



Canterbury

District Health Board

Te Poari Hauora o Waitaha

Nutrition and wound healing

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Older Persons' Health, CDHB
Nurse Maude



Topics

- Normal wound healing
- Nutrition risk screening
- Nutrition and healing
- Resources
- When and how to refer to dietitian



Normal wound healing process

Haemostasis (5-10 minutes)

Inflammation (up to 5 days)

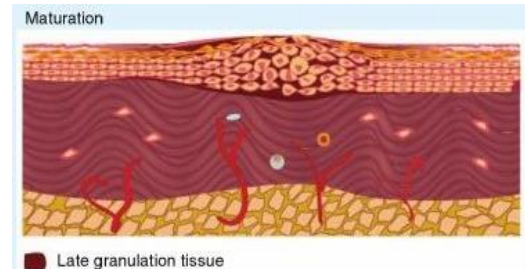
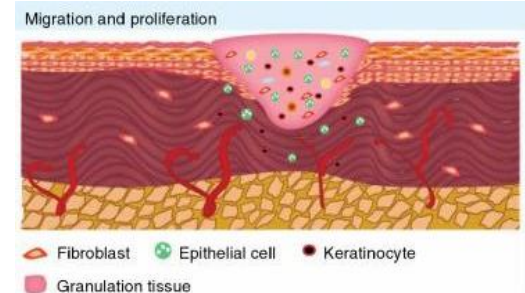
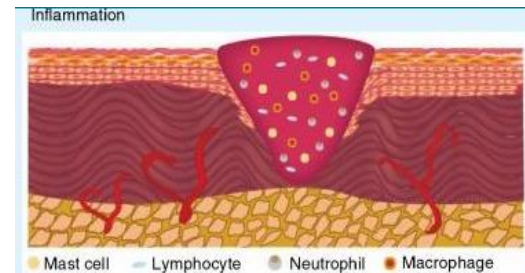
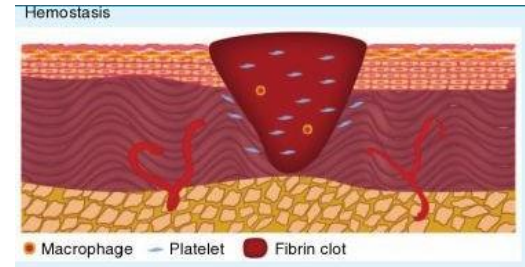
Nutrients involved: Vitamins C, E, Selenium, Arginine

Proliferation (up to 3 weeks)

Nutrients involved: Zinc, Arginine, Vitamins A, C, B1

Maturation (months to 2 years)

Nutrients involved: Vitamins A, C, Zinc, Cobalt, Manganese



Risk factors for poor wound healing

- Immobility
- Arthritis
- Chronic liver disease
- Diabetes
- Excess alcohol intake
- Impaired self caring
- **Malnutrition**
- Obesity
- Polypharmacy
- Poor circulation
- Poor cognition
- Renal failure
- Smoking
- Vascular disease
- Weakened immune system
- Inflammatory disease

Malnutrition



Outwardly well-nourished and even obese people
can be malnourished

SCREEN 2

- For community-living older people
- Self or interviewer administered
- No anthropometric measurements
- Healthpathways.co.nz
Search “nutrition risk”

Back < >

Nutrition Risk Screening in Older People



+ [About nutrition risk screening in older people](#)

SCREEN™ Seniors in the Community: Risk Evaluation (II)

This questionnaire is suitable for older adults (aged 60 and over) living in the community, acute care, or patients with cognitive impairment.

See below for printable versions.

There are 14 questions which take about 10 minutes to complete.

Question 1a

Has your weight changed in the past 6 months?

- No, my weight has stayed within a kilogram
- I don't know how much I weigh or if my weight has changed

Yes, I gained...

- more than 5 kg (3/4 stone)
- 3 to 5 kg (1/2 stone)
- about 2 kg (1/4 stone)

Yes, I lost...

- more than 5 kg (3/4 stone)
- 3 to 5 kg (1/2 stone)
- about 2 kg (1/4 stone)

Submit

Nutrition Risk Screening in Older People



+ [About nutrition risk screening in older people](#)

SCREEN™ Seniors in the Community: Risk Evaluation for eating and Nutrition² (version II)

The questionnaire contains 14 questions and takes about 10 minutes to complete.

Total Score: 43 - indicates the patient is **At Risk**

A score of less than 46 out of a possible total of 64 suggests that the patient is **at risk**.

Consider	Reason	Further Information
Refer to Senior Chef	The patient is at risk	Click here
Refer to Dietician	The patient is at risk, and has lost more than 5 kg in the past six months	Click here
Speech Language Therapist	The patient sometimes coughs, chokes, or has pain when swallowing food or fluids	Click here
Provide info - How to Overcome a Poor Appetite	The patient's appetite is fair	Click here
Provide information on looking after your bones	The patient only has milk products usually once a day	Click here

MNA

- Identifies malnutrition and risk of malnutrition in patients 65+ years

www.mna-elderly.com

For more information:
info@mna-elderly.com

Mini Nutritional Assessment

MNA[®]

Nestlé
Nutrition Institute

Last name:		First name:		
Sex:	Age:	Weight, kg:	Height, cm:	Date:

Complete the screen by filling in the boxes with the appropriate numbers. Total the numbers for the final screening score.

Screening		
A	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? 0 = severe decrease in food intake 1 = moderate decrease in food intake 2 = no decrease in food intake	<input type="checkbox"/>
B	Weight loss during the last 3 months 0 = weight loss greater than 3 kg (6.6 lbs) 1 = does not know 2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs) 3 = no weight loss	<input type="checkbox"/>
C	Mobility 0 = bed or chair bound 1 = able to get out of bed / chair but does not go out 2 = goes out	<input type="checkbox"/>
D	Has suffered psychological stress or acute disease in the past 3 months? 0 = yes 2 = no	<input type="checkbox"/>
E	Neuropsychological problems 0 = severe dementia or depression 1 = mild dementia 2 = no psychological problems	<input type="checkbox"/>
F1	Body Mass Index (BMI) (weight in kg) / (height in m ²) 0 = BMI less than 19 1 = BMI 19 to less than 21 2 = BMI 21 to less than 23 3 = BMI 23 or greater	<input type="checkbox"/>

IF BMI IS NOT AVAILABLE, REPLACE QUESTION F1 WITH QUESTION F2.
DO NOT ANSWER QUESTION F2 IF QUESTION F1 IS ALREADY COMPLETED.

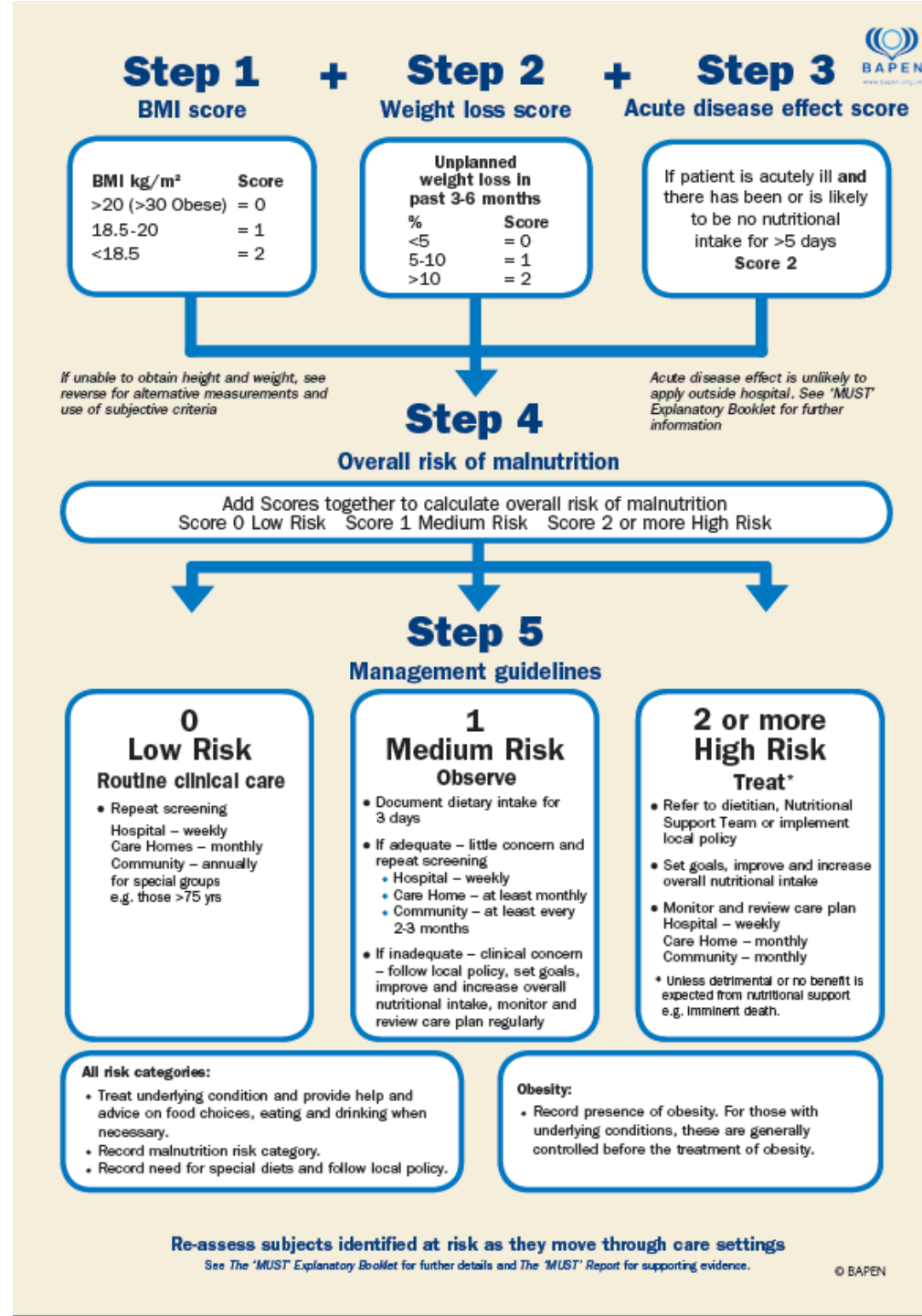
F2	Calf circumference (CC) in cm 0 = CC less than 31 3 = CC 31 or greater	<input type="checkbox"/>
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Screening score (max. 14 points)	<input type="checkbox"/> <input type="checkbox"/>
12-14 points:	Normal nutritional status
8-11 points:	At risk of malnutrition
0-7 points:	Malnourished

MUST

- For acute patients in hospital
- Can also be used in resthome

www.bapen.org.uk



Many nutrients play a role in healing

- Energy
- Protein
 - Arginine
- Fluid
- Vitamin C and Zinc



Energy

- Eating enough energy (kilojoules/calories) helps prevent pressure injuries
- Higher needs for wound healing



Body Mass Index (BMI)

Classification	BMI
Underweight	< 18.5
Healthy weight	18.5 - 25
Overweight	25 - 30
Obese	> 30

For older people

High Risk:

BMI < 22

BMI > 30

(Heiat 2001, Price 2006, Flicker et al 2010)

For older people, unintentional change in weight is a better predictor than BMI.

Fluid

- Dehydration
 - Skin is more fragile and susceptible to breakdown
- Fluid needs for healing: 30-35 ml/kg/day
 - Higher needs:
 - Burns
 - Exudative wounds
 - Infections

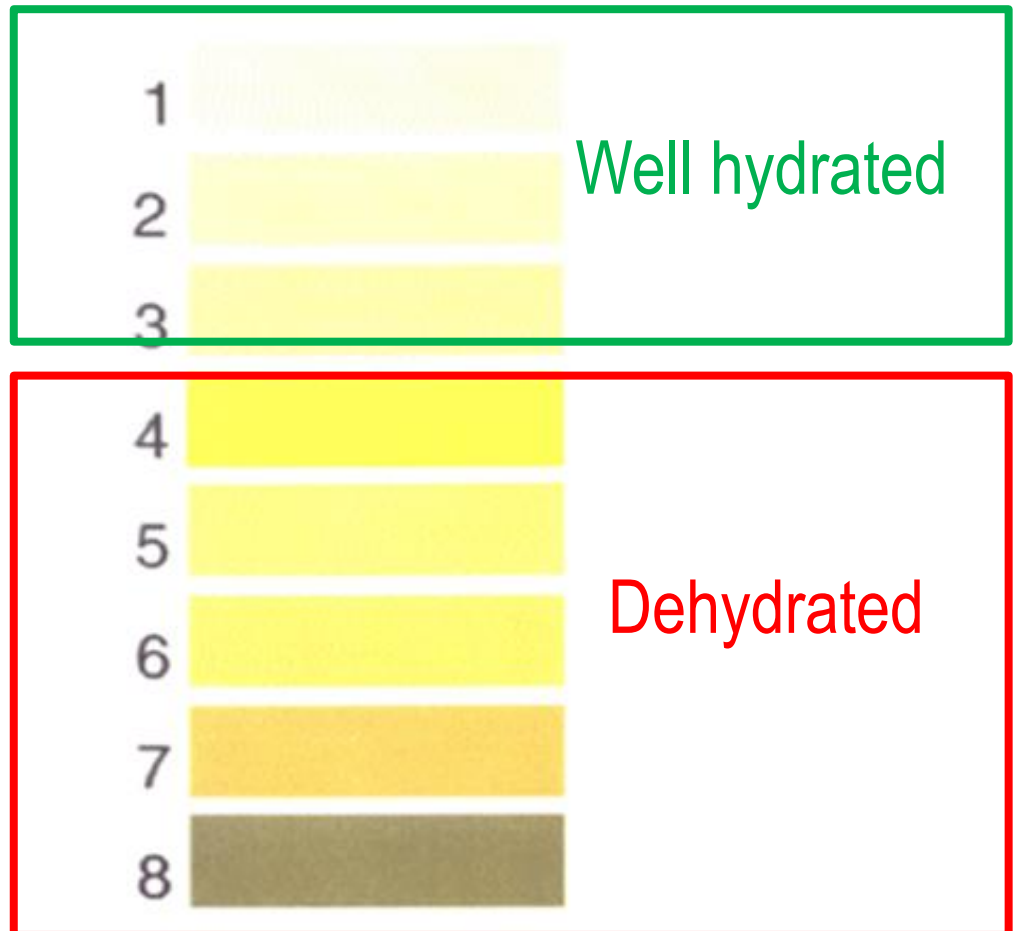


Fluid

Includes:

- Water
- Milk
- Soup
- Hot drinks
- Juicy fruits
- Ice blocks
- Custard etc

Urine colour chart



Why is protein important?

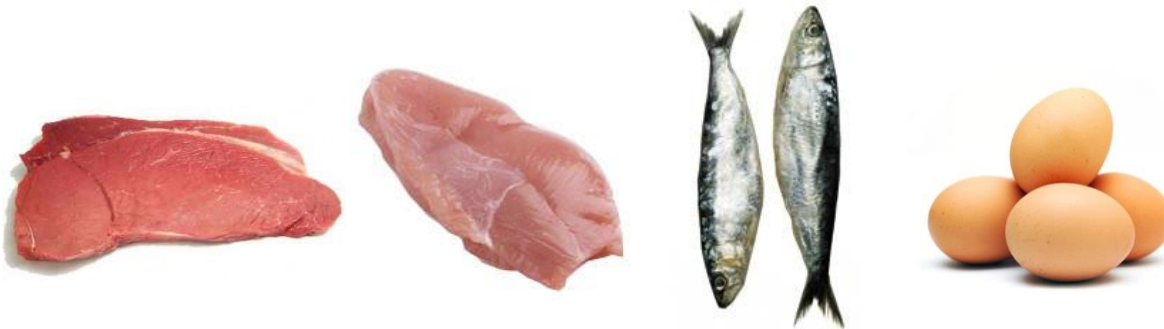
- Protein is essential for **maintenance** and **repair**
- Protein needs:
 - To prevent pressure injuries, older people need:
1.0 g / kg / day
 - To heal pressure injuries/wounds:
1.25 – 1.5g / kg /day



Which foods are a good source of protein?



Milk and milk products



Meat and alternatives



Example - 65 kg, 75 year old woman

Breakfast

- Egg on toast and piece of fruit
- Milky drink

Protein (g)

7

8

Morning tea

- Cheese and crackers

6

Lunch

- Tomato, ham and cheese toasty

14

Afternoon tea

- Pottle yoghurt

8

Dinner

- Baked chicken, potato, vegetables
- Stewed fruit and custard

30

8

65 g

81 g

Achieving a good protein intake

Daily recommendation:

- 3+ servings of milk products
- 2-3+ servings of meat & alternatives

www.healthinfo.org.nz

www.healthpathways.org.nz



Good food for wound healing

Food gives your body the building-blocks to help your body heal. Make sure that you have a good variety of foods from the four food groups each day.

The most important foods for you to eat are those that contain protein. Protein is important as it can help to build new skin and tissue, keep the new skin healthy and keep your muscles strong.

Try to include protein foods at all meals and snacks. Protein foods include:

- Beef, lamb, pork, chicken, fish, and eggs.
- Nuts, seeds, tofu, lentils, dried peas and beans such as chickpeas, baked beans, and kidney beans.
- Milk and milk products, such as yoghurt, cheese, custard.

Food group and nutrients provided	Daily number of servings	Serving size and suggestions (1 cup = 250 ml)
Meat and alternatives ▶ Protein ▶ Iron ▶ Zinc	2 to 3	▶ The amount that fits into the palm of your hand or 100 g of cooked meat, fish, or chicken ▶ 1 to 2 eggs ▶ 3/4 cup cooked dried peas, beans, or lentils ▶ Try to include red meat at least three times a week
Milk and milk products ▶ Protein ▶ Calcium	3	▶ 150 g pot yoghurt, 1 cup milk, or 2 slices of cheese ▶ Choose low fat (green or yellow top milk) if you need to lose weight ▶ Have milky drinks instead of low protein fluids such as water, juice, black tea, and coffee ▶ If you have porridge make it with milk
Vegetables and fruit ▶ Vitamins ▶ Minerals	5	▶ The amount that fits into the palm of your hand ▶ Choose a variety of different coloured fruits and vegetables to ensure you obtain a good range of vitamins and minerals ▶ Canned and frozen fruit and vegetables are just as nutritious as fresh
Breads and cereals ▶ Zinc ▶ Vitamins	6	▶ 1 slice bread ▶ 1/2 cup to 1 cup breakfast cereal ▶ 1 cup cooked pasta or rice ▶ Wholemeal or wholegrain varieties are best
Fluids ▶ Water	8	▶ 1 cup water, fruit juice, or milk ▶ 1 cup tea or coffee ▶ Limit sugary drinks such as cordial, fizzy, fruit juice if you need to lose weight

Additional tips for good protein intake

- Include protein foods at **all meals and snacks**
- Have milky drinks instead of low protein beverages
- Add grated cheese to soups/casseroles
- Fortify milk:
Add **milk powder** to milk
(**1-2 Tbsp to 1 cup**).
Use for drinks, cereal and cooking.



Protein content of milk per 250 ml

Milk type	Protein (g) / 250ml
Yellow top	15
Green top	10
Light blue top	9
Dark blue top	8



Yellow top milks are enriched with calcium
and are also high in protein

Taste Test – Milk Powder Muffins

Add milk powder to
boost the protein in your
recipes!



Low protein versus high protein



Breakfast



Snack

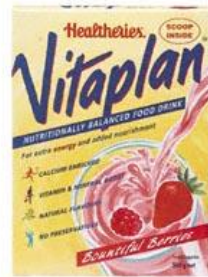


Lunch



High protein supplements

Supermarket



Prescription: no charge



Pharmacy



Fortijuice (non-milky)

Prescription: part-charge



Arginine

- Conditionally essential following injury/stress
- Dietary protein \approx 5% arginine
- Improved healing rates with arginine supplementation



Should we recommend arginine supplements?

Few studies* evaluating arginine supplementation

4.5 – 9 g arginine supplement/day

- Decreased wound size
- Faster healing time (2.5 x faster)



*1. A nutritional formula enriched with arginine, zinc and antioxidants for the healing of pressure ulcers: A randomized trial. Cereda et al. *Ann Intern Med.* 2015; 162(3):167-174.

2. Desneves et al, *Clinical Nutrition* 2005; 24, 979-987, Soriana et al, *J Wound Care* 2004;13:319-322, Benati et al,

3. *Arch Gerontol Geriatr.* 2001; suppl 7:43-47, Cereda et al, *JAGS*: 2009;57;1395-1402,

4. Leigh et al, *J Wound Care* 2012; 21(3):150-156

Arginine containing nutritional supplements



Cubitan



Arginaid



Recover

Not available on prescription

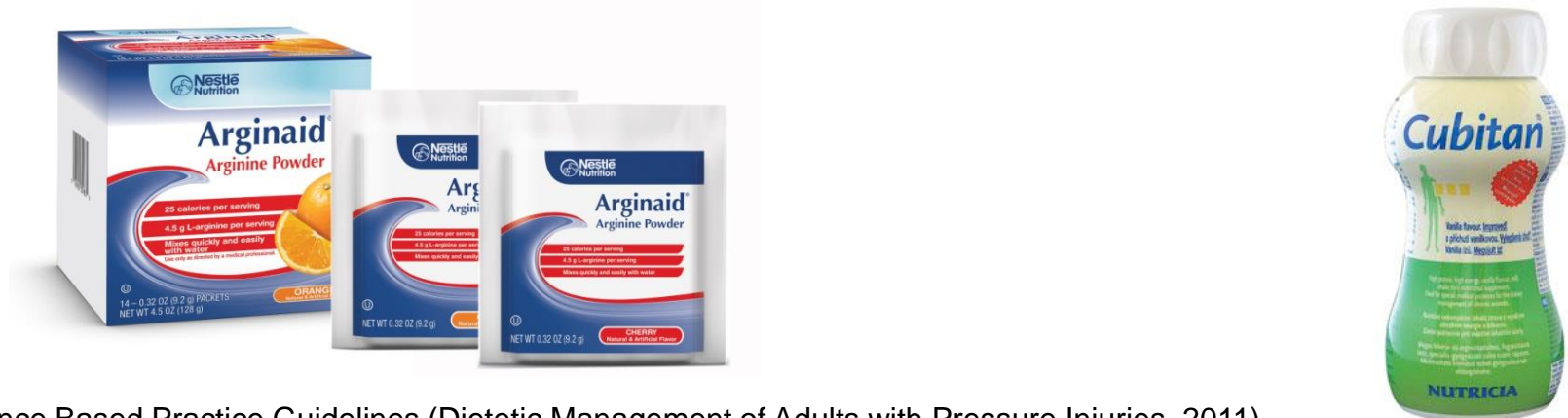
- Cubitan: \$4.31 each
- Arginaid Powder: \$3.82 + freight per sachet
- Healthworks Pharmacy will order in both products

Arginine containing nutritional supplements

Consider **arginine** containing supplements for patients with a **stage 2 or more** pressure injury or **non-healing wound**

Improvements should be seen within **2-3 weeks**

If no improvements are seen, discontinue



*Evidence Based Practice Guidelines (Dietetic Management of Adults with Pressure Injuries, 2011)

Vitamins and Minerals for Healing



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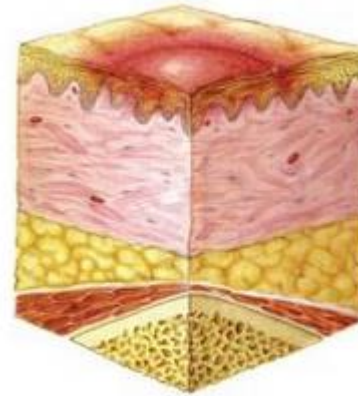
- Beef, lamb, pork, chicken, fish, and eggs.
- Nuts, seeds, tofu, lentils, dried peas and beans such as chickpeas, baked beans, and kidney beans.
- Milk and milk products, such as yoghurt, cheese, custard.

Food group and nutrients provided	Daily number of servings	Serving size and suggestions (1 cup = 250 ml)
Meat and alternatives ▶ Protein ▶ Iron ▶ Zinc	2 to 3	<ul style="list-style-type: none"> ▶ The amount that fits into the palm of your hand or 100 g of cooked meat, fish, or chicken ▶ 1 to 2 eggs ▶ 3/4 cup cooked dried peas, beans, or lentils ▶ Try to include red meat at least three times a week
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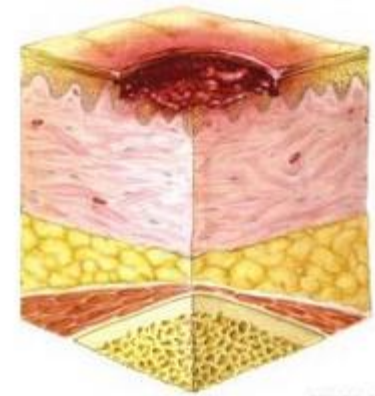
When to refer to a dietitian?

Low Risk

- Stage 1-2 Pressure Injury or mild wound
- Normal albumin (35-50 µg/L)
- No unintentional weight loss



STAGE 1



STAGE 2



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- Milk and milk products, such as yoghurt, cheese, custard.

Food group and nutrients provided	Daily number of servings	Serving size and suggestions (1 cup = 250 ml)
Meat and alternatives		▶ The amount that fits into the palm of your hand or 100 g of cooked meat, fish, or chicken
▶ Protein		

When to refer to a dietitian?

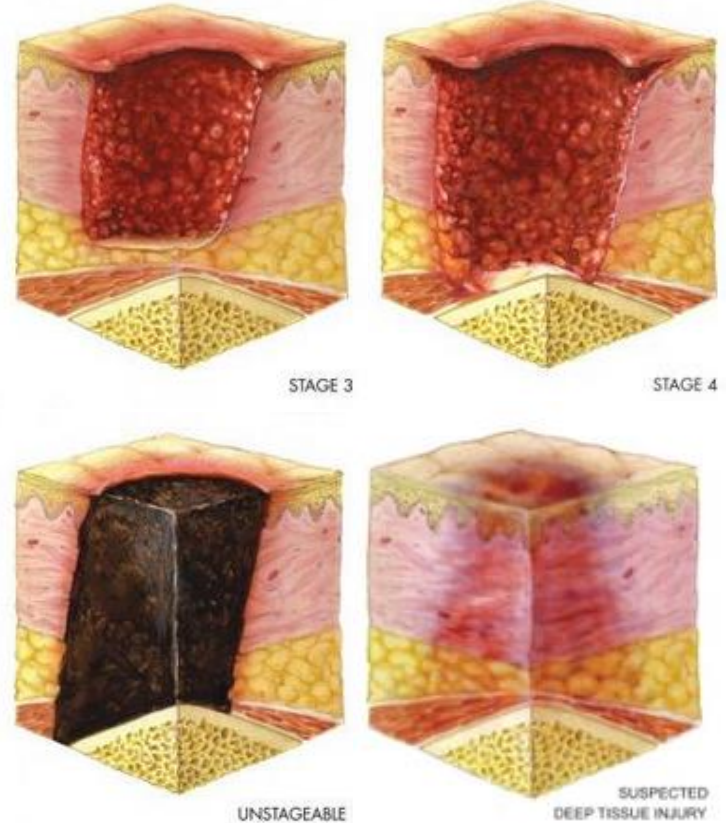
High Risk

- Stage 1-2 Pressure Injury
- Unintentional weight loss > 10%
(or 5% with BMI < 20)
- Or at risk using screening tool

- Stage 3-4, Unstageable or Suspected deep tissue injury or non-healing wound



Refer to dietitian



Thank You!

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