

Texture-Modified Diet & Thickened Fluids

What About Individuals Who Require a Texture-Modified Diet?

Individuals requiring a texture-modified diet (fork-mashable, pre-mashed or pureed) are often at a higher risk of malnutrition due to:

- Restricted food choices not all food can be processed to appropriate consistency
- Some individuals find mashed/pureed foods unpalatable
- Processing food often requires adding liquid e.g. stock, water, which 'dilutes'
 the nutritional value of the food. This means the individual has to consume
 more to receive the same level of nutrition (which is often unmanageable
 amounts)

'Food boosters' e.g. cream, butter, cheese, milk powder are useful ways to add extra calories to mashed/pureed foods without adding significant volume.

Offer appropriate milky drinks and nourishing snacks e.g. milkshakes, custard, mousse, yogurts, soft cheese.

What About Individuals Who Need Thickened Fluids?

Thickeners should only be used with guidance from a speech & language therapist following a swallowing assessment.

Always ensure the recommended amount of prescribed thickener is used as it is not always the same for each product.

If an individual on thickened fluids requires ONS, please contact the dietitians or speech & language therapists (see page 4) who can advise on appropriate thickening methods or alternative products.

If you have <u>any</u> questions regarding the suitability of these suggestions for your resident then please contact Dietitians or Speech & Language Therapists or discuss with GP/Specialist for further advice.

Hydration

How much do we need to drink?

Current guidelines recommend that we should normally aim to drink 6-8 glasses (1600 - 2000ml) per day.

What counts as fluid?

Remember that **all fluid counts** (except alcohol) including water, tea, coffee, milk, juice and squash. Some foods also contribute to fluid intake because of their high water content, such as fruit, ice lollies, soups and sauces.

What problems can dehydration cause?

Poor fluid intake can contribute to:

- Constipation
- Increased UTIs and incontinence issues
- Cognitive impairment
- Increased risk of pressure ulcers and poor wound healing
- Low blood pressure and falls

These can all also have an impact on food intake (see page 7).

Will increasing fluid intake worsen my resident's incontinence?

Many older people deliberately reduce their fluid intake to reduce how often they need to go to the toilet. In fact, poor hydration leads to concentrated urine which irritates the bladder and makes incontinence and frequency worse. It is therefore important to educate staff and residents and encourage good fluid intake.

How can we tell if a resident is dehydrated? Is there a screening tool?

Dehydration is difficult to diagnose without blood testing as the symptoms can be quite non-specific e.g. fatigue, headaches, dry skin. Concentrated urine is also not a reliable indicator of dehydration due to the way kidney function changes with age. Unfortunately there is not a specific screening tool that monitors risk of dehydration, therefore clinical judgement alongside observation of fluid intake is required.

Hydration

What can I do to help my resident drink more?

CAN DRINK

Unaware of how much to drink daily

· Education of individual

Drinks independently but forgetful

- Regular prompting
- Promote routine

CAN'T DRINK

WON'T DRINK

Swallowing problems

• Speech & Language Therapist input

Unable to drink independently

• Provide appropriate assistance and aids if required, whilst maintaining resident dignity

'Lifelong Sipper'

 Gradual approach of education and reinforcing positive drinking habits of residents that have never drunk well

Fear of urinary incontinence or increased frequency

- Reassurance and support
- Continence team advice
- Empathy and understanding, maintaining dignity

Refusing to drink e.g. clamping mouth shut, spitting

- Not necessarily simply a deterioration in behaviour
- Consider right person, right drink, right time

End of life

• Seek specialist support

Adapted from Mentes (2013) 7

Additional Information Sources

Malnutrition and 'MUST'

BAPEN http://www.bapen.org.uk/screening-for-malnutrition/must/introducing-must

Managing Adult Malnutrition in the Community www.malnutritionpathway.co.uk

Malnutrition Taskforce <u>www.malnutritiontaskforce.org.uk/resources.html</u>

Nutritional Products

Complan <u>www.complan.com</u>

Meritene Energis <u>www.nestlehealthscience.co.uk/products/meritene-energis</u>

Aymes www.aymes.com/pages/aymes-retail

Nurishment <u>www.nurishment.co.uk</u>

Nutrition, Hydration and Menu Planning

The Nourish Resource Pack www.happyhealthyathome.org/news/downloads/

Wessex Hydration Toolkit www.wessexahsn.org.uk/img/news/Hydration%20toolkit%20V1.pdf

Menus Count in Care <u>www.menuscount.org.uk</u>

Nutritional Guidelines and Menu Checklist for Nursing and Residential homes (Northern Ireland guidance) http://www.publichealth.hscni.net/publications/nutritional-guidelines-and-menu-checklist-residential-and-nursing-homes

Public Health England Healthier and more sustainable catering toolkit www.gov.uk/government/publications/healthier-and-more-sustainable-catering-a-toolkit-for-serving-food-to-adults

Dementia

Caroline Walker Trust www.cwt.org.uk/downloads/

Social Care Institute for Excellence www.scie.org.uk/dementia/

Other

BDA Food Facts Leaflets www.bda.uk.com/foodfacts/home

Coeliac UK <u>www.coeliac.org.uk/home</u>

Diabetes UK www.diabetes.org.uk

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- 7. Mentes J. The Complexities of Hydration Issues in the Elderly. Nutrition Today 2013.



Appendices

Page 56	Appendix A	Weight Conversion Chart
Page 57	Appendix B	Height Conversion Chart
Page 58	Appendix C	BMI Score Chart*
Page 59	Appendix D	Weight Loss Score Chart*
Page 60	Appendix E	Ulna length/MUAC*

^{*}The 'Malnutrition Universal Screening Tool' ('MUST') is reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition). For further information on 'MUST' see www.bapen.org.uk.

Weight Conversion Chart

Imp	erial	Metric
St	lb	Kg
1	0	6.35
2	0	12.70
3	0	19.05
4	0	25.40
4	1	25.86
4	2	26.31
4	3	26.76
4	4	27.22
4	5	27.67
4	6	28.11
4	7	28.57
4	8	29.03
4	9	29.48
4	10	29.93
4	11	30.39
4	12	30.84
4	13	31.30
5	0	31.75
5	1	32.21
5	2	32.66
5	3	33.11
5	4	33.57
5	5	34.02
5	6	34.47
5	7	34.93
5	8	35.38
5	9	38.83
5	10	36.29
5	11	36.74
5	12	37.19
5	13	37.65
6	0	38.10
6	1	38.56
6	2	39.01 39.46
6	4	39.46
6	5	40.37
6	6	40.82
6	7	41.28
6	8	41.73
6	9	42.18
6	10	42.64

Imperial Metric St lb Kg 6 11 43.09 6 12 43.55 6 13 44.00 7 0 44.45 7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 7 53.98 8 8 54.43 8 9			
6 11 43.09 6 12 43.55 6 13 44.00 7 0 44.45 7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 1 55.79 8 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 8 9 54.89 8 10 55.34 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 9 54.89 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 9 54.89 8 9 54.89 8 9 54.89 8 9 54.89 8 9 54.89 8 9 6 59.88 9 9 6 6 59.88 9 9 6 6 59.88 9 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	lmp	erial	Metric
6 12 43.55 6 13 44.00 7 0 44.45 7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8	St	lb	Kg
6 13 44.00 7 0 44.45 7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 11 55.79 8 12 56.25 8	6	11	43.09
7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 8 10 55.34 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	6	12	43.55
7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 8 10 55.34 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	6	13	44.00
7 1 44.91 7 2 45.36 7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 8 10 55.34 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	0	44.45
7 3 45.81 7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24		1	44.91
7 4 46.27 7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24		2	45.36
7 5 46.72 7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	3	45.81
7 6 47.17 7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	4	46.27
7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	5	46.72
7 7 47.63 7 8 48.08 7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	6	47.17
7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24		7	47.63
7 9 48.54 7 10 48.99 7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	8	48.08
7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24		9	48.54
7 11 49.44 7 12 49.90 7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	10	48.99
7 13 50.35 8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 6 61.24		11	49.44
8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	12	49.90
8 0 50.80 8 1 51.26 8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	7	13	50.35
8 2 51.71 8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24		0	50.80
8 3 52.16 8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	1	51.26
8 4 52.62 8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	2	51.71
8 5 53.07 8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	3	52.16
8 6 53.52 8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	4	52.62
8 7 53.98 8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	5	53.07
8 8 54.43 8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	6	53.52
8 9 54.89 8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	7	53.98
8 10 55.34 8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	8	54.43
8 11 55.79 8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	9	54.89
8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	10	55.34
8 12 56.25 8 13 56.70 9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	11	55.79
9 0 57.15 9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24	8	13	
9 1 57.61 9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 2 58.06 9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 3 58.51 9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 4 58.97 9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 5 59.42 9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 6 59.88 9 7 60.33 9 8 60.78 9 9 61.24			
9 7 60.33 9 8 60.78 9 9 61.24			
9 8 60.78 9 9 61.24			
9 9 61.24			
	9	10	61.69

Imp	erial	Metric
St	lb	Kg
9	11	62.14
9	12	62.60
9	13	63.05
10	0	63.50
10	1	63.96
10	2	64.41
10	3	64.86
10	4	65.32
10	5	65.77
10	6	66.23
10	7	66.68
10	8	67.13
10	9	67.59
10	10	68.04
10	11	68.49
10	12	68.95
10	13	69.40
11	0	69.85
11	1	70.31
11	2	70.76
11	3	71.22
11	4	71.67
11	5	72.12
11	6	72.58
11	7	73.03
11	8	73.48
11	9	73.94
11	10	74.39
11	11	74.84
11	12	75.30
11	13	75.75
12	0	76.20
12	1	76.66
12	2	77.11
12	3	77.57
12	4	78.02
12	5	78.47
12	6	78.93
12	7	79.38
12	8	79.83
12	9	80.29
12	10	80.74

Imp	erial	Metric
St	lb	Kg
12	11	81.19
12	12	81.65
12	13	82.10
13	0	82.55
13	1	83.01
13	2	83.46
13	3	83.92
13	4	84.37
13	5	84.82
13	6	85.28
13	7	85.73
13	8	86.18
13	9	86.64
13	10	87.09
13	11	87.54
13	12	88.00
13	13	88.45
14	0	88.91
14	1	89.36
14	2	89.81
14	3	90.27
14	4	90.72
14	5	91.17
14	6	91.63
14	7	92.08
14	8	92.53
14	9	92.98
14	10	93.44
14	11	93.90
14	12	94.35
14	13	94.80
15	0	95.26

Height Conversion Chart

ft in m 4 0 1.22 4 ½ 1.23 4 1 1.25 4 1½ 1.26 4 1½ 1.26 4 2½ 1.28 4 2½ 1.28 4 3½ 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.50 4 11½ 1.51 5 ½ 1.54 5 ½ 1.54 5 1½	lm	perial	Metric
4 ½ 1.23 4 1 1.25 4 1½ 1.26 4 2 1.27 4 2½ 1.28 4 3 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 3	ft	in	m
4 1 1.25 4 1½ 1.26 4 2 1.27 4 2½ 1.28 4 3½ 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 3½ 1.61 5 4½ 1.64 5 1.65	4	0	1.22
4 1½ 1.26 4 2 1.27 4 2½ 1.28 4 3 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 3½ 1.61 5 4 1.63 5 5	4	1/2	1.23
4 2 1.27 4 2½ 1.28 4 3 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 3½ 1.61 5 4 1.63 5 1.65 5 5 1.65 5 1.65 5 1.65 5 1.65	4	1	1.25
4 2½ 1.28 4 3½ 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 3 1.60 5 3½ 1.61 5 4½ 1.64 5 5 1.65 5 5½	4	11/2	1.26
4 3 1.30 4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5 1.65 5 5½ 1.66	4	2	1.27
4 3½ 1.31 4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.66	4	21/2	1.28
4 4 1.32 4 4½ 1.33 4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5 1.65 5 5½ 1.66	4	3	1.30
4 4½ 1.33 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5 1.65 5 5½ 1.66	4	31/2	1.31
4 5 1.35 4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.46 4 10½ 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.65 5 5½ 1.66	4	4	1.32
4 5½ 1.36 4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8 1.42 4 8½ 1.44 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.65 5 5½ 1.66	4	41/2	1.33
4 6 1.37 4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8½ 1.44 4 9½ 1.45 4 9½ 1.46 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.65 5 5½ 1.66	4	5	1.35
4 6½ 1.38 4 7 1.40 4 7½ 1.41 4 8 1.42 4 8½ 1.44 4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.65 5 5½ 1.66	4	51/2	1.36
4 7 1.40 4 7½ 1.41 4 8 1.42 4 8½ 1.44 4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.65 5 5½ 1.66	4	6	1.37
4 7½ 1.41 4 8½ 1.42 4 8½ 1.44 4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4½ 1.63 5 5 1.65 5 5 1.65 5 5½ 1.66	4	61/2	1.38
4 8 1.42 4 8½ 1.44 4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5 1.65 5 5½ 1.66	4	7	1.40
4 8½ 1.44 4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	71/2	1.41
4 9 1.45 4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11 1.50 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 5 1.65 5 5½ 1.66	4	8	1.42
4 9½ 1.46 4 10 1.47 4 10½ 1.49 4 11 1.50 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	81/2	1.44
4 10 1.47 4 10½ 1.49 4 11 1.50 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3½ 1.60 5 3½ 1.61 5 4½ 1.63 5 5 1.65 5 5½ 1.66	4	9	1.45
4 10½ 1.49 4 11 1.50 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	91/2	1.46
4 11 1.50 4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	10	1.47
4 11½ 1.51 5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	10½	1.49
5 0 1.52 5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	11	1.50
5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	4	111/2	1.51
5 ½ 1.54 5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	5	0	1.52
5 1 1.55 5 1½ 1.56 5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66		1/2	1.54
5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66		1	1.55
5 2 1.57 5 2½ 1.59 5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	5	11/2	1.56
5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66		2	1.57
5 3 1.60 5 3½ 1.61 5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	5	21/2	1.59
5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	5	3	1.60
5 4 1.63 5 4½ 1.64 5 5 1.65 5 5½ 1.66	5	31/2	1.61
5 4½ 1.64 5 5 1.65 5 5½ 1.66		4	1.63
5 5½ 1.66		41/2	1.64
5 5½ 1.66	5	5	1.65
		51/2	1.66
5 6 1.68	5	6	1.68

Imp	erial	Metric
ft	in	m
5	61/2	1.69
5	7	1.70
5	71/2	1.71
5	8	1.73
5	81/2	1.74
5	9	1.75
5	91/2	1.77
5	10	1.78
5	101/2	1.79
5	11	1.80
5	111/2	1.82
6	0	1.83
6	1/2	1.84
6	1	1.85
6	11/2	1.87
6	2	1.88
6	21/2	1.89
6	3	1.91
6	31/2	1.92
6	4	1.93
6	41/2	1.94
6	5	1.96
6	51/2	1.97
6	6	1.98
6	61/2	1.99
6	7	2.00
6	7½	2.01
6	8	2.03
6	81/2	2.05
6	9	2.06
6	9½	2.07
6	10	2.08
6	10½	2.10
6	11	2.11
6	11½	2.12
7	0	2.13

Step 1 - BMI score (& BMI)



Height (feet and inches)

Height (m)

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Step 2 - Weight loss score

Score 2 Wt loss Score 1 Wt loss 5 - 10% Score 0 Wt loss < 5% Score 2

Weight 3 to 6 months ago

Weight 3 to 6 months ago

Between

ess than

Score 1 Wt loss 5 - 10%

Wt loss < 5%

Between

Less than

<u>6</u>

Score 2 Wt loss > 10%	
Score 1 Wt loss 5 - 10%	
Score 0 Wt loss < 5%	
Scor Wt. Ic	

Weight 3 to 6 months ago

Score 0 Score 3 Wt loss 4 5% 5 - 10%

	< 5%	5 - 10%	> 10%
	Weight	Weight 3 to 6 months ago	hs ago
, g	Less than (kg)	Between (kg)	More than (kg)
135	142.1	142.1 142.1 - 150.0	150.0

<u>6</u> 6	Kg.	(kg)	(kg)	(kg)
1.1	135	142.1	142.1 - 150.0	150.0
2.2	136	143.2	143.2 - 151.0	151.1
3.3	137	144.2	144.2 - 152.2	152.2
4.4	138	145.3	145.3 - 153.3	153.3
9.9	139	146.3	146.3 - 154.4	154.4
6.7	140	147.4	147.4 - 155.6	155.6
7.8	141	148.4	148.4 - 156.7	156.7
8.9	142	149.5	149.5 - 149.5	157.8
0.0	143	150.5	150.5 - 158.9	158.9
1.1	144	151.6	151.6 - 160.0	160.0
2.2	145	152.6	152.6 - 161.1	161.1

108.4 - 114.4

108.4 109.5

71.6 - 75.6

89

67

33.7 - 35.6 34.7 - 36.7

33.7

72.6 73.7

69

70.5 - 74.4

109.5 - 115.6 110.5 - 116.7

105.3 - 111.1106.3 - 112.2 107.4 - 113.3

105.3 106.3 107.4

> 101 102 104

73.3

69.5 70.5

99

68.4 - 72.2 69.5 - 73.3

68.4

65

33.3

31.6 - 33.3

31.6 32.6

စ္တ

31 32

32.6 - 34.4

Between

Less than

137		144.2 144.2 - 152.2	152.
138	145.3	145.3 - 153.3	153.3
139	146.3	146.3 - 154.4	154.
140	147.4	147.4 - 155.6	155.6
141	148.4	148.4 - 156.7	156.7
142	149.5	149.5 - 149.5	157.8
143	150.5	150.5 - 158.9	158.9
144	151.6	151.6 - 160.0	160.0
145	152.6	152.6 - 161.1	161.1
146	153.7	153.7 - 162.2	162.2
147	154.7	154.7 - 163.3	163.3
148	155.8	155.8 - 164.4	164.
	0 0 1	0 101	10.

141	148.4	148.4 - 156.7	156.7
142	149.5	149.5 - 149.5	157.8
143	150.5	150.5 - 158.9	158.9
144	151.6	151.6 - 160.0	160.0
145	152.6	152.6 - 161.1	161.1
146	153.7	153.7 - 162.2	162.2
147	154.7	154.7 - 163.3	163.3
148	155.8	155.8 - 164.4	164.4
149	156.8	156.8 - 165.6	165.6
150	157.9	157.9 - 166.7	166.7

117.9 - 124.4

117.9 118.9

112

81.1 - 85.6

82.1 - 86.7 83.2 - 87.8

78 62

45.3 - 47.8

48.9

46.3 - 48.9

47.4 - 50.0

45

92 77

46.7

44.2 - 46.7

43.2 44.2 45.3 46.3

41

42 43 44

42.1

40

84.2 - 88.9 85.3 - 90.0

80 81 82

118.9 - 125.6 120.0 - 126.7 121.1 - 127.8 122.1 - 128.9123.2 - 130.0

113 114 115

120.0

121.1

114.7 - 121.1 115.8 - 122.2 116.8 - 123.3

114.7

109 110

77.9 - 82.2 78.9 - 83.3 80.0 - 84.4

74 75

43.3 44.4 45.6

41.1 - 43.3 42.1 - 44.4 43.2 - 45.6

41.1

39

38

76.8 - 81.1

75.8 76.8 77.9 78.9 80.0 81.1 82.1 83.2 84.2 85.3 86.3 87.4 88.4 89.5 90.5 91.6 95.6

72 73

74.7

71

37.9 - 40.0

37.9 38.9 40.0

36

38.8 - 41.1 40.0 - 42.2

37

36.8 - 38.9

35

35.8 - 37.7

35.8

34.7

33 34 115.8

116.8

111

111.6 - 117.8 112.6 - 118.9 113.7 - 120.0

110.5 111.6

105 106

73.7 - 77.8 74.7 - 78.9 75.8 - 80.0

2

112.6

107

113.7

108

147	154.7	154.7 - 163.3	163.3
148	155.8	155.8 - 164.4	164.4
149	156.8	156.8 - 165.6	165.6
150	157.9	157.9 - 166.7	1.991
151	158.9	158.9 - 166.7	167.8
152	160.0	160.0 - 168.7	168.9
153	161.1	161.1 - 170.0	170.0
154	162.1	162.1 - 171.1	171.1
	0000	0 000	0 000

154	162.1	162.1 - 1/1.1	Ä
155	163.2	163.2 - 172.2	1.
156	164.2	164.2 - 173.3	17
157	165.3	165.3 - 174.4	1.
158	166.3	166.3 - 175.6	1.
159	167.4	167.4 - 176.7	1.
160	168.4	168.4 - 177.8	Ţ

127.4 - 134.4

127.4

124.2 - 131.1 125.3 - 132.2 126.3 - 133.3

Current welght

87.4 - 92.2 88.4 - 93.3 89.5 - 94.4 90.5 - 95.6

83

50.5 - 53.3

51.6 - 54.4

49.5 - 52.2

49.5 50.5 51.6 52.6

48.4 - 51.1

48.4

46 47 85

55.6

52.6 - 55.6

20 51

48

Current weight

84

86.3 - 91.1

123.2 124.2 125.3 126.3

122.1

129.5 - 136.7

129.5

123

130.5 - 137.8

130.5

124 125

128.4 - 135.6

128.4

122

131.6 - 138.9

131.6 132.6 133.7

94.7 - 100.0

94.7

90

93.7 - 98.9

93.7

92.6 - 97.8

91.6 - 96.7

87

88 88

55.8 - 58.9

55.8 56.8 57.9 58.9 0.09

56.8 - 60.0

57.9 - 61.1 58.9 - 62.2

54.7 - 57.8

54.7

25 23 54 22

53.7 - 56.7

53.7

86

95.8 - 101.1

95.8 96.8 97.9 98.9

91 92

126 127

4.4

155	163.2	163.2 - 172.2	⊣
156	164.2	164.2 - 173.3	1
157	165.3	165.3 - 174.4	1
158	166.3	166.3 - 175.6	1
159	167.4	167.4 - 176.7	1
160	168.4	168.4 - 177.8	1
161	169.5	169.5 - 178.9	1
162	170.5	170.5 - 180.0	Ŧ
163	171.6	171.6 - 181.1	7
164	172.6	172.6 - 182.2	1
165	173.7	173.7 - 183.3	1
166	174.7	174.7 - 184.4	1
167	175.8	175.8 - 185.6	₹

140.0	161	169.5	169.5 - 178.9	
141.1	162	170.5	170.5 - 180.0	
142.2	163	171.6	171.6 - 181.1	
143.3	164	172.6	172.6 - 182.2	
144.4	165	173.7	173.7 - 183.3	
145.6	166	174.7	174.7 - 184.4	
146.7	167	175.8	175.8 - 185.6	
147.8	168	176.8	176.8 - 186.7	
148.9	169	177.9	177.9 - 187.8	

169.5 - 1	170.5 - 1	171.6 - 1	172.6 - 1	173.7 - 18	174.7 - 18	175.8 - 1	176.8 - 18	177.9 - 18
169.5	170.5	171.6	172.6	173.7	174.7	175.8	176.8	177.9
161	162	163	164	165	166	167	168	169
140.0	141.1	142.2	143.3	144.4	145.6	146.7	147.8	148.9

136.8

130 131 132 133 134

105.6

1000.0

98

98.9 - 104.4 100.0 - 105.6

94

62.1 - 65.6

62.1

63.2 - 66.7 64.2 - 67.8

63.2 64.2

9

93

64.4

61.1 - 64.4

61.1

28 59

57

99

60.0 - 63.3

135.8

134.7

128 129

103.3

96.8 - 102.2 97.9 - 103.3 138.9

137.9

141.1

104.2 - 110.0

104.2 103.2

66

67.4 - 71.1

67.4

86

102.1 - 107.8103.2 - 108.9

102.1

97

65.3 - 68.9 66.3 - 70.0

65.3 66.3

62

61

101.1 - 106.7

101.1

96

140.0

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187.8 186.7

63 64



Alternative measurements: instructions and tables

If height cannot be obtained, use length of forearm (ulna) to calculate height using tables below. (See The 'MUST' Explanatory Booklet for details of other alternative measurements (knee height and demispan) that can also be used to estimate height).

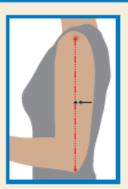
Estimating height from ulna length



Measure between the point of the elbow (olecranon process) and the midpoint of the prominent bone of the wrist (styloid process) (left side if possible).

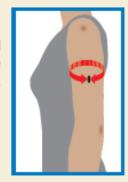
#ac	men (<65 years)	1.94	1.93	1.91	1.89	1.87	1.85	1.84	1.82	1.80	1.78	1.76	1.75	1.73	1.71
Height (m)	men (≥65 years)	1.87	1.86	1.84	1.82	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.67
	Ulna length (cm)	32.0	31.5	31.0	30.5	30.0	29.5	29.0	28.5	28.0	27.5	27.0	26.5	26.0	25.5
Height (m)	Women (<65 years)	1.84	1.83	1.81	1.80	1.79	1.77	1.76	1.75	1.73	1.72	1.70	1.69	1.68	1.66
五三	Women (≥65 years)	1.84	1.83	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.66	1.65	1.63
# 0	men (<65 years)	1.69	1.67	1.66	1.64	1.62	1.60	1.58	1.57	1.55	1.53	1.51	1.49	1.48	1.46
Height (m)	men (≥65 years)	1.65	1.63	1.62	1.60	1.59	1.57	1.56	1.54	1.52	1.51	1.49	1.48	1.46	1.45
	Ulna length (cm)	25.0	24.5	24.0	23.5	23.0	22.5	22.0	21.5	21.0	20.5	20.0	19.5	19.0	18.5
Height (m)	Women (<65 years)	1.65	1.63	1.62	1.61	1.59	1.58	1.56	1.55	1.54	1.52	1.51	1.50	1.48	1.47
H =	Women (≥65 years)	1.61	1.60	1.58	1.56	1.55	1.53	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.40

Estimating BMI category from mid upper arm circumference (MUAC)



The subject's left arm should be bent at the elbow at a 90 degree angle, with the upper arm held parallel to the side of the body. Measure the distance between the bony protrusion on the shoulder (acromion) and the point of the elbow (olecranon process). Mark the mid-point.

Ask the subject to let arm hang loose and measure around the upper arm at the mid-point, making sure that the tape measure is snug but not tight.



If MUAC is <23.5 cm, BMI is likely to be <20 kg/m². If MUAC is >32.0 cm, BMI is likely to be >30 kg/m².

The use of MUAC provides a general indication of BMI and is not designed to generate an actual score for use with 'MUST'. For further information on use of MUAC please refer to *The 'MUST' Explanatory Booklet*.

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