**Nutritional Value**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
<th>Type</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROTEIN</strong></td>
<td>3.5%</td>
<td>High Biological Value</td>
<td>Growth of new cells &amp; repair of old/damaged cells</td>
</tr>
<tr>
<td><strong>FAT</strong></td>
<td>4% (whole)</td>
<td>Saturated Fat</td>
<td>Fat is easily digestible and is used for heat and energy.</td>
</tr>
<tr>
<td></td>
<td>0.5% (low fat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CARBOHYDRATE</strong></td>
<td>4.5%</td>
<td>Sugar in the form of lactose</td>
<td>Provides heat &amp; energy</td>
</tr>
<tr>
<td><strong>VITAMINS</strong></td>
<td></td>
<td>Vitamins B, A, D (whole milk)</td>
<td>B - Helps to maintains a healthy nervous system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A &amp; D (fat soluble vitamins) removed when fat is removed (low fat milk)</td>
<td>D - healthy bones &amp; teeth</td>
</tr>
<tr>
<td><strong>MINERALS</strong></td>
<td>Calcium</td>
<td></td>
<td>Healthy bones &amp; teeth</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td>87%</td>
<td></td>
<td>Water is needed to carry nutrients around the body - it also helps to get rid of waste</td>
</tr>
</tbody>
</table>

**Nutrients not found in milk:**  
Vitamin C – Iron

**Value of milk in the diet / Why should we include milk in our diet?**
- Milk is an important source of protein and calcium
- It is relatively inexpensive
- Easily digestible food suitable for young growing children, teenagers, adults and the elderly

**Culinary Uses of Milk:**
- As a drink, alone or in tea, coffee etc
- With breakfast cereals
- In puddings, sweets etc
- In sauces and soups
- In savoury dishes e.g. Quiche
- In baking e.g. Bread
- Milk products e.g. Yoghurt & Cheese

**Types of Milk**
- Whole milk
- Low fat milk
- Skimmed milk
- Fortified milk
- Buttermilk
- Dried milk
- Condensed milk
- Long life Milk
- Soya Milk
| **WHOLE MILK** | • Standard milk (3.5% fat)  
• Homogenised and pasteurised  
• Contains all nutrients |
| **LOW FAT MILK** | • Also called 'semi-skimmed' or 'light'  
• Half of the fat is removed (1.7% fat)  
• Used by slimmers and people on low cholesterol diets |
| **SKIMMED MILK** | • Fat is removed (0.2% fat)  
• Lacks Vitamins A & D (fat soluble vitamins)  
• Slimmers and people on low cholesterol diets use it |
| **FORTIFIED MILK** | • Low fat milk with extra vitamins and minerals added e.g. Vitamins A & D and Calcium |
| **BUTTERMILK** | • This is the liquid leftover after butter is made  
• Used for baking |
| **DRIED MILK** | • Milk powder  
• All water is removed  
• Useful in emergencies and when camping |
| **CONDENSED MILK** | • Canned milk  
• Some water is removed  
• Used in desserts  
• Condensed milk contains extra sugar |
### LONG LIFE MILK (UHT)
- **UHT - Ultra Heat Treated**
- Heated to 132°C
- Keeps for months without refrigeration
- Individual portions e.g. in restaurants

### SOYA MILK
- A vegetable protein milk
- Made from soya beans
- Used by people who cannot use dairy products and vegetarians

### Effects of cooking/heat on meat:
- Bacteria are destroyed
- Loss of Vitamins B & C
- Protein coagulates (sets) and forms a skin on the milk
- Flavour changes

### Buying & Storing Milk
- Check the use by date before buying and using
- Do not mix milk from different cartons with different dates
- Never leave milk in the sun (destroys Vit B & makes it go sour)
- Cover milk and keep away from strong smelling food
- Use a clean jug each time, do not top up jug (rinse in cold water)
- Store in a refrigerator

### Milk Processing
After the milk is got from the animal it is processed before you buy it in the shop. First it is homogenised, then it is pasteurised

### Homogenisation –
- Milk is forced through tiny valves
- This distributes the fat by making the fat smaller
- It makes the milk creamier

### Pasteurisation –
- Milk is heated to 72°C for 15 seconds
- It is then cooled and put in bottles or cartons
- This kills the harmful bacteria
- Unfortunately it also kills Vitamin C
Milk Products:
- Cream
- Butter
- Yoghurt
- Cheese

Cream

- The fat which rises to the top of milk can be removed in the dairy
- Contains fat soluble vitamins A & D

Types of Cream

- Standard cream in Ireland has 40% fat
- Double cream has 48% fat
- Sour cream (18% fat) has lactic acid added to give it a tangy taste (used as salad dressing, dips etc)
- Light or Low Fat cream has 30% fat
- Crème Fraiche similar to sour cream (30% fat)
- Aerosol cream less fat due to high air content

Butter

- Butter is made from the cream of milk
- The cream is churned (mixed) until the fat sticks together.
  - The milk that is leftover is called buttermilk
  - Salt may be added to flavour and preserve the butter
  - Butter has 80% fat
  - 'Low Fat' or 'Light' butter has 40% fat
  - Most butter is salted. Unsalted is used for sweet dishes
  - Butter may be treated to be spreadable
- Dairy Spreads contain about 50% fat and 50% soya oil but have the same Kcal as butter

Yoghurt

- Yoghurt is a form of thickened milk.
- It is made by adding a culture of lactic acid bacteria which thickens it
- These bacteria are harmless
- Plain yoghurt has the same food value as milk
- If fruit, sugar etc are added the Kcal will be higher
Types of Yoghurt

- **Natural yoghurt**: unflavoured ade from whole milk
- **Fruit yoghurt**: whole milk yoghurt, with added fruit, sugar & skimmed milk powder
- **Set yoghurt**: a thicker version of fruit yoghurt
- **Low fat yoghurt**: made from skimmed milk
- **Drinking yoghurt**: has added milk. Usually flavoured and sweetened
- **Greek yoghurt**: thick, creamy, unflavoured yoghurt

Culinary Uses of Yoghurt

- As a snack
- On breakfast cereals
- For dessert with fruit
- As an accompaniment to curries
- On salads as a dressing
- Mixed with milk and fruit as a drink

**CHEESE**

- Contains all the nutrients of milk in a concentrated form
- Usually made from cows milk, but may also be from goat and sheep's milk
- Very nutritious and good value for money

How Cheese is Made

- Milk is pasteurised
- A culture (harmless bacteria) is added
- Milk is warmed and rennet (natural enzyme found in stomach lining) is added
- Milk separates into curds (solid) and whey (liquid)
- Curds are drained, chopped and salted
- Whey is removed
- Curds are put into moulds and pressed
  - lightly for soft cheeses
  - firmly for hard cheeses
- Cheese is left to mature for 3-12 months

Classification of Cheese/Types of Cheese:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Soft</th>
<th>Semi-Soft / Semi-Hard</th>
<th>Hard</th>
<th>Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLES</td>
<td>Cottage</td>
<td>Brie</td>
<td>Edam</td>
<td>Gouda</td>
</tr>
</tbody>
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Nutritional Value of Cheese

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<tbody>
<tr>
<td>PROTEIN</td>
<td>27% (cheddar) 14% (cottage)</td>
<td>High Biological Value</td>
<td>Growth of new cells &amp; repair of old/damaged cells</td>
</tr>
<tr>
<td>FAT</td>
<td>33% (cheddar) 4% (cottage)</td>
<td>Saturated Fat</td>
<td>Most cheeses have a high % of fat which is used for heat and energy. Cottage cheese is made from skimmed milk so has less fat</td>
</tr>
<tr>
<td>CARBOHYDRATE</td>
<td>0% (cheddar) 1.5% (cottage)</td>
<td>Sugar in the form of lactose</td>
<td>As there is little or no carbohydrate found in milk it should be served with food containing carbohydrate eg cheese on toast</td>
</tr>
<tr>
<td>VITAMINS</td>
<td>Vitamins A, B</td>
<td></td>
<td>B - Helps to maintain a healthy nervous system A - good eyesight</td>
</tr>
<tr>
<td>MINERALS</td>
<td>Calcium</td>
<td></td>
<td>Healthy bones &amp; teeth</td>
</tr>
<tr>
<td>WATER</td>
<td>35% (cheddar) 78% (cottage)</td>
<td></td>
<td>Water is needed to carry nutrients around the body - it also helps to get rid of waste</td>
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Value of Cheese in the Diet/ Why should we include milk in our diet?

- Important source of protein and calcium
- Many different types available
- Versatile (has many uses)
- Ideal for lunches and picnics - easily packed
- Reasonably cheap with little waste
- Little preparation or cooking required
- Should be eaten in small quantities due to high fat content
- May be difficult to digest for elderly due to fat

Culinary Uses of Cheese:

- As a snack by itself or with crackers
- In sandwiches - plain or toasted
- In salads - grated or sliced
- As part of a main dish eg quiche, pizza
- Sauces - for vegetables eg cauliflower
- Garnishing - grated on soup or spag bol
- Final course of meal - cheeseboard
Buying & Storing Cheese

- Should be bought in small amounts as it goes off quickly
- Check the use by date
- Wrap loosely, in greaseproof paper. Then overwrap in tin foil
- Store in a refrigerator
- Remove from refrigerator 1 hour before use to improve flavour
- Once opened, use up quickly

Effects of Cooking

- Protein coagulates (sets) and shrinks
- Fat melts
- Long cooking and high temperatures causes cheese to become tough and indigestible

Guidelines for Eating Cheese

- Eat uncooked where possible
- If cooking, cook for shortest possible time. Slice or grate to speed up melting time
- Season well - mustard helps digestion of cheese
- Chew thoroughly

How to Increase Dairy in the Diet

- Drink milk instead of fizzy drinks
- Add yoghurt & yoghurt drinks to smoothies
- Snack on dairy eg yoghurt, cheese
- Serving dishes eg shepherds pie (cheese on top)
- Add grated cheese to salad and
- use yoghurt based salad dressing