



## Step 1: Body mass index category

\* Exceptions to category 1 are **healthy subjects** with no weight loss (<5%/score 0), or with weight gain, should be given a score of "0". (Refer to the [www.bapen.org.uk](http://www.bapen.org.uk) for alternative methods to determine a resident's height.).

Height		Weight range (kg) for BMI		
		2 (<18.5) ≤ less than	1* (18.5 – 20)	0 (>20) > more than
(ft)	(m)			
6'3	1.90	<66.8	66.8 – 72.2kg	>72.2kg
6'2½	1.89	<66.1	66.1 – 71.4kg	>71.4kg
6'2	1.88	<65.4	65.4 – 70.7kg	>70.7kg
6'1½	1.86	<64.0	64.0 – 69.2kg	>69.2kg
6'1	1.85	<63.3	63.3 – 68.5kg	>68.5kg
6'0½	1.84	<62.6	62.6 – 67.7kg	>67.7kg
6.0	1.82	<61.3	61.3 – 66.2kg	>66.2kg
5'11½	1.81	<60.6	60.6 – 65.5kg	>65.5kg
5'11	1.80	<59.9	59.9 – 64.8kg	>64.8kg
5'10½	1.79	<59.3	59.3 – 64.1kg	>64.1kg
5'10	1.77	<58.0	58.0 – 63.4kg	>63.4kg
5'9½	1.76	<57.3	57.3 – 62.0kg	>62.0kg
5'9	1.75	<56.7	56.7 – 61.3kg	>61.3kg
5'8½	1.74	<56.0	56.0 – 60.6kg	>60.6kg
5'8	1.72	<54.7	54.7 – 59.2kg	>59.2kg
5'7½	1.71	<54.1	54.1 – 58.5kg	>58.5kg
5.7	1.70	<53.5	53.5 – 57.8kg	>57.8kg
5'6½	1.68	<52.2	52.2 – 57.1kg	>57.1kg
5'6	1.67	<51.6	51.6 – 56.4kg	>56.4kg
5'5½	1.66	<51.0	51.0 – 55.1kg	>55.1kg
5'5	1.65	<50.4	50.4 – 54.5kg	>54.5kg
5'4½	1.63	<49.2	49.2 – 53.1kg	>53.1kg
5'4	1.62	<48.6	48.6 – 52.5kg	>52.5kg
5'3½	1.61	<48.0	48.0 – 51.8kg	>51.8kg
5'.3	1.60	<47.4	47.4 – 51.2kg	>51.2kg
5'2½	1.58	<46.8	46.8 – 50.6kg	>50.6kg
5'2	1.57	<46.2	46.2 – 50.0kg	>50.0kg
5'1½	1.56	<45.0	45.0 – 49.1kg	>49.1kg
5'1	1.54	<43.2	43.2 – 47.4kg	>47.4kg
5'0½	1.53	<43.3	43.3 – 46.8kg	>46.8kg
5'0	1.52	<42.7	42.7 – 46.2kg	>46.2kg
4'11½	1.51	<42.2	42.2 – 45.6kg	>45.6kg
4'11	1.49	<41.1	41.1 – 44.4kg	>44.4kg
4'10	1.47	<40.0	40.0 – 43.2kg	>43.2kg
4'9½	1.46	<39.4	39.4 – 42.6kg	>42.6kg

## Step 3: Acute disease effect

Add a **score of 2** if there has been no or negligible dietary intake for >5 days in the presence of an acute disease. If not applicable score "0".

## Step 2: Unintentional weight loss category

**Unintentional** weight loss in the previous 3–6 months. If weight loss is intentional or planned for obesity, score "0"

Weight (kg) (before weight loss)	Weight loss category based on present weight (kg)		
	2 (>10%) ≤ less than	1 (10-5%)	0 (<5%) > more than
30	<27.0	27.0 – 28.5	>28.5
32	<28.8	28.8 – 30.4	>30.4
34	<30.6	30.6 – 32.3	>32.3
36	<32.4	32.4 – 34.2	>34.2
38	<34.2	34.2 – 36.1	>36.1
40	<36.0	36.0 – 38.0	>38.0
42	<37.8	37.8 – 39.9	>39.9
44	<39.6	39.6 – 41.8	>41.8
46	<41.4	41.4 – 43.7	>43.7
48	<43.2	43.2 – 45.6	>45.6
50	<45.0	45.0 – 47.5	>47.5
52	<46.8	46.8 – 49.4	>49.4
54	<48.6	48.6 – 51.3	>51.3
56	<50.4	50.4 – 53.2	>53.2
58	<52.2	52.2 – 55.1	>55.1
60	<54.0	54.0 – 57.0	>57.0
62	<55.8	55.8 – 58.9	>58.9
64	<57.6	57.6 – 60.8	>60.8
66	<59.4	59.4 – 62.7	>62.7
68	<61.2	61.2 – 64.6	>64.6
70	<63.0	63.0 – 66.5	>66.5
72	<64.8	64.8 – 68.4	>68.4
74	<66.6	66.6 – 70.3	>70.3
76	<68.4	68.4 – 72.2	>72.2
78	<70.2	70.2 – 74.1	>74.1
80	<72.0	72.0 – 76.0	>76.0
82	<73.8	73.8 – 77.9	>77.9
84	<75.6	75.6 – 79.8	>79.8
86	<77.4	77.4 – 81.7	>81.7
88	<79.2	79.2 – 83.6	>83.6
90	<81.0	81.0 – 85.5	>85.5
92	<82.8	82.8 – 87.4	>87.4
94	<84.6	84.6 – 89.3	>89.3
96	<86.4	86.4 – 91.2	>91.2
98	<88.2	88.2 – 93.1	>93.1
100	<90.0	90.0 – 95.0	>95.0

## Subjective factors:

If you are unable to establish a risk using steps 1-3, obtain an overall risk of the patient's risk of malnutrition using:

**Step 1 - BMI:** Clinical impression (very thin/thin) and mid upper arm circumference <23.5cm.

**Step 2 - Weight change:** Clothes and/or jewellery have become loose fitting, history of decreased food intake, loss of appetite or swallowing problems over 3-6 months, underlying disease or psychosocial/physical disabilities likely to cause weight loss.

**Step 3 - Acute disease effect:** No or negligible nutritional intake for > 5 days in the presence of an acute disease.

**Step 4 -** If a patient meets one or more of these criteria they are likely to be a least moderate risk of undernutrition.

# Weight conversion chart

kg	st	lb	kg	st	lb	kg	st	lb	kg	st	lb
29.93	4	10	53.98	8	7	78.02	12	4	102.06	16	1
30.84	4	12	54.89	8	9	78.93	12	6	102.97	16	3
31.75	5	0	56.25	8	12	80.29	12	9	103.87	16	5
33.11	5	3	57.15	9	0	81.19	12	11	105.24	16	8
34.02	5	5	58.06	9	2	82.10	12	13	106.14	16	10
34.93	5	7	58.97	9	4	83.01	13	1	107.04	16	12
35.83	5	9	59.88	9	6	83.92	13	3	107.96	17	0
37.19	5	12	61.24	9	9	84.82	13	5	108.86	17	2
38.10	6	0	62.14	9	11	86.18	13	8	110.22	17	5
39.01	6	2	63.05	9	13	87.09	13	10	111.13	17	7
39.92	6	4	63.96	10	1	88.00	13	12	112.04	17	9
40.82	6	6	64.86	10	3	88.91	14	0	112.95	17	11
42.18	6	9	66.23	10	6	89.81	14	2	113.85	17	13
43.09	6	11	67.13	10	8	91.17	14	5	115.21	18	2
44.00	6	13	68.04	10	10	92.08	14	7	116.12	18	4
44.91	7	1	68.95	10	12	92.98	14	9	117.03	18	6
45.81	7	3	69.85	11	0	93.90	14	11	117.94	18	8
47.17	7	6	71.22	11	3	95.26	15	0	118.84	18	10
48.08	7	8	72.12	11	5	96.16	15	2	120.20	18	13
48.99	7	10	73.03	11	7	97.07	15	4	121.11	19	1
49.90	7	12	73.94	11	9	97.98	15	6	122.02	19	3
50.80	8	0	74.84	11	11	98.88	15	8	122.93	19	5
52.16	8	3	76.20	12	0	99.79	15	10	123.83	19	7
53.07	8	5	77.11	12	2	101.15	15	13	125.19	19	10

## Estimating height from ulna (Refer to Focus on Undernutrition guidelines on how to measure ulna)

Height (metres)	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
	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
	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
	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
	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
	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
	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
	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

## Alternatively use the 'MUST' alternative measurement tape –

available from [www.focusonundernutrition.co.uk](http://www.focusonundernutrition.co.uk)

**Estimating Body Mass Index (BMI) Category from Mid Upper Arm Circumference (MUAC)**

The subject's left arm should be bent at the elbow at a 90° 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.

Please note: 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.

If MUAC is < 23.5 cm, then BMI is likely to be underweight or < 20 kg/m<sup>2</sup>.  
 % change MUAC = (Past MUAC - Present MUAC) / Past MUAC x 100 / Past MUAC 5% increase or decrease in MUAC is the same as 5% increase or decrease in BMI.  
 If MUAC is > 32.0 cm, then BMI is likely to be obese or > 30 kg/m<sup>2</sup>.

BAPEN (British Association for Parenteral and Enteral Nutrition) [www.bapen.org.uk](http://www.bapen.org.uk)  
 Focus on Undernutrition (Nutrition and Dietetic Service)  
 NHS  
 County Durham and Darlington Community Health Services  
 Complan Shake (Registered trademark of Complan Food Limited)

Ulna / Height Conversion Table															
Created in partnership with 'Focus on Undernutrition' and provided by Complan Foods Ltd - 18 August 2009 - Single use only															
HEIGHT(m)	Men(<65years)	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(>65years)	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
HEIGHT(m)	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(<65years)	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
HEIGHT(m)	Women(>65years)	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

Using the tape on the reverse side, 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). Find the matching ulna length (red figures) in the table to determine the subject's height.

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 Developed by Rachael Masters of Darlington Primary Care Trust

# Focus on Undernutrition nutritional assessment

To be completed annually. Implement a nutrition care plan for any section answered "YES"

## 1. Weight and appetite

<b>Admission Weight</b>		<b>Recent unintentional weight loss during the past 3 – 6 months (If yes, ask normal weight)</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Previous / normal weight .....
<b>Height</b>	Use ulna measurement to estimate height if resident is unable to stand.		
<b>Poor fluid intake - less than 1500ml fluid per day</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No Action: ..... .....	<b>Preferred portion size</b>	<input type="checkbox"/> Small <input type="checkbox"/> Medium <input type="checkbox"/> Large Comments:

## 2. Dietary information

<b>Special dietary needs</b>	<input type="checkbox"/> No special dietary needs <input type="checkbox"/> High protein, high energy foods <input type="checkbox"/> Diabetes <input type="checkbox"/> Cardiac protective <input type="checkbox"/> Soft foods <input type="checkbox"/> Pureed foods <input type="checkbox"/> Thickened fluids <input type="checkbox"/> High fibre foods <input type="checkbox"/> Inform head cook of any special requirements <input type="checkbox"/> Religious needs, specify ..... <input type="checkbox"/> Other, specify .....	<b>Assistance to eat and drink</b>	<input type="checkbox"/> Independent <input type="checkbox"/> Requires assistance washing hands before meal <input type="checkbox"/> Requires assistance with positioning for meal <input type="checkbox"/> Needs help cutting up food <input type="checkbox"/> Needs full assistance	<b>Adapted utensils required?</b>	<input type="checkbox"/> No <input type="checkbox"/> Yes - specify: ..... ..... .....
		<b>Preferred temperature of food and drink</b>	<input type="checkbox"/> Prefers cold drinks <input type="checkbox"/> Prefers hot drinks <input type="checkbox"/> Prefers drinks served at room temperature <input type="checkbox"/> Prefers cold foods <input type="checkbox"/> Prefers hot foods <input type="checkbox"/> Prefers foods served at room temperature		
<b>Food likes</b>		<b>Food dislikes</b>			

## 3. Eating environment

	Preferred eating environment		Preferences regarding meals
	Dining Room	Own Room	
<b>Breakfast</b>			<input type="checkbox"/> Prefers specific table, specify: ..... <input type="checkbox"/> Requires specific seat for appropriate positioning, specify: ..... <input type="checkbox"/> Prefers specific companions to eat with / carer to assist, specify: ..... <input type="checkbox"/> Other preferences, specify: .....
<b>Lunch</b>			
<b>Tea</b>			
<b>Supper</b>			

## 4. Swallowing and mouth care

<b>Problems swallowing / chewing</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Problems with mouth or dentures</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Special diets discussed with patient and family (date, time, what discussed and who with):</b>			
<b>Additional comments on food and nutrition needs:</b>			