Nutrition and wound healing

Jasna Robinson-Wright, Dietitian
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”
**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**.

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

**Save Results to PDF**
MNA

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

- [www.mna-elderly.com](http://www.mna-elderly.com)

- For more information: [info@mna-elderly.com](mailto:info@mna-elderly.com)
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)

<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt; 18.5</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>18.5 - 25</td>
</tr>
<tr>
<td>Overweight</td>
<td>25 - 30</td>
</tr>
<tr>
<td>Obese</td>
<td>&gt; 30</td>
</tr>
</tbody>
</table>

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

High Risk:
- BMI < 22
- BMI > 30

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

Well hydrated

Dehydrated
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
- Vegetarian and vegan options
## Example - 65 kg, 75 year old woman

### Breakfast
- Egg on toast and piece of fruit: 7 g
- Milky drink: 8 g

### Morning tea
- Cheese and crackers: 6 g

### Lunch
- Tomato, ham and cheese toasty: 14 g

### Afternoon tea
- Pottle yoghurt: 8 g

### Dinner
- Baked chicken, potato, vegetables: 30 g
- Stewed fruit and custard: 8 g

<table>
<thead>
<tr>
<th>Meal</th>
<th>Protein (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td></td>
</tr>
<tr>
<td>Egg on toast and piece of fruit</td>
<td>7</td>
</tr>
<tr>
<td>Milky drink</td>
<td>8</td>
</tr>
<tr>
<td>Morning tea</td>
<td></td>
</tr>
<tr>
<td>Cheese and crackers</td>
<td>6</td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Tomato, ham and cheese toasty</td>
<td>14</td>
</tr>
<tr>
<td>Afternoon tea</td>
<td></td>
</tr>
<tr>
<td>Pottle yoghurt</td>
<td>8</td>
</tr>
<tr>
<td>Dinner</td>
<td></td>
</tr>
<tr>
<td>Baked chicken, potato, vegetables</td>
<td>30</td>
</tr>
<tr>
<td>Stewed fruit and custard</td>
<td>8</td>
</tr>
</tbody>
</table>

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
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

<table>
<thead>
<tr>
<th>Milk type</th>
<th>Protein (g) / 250ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow top</td>
<td>15</td>
</tr>
<tr>
<td>Green top</td>
<td>10</td>
</tr>
<tr>
<td>Light blue top</td>
<td>9</td>
</tr>
<tr>
<td>Dark blue top</td>
<td>8</td>
</tr>
</tbody>
</table>

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
- Complan
- Vitaplan

Prescription: no charge

Pharmacy
- Fortijuce (non-milky)
- Sustagen
- Fortijuce
- Fortisip

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)

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

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.

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

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.

<table>
<thead>
<tr>
<th>Food group and nutrients provided</th>
<th>Daily number of servings</th>
<th>Serving size and suggestions (1 cup = 250 ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat and alternatives</td>
<td></td>
<td>The amount that fits into the palm of your hand or 100 g of cooked meat, fish or chicken.</td>
</tr>
</tbody>
</table>
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!

jasna.robinson-wright@cdhb.health.nz

03-337-8970