



Food and Agriculture Organization
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Say **NO** to food waste

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A guide to reduce household food waste
Trainers guide

Say NO to food waste

A guide to reduce household food waste - Trainers guide

by

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Regional Office for the Near East and North Africa

Food and Agriculture Organization of the United Nations

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Food Waste

1

Chapter

Introduction to Food Waste

Food waste is all the food thrown away that could have been good to eat. If something spoils in your fridge because you have not eaten it in time; if you have served too much on your plate and throw away your leftovers instead of eating them later... this is food waste.

It is important to stop wasting food as wasting food means wasting money, labor and resources such as energy, land and water that go into producing the food. Wasting food also increases greenhouse gas emissions and contributes to climate change.¹



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Figure 1.1: Reasons why food is wasted

Food waste is when we:

- Buy more than we need
- Store food incorrectly
- Throw away leftovers
- Cook too much

Source: Reporter relying on information from WRAP, 2014

Reducing the amount of food that is wasted in your life is a way to be socially and environmentally conscious while also watching your wallet!

1. SAVE FOOD,
2. Think.Eat.Save, 2014

How to reduce food waste

Lower your grocery bills and environmental footprint by reducing your food waste.

Whether you are at home, school, or work, you are surrounded by opportunities to reduce food waste.

So how and where do you begin?

1. Ask for smaller portions – make sure you start your meals with a small portion on your plate. You can always go back for more if you are still hungry. Another idea is to start using smaller plates!

2. Always check your pantry – assess what you already have in your fridge and cabinets and identify which items should be consumed first. To keep your kitchen waste free, make meals that incorporate these foods.

3. Always store food properly – if you are not sure how a specific item should be stored, check out chapter 2 for storage and food safety tips.

4. Get creative with your leftovers – instead of scraping leftovers into the bin, use them as ingredients for tomorrow's meal.

-Make stock from vegetable trimmings or a chicken carcass.

-Transform leftover bread into croutons, breadcrumbs or bread pudding.

-Stir-fry leftover veggies, meat, and rice.

-Chop and freeze aging fruit to save for yummy smoothies.

Find more leftover ideas in chapter 3.

5. Understand date labels on your food – often 'use by' dates do not accurately indicate food safety.

6. Shop smart – We often buy more than we can eat before it goes off. Plan ahead, make a shopping list and quit buying bulk, Remember, The offer to "buy two for the price of one" is only a steal if you use it all up before it goes bad!

7. Maintain your fridge space – Do not forget the food stored at the back of the fridge. Always practice FIFO: First in, First out! Keep the old products in the front of the fridge and new products at the back, so you can consume the older ones first.

8. Use irregularly shaped fruits and vegetables – if you happen to find some irregular shaped fruits and vegetables in your pantry, never throw them out, use them in stocks, shaved, or in smoothies.

9. Get creative with food processing at home – whether its jams, cheeses, pickles or luncheon meat.

10. Sharing is caring – Practice the "Neighbors plate" with any food you believe will be excess.



Chapter

2

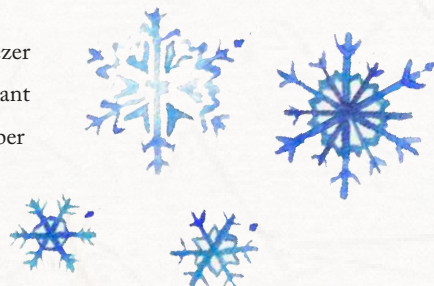


Proper Storage & Food Safety Tips

2.1

Proper storage

Depending on the type of food, you will need to store it in the fridge, freezer or in containers you keep in cupboards or on shelves. Storage is important as it keeps the food safe so that it is still good to eat or cook later. Proper storage is key to longer shelf life, as for example certain fruits and vegetables produce gases during ripening that can quicken the process of ripening of other neighbors in the fruit bowl or vegetable drawer.



Refrigerator

Some food needs to be kept in the refrigerator to help stop bacteria from growing on it whether it is cooked food, half-used food, or raw food. If you are having guests over for food, do not leave the food out of the fridge for more than 4 hours. The temperature of your fridge should be between 0 to 5c at all times, otherwise food poisoning bacteria will still be able to grow.

The order you arrange your food in the refrigerator is also important, as the refrigerator airflows in a specific manner. Minimize opening of the refrigerator to ensure the right temperature. Figure 2.1 shows the appropriate way your food should be arranged in the refrigerator.

Figure 2.1: Appropriate storage methods in the kitchen

On The Shelf

Under The Counter

Ready to Eat Food

Raw Meat Poultry & Fish

Salad, Fruits & Vegetables



1. SAVE FOOD,
2. Think.Eat.Save, 2014

Freezer

You can freeze pretty much everything, including yoghurt, cheese (except soft cheese as the freezing process affects the texture), milk, meat fish, eggs (including boiled eggs), bananas, baked goods, rice, bread etc. Anything with a high water content like strawberries and tomatoes will go squishy but are still fine to cook with or turn into juice.

You can safely store food in the freezer for years, as long as it stays frozen the whole time. However, the taste and texture of food changes if it is frozen for too long. Freezing is an important storage method, as it stops/slows the wastage of food. All food items have different ways of freezing, and some foods do not freeze well as mentioned in Figure 2.2. Reheating frozen food should be done wisely, as it could end up contaminated.

Figure 2.2 – Foods that do not freeze well

Foods that do not freeze well

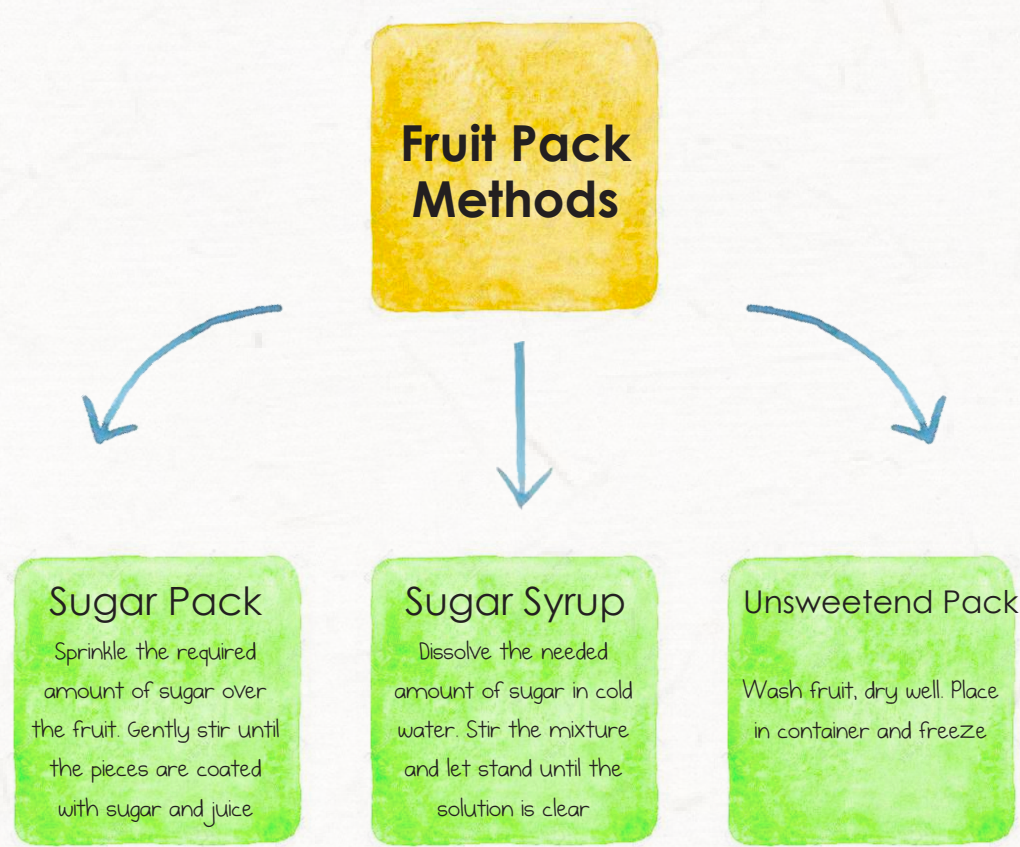
- Hard cooked eggs - whites become tough and rubbery
- Cooked egg whites
- Cream based soups and sauces
- Salad greens and other raw salad ingredients eg. cucumber, lettuce and radishes - lose crispness and develop off flavours
- Desserts with meringue/ meringue- shrinks, becomes tough and gummy
- Fried food - becomes soggy
- Gelatin / gelatin containing foods - releases liquid
- Mayonnaise, mayo-based salads, and other salad dressings - separate during freezing
- Sour Cream - separate when frozen alone, combine it with other ingredients (sugar and cream cheese) and then freeze
- Raw potatoes - may darken, undergo texture changes and become mealy
- unbaked cake batter - fails to rise properly
- Cream / pie cake fillings and custards - separate and become watery
- Black pepper and cloves - develop bitter flavours

Source: Reporter relying on The University of Tennessee, Institute of Agriculture

Freezing vegetables and fruits is possible, however to ensure good quality when defrosted, there are special preparations that need to be made for the food beforehand. Table 2.1 clarifies how to prepare fruits and vegetables before freezing and how long you should reheat it before you can consume it.

When freezing fruit, follow these guidelines to minimize color and flavor changes. Most frozen fruit maintains high quality for 8 to 12 months. There are three methods to pack fruits for freezing, Figure 2.3 illustrates them and Table 2.1 clarifies the preparation and blanching steps before freezing.

Figure 2.3 – Fruit packing method prior to freezing













Source: Regents of the University of Minnesota, 2018 - <https://extension.umn.edu>

1. SAVE FOOD,
2. Think.Eat.Save, 2014

Fruit packing method for freezing

Table 2.1 Preparation of fruits and vegetables prior to freezing

Vegetable / Fruit	STEP 1: Preparation	STEP 2: Blanching time / min	STEP 3: To reheat by steam / min
 <p>Bell peppers Can be stored for 8 to 12 months.</p>	Remove seeds, cut into 1 - 1.5 cm peels	2-3	2-3
 <p>Broccoli / Cauliflower Can be stored for 8 to 12 months.</p>	Cut into 2.5 - 3.5 cm florets	3	2-4
 <p>Carrots Can be stored for 8 to 12 months.</p>	Peel and cut into 0.5 cm slices or cubes	2	2-3
 <p>Corn Can be stored for 8 to 12 months.</p>	Husk corn and remove kernels	2	2-3
 <p>Spinach Can be stored for 8 to 12 months.</p>	Remove any woody stems and/or ribs, chop if desired	2-3	2-3

Vegetable / Fruit	STEP 1: Preparation	STEP 2: Blanching time / min	STEP 3: To reheat by steam / min
 <p>Green beans Can be stored for 8 to 12 months.</p>	Trim stem ends	2-3	2-3
 <p>Peas Can be stored for 8 to 12 months.</p>	Remove peas from pod, keep small peas on the side	3	2-4
 <p>Zucchini Can be stored for 8 to 12 months.</p>	Cut into 1 - 1.5 cm slices	3	2-4
 <p>Apples Can be stored for 8 to 12 months.</p>	<p>Soak apple slices in brine solution (1/2 cup salt to 3.75 liters water) for 15 minutes. Drain. Pack in sugar syrup using 2 cups and 1 teaspoon ascorbic acid to 1 liter water.</p> <p>OR</p> <p>Wash whole apples, drain, and dry. Place in freezer bags. Freeze. To use for pie, sauce, or other cooked dessert, run cold water over each frozen apple just before peeling. Peel, slice and use immediately.</p>	2	2-3
 <p>Apricots / Nectarine / Peaches Can be stored for 8 to 12 months.</p>	<p>Wash in cold water and sort. Dip six fully ripened fruits into boiling water until skins loosen, about 15 to 20 seconds. Chill, peel, halve, and remove pits. Fill containers 1/3 full of syrup (3 cups sugar to 1 liter water with 1/2 teaspoon ascorbic acid). Pack fruits in syrup.</p> <p>OR</p> <p>Halve soft ripe fruit, steam 4 minutes, crush and pack with 1 cup sugar to 8-9 cups fruit.</p>	2-3	2-3



Citrus fruits

Can be stored for
8 to 12 months.

Wash, peel, section, or slice fruit. Sprinkle sugar over each layer of citrus fruit, sweetening to taste. Let stand in refrigerator until fruit forms its own juice. Then move to the freezer. If you wish to keep the mix 3-4 months, add 1/2 teaspoon ascorbic acid to the sugar used for each 4 cups of fruit.

2

2-3



Strawberries

Can be stored for
8 to 12 months.

Wash in cold water, sort, and stem. Pack whole, sliced (preferred), or crushed berries in 1 cup sugar to 7-8 cups fruit. Pack whole berries in syrup, 3-4 cups sugar to 1 liter of water.

2-3

2-3

Special tip for cleaning berries: Do not soak berries in water to clean. Instead, place the berries in a colander, dip into cool water, and gently swish, rinse and drain well.



Herbs

Can be stored for
8 to 12 months.

Place a few sprigs or leaves in refrigerator bags or in an airtight container.

3

2-4

OR

Spread on a tray or cookie sheet and place in the freezer. When frozen solid, pack into airtight containers.

OR

To use in soups or stew, dice washed herbs and pack into ice cube trays. Fill the spaces with water. When frozen, pop out cubes and store in airtight containers. (Put picture)



Bananas

Can be stored for
8 to 12 months.

Peel and wrap them or place in an airtight container before freezing

3

2-4

Refreezing Food

Food may be safely refrozen if they are completely thawed but are at refrigerator temperature (3-5 Celsius) or still contain ice crystals. Vegetables can be refrozen, however they lose much of their texture, flavor, and appearance even if ice crystals are still present in the package. You may want to cook the thawed vegetables right away or add to a soup or stew later. Bread, cookies, and similar bakery items can be refrozen, however, the end product is likely to be drier and have a lower quality. Ice cream should not be refrozen.

It is essential to know that you should always refreeze food by putting it in the coldest part of the freezer, mark it with the date and use it within 2 to 3 months or as mentioned in the next section.

Dry Food Storage In Containers

Many types of food do not require refrigeration to be kept safe for consumption, dry food such as rice, pasta, flour, many types of drinks, tinned food and unopened jars can be stored outside the refrigerator or freezer in a dry area. However, it is still crucial to take care how your dry food is stored.



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In order to store dry food in a proper and safe manner, precautions have to be considered.

- Keep food in sealed bags or containers as this helps keep food fresh and stops anything falling into the food by accident.
- Do not store food or drinks near cleaning products or other chemicals.
- Do not use old food containers to store household chemicals, and do not store food in containers that have been used for other purposes.
- Only reuse undamaged plastic water bottles that you can clean
- Do not store food on the floor, because this can encourage mice, ants and other pests.
- Keep the storage area dry and not too warm.

Spices and herbs often last for years in the spice rack and are ok to use, but you may just want to increase the amount used as the intensity of the flavors can reduce with time. It is also important to seal off spices and herbs in tight containers, to avoid insect damages in your spices. Check out Chapter 2.4.4 on methods to prevent and control insects in your pantry.

Proper storage for each Food Group

Food can be grouped together into five main Food Groups: vegetables, fruits, protein, grains and dairy.



Food is grouped together because it provides similar amounts of the key nutrients of that food group. For example, the key nutrients of the milk, yoghurt and cheese food group include calcium and protein. Likewise, the fruit food group is a good source of vitamins, especially Vitamin C. The Five Food Groups will be further discussed in Chapter 6.

Now that you know how to properly store food in your refrigerator, freezer and outside, let us take a look at some of the food in your kitchen and the proper storage method for each of them, as well as best practices and tips for each.

The following sub-sections are divided into the five main food groups.

Protein

Eggs

Eggs are one of nature's most nutritious and economical foods. However, you must take special care with handling and preparing fresh eggs and egg products to avoid food poisoning. Table 2.2 illustrates the appropriate storage method and timing for eggs, and below are some important storage tips that you need to know when it comes to eggs:

- Do not wash eggs before storing them. If you need to clean them, clean eggs using fine sandpaper or a brush.
- Discard eggs with broken or cracked shells.
- Crack eggs into a bowl before using in order to avoid using bad eggs in your recipe. Throw away if you see any defects.¹³

1. SAVE FOOD,
2. Think.Eat.Save, 2014

The easiest way to tell if your eggs are fresh is by the Best Before Date on your egg carton, so it's best to always keep your eggs stored in their original carton. If you are buying eggs by piece, here are a few more simple ways to determine the freshness of your eggs:

- To differentiate between hard-cooked eggs and raw eggs, simply spin it. A hard-cooked egg will spin longer than a raw egg. The liquid center in a raw egg prevents it from building up enough momentum to keep turning.
- A cloudy egg white is a sign of freshness, not age: the cloudiness is the result of the high carbon dioxide content when the egg is laid.
- A fresh egg will sink in water while an older egg will float. As an egg ages, the size of the air cell inside increases, causing it to float.

In a fresh egg, the yolk sits up high, and the white is thick and closely surrounds the yolk. An older egg has a flat yolk that breaks easily and a thin, watery white.



FRESH EGG



OLD EGG

- Eggs with blood spots are safe to eat. A blood spot found on an egg yolk is most often a ruptured blood vessel, which happens during the yolk formation.
- Throw away raw or cooked eggs left at room temperature for more than two hours.
- If you feel that your eggs will go bad soon, either use them or separate the yolks and whites and freeze each alone. Yolks can enrich omelettes, be brushed on as a glaze or be used to make lemon curd, with whites used for meringues.¹⁴

Table 2.2

Storage method and timing for eggs

Fresh Eggs

Refrigerator

3 - 5 weeks

It is ideal to store eggs in their carton packaging. If you are buying per piece make sure that eggs are not stored on the refrigerator door, but in the main body of the refrigerator to ensure that they keep a consistent and cool temperature.

Freezer

Don't freeze

Beat eggs just until blended, pour into freezer containers or bags and seal tightly. Label the container with the number of eggs and the date, and freeze.

Egg Yolks & Whites (Separate)

Refrigerator

2 - 4 days

Leftover raw egg whites and yolks should be put in airtight containers and stored in the refrigerator immediately. To prevent yolks from drying out, cover them with a little cold water. Drain the water before using.

Freezer

1 year

Whites: Break and separate the eggs one at a time, making sure that no yolk is mixed in with the whites. Pour them into freezer containers or bags, seal tightly, label with the number of egg whites and the date, and freeze. For faster thawing and easier measuring, first freeze each white in an ice cube tray and then transfer to a freezer container.

Yolks: Egg yolks require special treatment. The gelation property of yolk causes it to thicken or gel when frozen. If frozen as-is, egg yolks eventually become so gelatinous they are almost impossible to use in a recipe. To help slow this process, beat in either 1/8 tsp (0.5 mL) salt or 1 1/2 tsp (7mL) sugar or corn syrup per 1/4 cup (50 mL) egg yolks (4 yolks). Label the container with the number of yolks, the date, and whether you've added salt (for main dishes) or sweetener (for baking or desserts).

Hard-Cooked Eggs

Refrigerator

Within 1 week

When storing hard-cooked eggs, you may notice a "gassy" odor in your refrigerator. The odor is caused by hydrogen sulphide, which forms when eggs are cooked. It is harmless and usually dissipates in a few hours.

Freezer

Within 4 months

Carefully place the yolks in a single layer in a saucepan and add enough water to come at least 2.5 cm above the yolks. Cover and quickly bring just to boil. Remove from heat and let stand, covered, in the hot water for about 15 minutes. Remove with a slotted spoon, drain well and package for freezing. **Hard-cooked whole eggs and whites become tough and watery when frozen so do not freeze them.**

Source: Reporter compiled table using data from Egg Farmers of Canada



Pulses

Most dry legumes can be stored for a long time, even for years, without spoiling and still retain their nutrients. As a general rule, pulses will retain excellent quality for 18 months. Although the longer they are stored, the more time-consuming and expensive it is to cook them. Pulses include the following major groups along with their varieties: dry beans, vetches or lupines, bambara beans, broad beans, lentils, dry peas, dry pigeon peas, vetches, dried cowpeas, winged beans, sword beans and chickpeas.

Storage should be in a cool, dry place. If pulses are exposed to a somewhat warm environment, there is the same danger of food poisoning, as with any other seasoned food. Pulses should be stored in a glass jar or can, in a sealed bag or container in the cupboard, or frozen, which is good for quick and easy preparation. Because they are usually prepared by boiling, there is no risk of food poisoning provided that they are cooked and eaten immediately, or if refrigerated after cooking. Once cooked, pulses should be stored in the fridge in a covered/sealed container.

Beef

Beef may be frozen in foam plates for short-term storage or repackaged in airtight heavy-duty foil, plastic wrap, or freezer paper, or place the package inside a freezer bag if freezing for long-term storage. It is always recommended to freeze beef into smaller portions that would fit one meal.

Proper wrapping prevents “freezer burn,” which appears as grayish-brown leathery spots and is

caused by air reaching the surface of food. Cut freezer-burned portions away either before or after cooking the beef. Heavily freezer-burned products may have to be thrown away because they may be too dry or tasteless. For best quality, use steaks and roasts within 9 to 12 months. Make sure you look at the “Use-by” date, if the product has one.



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Table 2.3

Storage times for beef products

Product	Refrigerator	Freezer
Fresh beef roast, steaks, chops, or ribs	3 to 5 days	6 to 12 months
Fresh beef liver or variety meats	3 to 5 days	6 to 12 months
Home cooked beef, soups, stews or casseroles	3 to 5 days	6 to 12 months
Store-cooked convenience meals	3 to 5 days	6 to 12 months
Cooked beef gravy or beef broth	3 to 5 days	6 to 12 months
Beef hot dogs or lunch meats, sealed in package	3 to 5 days	6 to 12 months
Beef hot dogs, opened package	3 to 5 days	6 to 12 months
Lunch meats, opened package	3 to 5 days	6 to 12 months
Canned beef products in pantry	3 to 5 days	6 to 12 months



Source : Reporter compile table using data from FSIS

Poultry

Chicken may be frozen in foam plates for two months or repackaged in airtight heavy-duty foil, plastic wrap, or freezer paper, or place the package inside a freezer bag if freezing for more than two months. It is always recommended to freeze chicken into smaller portions that would fit one meal.

Proper wrapping prevents “freezer burn,” which appears as grayish-brown leathery spots and is caused by air reaching the surface of food. Cut freezer-burned portions away either before or after cooking the chicken. Heavily freezer-burned products may have to be thrown away because they may be too dry or tasteless.

- **Ready-Prepared Chicken:** When purchasing fully cooked rotisserie or fast food chicken, be sure it is hot at the time of purchase. Use it within 2 hours or cut it into several pieces and refrigerate in shallow, covered containers. Eat within 3 to 4 days, either cold or reheated to sizzling point. It is safe to freeze ready-prepared chicken. For best quality, flavor, and texture, use it within 4 months.



Table 2.4
Storage times for
chicken products

Product	Refrigerator	Freezer
Fresh Chicken, whole	3 to 5 days	6 to 12 months
Fresh Chicken, parts	3 to 5 days	6 to 12 months
Ground Chicken	3 to 5 days	6 to 12 months
Cooked Chicken, Leftover	3 to 5 days	6 to 12 months
Chicken Broth or Gravy	3 to 5 days	6 to 12 months
Cooked Chicken Casseroles, Dishes or Soup	3 to 5 days	6 to 12 months
Cooked Chicken Pieces, covered with broth or gravy	3 to 5 days	6 to 12 months
Cooked Chicken Nuggets, Patties	3 to 5 days	6 to 12 months
Fried Chicken	3 to 5 days	6 to 12 months
Take-Out Chicken (Rotisserie, Fried, etc.)	3 to 5 days	6 to 12 months
Chicken Salad	3 to 5 days	6 to 12 months
Chicken Luncheon Meat	3 to 5 days	6 to 12 months
Chicken Hotdogs, unopened	3 to 5 days	6 to 12 months
Chicken Hotdogs, after opening	3 to 5 days	6 to 12 months
Canned Chicken Products	3 to 5 days	6 to 12 months

Source: Reporter compiled table using data from FSIS













Vegetables

In order to properly store vegetables, one should be aware of the vegetables that could be stored together, and the ones that must be separated in order to avoid waste. Table 2.4 and Table 2.5 will help clarify this and provide storage tips on saving your vegetables.



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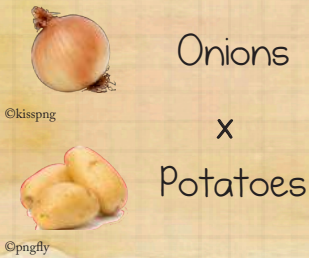
Table 2.5
Vegetables that
GO together

Name	Perfect match	Shared values
 Onion	 Garlic	Keep in a cool and dark place.
 Cucumber	 Peppers	Keep away from fruit as they spoil by ethylene. Keep in the fridge.
 Carrots	 Beetroot	Refrigerate.
 Cauliflower	 Broccoli	Store in the fridge, and keep away from ethylene producing produce.
 Corn	 Peas	Keep refrigerated, but will lose sweetness after a couple of weeks.
 Potato	 Sweet Potato	Keep in a cool, dark, and dry place away from fruit which produce high levels of ethylene as this will result in early sprouting.

Source: Reporter compiled table using data from WRAP

Table 2.6

Vegetables that DO NOT go together



Why they do not mix?





Onions produce a small amount of ethylene, so while they won't have a major impact on them in terms of spoiling, potatoes are prone to be tainted with the onion flavor if stored together.

Source: Reporter compiled table using data from WRAP

Now that you know which vegetables go together and which do not, we will be discussing some of the most common vegetables in your kitchen, and the best way to safely store them.

Table 2.7

Storage location and method for vegetables

Vegetable	Where to store it	How to store it
 <p>Avocado</p>	Ripen on counter, then store in fridge.	<p>Store loose.</p> <p><i>Tip. To make cut avocados last longer, leave pit in and brush surface with lemon or lime juice. Refrigerate in a sealed container.</i></p>
 <p>Beans</p>	Fridge	Store in a plastic bag or sealed container.
 <p>Beets / Radishes / Carrots</p>	Fridge	Store in a sealed container with a dry towel. Store green tops separately (see "Leafy Greens").
 <p>Bell peppers</p>	Fridge - drawer	<p>Store loose.</p> <p>Store a half pepper with the stalk and seeds still in - it will last longer.</p>

Vegetable

Where to store it

How to store it



Broccoli

Fridge - drawer

Wrap in a damp towel

Brussel sprouts

Fridge - drawer

Store in a sealed container



Butternut squash
/ Garlic

Pantry

Store loose



Cabbage / Eggplant
/ Hot peppers /
Lemons / Lime

Fridge - drawer

Store loose



Cauliflower

Fridge - drawer

Store in a plastic bag or sealed
container



Celery / Peas

Fridge

Store in a sealed container



Corn

Fridge

Store loose



Cucumber

Fridge - drawer

Store loose or for longer shelf life
see the section below.



Leeks / Green
onions / Scallions

Fridge

Wrap in a damp towel



Herbs - leafy
(cilantro, parsley)
/ Asparagus

Fridge

Remove bands and ties. Trim
stems and store upright in a glass
of water with a plastic bag over
the top. Exception: Basil.

Vegetable

Where to store it

How to store it



Herbs - woody
(rosemary, sage)

Fridge

Remove bands and ties. Wrap in a damp towel and store in a sealed container.



Arugula / Leafy
greens / Lettuce
/ Spinach / Jews
mallow

Fridge

Remove bands and ties. Store in a sealed container lined with a damp towel.



Mushrooms /
Okra

Fridge

Store in a paper bag.



Onions / Potatoes

Pantry

Store loose or in a mesh bag separate from potatoes.

Do not store potatoes and onions, under the sink. Leakage from the pipes can damage the food. A great way to prevent sprouting is to store an apple with potatoes.



Jews mallow

Fridge

Remove bands and ties. Store in a sealed container lined with a damp towel.



Zucchini

Fridge

Wrap whole or cut ends in a damp towel.

Did you know?

Wondering why a dry towel is recommended for some items? For those that should not get too moist, dry towels help absorb unneeded dampness. Also for produce that should not get too damp, paper bags help absorb moisture without letting produce dry out completely

Cucumber

Raw cucumbers are best when they are crispy and fresh. However, they can start going bad quickly when stored in a wrong way. Good news is that there are two ways to store cucumbers so that they stay fresh, even after more than a week.



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Plastic wrap storage: wrap the cucumber in plastic wrap (or a group of four to six cucumbers). Keeping the cucumber wrapped minimizes the amount of moisture on the cucumber, which slows the process of decay. After wrapping put the cucumbers in the refrigerator. This should keep it cold enough to stay fresh for one week to 10 days.



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Paper towel wrap: wrap the cucumber in a paper towel (or a group of two to three cucumbers). Put the wrapped cucumbers into the vegetable drawer. Wrapping cucumbers in paper towels leave the cucumbers dry due to the absorption of water and moisture by the towel.



©Pixabay

Table 2.8

Fruits that GO together

Strawberries  +  Grapes

Shared values

Refrigerate immediately to prevent decay

Apples  +  Cherries

Shared values

Cherries are not affected by high ethylene produced by apples.

Store in fridge.

Tomatoes  +  Plums

Shared values

Store in the fridge, and bring to room temperature before eating to ensure best flavor.

Fruits

In order to avoid fruit waste in your kitchen, the illustration below will help eliminate any confusion of which fruits go together and which do not, along with a simple explanation and some useful tips:

Table 2.9

Fruits that DO NOT go together

Apples  X  Watermelons

Why they do not mix?

Apples and watermelons both love to be in the fridge. However, apples produce high levels of ethylene which turn the watermelons mushy.

Banana  X All

Shared values

Keep away from others! Bananas will result in most fruit or vegetable ripening quickly and spoiling.






Now that you know which fruits go together and which do not, we will be discussing some of the most common fruits in your kitchen, and the best way to safely store them.

Table 2.10
Storage location and
method for fruits

Fruits

Where to store it

How to store it

 ¹⁸ Apples	Fridge	Separate from other produce
 ¹⁹ Apricots / Cantaloupe / Honeydew / Kiwi / Mangoes / Peach / Pear / Pineapple / Plum / Watermelon	Ripen on counter, then store in fridge.	Store loose.
 ¹⁹ Bananas	Counter	Store away from other fruits and vegetables. Bananas will go black in the fridge! So instead, just keep them somewhere nice and cool
 ¹⁸ Cherries	Fridge	Store in a plastic bag or sealed container. Wash only when ready to eat. Note. One rotten cherry can spoil the rest. Remove rotting fruit before storing.
 ¹⁹ Citrus fruits / Grapefruit / Orange	Fridge - drawer	Store loose.

Fruits	Where to store it	How to store it
¹⁹  Grapes	Fridge	Store in a sealed container. Wash only prior to eating. Note. One rotten grape can spoil the rest. Remove rotting fruit before storing.
Melons	Ripen on counter, then store in fridge.	Store loose. Note. Once cut, store melon in a sealed container or cover with plastic wrap and refrigerate.
¹⁸  Pomegranate	Fridge	Store loose.
¹⁹  Pumpkin	Pantry	Store loose.
¹⁹  Strawberries	Fridge	Store in a shallow container lined with a dry towel, leave lid slightly cracked. Wash only when ready to eat.
¹⁹  Tomatoes	Ripen on counter, then store in fridge.	Store out of direct sunlight.

Did you know?

Wondering why some instructions suggest a damp towel? For items that need a bit more moisture, **damp towels** help preserve proper humidity.

Grains




Heat, air and moisture are the enemies of whole grains. All whole grains should be stored in airtight containers with tight-fitting lids or closures. The type of container is a matter of preference. Glass, plastic, and aluminum canisters or zip-top plastic bags can all be successfully used, as long as they are airtight. The seal helps to maintain freshness and will keep the grains from absorbing moisture, odors and flavors from other foods.



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How long your grains stay fresh at home can depend largely on how you store them. Here are some guidelines culled from a variety of experts that may help

Table 2.11
Storage timings for intact whole grains and whole grain flour/meal

Grain	Intact whole grain (berries or groats)	Whole grain flour / meal
<div><div>20</div></div> <div>Barley / Brown rice / Corn / Popcorn / Faro / Rye / Spelt / Wheat</div>	Pantry: 6 months FreeZER: 1 year	Pantry: 3 months FreeZER: 6 months
<div><div>20</div></div> <div>Buckwheat</div>	Pantry: 2 months FreeZER: 4 months	Pantry: 1 month FreeZER: 2 months
<div><div>20</div></div> <div>Oats / Quinoa / Sorghum / Rice</div>	Pantry: 4 months FreeZER: 8 months	Pantry: 2 months FreeZER: 4 months

Source: Reporter compiled table using data from WRAP

Bread

It is best not to put bread in the fridge as it goes stale much quicker. Bread keeps better in a cool dark place such as the bread bin or a store cupboard. Bread also freezes well for use another time.



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Dairy

Almost all dairy products should be stored in the refrigerator at a temperature of 4°C, excluding powdered milk products and UHT milk, which can be stored in the pantry, or ice cream, which needs the freezer. Table 2.9 lists the typical shelf life of dairy products in the refrigerator.

Table 2.12
Storage timings for dairy products in the refrigerator

Dairy product	Storage time
Pasteurized whole milk	12 to 14 days. Note: Skimmed and flavored milk has a shorter shelf life.
Yoghurt	4 to 6 weeks
Hard and semi-hard cheese	From 3 to 6 weeks (depends on type)
Cottage cheese, white cheese and cream cheese	1 to 2 weeks
Butter	4 weeks
Ice cream	Freezer: 2 to 6 months

Source: Reporter compiled table using data from Dairy Food Safety Victoria

The best advice is to follow the manufacturer's instructions on the label. Respect use-by dates as they usually indicate the date until which the product can be safely consumed. Finally, if your milk is spoiling before the use-by date on the container, your refrigerator may be too warm.

Leftovers

It is safe to let leftovers cool completely at room temperature before storing it in the fridge. Avoid putting tin cans in the fridge, as the food inside may develop a metallic taste. Do not throw away leftovers: they could be tomorrow's lunch or today's dessert.

Here are a few storage tips to make the most of your leftovers:

- Cool leftovers as quickly as possible, ideally within two hours.
- Divide leftovers into individual portions and re-frigerate or freeze.
- Use refrigerated leftovers within two days.
- When reheating food, make sure it is heated until it is streaming hot throughout.
- Always defrost leftovers completely, either in the fridge or in the microwave.
- When defrosted, food should be reheated only once, as the more times you cool and reheat food the higher the risk of food poisoning. It should also be eaten within 24 hours of fully defrosting.
- Foods stored in the freezer, such as ice cream and frozen desserts, should not be returned to the freezer once they have thawed.



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Common storage practices

One of the most common practices women all over the world do is use aluminum foil or plastic wrap to protect food in the kitchen, from leftover food and marinated recipes, to half a watermelon or a jug of milk. However, like many things, it needs to be used correctly. Here is everything you need to know about using plastic wrap and aluminum foil in the kitchen.

Plastic Wrap

There are three main points to remember when using plastic wrap:

- Do not use plastic wrap if it could melt into the food, such as in the oven or on pots and pans on the stove.
- You can use plastic wrap in the microwave, but make sure the plastic wrap does not touch the food.
- Plastic wrap should only touch high fat; high-fat foods include some types of cheese, raw meats with a layer of fat, fried meats, pies and pastries, and cakes with icing or chocolate

Aluminum Foil

Do not use foil or containers made from aluminum to store foods that are highly acidic, such as tomatoes, rhubarb, cabbage and soft fruit, as aluminum can affect the taste of these foods.

Tin Cans

Never store food in Tin cans! When you open a can of food and you are not going to use all the food straight away, empty the food into a bowl, or other container, and put it in the fridge.

Do not store food in an opened tin can, or re-use empty cans to cook or store food. This is because when a can has been opened and the food is open to the air, the tin from the can might transfer more quickly to the can's contents.

This advice does not apply to foods sold in cans that have re-sealable lids, such as margarine, because these types of food do not react with the can.



Food Safety and Hygiene

People have the right to expect the food they eat to be safe and suitable for consumption. Food safety refers to handling, preparing and storing food in a way that best reduces the risk of people becoming sick from foodborne illnesses. The principles of food safety aim to prevent food from becoming contaminated and leading to food poisoning. Food safety is achieved through a variety of different methods, including but not limited to:

1. Cleanliness and sanitization of all kitchen surfaces, equipment and utensils.
2. Personal hygiene and self-care tips
3. Proper storage methods (discussed in Section 2.1 – 2.3)
4. Effective pest control
5. Comprehending food allergies, poisoning and intolerance.

1. Cleanliness and sanitization of all kitchen surfaces, equipment and utensils

Effective cleaning and sanitizing controls human health by preventing transmission of human diseases in foods. Cleaning and sanitizing helps prevent pest infestations by reducing residues that can attract and support pests. It also improves the shelf life and the quality of food products. Kitchens can quickly become the perfect breeding ground for bacteria and germs, particularly when you are cooking for a large family or commercial operation. You can avoid this by careful cleaning of your wooden, metal, stone and plastic kitchen equipment and surfaces right after cooking, and by removing harmful microorganisms through periodic sanitization. Proper storage of kitchen equipment can help ensure the maintenance of a clean, safe kitchen.

CLEAN

Kitchen equipment and surfaces, including pots, pans, utensils, countertops and cutting boards, should be washed using water and dish detergent. After removing detachable parts, scrub these items with warm soapy water and a brush or sponge, making sure to remove any food debris and residual organic matter. Air dry, or dry with a clean towel.

SANITIZE

This is the process of reducing bacteria to a safe level. This could be achieved by applying a solution of one tablespoon of bleach to 3.5 liters of warm water to reduce harmful bacteria. Soak your kitchen equipment in the solution for two minutes, rinse with hot water, then air-dry. To protect your skin, wear rubber gloves when working with bleach. **Another** method would be to heat white vinegar (less expensive) in a saucepan until hot, but not boiling. Immediately transfer the solution to a spray bottle and apply to kitchen equipment to sanitize, then rinse.

STORAGE

before storing your kitchen equipment, disinfect storage drawers, cupboards and shelving with a commercial disinfectant **OR** with the same solution used while sanitizing (recipe in point 2). Make sure all equipment, utensils and dishes have been cleaned and dried completely before storing them.

Figure 2.4 – Steps to a food safe kitchen

2. Personal hygiene and self-care tips

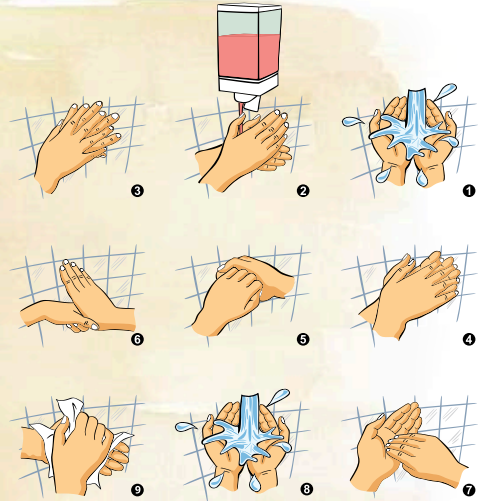
Food handlers have a responsibility to ensure that food is not contaminated by the personal hygiene or health of food handlers. When preparing food for oneself or for others, it is recommended to take precautions to ensure that food or surfaces that come in contact with your food are not contaminated by your body or anything that you are wearing (e.g. jewelry, bandages, hair, saliva, mucus, sweat, blood, fingernails or clothes).

It is very important to regularly wash and dry hands especially before starting food preparation, after handling raw meats and eggs and after using the toilet. The need for thorough drying of your hands should not be overlooked. If hands remain damp it is easy for moisture, which can contain harmful bacteria or viruses, to be transferred to food or food contact surfaces.

Use the **proper hand-washing technique**.

Rinsing off your hands is not enough to get rid of illness-causing germs and bacteria.

1. Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
2. Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
3. Scrub your hands for at least 20 seconds.
4. Rinse your hands well under clean, running water.
5. Dry your hands using a clean towel or air-dry them.



Source: WHO, 2018




In addition to proper hand-washing, it is important to maintain a high degree of **personal hygiene** with regard to personal habits such as:

- No smoking in food areas;
- No coughing, sneezing, spitting over food;
- No strong smelling perfumes when handling foods;
- No nail varnish;
- Limited jewelry should be worn - a plain wedding band, earring and small necklace;
- Hair should be tidy and tied to prevent the risk of it falling into food;
- All cuts, wounds or sores should be covered.

3. Effective pest control

We have all witnessed pest infestation in our pantry someday or another. Most dried food products can be infested by insects such as cereal products, seeds, nuts, chocolate, fried fruits, powdered milk, tea, pet food and dried herbs. Pantry pests are most likely to infest products that have been opened but can also crawl or chew their way into unopened cardboard, foil and plastic. Insects inside an infested package multiply and can spread to other stored foods not only in the same area but also in other rooms in a home.

Table 2.13 – Most common pantry pests

Pantry pest	Description
Indian meal moth 	Indian meal moths may be found inside infested products or flying around homes. The larvae are whitish worms with shades of yellow, pink, green or brown and grow to 1/2 inch long. Only the larvae feed in stored products, which can be any dry stored food or whole grain. Foods infested with these insects will have silk webbing present on the surface of the product. Larvae often leave the food when mature and may move long distances before spinning a cocoon. It is common to find caterpillars and cocoons on ceilings and walls. Adult moths may be seen up to several weeks after the food source has been removed.
Saw-toothed grain beetles 	These beetles are flat, slender and have a brownish-red color to almost black. Larvae are cream-colored, slender, and about 1/8 inch long. They are found in many different food items, including dried fruit, cereals, nuts, dried meat, macaroni and seeds.
Drugstore beetles 	These beetles are long, oval and brown. These beetles fly and can be found around windows. Mature larvae are yellowish-white with a light brown head. They have a curved body covered with fine hair. Drugstore beetles feed on dried plant products such as spices, macaroni and other grain based foods, dried flowers, tobacco products and paper products, including books.

Pantry pest

Description

Flour beetles



These beetles are long, oval and reddish-brown in color. Larvae are cylindrical, whitish, or cream-colored and have two small pointed spines on the tail end. Flour beetles infest dried food products, such as flour, bran, cereal products, dried fruits, nuts and chocolate

Granary, rice and maize weevils



These are slender insects with a snout projecting forward from the head. They are dark brown, sometimes with four orange like spots on the wing covers. Larvae are white, legless and wrinkled and only found inside whole kernels or seeds.

They eat only whole grains or seeds, leaving small round exit holes in infested kernels. They rarely are found in nuts, dried fruits, macaroni, and caked or crusted milled products such as flour.

Bean weevils



They are a spotted light and dark brown, and broadly oval with short wing covers that expose part of the abdomen. The larvae are small, whitish, legless and C-shaped. They feed inside dried beans and peas.

How to get rid of pantry pests:

1. Thoroughly clean cabinets and shelves, especially in cracks and corners (use a vacuum cleaner if available, but make sure you discard the vacuum cleaner bag after use to prevent re-infestation). This will pick up crawling insects and spilled or infested material.
2. If you sanitize, make sure that it is cleaned properly and no chemical residues are leftover to avoid contact between chemicals and food. Washing areas with detergents, ammonia, or bleach will not prevent insect infestation. There is no evidence that placing bay leaves or sticks of spearmint gum in a cupboard will prevent or get rid of stored food insect pests. It is best to wipe the surface using vinegar (see Sanitize section 2.2) or hot soapy water.
3. To prevent re-infestation, store foods in sealable glass, metal, or heavy plastic containers or in the freezer or refrigerator until you are sure that the infestation is gone.

It is not unusual to see an Indian meal moth flying for up to three weeks after the infested food has been thrown out. However, if you continue to see Indian meal moths after three weeks, that means there is an infested food source that you have not found yet.

If you have older food products and you are not sure if they are infested, you can put them in the freezer for at least four days or in a baking sheets or pan in an oven at low temperature for at least 30 minutes. These temperatures will kill any eggs or insects. Moreover, you can either throw out or use the same method for already infested food, however remember the moths and beetles bodies will remain in the food, so you must sift it out first.

If insects are infesting ornaments or decorations made with plant products or seeds, place the items in a freezer for at least four days.

4. Comprehending food allergies, poisoning and intolerance



Allergies are an overreaction of the body's immune system to a protein. These proteins may be from foods, pollens, house dust, animal hair or molds. They are called allergens. The word allergy means that the immune system has responded to a harmless substance as if it were toxic.

Food intolerance on the other hand, is a chemical reaction that some people have after eating or drinking some foods; it is not an immune response. Food intolerance has been associated with asthma, chronic fatigue syndrome and irritable bowel syndrome (IBS).

Most of the time symptoms caused by food allergy develop very soon after consuming the food. While symptoms caused by food intolerance can be immediate, they may also take 12 to 24 hours to develop.

Table 2.14
Symptoms of food allergy
and food intolerance

Food allergy	Food intolerance
Itching, burning and swelling around the mouth	Nervousness
Swelling of face and eyes	Tremor
Runny nose	Sweating
Skin rash (eczema)	Palpitations
Hives (urticaria skin becomes red and raised)	Rapid breathing
Diarrhea, abdominal cramps	Diarrhea
Breathing difficulties including wheezing and asthma	Headache, migraine
Vomiting, nausea	<ul style="list-style-type: none"> - Burning sensations on the skin - Tightness across the face and chest - Breathing problems – asthma like symptoms - Allergy-like reactions

Source: Researcher compiled using data from State of Victoria - <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/food-allergy-and-intolerance>

Body parts affected by allergies

Eyes - itching, watering
Nose - stuffiness, sneezing, running
Mouth - itching, swelling
Throat - swelling
Digestive system - stomach pains, vomiting, diarrhea
Skin - rashes, such as hives
Lungs - wheeze, cough, asthma
Central nervous system - headache, irritability, fatigue, convulsions

Causes of food allergy include peanuts, eggs, milk, wheat, sesame, fish, shellfish and soy sauce. Likewise, the foods that tend to cause intolerance reactions in sensitive people include dairy products (milk, cheese, and yoghurt), chocolate, eggs, flavor enhancers, food additives, strawberries, citrus fruits and tomatoes.

The first step is to identify the allergen!

When symptoms appear within a few minutes of eating the particular food, it makes pinpointing the allergen an easy task. However, if the cause is unknown, diagnostic tests may be needed, such as:

- Keeping a food and symptoms diary to check for patterns;
- Removing all suspect foods for two weeks, then reintroducing them one at a time to test for reactions;
- Allergy blood tests.

The easiest way to treat a food allergy or intolerance is to eliminate the offending food from the diet. Sometimes, the body can tolerate the food if it is avoided for a time, then reintroduced in small doses, particularly for food intolerances.

It is important to read food labels in order to avoid consuming food products that include ingredients of food you are allergic to.

Food poisoning also called foodborne illness is illness caused by eating contaminated food. Infectious organisms (bacteria, viruses and parasites) or their toxins are the most common causes of food poisoning. They can contaminate food at any point of the food value chain.

Symptoms of food poisoning can start within hours of eating contaminated food. Most types of food poisoning cause one or more of the following signs and symptoms: nausea, vomiting, watery or bloody diarrhea, abdominal pain and cramps and fever.



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To prevent food poisoning at home:

1. Wash your hands, utensils and food surfaces often.
2. Keep raw foods separate from ready-to-eat foods.
3. Cook foods to a safe temperature.
4. Refrigerate or freeze perishable foods promptly
5. Defrost food safely.

Food poisoning treatment:

1. Control nausea and vomiting

- a. Avoid solid foods until vomiting ends. Then eat light, bland foods such as salted crackers, bread sticks, bananas, rice or bread.
- b. Sipping liquids may help avoid vomiting.
- c. Do not eat fried, greasy, spicy or sweet foods.
- d. Ask a doctor before taking anti-nausea or anti-diarrhea medication. They have side effects and may make some kinds of diarrhea worse. Your doctor may give you anti-nausea medication if you are at risk of being dehydrated.

2. Prevent dehydration

- a. Drink clear fluids, starting with small sips then increasing.

3. Call a doctor immediately if symptoms last more than 3 days or you have:

- a. Severe belly pain
- b. Fever
- c. Bloody diarrhea or dark stool
- d. Vomiting that is prolonged or bloody
- e. Signs of dehydration (dry mouth, decreased urination, dizziness, fatigue or increased breathing rate or heart rate).

Washing food and further food safety tips

Does washing food promote food safety?

Historically, we equate washing to cleanliness. We wash clothes, linens, cars, dishes, and ourselves. So, it is logical that many people believe meat and poultry can be made cleaner and safer by washing it. Is this true? Does washing meat, poultry, eggs, fruits, and vegetables make them safer to eat?

Let us take a look below:

Washing beef and poultry

Washing raw poultry, beef, lamb, or veal before cooking it is not recommended. Bacteria in raw meat and poultry juices can be spread to other foods, utensils, and surfaces.

Some consumers think they are removing bacteria and making their meat or poultry safe. However, some of the bacteria are so tightly attached that you could not remove them no matter how many times you washed. But there are other types of bacteria that can be easily washed off and splashed on the surfaces of your kitchen. Failure to clean these contaminated areas can lead to foodborne illness. Cooking (baking, broiling, boiling, and grilling) to the right temperature kills the bacteria, so washing poultry and meat is not necessary.



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Soaking beef and poultry in saltwater

Soaking raw poultry and beef in saltwater/vinegar/lemon is a personal preference and serves no purpose for food safety. If you choose to do this, however, preventing cross-contamination when soaking and removing the poultry from the water is essential. It is important to leave meat or poultry in the refrigerator while soaking. Figure 2.5 identifies the safe handling methods for chicken and Figure 2.6 for beef.

Table 2.15
Chicken safety tips

Marinating	<p>-Chicken may be marinated in the refrigerator for up to 2 days.</p> <p>-Boil used marinade before brushing it on cooked chicken. Discard any uncooked leftover marinade.</p>
Color of skin	<p>Chicken skin color varies from cream-colored to yellow. Skin color is a result of the type of feed eaten by the chicken, not a measure of nutritional value, flavor, tenderness, or fat content.</p>
Dark bones	<p>-Darkening around bones occurs primarily in young broiler-fryers. Since their bones have not calcified completely, pigment from the bone marrow can seep through the porous bones.</p> <p>-Freezing can also contribute to this seepage. When the chicken is cooked, the pigment turns dark. It is perfectly safe to eat chicken meat that turns dark during cooking.</p>
Pink Liquid	<p>Many people think the pink liquid under fresh chicken is blood; however, it is mostly water which was absorbed by the chicken during the chilling process. Blood is always removed from poultry during slaughter and only a small amount remains in the muscle tissue. An improperly bled chicken has cherry red skin and should be condemned at the plant.</p>

Chicken

Figure 2.5
Safe thawing for chicken

Refrigerator

Never thaw chicken on the counter or in other locations. It's best to plan ahead for slow, safe thawing in the refrigerator. Boneless chicken breasts, bone-in parts, and whole chickens may take 1 to 2 days or longer to thaw. Once the raw chicken thaws, it can be kept in the refrigerator an additional day or two before cooking. During this time, if chicken thawed in the refrigerator is not used, it can safely be refrozen without cooking it first.

Cold water

Chicken may be thawed in cold water in airtight packaging or in a leak-proof bag. Submerge the bird or cut-up parts in cold water, changing the water every 30 minutes to be sure it stays cold. A whole chicken should thaw in 2 to 3 hours. 500 grams of boneless breasts will thaw in an hour or less. Cook immediately after thawing.

Microwave

Chicken that was thawed in the microwave should be cooked immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Holding partially cooked food is not recommended because any bacteria present wouldn't have been destroyed. Foods defrosted in the microwave or by the cold water method should be cooked before refreezing.

Safe cooking

Chicken has to be cooked all the way through to avoid illnesses from raw chicken. For reasons of personal preference, consumers may choose to cook poultry to higher temperatures.

For approximate cooking times to use in meal planning, see table 2 compiled from various resources.

Table 2.16
Approximate chicken cooking times

Type of Chicken	Weight	Roasting	Simmering	Grilling
Whole broiler-fryer★	1.250 kg to 2 kg	1 1/4 to 1 1/2 hrs.	60 to 75 min.	60 to 75 min.
Whole roasting hen★	2.250 kg to 3.250 kg	2 to 2 1/4 hrs.	1 3/4 to 2 hrs.	18 to 25 min.
Whole rooster★	1.750 kg to 3.750 kg	2 to 3 hrs.	Not suitable	15-20 min.
Breast halves, bone-in	170 gm to 230 gm	30 to 40 min.	35 to 45 min.	10 to 15 min./side
Breast halves, boneless	170 gm	20 to 30 min.	25 to 30 min.	6 to 8 min./side
Legs or thighs	170 gm to 230 gm	40 to 50 min.	40 to 50 min.	10 to 15 min./side
Drumsticks	170 gm	35 to 45 min.	40 to 50 min.	8 to 12 min./side
Wings	60 gm to 90 gm	30 to 40 min.	35 to 45 min.	8 to 12 min./side

* Unstuffed. If stuffed, add an additional 15 to 30 minutes.

Stuffed chicken

To stuff a whole chicken at home, cook any raw meat, poultry, or shellfish ingredients for the stuffing to reduce the risk of foodborne illness from bacteria that may be found in raw ingredients. The wet ingredients for stuffing can be prepared ahead of time and refrigerated. However, do not mix wet and dry ingredients until just before spooning the stuffing mixture into the chicken cavity. Immediately cook the stuffed, raw chicken in a high temperature oven.

Beef

Table 2.17 – Beef safety tips

Marinating	<ul style="list-style-type: none">- Marinate beef in the refrigerator up to 5 days.- Boil used marinade before brushing on cooked beef. Discard any uncooked leftover marinade.
Liquid in package	<p>Many people think the red liquid under fresh beef is blood. However, blood is removed from beef during slaughter and only a small amount remains within the muscle tissue. Since beef is about 3/4 water, this natural moisture combined with protein is the source of the liquid in the package.</p> <p>Unlike chicken, there is an option not to cook beef all the way through. Depending on your preferences. The table below, shows the approximate beef cooking times and temperatures for ideal taste.</p>

Figure 2.6 – Safe thawing for beef

Refrigerator

Plan ahead of time, for slow thawing in the refrigerator. Ground beef, stew meat, and steaks may defrost within a day. Bone-in parts and whole roasts may take 2 days or longer. Once the raw beef defrosts, it will be safe in the refrigerator for 3 to 5 days before cooking. During this time, if you decide not to use the beef, you can safely refreeze it without cooking it first.

Cold water

To defrost beef in cold water, it has to be packaged. Be sure the package is airtight or put it into a leakproof bag. Submerge the beef in cold water, changing the water every 30 minutes so that it continues to thaw. Small packages of beef may defrost in an hour or less; a 2kg roast may take 2 to 3 hours.

Microwave

When using the microwave to defrost beef, plan to cook it immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Holding partially-cooked food is not recommended because any bacteria present wouldn't have been destroyed.

*Foods defrosted in the microwave or by the cold-water method should be cooked before refreezing because they may have been held at temperatures above 4.4 °C.

It is safe to cook frozen beef in the oven, on the stove, or grill without defrosting it first; the cooking time may be about 50% longer.

Table 2.18 - Approximate beef cooking times

Type of Beef	Size	Cooking method	Cooking time	Internal temperature
Rib Roast, bone in	1.750 kg - 2.750 kg	Roast	23-25 min./kg	60 °C and allow to rest at least 3 minutes
Rib Roast, boneless rolled	1.750 kg - 2.750 kg	Roast	Add 5-8 min./kg to times above	
Chuck Roast, Brisket	1.250 kg - 1.750 kg	★Braise	★ Braise 325 °F	
Round or Rump Roast	0.500 kg - 1.750 kg	Roast	30-35 min./kg	
Tenderloin, whole	1.750 kg - 2.750 kg	Roast	45-60 min. total	
Steaks	2 cm	Broil/Grill	4-5 min. per side	
Stew or Shank Cross Cuts	2.5 - 4 cm	Cover with liquid, simmer	2 to 3 hours	
Short Ribs	10cm long and 5cm thick	★Braise	1 1/2 to 2 1/2 hours	70 °C
Hamburger patties, fresh	110 gm	Grill, broil or fry	3 to 5 minutes per side	

*Braising is roasting or simmering less-tender meats with a small amount of liquid in a tightly covered pan.

Washing fruits and vegetables

Before eating fresh fruits and vegetables, wash them under cold running water to remove any lingering dirt. This reduces bacteria that may be present. If there is a firm surface, such as on apples or potatoes, the surface can be scrubbed with a brush.

Consumers should not wash fruits and vegetables with detergent or soap. You could ingest residues from soap or detergent absorbed on the produce.

When preparing fruits and vegetables, cut away any damaged or bruised areas because bacteria that cause illness can thrive in those places. Immediately refrigerate any fresh-cut items such as salad or fruit for best quality and food safety.



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3

Chapter

Leftovers



Leftovers

Leftovers are present in every house, and after every meal. To ensure that leftovers are safe to eat, make sure the food is cooked to a safe temperature and refrigerate the leftovers promptly. **Not cooking food to a safe temperature and leaving food out at an unsafe temperature** are the two main causes of food poisoning. Safe handling of leftovers is very important to reducing food poisoning.

Any number of potential food hazards exist in a food handling environment, many of which carry with them serious consequences. You should always keep your food FRESH! Once opened, food like cheese and cold cuts keep better if they are well wrapped by re-closing the pack, wrapping in cling film or foil, or putting it in an airtight container.

Most of the time leftover food can be transformed into other recipes, such as oven pasta, chicken casserole, stuffed veggies or even smoothies. By doing so, you can ensure differentiation in your family's diet.

In this section, you will find some food safety tips and recipes to transform some of your kitchens' most common leftover food.

Apples

- Do not throw bruised apples away. Cut off any brown parts and chop the rest into wedges for a snack.
- Stew old apples to make applesauce or use up in a crumble.
- Always store apples in the fridge, they will last longer than if left out in a fruit bowl.
- Turn them into apple chips! A snack that is not only healthy but also delicious for you and your family.

Bananas

- Peel and freeze bananas to use later in smoothies, banana bread or add to ice cream.

Bread

- Use old stale bread for bread & butter pudding. Or bread crumbs to top a pasta dish.
 - Freshen up stale bread by putting it in the microwave for 10 seconds.
- Slices from a frozen loaf can be defrosted as needed or toasted straight from the freezer.
- Bang the loaf gently before freezing to separate the slices!

Cereal

- Once opened, seal the bag with a clip or use an airtight container to keep it fresh.
- Use up unwanted cereal for crispy cakes or as part of your bread recipe.

Broccoli

- Broccoli should be stored in the fridge in refrigerator bags, to keep it at its best.
- Freshen up broccoli by placing the stem in a jar or glass of water in the fridge.
- Cooked broccoli can be blended with milk and used as a creamy sauce for fish or chicken.
- Do not discard broccoli stalks: these are the best bits! Cut them lengthways and cook with the florets or use them in a soup.

Honey and syrup

- If honey or syrup have crystallized, gently reheat by putting the container in some hot water, which will soften them enough to spoon out.

Milk

- Freeze milk in ice cube trays to use when you need it. You can pop them straight into your tea or coffee!
- Milk near its Use By/Expiry date can be used up in sauces, puddings, smoothies or custard

Pasta

- Cooked too much pasta? Rinse it in cold water and freeze in meal-sized portions. This can be reheated in a microwave/water bath when needed.
- Leftover cooked pasta can be kept in a fridge for up to 2 days. **It makes great pasta salad!**

Hard cheese

- Keep it in the fridge. Re-close the pack tightly or wrap it in foil or put in an airtight container.
- Freeze your cheese! If you are buying a big block of hard cheese, to make the most of a bargain, grate some and freeze to use later. This is good for cheese used in cooked dishes later (ex: omelette, mashed potatoes, pasta dishes, pizza, chilli).

Lettuce

- Put lettuce leaves in a tub lined with a piece of kitchen paper to keep them fresher.

Onions

- Buy smaller onions. They are often cheaper and there is less waste if cooking for 1.
- If you only need 1/2 an onion, chop up the rest and freeze to save time when you next need to cook in a hurry.

Sugar

- Sugar goes hard if it gets damp so gentle reheating in the microwave or in a water bath in a bowl covered with kitchen paper to absorb the moisture can help it dry out.

Potatoes



If your potatoes get **green patches**, do not worry – cut those bits off and the rest is still fine to eat.



If your potatoes have **sprouts**, they are also good – just chop them off.



If your potato is **wrinkly**, it means it has lost most of its nutrients, but it is still safe to eat.

- Use a potato peeler rather than a knife as this will cut down on waste. Or do not peel at all; you can boil, roast or mash them with their skins on!
- Keep potato peelings to make delicious homemade crisps. Add salt and pepper then bake in a hot oven.

Rice

How does reheated rice cause food poisoning? uncooked rice can contain spores of *Bacillus cereus*, a bacterium that can cause food poisoning. The spores can survive when rice is cooked. If the rice is left standing at room temperature, the spores can grow into bacteria. These bacteria will multiply and may produce toxins (poisons) that cause vomiting or diarrhea.

The longer cooked rice is left at room temperature, the more likely it is that the bacteria or toxins could make the rice unsafe to eat.

Tips on serving rice safely

- ideally, serve rice as soon as it has been cooked
- if that isn't possible, cool the rice as quickly as possible (ideally within one hour by running it under cold water)
- keep rice in the fridge for no more than one day until reheating
- when you reheat any rice, always check the dish is steaming hot all the way through
- do not reheat rice more than once

Add a few grains of uncooked rice to your saltshaker. This will stop the salt from getting damp and having to throw it away.

Vegetables

- Put old carrots or soft celery into a glass of water in the fridge to revive them.
- Add squashy tomatoes to a chilli or pasta sauce.
- Use cheap seasonal vegetables to bulk out meals.
- Vegetables that are past their best will make a great soup.
- Frozen vegetables from the supermarket are as healthy as fresh.

Yoghurt

- Mix yogurts with over-ripe fruit, add a stick, and freeze.
- Add yogurts getting close to the Use By date to smoothies.

Zucchini

- Grate into spaghetti bolognese, chilli's etc. to increase the amount of veg in your families diet.

3.1

Leftover grains

Rice



Cold, leftover rice that is left in the refrigerator for a day or two can be extremely unappetizing. However, instead of throwing out the rice, there are many ways in which you can transform the leftover rice into a delicious dish.

What to do with leftover rice?

1. Keep in the fridge for 1 day and reheat only once!
2. Freeze, defrost overnight and eat hot.
3. Transform cooked rice into another recipe.
4. Use as a thickener to soups and stews.

Vegetable fried rice



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Preparation time: 10 mins

Recipe yields 2 to 3 servings

Ingredients:

- 2 cups cooked white rice
- 2 tablespoons vegetable oil
- 1 small onion – finely chopped
- 1 medium carrot – peeled and cut into small dice
- 2 scallions - thinly sliced
- 2 medium cloves – minced
- 1 teaspoon soya sauce / 1 cube stock / 1 cup stock
- 1 teaspoon sesame
- Salt and ground black pepper to taste
- 1 large egg
- 120gm / 1 cup peas

Directions:

1. When using day-old rice, transfer to a medium bowl and break the rice up with your hands into individual grains before proceeding. Heat 1/2 tablespoon vegetable oil in a pot over high heat until smoking.
2. Add half of rice and cook, stirring and tossing, until the rice is pale brown and toasted and has a lightly chewy texture, about 3 minutes.
3. Transfer to a medium bowl. Repeat with another 1/2 tablespoon oil and remaining rice.
4. Return all the rice to the pot and press it up the sides, leaving a space in the middle. Add 1/2 tablespoon oil to the space. Add onion, carrot, scallions, and garlic and cook, stirring gently, until lightly softened and fragrant, about 1 minute.
5. Toss with rice to combine. Add soy sauce or substitutes and sesame and toss to coat. Season to taste with salt and white pepper.
6. Push rice to the side of the wok and add remaining 1/2 tablespoon oil. Break the egg into the oil and season with a little salt. Use a spatula to scramble the egg, breaking it up into small bits. Toss the egg and the rice together.
7. Add peas and continue to toss and stir until peas are thawed and every grain of rice is separate. Serve immediately.



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Rice pancakes



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quick, easy and delicious way to use up leftover rice

Preparation time: 5 mins / Cooking time: 10 mins

Recipe for 2 servings

Ingredients:

- 1 ½ cups cooked rice
- 1 large egg
- ½ tsp vanilla
- ½ tsp cinnamon
- ¼ tsp salt

Directions:

1. Pre-heat a non-stick skillet over medium-high heat. While the skillet is warming, mix together the rice, egg, vanilla, cinnamon and salt in a bowl until well combined.
2. Scoop 1/3 cup of the rice mixture onto the hot skillet. Using your spatula, smooch the ball of rice down until it is a circle and about 1.5 cm thick. Repeat until your skillet is full.
3. The pancakes need to cook for about 5 minutes on each side to give the egg enough time to set and hold the rice together. Flipping them too early or too many times will result in loose fried rice rather than rice pancakes. When you flip the pancakes, make sure to get the entire pancake onto the spatula before attempting to flip. Plate the pancakes up when they are golden brown on both sides and solid in texture.
4. Dress the pancakes with your favorite pancake toppings and enjoy!

Rice Meatballs

Ingredients:

- 750gm ground beef
- 1 to ½ cup of cooked rice (use your leftover rice here)
- 1 cup of onion – chopped
- 3 cloves garlic – minced
- ¼ cup of parsley – finely chopped
- ¼ cup grated cheese (optional)
- 3 tbsp of ketchup
- 4 eggs
- ½ tsp white pepper
- ¼ tsp black pepper
- 1 tsp salt
- ¼ tsp onion powder
- ¼ tsp garlic powder
- 2-3 cups tomato salsa
- 1 cup chicken soup (can use any stock)
- Oil

Directions:

1. In a large bowl, add the meat, rice, onion, garlic, parsley, grated cheese, ketchup, eggs, white pepper, black pepper, salt, onion powder and garlic powder.
2. Mix gently until all ingredients are incorporated and then form into tangerine-sized balls.
3. Rub a 13x9x2 pan with oil and then place the meatballs in an even row.
4. Bake in the oven for 20 minutes.
5. While the meatballs are browning on one side, add the tomato sauce and chicken broth to a saucepan and warm, stirring to incorporate.
6. After the meatballs have been in the oven for 20 minutes, remove them from the oven, turn the meatballs over and pour the sauce over all of them.
7. Return to the oven and let the meatballs braise in the sauce for 15-20 more minutes.
8. Remove from the oven and let sit 5 minutes before serving.



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Gluten-free crust

Turn your leftover rice into a **gluten-free crust** for your pizza!

Ingredients:

- 3 cups cooked rice
- 1 egg
- ½ cup shredded mozzarella cheese



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Directions:

1. To make a quick and easy pizza crust, mix together 3 cups cooked rice, one beaten egg, and ½ cup shredded mozzarella cheese.
2. Press the mixture onto a round pan.
3. Bake for 4 minutes in a preheated oven.
4. Cool for 5 minutes,
5. Spread with tomato sauce and sprinkle on cheese and your other favorite pizza toppings.
6. Return pizza to the oven until cheese is melted, about 3 minutes.

You can even turn your leftover rice into a casserole the next day. Mix and match leftover rice with any vegetables in your pantry, along with some soup or cheese. You can always add some protein as well.

Here is one of the most common and yummy casserole recipes:

Chicken Broccoli Rice Casserole :

Preparation time: 65 mins / Recipe yields 12 servings
Per serving: 170 calories, 220mg sodium, 7g fat, 9gm protein, 16gm carbs and less than 1 gm fiber.

Ingredients:

- ½ cup chopped celery
- ½ cup chopped onion
- 2 tbsp butter/margarine
- 300gm cooked broccoli (can use cauliflower)
- 2 cups cooked rice
- 1 cup chicken soup
- 2 cups cooked chicken – chopped (optional)



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Directions:

1. Sauté celery and onions in butter in a skillet.
2. Mix with remaining ingredients in a bowl.
3. Pour into 9x13 baking dish.
4. Bake for 45-60 minutes or until bubbly.

You can even transform your cooked rice into dessert the same day. Rice pudding!

It might be the untraditional recipe, but it is still super delicious.

Creamy Rice Pudding :



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Ingredients:

- 1.5 cups cooked rice (use your leftover rice here)
- 2 cups milk – divided
- ¼ tsp salt
- 1 egg – beaten
- 1/3 cup white sugar
- 1 tbsp butter
- ½ tsp vanilla
- 2/3 cup golden raisins (optional)

Preparation time: 30 mins

Recipe yields 4 servings

Per Serving: 330 calories; 6.8 g fat; 61.1 g carbohydrates; 8.2 g protein; 64 mg cholesterol; 237 mg sodium.

Directions:

1. Combine cooked rice, 1 1/2 cups milk, and salt in a saucepan over medium heat; cook and stir until thick and creamy, 15 to 20 minutes.
2. Stir remaining 1/2 cup milk, golden raisins, beaten egg, and white sugar into the rice mixture; stirring continually.
3. Continue cooking until egg is set, 2 to 3 minutes.
4. Remove saucepan from heat; stir butter and vanilla extract into the pudding.

Who ever said you need to stuff your eggplants or zucchinis with a raw rice mixture when cooking dolma? You can use your cooked leftover rice for the traditional dolma with a little twist in flavour!

Dolma - stuffed tomatoes :

This recipe is applicable for any vegetables used for Dolma (zucchini, pepper, eggplants, potatoes and onions! You can also create your own stuffing mix using cooked rice, but make sure that all meat added to your stuffing recipe is cooked before stuffing!



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Preparation time: 30 mins

Recipe yields 4 servings

Per Serving: 217 calories, 7g fat, 34gm carbs, 4gm protein

Ingredients:

- 2 tbsp vegetable or olive oil
- 1/2 medium onion, chopped small
- 1/2 green bell pepper, chopped small
- 1/3 cup green peas, cooked
- 2/3 cup leftover cooked rice
- 1/2 tsp. onion powder
- 1/2 tsp. garlic powder
- 4 medium-large tomatoes

Directions:

1. Prepare tomatoes by slicing a bit off the top, then scooping out the inner pulp. Slice a bit off the bottom to create a flat surface and place on a baking sheet.
2. Sautee the onion and green bell pepper in oil until soft, about 4 to 5 minutes. Add peas, rice, and garlic and onion powder, stirring to combine, then remove from heat.
3. Gently fill each tomato with the rice and vegetable mixture.
4. Bake for 12 to 14 minutes or until tomatoes are cooked and cheese is melted.

Bread



Bread and butter pudding using stale flat bread

If you have stale flat bread at home and wondering what to do with it, here is a great recipe that you and your family will enjoy!

Preparation time: 30 mins /

Cooking time: 45-60 mins

Ingredients:

- 6 pieces flat bread – one day old is ideal as fresh bread will be too soggy after cooking
- 3.5 tbsp butter – melted
- 6 Eggs
- 1.25 cup milk or thickened cream for richer flavour
- 1/4 cup powdered sugar
- 1 vanilla
- 1 cup sultanas (optional)
- 1/2 Cup white chocolate (optional)



Directions:

1. Melt the butter and using a pastry brush, brush each side of the flat bread and the dish you will be baking it in.
2. Cut the flat bread in to triangle quarters. Lay alternating sides into your dish.
3. In a large bowl lightly whisk the eggs, cream/milk, sugar and vanilla.
4. Pour over the flat bread in the dish, making sure to pour evenly over.
5. Top with the sultanas and/or white chocolate melts (optional).
6. Allow to sit for 1 hour so that the flat bread can soak up the custard mix.
7. Bake in a preheated oven for 45mins to 1 hour. All until golden and the custard has just set.

Eat as is or serve with ice cream and extra sultanas.

A white chocolate sauce would also be perfect.

Pasta

Pasta salad using leftover pasta

Make these simple salads from whatever pasta and fresh vegetables you have hanging about in the fridge for an easy night in the kitchen. Get creative!

Greek pasta salad

Pasta salad using leftover pasta. Make these simple salads from whatever pasta and fresh vegetables you have hanging about in the fridge for an easy night in the kitchen. Get creative!

Ingredients:

- 4 cups leftover pasta
- 2 cups spinach leaves / 1 cup rucola
- 1 cup tomatoes – cut into medium cubes
- ½ cup feta cheese
- 1/3 cup olives – pitted or sliced
- Fresh basil leaves for garnish and extra taste (optional)
- ¼ cup white/balsamic vinegar
- Salt and pepper to taste

Directions:

Combine all ingredients in a large bowl and stir to combine. Serve immediately



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Pizza pasta salad



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Ingredients:

- 2 cups leftover pasta – plain or red sauce
- 2 tsp olive oil
- 2 tbsp tomato salsa
- 2 tomatoes – chopped
- Mozzarella cheese – as desired
- 6-8 black olives – halved or sliced
- 8 slices salami (optional)
- Basil – as desired

Directions:

Combine all ingredients in a large bowl and stir to combine. Serve immediately.

Leftover vegetables

Potato

Potato Salad

Mix leftover boiled potatoes with mayonnaise and chopped onions to make a potato salad .

Preparation time: 45 mins / Cooking time: 15 mins

Recipe yields 8 servings

Per serving: 206 calories; 7.6 g fat; 30.5 g carbohydrates; 5.5 g protein; 72 mg cholesterol; 335 mg

Ingredients:

- 5 boiled potatoes (use your leftover potatoes)
- 3 eggs
- 1 cup chopped celery
- ½ cup chopped onion
- ½ cup pickled cucumber
- ¼ teaspoon garlic
- ¼ teaspoon salt
- 1 tablespoon mustard
- Ground black pepper to taste
- ¼ cup mayonnaise (Home-made recipe Annex 2)

Directions:

1. Bring a large pot of salted water to a boil. Add potatoes and cook until tender but still firm, about 15 minutes. Drain, cool, peel and chop. OR use your leftover boiled potatoes
2. Place eggs in a saucepan and cover with cold water. Bring water to a boil; cover, remove from heat, and let eggs stand in hot water for 10 to 12 minutes. Remove from hot water, cool, peel and chop.
3. In a large bowl, combine the potatoes, eggs, celery, onion, pickles, garlic, salt, mustard, pepper and mayonnaise. Mix and refrigerate until chilled.



Mash browns

Store cooked mash in a tightly sealed container – you can make them into little patties the next morning for your kids and fry to make ‘mash browns’!

Recipe yields 4 servings

Per serving: 176 calories; 8.6 g fat; 21.2 g carbohydrates; 3.9 g protein; 49 mg cholesterol; 627 mg sodium

Ingredients:

- 2 cups mashed potatoes (use leftover mashed potatoes)
- 1 egg, beaten
- 1 onion, finely diced
- ½ teaspoon salt
- ¼ teaspoon ground black pepper
- 2 tablespoons olive oil (can be substituted with any oil)

*Serve with cheese and spring onions.



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Directions:

1. Beat egg in a medium size mixing bowl. Mix egg and onion with mashed potatoes. Add salt and pepper.
2. Heat olive oil (or any other oil) in a medium size frying pan, over a medium heat. Scoop the potato mixture into the frying pan in 10cm circles, pat with a spatula to flatten the mounds to approximately 1.5 to 2cm thick. Cook until bottom is browned. Flip the patty over and brown on the other side.

Leftover mash or cooked potatoes can be **stirred into soups** to thicken then up.

Soup is such a dynamic dish, with hundreds of different varieties. Thickened soups are soups that have been thickened in any number of ways. There are several methods of thickening, however we will be discussing ‘puree-thickened soups’ which help utilize your leftovers.

After finishing up your soup, stir in leftover mashed potatoes or pureed cooked rice. This is a great way to use up leftovers, and rice and potatoes have a fairly mild flavor that won’t compete with the flavor of your soup. To use leftover mashed potatoes, heat them up with a portion of the soup broth, just to loosen them a bit. Then, simply whisk them into the soup. To use rice puree, blend cooked rice with a bit of liquid and puree in a blender until smooth, and whisk into your soup.

Here are two of your family's favorite soups, with last night's leftover mash.

Creamy tomato-potato basil soup :

Preparation time: 20 mins / Cooking time: 30 mins

Recipe yields 8 servings

Ingredients:

- 1 teaspoon olive oil (or any other oil)
- ½ cup chopped onion
- 6 cups chicken broth
- 2 cups water
- 800 gm diced tomatoes
- 2 teaspoons dried basil
- 1 teaspoon salt
- ¼ teaspoon pepper
- 700gm sweet potato (around 2 large) – peeled and chopped OR mashed –
(if not available substitute with normal potatoes)
- 900gm potato (3-4 medium) – peeled and chopped OR mashed
- 1 cup cream OR milk



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Directions:

1. In a saucepan, heat the olive oil and add the onion. Cook, stirring often, until the onion has softened a bit, 4-5 minutes.
2. Add the broth, water, tomatoes, basil, salt, pepper and sweet potatoes. Bring the soup to a simmer and cook for 10 minutes.
3. Add the potatoes and cook 15 minutes more or until all the potatoes are tender.
4. Mash the potatoes into the soup or blend for a smoother consistency (with a handheld immersion blender or in batches, transfer the soup to a blender, filling it only halfway full with the hot soup).
5. Stir in the cream and season with additional salt and pepper to taste before ladling into bowls. Garnish with fresh basil and/or drizzle in a bit more cream, if desired.

Tip: This soup freezes great!

Creamy vegetable-mashed potato soup :

Preparation: 45 mins

Recipe yields 4 to 6 servings

Ingredients:

- ½ cup minced onion
- 1 finely chopped rib of celery
- 1 carrot – grated coarse
- 2 tablespoons butter/margarine
- 2 cups chicken broth
- ¼ teaspoon dried rosemary
- 2.5 cups mashed potatoes
- 1 teaspoon white vinegar
- 1/3 cup minced fresh parsley

Homemade potato chips

Preparation time: 30 mins + soaking / Cooking time: 5 mins/batch

Recipe makes 8.5 cups

Ingredients:

- 7 potatoes
- 1 liter cold water
- 5 tsp salt
- 2 tsp garlic powder
- 1.5 tsp pepper
- 1.5 tsp onion powder/chili/cumin (optional)



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Direction

1. In a large saucepan cook the onion, the celery, and the carrot in the butter over moderately low heat, stirring, until the vegetables are tender, stir in the broth and the rosemary, and bring the mixture to a boil.
2. Whisk in the potatoes, a little at a time, bring the soup to a boil, whisking, and stir in the vinegar, the parsley, and salt and pepper to taste.

Directions:

1. Using a vegetable peeler, cut potatoes into very thin slices. Place in a large bowl; add ice water and salt. Soak for 30 minutes.
2. Drain potatoes; place on paper towels and pat dry. In a small bowl, combine the garlic powder, pepper and optional spices; set aside.
3. In an frying skillet, heat 3 cm of oil. Fry potatoes in batches for 3-4 minutes or until golden brown, stirring frequently.
4. Remove with a slotted spoon; drain on paper towels. Immediately sprinkle with seasoning mixture. Store in an airtight container.

Potato peel crisps

Before peeling your potatoes, make sure you wash your potatoes thoroughly to avoid dirt stuck on the potato peel.

Preparation time: 5 mins / Cooking time: 10 mins

Recipe yields 2-4 cups

Ingredients:

- Potato peel
- 1-2 tsp of oil
- Salt and pepper – for seasoning
- Cumin, paprika or chili powder (optional)



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Directions:

1. First of all you will need to peel your potatoes with a potato peeler. The skin might be too thick if you use a knife.
2. Potato peel does not keep well, so get the peelings straight onto a baking tray.
3. Drizzle the oil over your peelings and sprinkle over your chosen seasoning/spices.
4. Use your hands to mix everything together, until the peelings are evenly coated in the oil and seasoning.
5. Make sure the peelings are in an even layer and then place into the preheated oven until slightly brown and crunchy, about 8-10 minutes.

Vegetable Scraps

Do not throw away those vegetable scraps! Use them to make your own **delicious vegetable broth** instead. It is easy and you get to use everything instead of throwing them away! You can put whatever vegetables you want in your broth, chop it all up, and put it in your stockpot, but why throw away all those perfectly good veggie peels and skins?

So what you should do is collect all the scraps in a freezer bag and when you have a few cups worth, you use them to make healthy vegetable broth.

Vegetable Broth

Preparation time: 10 mins / Cooking time: 45 mins

Recipe yields around 6 cups of broth

Ingredients:

- 1 tbsp oil
- 5 cloves garlic – minced
- 2 large onions – chopped
- 3 ribs celery – chopped
- 3 carrots – chopped
- 8 cups water
- 2 – 3 cups of frozen vegetable scraps (make sure they are clean)
- 2 bay leaves
- A few sprigs of parsley and/or thyme
- Salt and pepper to taste (do not add if you are only making stock for storage)

Directions:

1. Heat the oil in a large pot over medium heat.
2. Add the garlic, onions, celery, and carrots. Cook until softened, about 5 minutes, stirring often.
3. Add the water, frozen vegetable scraps, bay leaves, parsley, and thyme.
4. Reduce heat to low and simmer, partially covered, for 45 minutes.
5. Pour the broth through a fine mesh strainer into a large heat proof bowl or pot; discard solids.
6. Once the broth has cooled, transfer it to airtight plastic containers or freezer bags and store it in the freezer. (I usually freeze it in 2-cup portions so I do not have to thaw all the broth every time I use it.)



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Vegetable Jammie

Using your frozen vegetable scraps

Preparation time: 10 mins / Cooking time: 30mins

Recipe yields around 6 cups

Ingredients:

- 1 small eggplant
- 5 cloves garlic
- 1 large onion
- 3 ribs celery - chopped
- 2 carrots – chopped
- 2 medium zucchinis
- 1-2 green peppers
- 500gm tomatoes
- 2 – 3 cups of frozen vegetable scraps (NO SKINS – can include eggplant peels etc.)
- 1 sprig basil
- 4 cups of water
- Salt and pepper to taste (do not add if you are only making stock for storage)



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Directions:

1. Add all ingredients together in a pot.
2. Leave to cook for 30 minutes.
3. Season with salt and pepper.
4. Leave to cool and blend in a blender.
5. Use as a sauce to cooked pastas, meats or chicken dishes.

Vegetables are essential in every meal as they are a good source of minerals and vitamins, thus essential for your family's diet.

Here are some healthy recipes that you can snack on:

Spaghetti bolognese with hidden vegetables

You can either grate or chop your zucchinis and boil them with your pasta or if you want to avoid the headache of your children disliking a specific ingredient in their meals, here is a smart recipe that tastes delicious as well!

Preparation time: less than 30 mins / Cooking time: 30 – 60 mins

Recipe yields 4-6 servings

Directions:

1. Put the vegetables in a large saucepan covered with 500ml of water. Bring to a boil, then simmer for 8-10 minutes, or until the onion and pepper are very soft. Remove from the heat and set to cool slightly, then transfer it to a food processor and blend until smooth. Set aside and keep warm.

2. Heat a separate saucepan over medium heat. Dry-fry the minced beef for 3-5 minutes, stirring to break up any large clumps, until lightly browned on the outside.

3. Add the pureed vegetables, chopped tomatoes, tomato puree and dried herbs to the pan, stirring well to combine. Crumble over a stock cube and add the bay leaf. Season with pepper and stir again.

4. Bring to the boil, then reduce the heat until it is simmering. Half-cover the pan with the lid and continue to simmer gently for 25-30 minutes, stirring the sauce more regularly as it thickens.

5. Meanwhile, bring a large pot of salted water to a boil. Add the spaghetti and cook.

6. Serve the spaghetti in bowls and top with the Bolognese sauce. Season with black pepper and salty hard cheese.

Ingredients:

- 1 onion - roughly chopped
- 1 carrot - peeled, finely grated
- 1 zucchini - trimmed, finely grated
- 1 red pepper - deseeded, thinly sliced
- 500gm minced beef
- 4 medium tomatoes - chopped
- 2 tbsp tomato purée
- 1 tsp dried oregano or dried mixed herbs
- 1 stock cube
- 1 bay leaf
- 1 bag spaghetti
- freshly ground black pepper
- salt

Who said that potatoes are the only vegetables that can be used to snack on?! Here are a few healthy recipes of chips made from other fruits and vegetables!

Sweet potato chips

Preparation time: 10 mins

Cooking time: 30 mins

Recipe yields 2-4 cups

Ingredients:

- 2 medium sweet potatoes - thinly sliced
- 1 tbsp. vegetable oil
- 1 tbsp. cornstarch
- 1 tbsp. chili powder

- 2 tsp. paprika
- 1 tsp. garlic powder
- 1 tsp. mustard powder
- 2 tsp. salt
- 1/2 tsp. Freshly ground pepper

For sauce:

- 2 green onions - finely sliced
- 2 cup small yogurt or 2/3 cup sour cream

Directions:

1. Place two wire racks in two large rimmed baking sheets in a preheated oven.
2. Toss sweet potatoes in oil until evenly coated.
3. In a separate large bowl, whisk together spices and cornstarch. Add sweet potatoes and toss until evenly coated in spice mixture.
4. Place sweet potatoes on wire racks in a single layer. Bake for 25-35 minutes, until the sweet potatoes look crispy and dry to touch. (They will continue to crisp as they cool.)
5. While the sweet potatoes cool, make dip. Fold green onions into yogurt/sour cream. Serve with cooled sweet potato chips.



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Carrot chips

Preparation time: 20 mins / Cooking time: 20 mins

Recipe yields 8 cups

Ingredients:

- 8 large fat carrots
- 1/4 cup olive oil/ vegetable oil
- 1 tbsp sea salt
- 1 tsp ground cumin
- 1 tsp ground cinnamon

Directions:

1. Line several large baking sheets with butter paper and set aside.

2. Trim the carrot tops off. Starting on the thick end slice the carrots paper-thin on the bias to create elongated slices. You can do this with a knife, but it is better to use a vegetable peeler on the smallest setting. When you get down to the thin end, stop and save them to use in soup or salad.

3. Place the carrot slices in a large bowl and add the oil, salt, cumin, and cinnamon. Toss well to thoroughly coat. Then lay the slices in a single layer on the baking sheets.

4. Bake for 12-15 minutes at high heat, until the edges start to curl up and turn crisp. Then flip all the chips over and bake another 5-8 minutes to crisp the bottoms. Once cool, store in an airtight container for up to 2 weeks.

Note: To avoid flipping the chips, you can bake the chips at a lower temperature for approximately 30 minutes. However, they are prettier when baked at high heat

Salt and vinegar zucchini chips

Preparation time: 10 mins / Cooking time: 150 mins

Recipe makes around 100 pieces of chips

Ingredients:

- 2 zucchinis – very thinly sliced
- 2 tbsp vinegar
- 3 tbsp olive oil / vegetable oil
- 1/4 tsp salt

Directions:

1. Combine zucchini, vinegar and oil in a medium bowl, tossing to coat well. Let stand for 10 minutes.

2. Place zucchini slices in a single layer on 2 baking sheets lined with butter paper; sprinkle evenly with salt. Bake for 2 to 2 1/2 hours in medium heat or until chips are dried, crisp, and lightly golden, flipping chips halfway through baking.

3. Remove from oven; cool completely.



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Leftover bones and chicken scraps

Leftover chicken bones soup

After you have dined on a whole roasted chicken, or even just a few bone-in parts, don't waste the bones! Chicken stock is a delicious foundation for soups and sauces, and you can freeze it for future use. If you are short on time, you can stockpile chicken bones in the freezer and keep them frozen until you get around to making the stock.

Besides the chicken bones, all you need is water, a few aromatic veggies, and optional seasonings.

Ingredients:

For the bones from one chicken, add:

- 1 medium onion - peeled, halved
- 1 celery stalk, cut in half
- 1 medium carrot, peeled and cut in half
- 1 bay leaves
- 4 black peppercorns
- 1 sprigs thyme (optional)



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Instead of the veggies and herbs above, you could make use of odds and ends that are leftover after you've cooked. Any of these scraps are good additions to chicken stock:

- Celery leaves
- Carrot leaves and root ends
- Parsley stems
- The green parts of leeks
- Onion ends and skins
- Thyme and oregano stems leftover after you have stripped the leaves (*avoid strong herbs such as rosemary, sage, and cilantro, which can overpower the flavor of the other ingredients*).

Directions:

1. Put the vegetables, optional herbs, and chicken bones into a large pot. Cover with water.
2. Bring to a simmer. Do not let the stock boil or it will be cloudy. Reduce heat so that there are just a few bubbles appearing on the surface of the stock as it cooks.
3. Cook, uncovered, topping up with boiling hot water if necessary for 6 - 8 hours.
4. Strain through a fine mesh strainer. Blot the top of the chicken bone stock with a clean paper or cloth towel to remove excess fat, or refrigerate and remove the layer of fat that will congeal on top of the chilled stock.

Note: When making bone-based stocks, add a splash of vinegar to the water. You will not taste the vinegar in the final product. It helps to release the calcium from the bones resulting in a more nutritious stock.

When freezing:

- Let the stock cool slightly (no longer than 1/2 hour) before transferring to the freezer.
- A good space-saving method is to pour your stock into plastic freezer bags and lay these flat in the freezer.
- Chicken bone stock will keep in the freezer for 4 months. It is still safe to eat after that but may develop an “off” taste.

Leftover fruits

If you are wondering what to do with that half-eaten apple or those overripe bananas, here are a few recipes you can whip up in your kitchen:

Apple crumble using leftover apples

If you have any bruised or wrinkly apples that are about to go off, make this delicious apple crumble dessert!

Preparation time: 30 mins

Recipe yields 6 servings

Ingredients:

- 3-4 apples
- ½ cup sugar (100gm)
- 1 cup flour (150 gm)
- 1/3 cup butter – softened

Directions:

1. If you're planning to cook it straight after preparing, preheat your oven.

Note. You could make the crumble (step 4) beforehand and cook it later. Store it in the fridge or freeze.

2. First, you need to prepare the apples. Half fill a large saucepan with water, and peel, core and chop the apples into 1-2cm chunks. Place them in the saucepan to stop them from ruining.

3. Drain all of the water from the saucepan, add another 2 tbsp of water and ¼ cup of the sugar, and place on a medium heat on the hob. Stew until the apples become mushy. Once mushy, put the apples into an ovenproof dish.

4. Place the flour and the remaining sugar in a mixing bowl. Add the butter and use your hands to mix everything together until the mixture resembles large breadcrumbs. Pour this evenly on top of the stewed apple.

5. If you are making the crumble in advance, cover it with plastic wrap and allow to cool to room temperature before placing in the fridge/freezer. When ready to cook, place the crumble in the preheated oven and bake for 30 minutes. Do not worry if the crumble does not look cooked properly, it most likely is! Eat hot from the oven.

Tip: You can add a scoop of vanilla ice cream on top; it will taste heavenly as well!

Apple sauce using leftover apples

Applesauce will vary in texture and flavor depending on the variety of apple used, however any apples work! Do not throw out your bruised apples, turn them into sweetened or unsweetened apple sauce, good for desserts and sandwich fillers!

Preparation time: 30 mins

Recipe yields 5 to 6 cups



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Ingredients:

- 8 large apples - peeled, cored and cut into thick slices
- 1/2 cup water
- 2 lemon slices
- 1/2 cup sugar
- 1/8 tsp nutmeg
- 1/4 tsp cinnamon

Directions:

1. Combine apples, water and lemon slices in a large saucepan. Simmer, uncovered for 10 minutes or until apples are part sauce and with some chunks of apple left.
2. Watch closely and stir often to prevent burning. Applesauce should be thick; add more water if necessary.
3. Leave sauce chunky or put apples and lemons through a food blender or coarse sieve.
4. Stir in sugar to desired sweetness, to make unsweetened applesauce: omit added sugar and select a naturally sweet apple variety.
5. Add cinnamon and nutmeg.
6. Serve warm or chilled. Cover and refrigerate leftovers for up to one week.

To Freeze: Increase spices to twice the indicated amount, as they lose flavor during freezing. Refrigerate until chilled. Pack cool applesauce into rigid freezer containers.

To use: thaw in the refrigerator overnight or in cold water for 3 hours. Can be frozen for up to one year.

To Can: Pack hot applesauce into clean jars, leaving 1.5 cm headspace. Seal properly and leave for 12 hours on the counter until you hear the popping sound of the lid.

Chips made from fruits are amazing sweet and guilt-free snacks that are super healthy! Here are two favorites:

Apple chips

Preparation time: 5 mins / Cooking time: 2-3 hours

Recipe yields 2 cup

Ingredients:

- 2 apples – thinly sliced
- 2 tsp sugar



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Banana chips

Preparation time: 10 mins / Cooking time: 3 mins

Recipe yields 6 cups

Ingredients:

- 10 ripe but firm bananas – thinly sliced
- Juice from 1 lemon / 3 limes

Directions:

1. Cover a sheet pan with foil and lightly grease with cooking spray.
2. Toss the bananas in lemon juice.
3. Arrange the bananas in a single layer on prepared baking sheet.
4. Bake for 2 hours in a preheated oven, flip the slices with a metal spatula, and continue to bake for 1.5 hours longer, or until desired crispness.
5. Remove from oven and transfer the chips to a wire rack to cool.
6. Cool completely. The longer they cool, the crunchier they will get. Store in an airtight container.

Directions:

1. Place apple slices into a bowl and sprinkle with sugar and cinnamon. Toss to combine.
2. Place a cooling rack onto a baking sheet. Lay apples slices onto the baking sheet so that no apples overlap. Cook for 2-3 hours in a preheated oven, flipping apples halfway through.
3. Bake until dried out but still pliable. Serve.



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Banana bread using overripe bananas

There are many tasty things to cook with overripe bananas, I mean the really soft ones which no one desires to eat. One of the easiest and most popular recipes which uses overripe bananas is Banana Bread.



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Directions:

1. Preheat oven.
2. Grease a loaf/or bunt tin.
3. Beat the butter/oil and sugar together until creamy and then add the egg and continue beating until smooth.
4. Add the mashed bananas, yoghurt and vanilla.
5. Sift together flour, bicarb, cinnamon and salt and beat this gradually into the banana mix.
6. Finally stir in the chopped nuts (optional).
7. Bake for about an hour until a knife inserted comes out clean.

Preparation time: 20 mins / Cooking time: 60 mins

Recipe makes 8 slices cooked in a loaf tin, or 12 slices cooked in a bunt tin as per pictures.

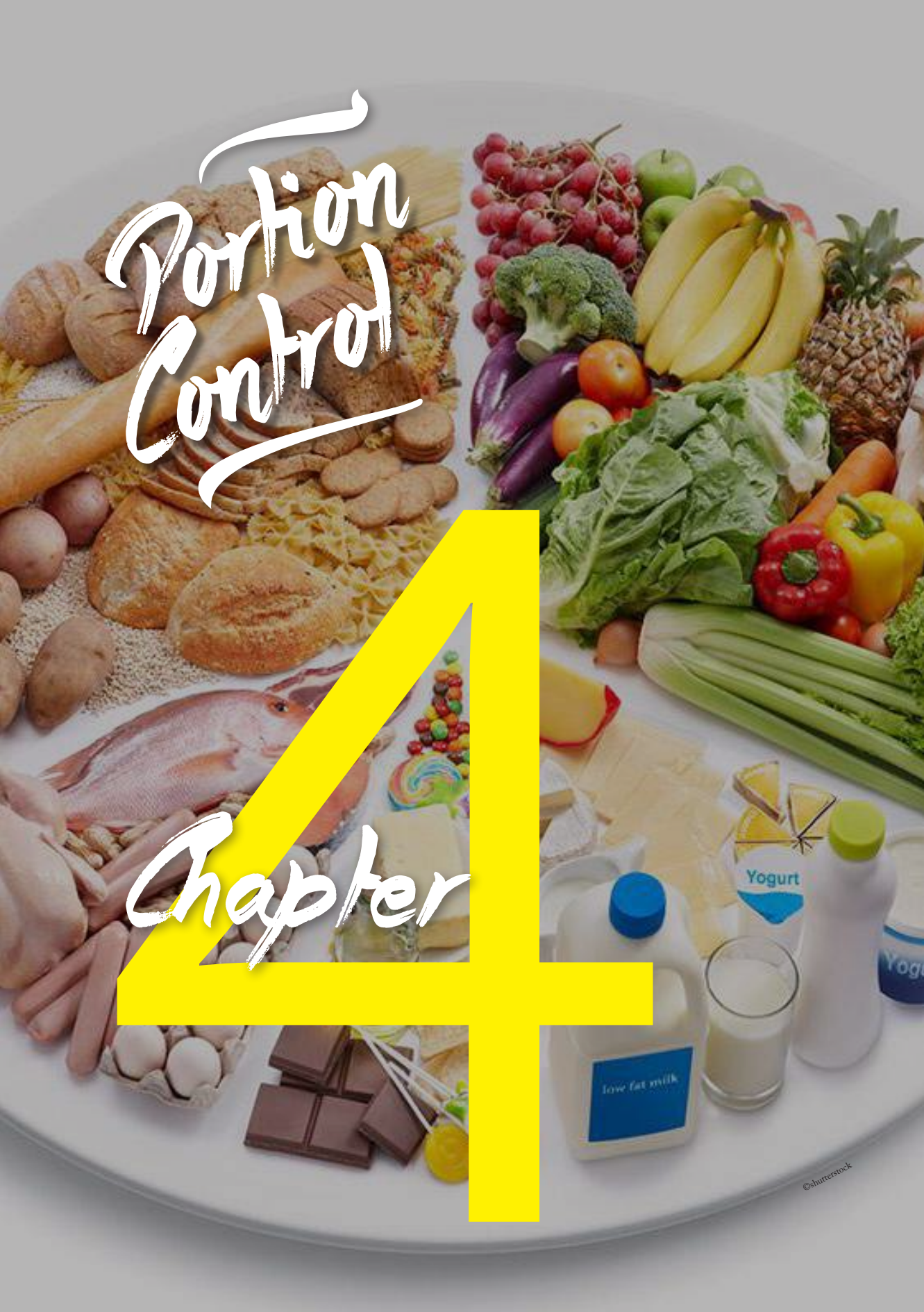
Ingredients:

- 7 tbsp of butter/oil
- 7 tbsp of white/brown sugar
- 1 egg
- 4 overripe bananas – mashed
- 3 small cups yoghurt or 2 big (can use other flavors such as coconut yoghurt or chocolate for more flavor)
- 1 pack vanilla
- 1.5 cups flour
- 1 tsp bi-carbonate soda
- 1 tsp ground cinnamon
- ¼ tsp salt
- ½ cup nuts – preferably walnuts (optional)

Portion Control

Chapter

4

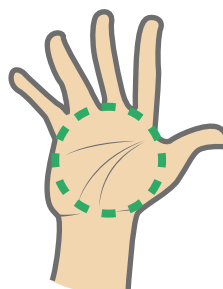


Portion control is important because it allows you to have a tight handle on how many calories you are presumably taking in. This means eating what your body needs instead of mindlessly overindulging! A portion is how much food you choose to eat at one time, whether in a restaurant, from a package, or at home.

It can be hard to measure out every portion of food you eat. Yet there are some simple ways to measure your food portions using your hands or everyday objects around you.



A fist or cupped hand = 1 cup



Palm = used for meats, fish and chicken.



Thumb tip = 1 teaspoon
1 tablespoon = 3 teaspoons



1 tennis ball = ½ cup of fruit and vegetables

Source: Iowa Department of Public Health

To remain healthy, how much you eat is just as important as what you eat. The table below helps you identify the right portions for you and your children.

Table 4.1 – Recommended cooked portions for adults and children

Product	Portion cooked - Adult	Child 4-10 years	Child 11-18 years
Rice (white, brown, bas- mati) / Pasta / Quinoa	2-3 tbsp	1-2 tbsp	2-3 tbsp
Black eye beans / Lentils	4tbsp	1-2 tbsp	3 tbsp
Cheese	1 small matchbox size	0.5 small matchbox size	1 small matchbox size
Eggs	2 Medium	1 Medium	2 Medium
Milk (whole)	1 medium glass	1 small to medium glass	like adult
Yoghurt	3 tbsp	2 tbsp	3 tbsp
Beef - raw / Chicken	2-3 thin slices / 1 palm	1-2 thin slices	like adult
Chicken	2-3 thin slices / 1 palm	1-2 thin slices	like adult
Fish / Tuna (canned)	1 pc palm sized	1 pc child palm sized	like adult
Bread	2 slices (medium)	1-2 slices	like adult

Product	Portion cooked - Adult	Child 4-10 years	Child 11-18 years
Breakfast cereal	6 tbsp	4-5 tbsp	6 tbsp
Carrots / Peppers / Spinach / Potatoes	3 tbsp heaped	1-2 tbsp	like adult
Tomato	1 medium	1 small - medium pc	like adult
Apples	1 apple	1 small apple	1 medium apple

<https://www.lovefoodhatewaste.com/portion-planner> - 2018 ,Source: WRAP

To control your portion sizes when you are eating at home, try the following tips:

- DO NOT eat from the bag. You could be tempted to eat too much.
- Serve food on smaller plates. Eat from a salad plate instead of a dinner plate. Keep serving dishes on the kitchen counter so you will have to get up for seconds. Putting your food out of easy reach and out of sight will make it harder for you to overeat.
- Half of your plate should contain green vegetables. Divide the other half between lean protein and whole grains. Filling half of your plate with green vegetables before you serve the rest of your entrée is one of the easiest methods of portion control.
- DO NOT eat mindlessly. When you snack in front of the television or while doing other activities, you will be distracted enough that you may eat too much. Eat at the table. Focus your attention on your food so you will know when you have had enough to eat.
- Snack between meals if desired. If you are hungry between meals, eat a healthy, high-fiber snack such as a piece of fruit, small salad, or bowl of broth-based soup. The snack will fill you up so that you do not eat too much at your next meal.

Lot No.

Mfg. date

Exp. date

*Date
Labels*

Chapter

Best Before and Use-by date labels

Food with a **Best Before date** is long lasting. It should be safe to eat, but may not be at its best quality after this date. These dates refer to quality rather than food safety. However, food with a **use-by date** should be consumed before the date, frozen or thrown out. These dates refer to safety. Food can be eaten up to the end of this date but not after even if it looks and smells fine. Always follow the storage instructions on packs.



©Snipp

Top tips to keep on top of your dates:

- To extend the life of food beyond its date, freeze it before the date and defrost and use within 24 hours.
- For foods with a best before date it's ok for to use your senses to check if food is good to eat, but for those that carry a use-by date, sticking to the date is really the only safe bet – or you can of course freeze the food right up to that date.
- Sort out the fridge. It does not take long and it will save your food! Wrap up any half used packets such as cheese, sliced meats or sausages to stop them drying out. Bring the oldest foods to the front so that they get used first.
- Most packets have instructions on them to tell you how long the food is good to eat after the pack is opened. If you cannot get through the food in that time, wrap it up, label it and freeze it for another time.
- Regularly check the 'Use-By' dates on your foods and plan when to cook them. If you are not going to get round to eating them, again, wrap them well, label and freeze them.
- Many store cupboard foods like biscuits, nuts, dried fruits, crackers, crisps and cakes have a best before date. Remember that food is safe to eat even after that date, and many of these foods can be frozen to extend their lives even further.
- Rescue your dried foods like crisps, nuts and crackers, which can go a bit soft if they are not eaten within a couple of days being opened – popping them in the oven for just a few minutes will help them crisp up again as they cool down.



Chapter

Nutrition

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SAY NO TO FOOD WASTE: A GUIDE TO REDUCE HOUSEHOLD FOOD WASTE

Serving the right amount of food every day at every meal will benefit you and your family for many reasons including: a healthier life for you and your family by eating healthy balanced meals, avoiding weight gain, saving money by buying only what your body actually needs, and minimizing food waste by only buying, preparing, cooking and serving what you know you will eat.

Here are some main life-changing actions that need to be taken, in order for you and your family to live a healthier life:

- Have healthy balanced meals every day which include a variety of each of the **Five Food Groups**;
- Reduce salt and sugar intake;
- Understand **saturated fats**;
- Always stay hydrated – make sure you drink a lot of **water** a day!

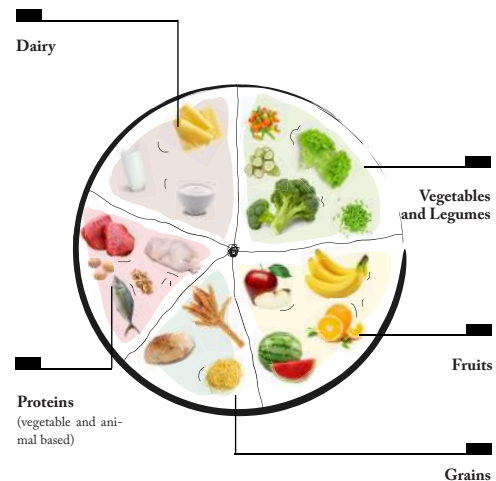
6.1

The Five Food Groups

The key to eating well is to enjoy a variety of nutritious foods from each of the Five Food Groups. Foods are grouped together because they provide similar amounts of the key nutrients of that food group. For example, the key nutrients of the milk, yogurt, cheese and alternatives food group include calcium and protein, while the fruit group is a good source of vitamins, especially vitamin C.

To meet the requirements essential for good health, you need to eat a variety from each of the five food groups daily. It is not necessary to eat from each food group at every meal. In fact, in some instances, you only need to eat some of the foods in each food group a couple of times a week.

Let us take a look at the Five Food Groups and discover the incredible variety and the abundance of choice there is when eating from these groups.



Vegetables and legumes

Vegetables, including legumes/beans are nutrient dense, low in kilojoules , and are a good source of minerals and vitamins (such as magnesium, vitamin C and folate), dietary fiber and a range of phytochemicals including carotenoids.

Vegetables come from the different parts of the plant, including leaves, roots, tubers, flowers, stems, seeds and shoots. Legumes on the other hand, are the seeds of the plant and are eaten in their immature form as green peas and beans, and the mature form as dried peas, beans, lentils and chickpeas.

Vegetables can be broken up into different groups, with each group providing their own unique nutrients. The main sub-groups for vegetables are illustrated in Figure 6.1:

Figure 6.1 – Vegetable groups

Dark green OR cruciferous	Root / Tubular / Bulb vegetables	Legumes/Beans	Other vegetables
Broccoli	Potato	Red Kidney Beans	Tomato
Cabbage	Sweet Potato	Beans	Celery
Cauliflower	Taro	Chickpeas	Zucchini
Lettuce	Carrots	Lentils	Squash
Spinac	Beetroot	Fava Beans	Capsicum
	Onions		Eggplant
	Shallots		Mushrooms
	Garlic		Cucumber
	Turnip		Okra
			Pumpkin
			Green Peas
			Green Beans

Source: Compiled by author from data from Eat for Health

It is important to eat a variety of different vegetables every day from each of the main vegetable groups. This will ensure that your body receives all the health benefits from the colorful range consumed. Most adults should eat at least 5 serves from the vegetable groups per day.

Here are some examples to clarify what one serve is equivalent to:

The energy we get from food and drink is measured in kilojoules (kJ). This is the metric term for calorie. Kilojoules and calories represent the same thing. Source: SA Health, 2012 -<https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/healthy+living/healthy+eating/healthy+eating+tips/kilojoules+explained>



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½ cup
cooked green or orange
vegetables (for example,
broccoli, spinach, carrots,
pumpkin)



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½ cup
cooked dried or canned
beans, peas or lentils



©kisspng

1 cup
green leafy or raw salad
vegetables



©kisspng

½ medium
potato or other starchy
vegetables (sweet potato,
taro or cassava)



©kisspng

½ cup
sweet corn



©kisspng

1 medium
tomato

Starchy vegetables such as sweet potato, taro, or sweet corn should form only part of your daily vegetable intake, as they are higher in energy than other vegetables. It is worth noting that if potatoes are eaten as hot chips and crisps they are considered to be a discretionary food rather than a serve of vegetables. Hot chips and crisps are high in kilojoules and added fat and added salt.

Health benefits of eating vegetables:

Different vegetables can help protect our bodies in different ways, so it is important to choose a variety. All vegetables provide vitamin C, however capsicum, broccoli, cauliflower, cabbage and tomatoes are particularly high in vitamin C. Most vegetables are associated with reduced risk of specific cancers. Green vegetables (including some salad vegetables), beetroot, cauliflower, asparagus, dried peas, beans and lentils are a good source of folate. Cruciferous vegetables (such as broccoli, cabbage and cauliflower) are believed to have compounds which provide protection against some cancers. The fiber in vegetables (and fruit) is also thought to reduce the risk of some cancers, including colorectal cancer.

Discretionary' foods and drinks include sweet biscuits, cakes, desserts and pastries; processed meats and fattier/salty sausages; sweetened condensed milk; ice cream and other ice confections; confectionary and chocolate; savory pastries and pies; commercial burgers with a high fat and/or salt content; commercially fried foods;

potato chips, crisps and other fatty and/or salty snack foods including some savory biscuits; cream, butter and spreads which are high in saturated fats; sugar-sweetened soft drinks and cordials, sports and energy drinks and alcoholic drinks.

Fruit

Adding different fruits to your daily diet enhances your health. But be careful, fruits can be high in energy (kilojoules) and low in dietary fiber, and can even damage your teeth, so always follow recommended portions and avoid drinking too much fruit juice. Fruits can be broken up into different groups, with each group providing their own unique nutrients. The main sub-groups for fruits are:

Figure 6.2 – Fruit groups



Just like with vegetables, choosing different colored fruits increases the variety of nutrients, which as a result enhances your health. Fact is that by the age of nine, 2 serves of fruit per day are recommended. Let us take a look at the standard fruit serve:



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©pngfly

1 medium
apple, banana, orange or
pear



©kisspng

1 cup
diced or canned fruit (no
added sugar)



©kisspng

2 small
apricots, kiwi fruits or
plums

Or only occasionally:



©kisspng

125ml (½ cup)
fruit juice (no added
sugar)



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30g
dried fruit (for example,
4 dried apricot halves, 1
and a half tablespoons of
sultanas)

Eating dried fruit regularly, is not recommended as it is high in kilojoules, can stick to the teeth and increases the risk of dental decay. Also, you can easily eat more than you realize due to the smaller size. Likewise, you should only drink fruit juice occasionally as it is acidic and can increase the risk of dental erosion. It also has less fiber than the whole fruit provides.

Health benefits of eating fruits:

Most fruits are low in energy (kilojoules) and high in fiber and water, making you feel fuller. This reduces the risk of over eating which can cause weight gain. The fiber in fruit is also thought to reduce the risk of some cancers, including colorectal cancer.

Fruit is abundant in vitamins, minerals and phytochemicals. Vitamins such as vitamin C and E and different phytochemicals may reduce the risk of cardiovascular conditions. Potassium and magnesium found in fruit have also been linked to lower blood pressure.

Different colored fruits, especially orange, red and yellow fruit, contain carotenes (Vitamin A) which are also thought to assist in immune function.

Grain

The Grain food group is mostly made from wheat, oats, rice, rye, barley, quinoa and corn. The different grains can be cooked and eaten whole, ground into flour to make a variety of cereal foods like bread, pasta and noodles, or made into ready-to-eat breakfast cereals. Grains can be broken up into four main groups, which are illustrated in Figure 6.3.



Figure 6.3 – Grain groups

Breads	Breakfast cereals	Grains	Other products
Wholemeal	Ready to eat	Rice	Pasta
Wholegrain	cereals	Barley	Noodles
White	Oats	Corn	Muffins
Rye	Muesli	Polenta	Rice cakes
Pita	Wholewheat	Semolina	Couscous
Crispbread	biscuits	Rye	Bulgur
		Spelt	Popcorn
		Quinoa	Flour

Consuming at least 4-6 serves of grain foods per day is recommended for adults, while the amount recommended for children and adolescents depends on their age and sex.

What is a serve of grain★ (cereal) food?

A standard serve is (500KJ) or:

1 slice (40g)



bread

½ medium (40g)



roll or flat bread

½ cup (75-120g)



cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa

½ cup (120g)



cooked porridge

2/3 cup (30g)



wheat cereal flakes

1/4 cup (30g)



muesli

3 (35g)

crispbreads

1 small (35g)



English muffin or scone

1 (60g)

crumpet

Health benefits of grains:

The nutrients provided by grains include carbohydrates/starch (energy), protein, fiber and a wide range of vitamins and minerals including the B vitamins folate, thiamin, riboflavin, niacin, iron, vitamin E, zinc, magnesium and phosphorus. Cereals and wholegrain foods can reduce the risk of developing certain diseases including coronary heart disease, colon cancer, diabetes and diverticular disease. The high fiber in wholegrain cereals also assist in the maintenance of the digestive system and can help prevent constipation.

Proteins

This food group includes all kinds of lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans. This food group is characterized by not only being “protein rich”, but also providing a wide variety of other nutrients such as: iodine, iron, zinc, vitamins, especially B12, and essential fatty acids.

Lean red meats are a particularly good source of iron, zinc and B12 and are easily absorbed. Iron is especially important for children, pregnant women, menstruating women and athletes. The iron and zinc found in animal foods is more easily absorbed by the body than in plant foods such as nuts, seeds and legumes/beans. However, the vitamin C found in fruit and vegetables will help the absorption of iron from these non-animal foods. Legumes provide many of the same nutrients as lean meats, poultry, fish and eggs and because of this they have been placed in this food group as well as the vegetable food group. Proteins fall into six main sub-groups illustrated in Figure 6.3:

Figure 6.4 – Protein groups




It is recommended that 1 to 3 serves of protein from the different sub-groups are consumed daily. During pregnancy, 3 to 4 serves are recommended. However, variety is the key!


How much is a serve of lean meat and poultry, fish, eggs, nuts and seeds, and legumes/beans★?


A standard serve is (500-600KJ) or:

65g  cooked lean red meats such as beef, lamb, veal, pork, goat or kangaroo (about 90-100g raw)


80g  cooked lean poultry such as chicken or turkey (100g raw)

100g cooked fish fillet (about 115g raw) or one small can fish

2 large (120g)  eggs

1 cup (150g)  cooked or canned legumes/beans such as lentils, chick peas or split peas

170g  tofu

30g  nuts, seeds, peanut or almond butter or tahini or other nut or seed paste

Health benefits of eating Proteins:

Lean red meat is a very good source of nutrients, however there is a great risk of developing colorectal or renal cancer, if the consumption of this protein is greater than 120gm. This does not indicate that one should avoid lean red meat, but act as a reminder that one should also eat other proteins from the different sub-groups. Non-meat options such as legumes provide many of the same nutrients as meats, poultry, fish and eggs. In fact, nuts and seeds may help reduce the risk of heart disease and are not associated with weight gain if total energy intake is controlled.

Consuming fish also has many benefits, as it is associated with the reduced risk of developing dementia in older adults. Consuming fish at least twice a week has even further benefits with reduced risk of cardiovascular disease, stroke, and age-related macular degeneration in the eyes. If possible, aim for about 2 serves of fish a week.

Dairy

Milk, yoghurt and cheese are dairy products that are recommended for most people two years and over. A wide range of milk and yoghurt products are available with varying levels of fat. Milk can be fresh, dried, evaporated, or UHT (long life). Cheese is usually high in kilojoules, saturated fat and salt and is best limited to 2-3 times a week. However, some cheeses also have reduced levels of fat and salt.

Most people need at least 2 to 3 serves a day, where women over 51 years need 4 serves a day as their calcium requirements are high.

How much is a serve of milk★, yoghurt★, cheese★ and/or alternatives

A standard serve is (500-600KJ) or:

1 cup (250ml)



fresh, UHT long life, reconstituted powdered²⁷ milk or buttermilk

1/2 cup (120ml)

evaporated milk

2 slices (40g)



or 4 x 3 x 2cm cube (40g) of hard cheese, such as cheddar

1/2 cup (120ml)



ricotta cheese

3/4 cup (200g)



yoghurt

1 cup (250ml)

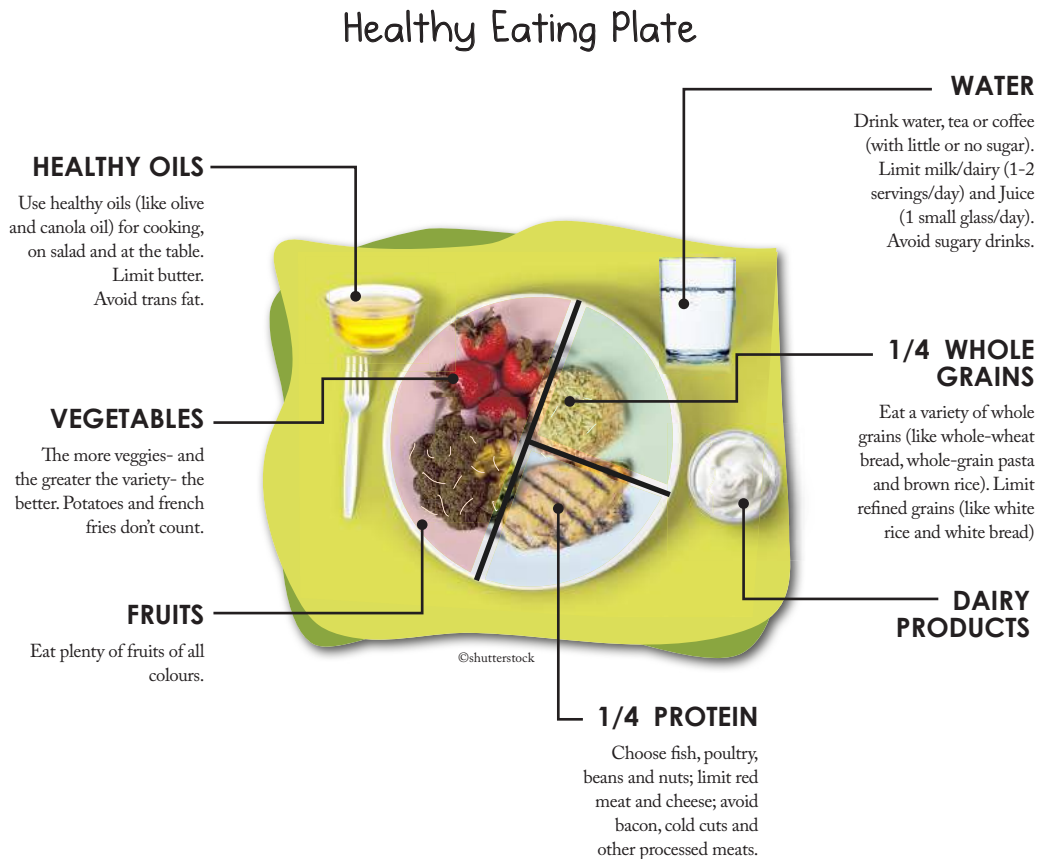
soy, rice or other cereal drink with at least 100mg of added calcium per 100ml

Health benefits of consuming dairy products:

Milk, cheese and yoghurt provide calcium in a readily absorbable and convenient form. They also have various health benefits and are a good source of many nutrients, including calcium, protein, iodine, vitamin A, vitamin D, riboflavin, vitamin B12 and zinc.

Healthy eating plate

As mentioned earlier, the perfect meal should consist of ingredients from the five food groups. The following section will provide guidance in a simple format, to help you make the best choice when it comes to eating.



Make most of your meal vegetables and fruits – ½ of your plate:

Aim for color and variety, and remember that potatoes do not count as vegetables on the Healthy Eating Plate because of their negative impact on blood sugar.

Go for whole grains – ¼ of your plate:

Whole and intact grains—whole wheat, barley, quinoa, oats, brown rice, and foods made with them, such as whole wheat pasta—have a milder effect on blood sugar and insulin than white bread, white rice, and other refined grains.

Protein power – ¼ of your plate:

Fish, chicken, beans, and nuts are all healthy, versatile protein sources—they can be mixed into salads, and pair well with vegetables on a plate. Limit red meat, and avoid processed meats such as bacon and sausage.

Healthy plant oils – in moderation:

Choose healthy vegetable oils like olive, canola, corn, sunflower, peanut, and others, and avoid partially hydrogenated oils, which contain unhealthy Trans fats.

Drink water, coffee, or tea:

Skip sugary drinks, limit milk and dairy products to one to two servings per day, and limit juice to a small glass per day.

6.2

Reduce SALT and SUGAR intake!

Salt

Have you ever asked yourself, how much is too much sugar and salt for our body? The following section will help you understand the importance of reducing salt and sugar, and their recommended daily portions.

Most of us are eating more salt than we should, even without realizing it. It is not only the salt that we add to our cooking or in our meals at dinner, but also the salt that is already in the food that we buy. Food such as sausage, pastries, pizza, chips, mustard, ketchup and cold cuts contain a lot of salt, even if they do not taste salty!

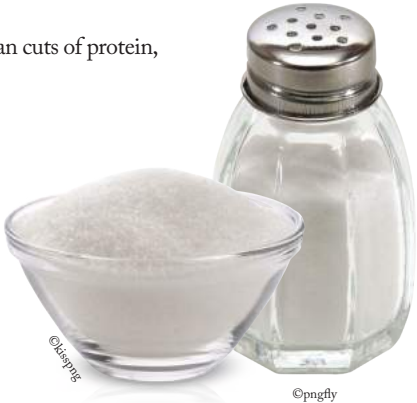
Too much salt can put our children at risk of high blood pressure and heart diseases later on in their lives. As adults we should be having less than a tea-spoon of salt a day, imagine how many teaspoons your family is consuming daily!

Table 6.1 - Recommended maximum daily amounts of salt for adults and children

Age	Maximum daily intake
4 - 6 years	0.25 tsp (3gm)
7 - 10 years	0.75 tsp (5gm)
11+ years	1 tsp (6gm)

As a parent, controlling your family’s salt intake in the household is your responsibility; these tips will help you reduce your family’s salt intake:

- 1. Salt smart snacking: Swap chips and salty snacks for chopped up fruit, veggie sticks or unsalted nuts. If they insist on the classic chips they buy everywhere, do them at home using white potatoes or potato peels.
- 2. Use less of these sauces: ketchup, mustard, and ready sauces can all contain a lot of salt.
- 3. Take it off the table: Remove the saltshaker from the table and use less salt in your cooking. Add flavor by using herbs and spices instead — you will soon find you do not miss it!
- 4. A healthy start: Choose a breakfast that is low in salt!
- 5. Sandwich fillings: Swap cheese and salty processed meats for lean cuts of protein, or salt free cheese.



Sugar

Kids are having nearly 3 times more sugar than they should. Kids are getting a lot of their sugar from: fizzy drinks, juice drinks, cakes, pastries, biscuits, yoghurts, sweets, chocolate and ice cream. Consuming too much sugar can lead to the build-up of harmful fat on the inside that we can't see, which can cause weight gain and serious diseases in the future such as heart disease, type 2 diabetes and some cancers. Another result sugar could lead to tooth decay. Like salt, sugar consumptions does not only mean the sugar that is added to your tea, but also the sugar that has already been added to your food and drinks to sweeten it (added sugar), this includes honey, syrups and fruit juice nectars. This however does not include the sugar in milk and plain yoghurts or the sugar in whole fruits and vegetables.

Table 6.2 - Recommended maximum daily amounts of sugar for adults and children

Age	Maximum daily intake
4 - 6 years	3.75 tsp (19gm)
7 - 10 years	4.5 tsp (26gm)
11+ years	5.25 tsp (30gm)

As a parent, controlling your family's sugar intake in the household is your responsibility; these tips will help you reduce your family's sugar intake:

1. Snack smart: Cut back on sugary snacks by swapping cakes, biscuits, chocolate and sweets for fruit, bread with lower-fat spread, or fruited cakes.

2. Drink smart: A quarter of the sugar kids have every day comes from sugary drinks. Swap soft drinks, juice drinks and flavored milks for water or limit the availability of such drinks in the house.

3. Liven up your yoghurt: Choose plain yoghurt instead of sugary yoghurt, ice cream and sugary desserts. Make it more interesting by adding some chopped fruit on top.
4. Leave it off the shelf: If you do not have biscuits and sweets in the house, you won't be able to eat them!

5. DIY snacks: Ask your kids to help prepare healthier snacks from a selection of fruit, low sugar cereal and unsalted nuts — they are more likely to eat it if they have made it.

6. Bigger is not better: The big bottles of fizzy drinks and juice may seem like a good deal — but you are just getting more sugar! Do not be tempted!

Saturated Fat

We are all eating too much unhealthy fat. We all know too much fat is bad for us — but we do not always know how much or what type of fat we’re eating. There can be a surprising amount of saturated fat in everyday food and drink. We get a lot of our saturated fat from butter, cheese, cakes, pastries, chocolate, biscuits, sausages, pizza. Too much saturated fat can lead to a harmful build-up of fat in your body, which can cause serious diseases in the future, weight gain and some cancers.

Having **unsaturated fat** instead of saturated fat can help lower blood cholesterol to protect your heart. Foods like fish, nuts and seeds are rich in unsaturated fat.

Table 6.3 - Recommended maximum daily amounts of unsaturated fats for adults and children

Age	Maximum daily intake
4 - 6 years	3.5 tsp (18gm)
7 - 10 years	4.5 tsp (22gm)
11+ years	5.5 tsp (28gm)



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As a parent, controlling your family's saturated fat intake in the household is your responsibility; these tips will help you cut back on your family's saturated fat intake:

1. Look for lower fat: Buy lower-fat cheese and products.
2. Choose healthy fats: Go for foods that are rich in unsaturated fat, like fish, unsalted nuts and seeds.
3. Start smart: Pastries and croissants are full of saturated fat. Swap for plain cereal, bread with lower-fat spreads, fruited cakes or bread with some banana slices.
4. Clever cooking: Avoid adding extra oil or butter when cooking. Try grilling, baking, steaming or poaching instead.
5. Choose smart snacks: After school, swap biscuits and muffins for healthier snacks like fruit, or bread with lower-fat spreads.
6. Enjoy more fish: Processed meats like sausages, burgers and cold cuts are high in saturated fats. Choose more fish, peas, beans and lentils instead.
7. Keep meat lean: Always trim any visible fat from your meat before cooking. This is where most of the saturated fat is.
8. Shop smart!

Leave on the shelf:

- Beef burgers,
- Pastries, cakes, croissants, biscuits
- Ice cream, creamy desserts, chocolate
- Flavored milks
- Hard cheeses like full fat cheddar cheese, butter, cream

Put in your basket:

- Lean meats, skinless poultry, or reduced fat mince
- Low fat, lower-sugar yoghurt,
- Unsaturated oils like sunflower or olive oil
- Reduced fat cheese, lower-fat spread or block margarine



Chapter

7

Care for household
livestock and poultry

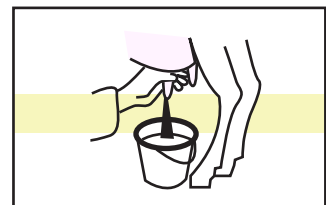
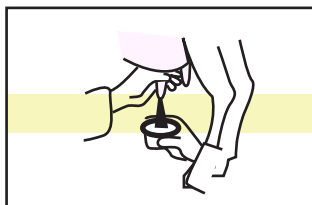
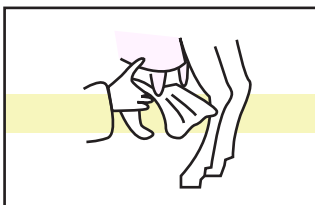
In many developing countries, livestock keeping is a multifunctional activity. Beyond their direct role in generating food and income, livestock are a valuable asset, serving as a store of wealth, collateral for credit and an essential safety net during times of crisis.

7.1

Livestock

When milking livestock, it is essential to milk using a hygienic method, in order to avoid contamination of the milk from sources such as unclean teats, dirty hands, dirty milking equipment, sick animals or unhygienic environment.

1. It is important for the same person to milk livestock at the same time every day. First, wash the udder and dry thoroughly before milking, putting in mind that the towel used to dry the udder is clean. Sanitize the teats after milking by dipping them into a solution made up of 1 tsp of Sodium Hypochlorite (4%) (such as Clorox) into a tea cup of clean water. Washing the udder and drying thoroughly before milking is important as it removes any dirt stuck to the udder, thus reducing the risk of contamination.
2. Get rid of the first milk droplets by pumping them into a cup.
3. Continue milking. It is necessary to cool the milk instantly in order to reduce the presence of bacteria. The ideal temperature for milk storage is 2-4 C, and it is essential to reach this temperature within two hours of milking, especially if processing is not instant. In the case that cooling is limited, processing is recommended as soon as possible.



7.2

Poultry





Food Processing at Home

8

Chapter

There are specific regulations that apply to people who plan to work out of their homes. Some people resort to producing processed products to avoid wastage of food at home, but some produce it to generate more income.

Here are some requirements that home food processors need to know and abide by:

- **No part of the home kitchen may be used for personal food preparation.**

This means that if you decide to process food at home, you cannot prepare for home consumption at the same time. This kind of “dual-use” kitchen requires you to carefully schedule your time so that private and business activities do not conflict.

- **Ingredients used for your food business must be kept separate from ingredients for personal use and must be properly stored and protected.**

Separate ingredients and tools used in food processing from the ones used for personal uses. In the case that the same equipment will be used, make sure that equipment is cleaned properly between both uses. Proper storage includes using food-grade containers that keep pests out and maintaining temperatures that do not promote spoilage.

- **No animals are permitted in the home at any time.**

If you have any pets, you will need to keep them outside at all times or find an alternate place to do your food processing.

Now that you have a clear idea of what requirements are needed to process food at home, here are some ideas of products that could come out of your kitchens to either reduce food waste and/or generate some cash in your pockets: fruit products (jam, jelly, marmalade, conserves, preserves), pickles, luncheon meat, stock cubes, dried goods and dairy products (cheese, yoghurt, cream, butter, margarine).



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Fruit products

Jam, jelly, marmalade, conserves and preserves – any of these fruit products add a little bit of flavor to your meals. All the mentioned fruit products are similar in terms of preserving using sugar, and are usually all jellied to some extent. Their individual characteristics depend on the kind of fruit used and the preparation method. **Jelly** is made from fruit juice; the product is clear, and firm enough to hold its shape when turned out of the container. **Jam** is made from crushed or ground fruit, and tends to hold its shape but generally is less firm than jelly. **Conserves** are jams made from a mixture of fruits, usually including citrus fruit; often raisins and nuts are added. **Marmalade** is a tender jelly with pieces of fruit distributed evenly throughout; a marmalade most commonly contains citrus fruit. **Preserves** are whole fruits or large pieces of fruit in thick syrup, often slightly jellied.

You can always mix and match and try different recipes at home, and increase or decrease sugar as you desire. Below you will find some of the most favorable recipes – please note that all recipes listed below do not use pectin or gelatin.



©Simply Recipes

Jam

Low fat-fruit jam

This is a basic low-fat recipe for all the people who love jam but are also health-conscious. You can use any of your favorite fruits (strawberries, berries, apricot, peach, figs etc.).

Ingredients:

- 4 cups fruit – roughly chopped
- 1 whole lemon – juiced
- ½ cup sugar
- Mason jars (sterile)



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Directions:

1. Toss all ingredients in a medium-sized pot and turn the heat to medium until the mixture begins to bubble. Then, reduce the heat to simmer and stir.
2. Allow mixture to cook and the fruit/berries to naturally break down. Be sure to stir every 20 minutes or so, even more frequently when the jam begins to thicken.
3. When the jam has reached the consistency you desire, carefully pour hot jam into clean and sterile mason jars.
4. Being sure the rim of the jar is clean and jam-free, wipe the lid with a damp cloth, place on the seal and tighten the lid until a slight resistance is met.
5. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
6. Once the jam begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.
7. Refrigerate for immediate use or store in a cool dry place for up to six months.

Strawberry jam



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Preparation time: 25 mins / Cooking time: 75 mins

Recipe yields around 6 jars (175ml)

Ingredients:

- 4 cups crushed strawberries
- 4 cups sugar

Directions:

1. **To prepare fruit.** Sort and wash the strawberries; remove any stems and caps. Crush the berries.

2. In a large pot, add the strawberries and sugar.

3. Bring to a simmer over medium-low heat, stirring constantly. Cover and simmer over low heat for 1 hour, stirring occasionally.

4. When the mixture gets quite thick, begin to stir constantly to keep from scorching.

5. Remove from heat; skim and stir alternately for 5 minutes.

6. Ladle jam into hot containers and seal immediately.

7. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.

8. Once the jam begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.

Fig jam

Preparation time: 25 mins / Cooking time: 75 mins

Recipe yields 4 jars (175ml)

Ingredients:

- 7 cups fresh figs (1.4kg)
- 2 cups sugar
- 1 lemon – juice and finely grated zest



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Directions:

1. **To prepare fruit.** Sort and wash the figs; remove any stems.
2. In a large pot, combine the figs, sugar, lemon juice, and lemon zest.
3. Bring to a simmer over medium-low heat, stirring constantly. Cover and simmer over low heat for 1 hour, stirring occasionally.
4. When the mixture gets quite thick, begin to stir constantly to keep from scorching.
5. Test a small amount on a very cold saucer by putting the saucer in the freezer for a few minutes, put a little of the fig mixture on it, then returning it to the freezer for 1 minute. When a good gel stage is reached (220 F), the surface of the fruit mixture will wrinkle slightly when pushed with a finger.
6. Remove from heat; skim and stir alternately for 5 minutes.
7. Ladle jam into hot containers and seal immediately.
8. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
9. Once the jam begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.

Jelly

Grape jelly

Recipe yields around 5 jars (175ml)

Ingredients:

- 4 cups grape juice
- 3 cups sugar

Directions:

1. To prepare grape juice. Sort, wash, and remove grapes from stems.
2. Crush grapes, add water, cover, and bring to boil on high heat.
3. Reduce heat and simmer for 10 minutes.
4. Extract juice by using filtering the cooked juice through a strain.
5. To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals that have formed,
6. To make Jelly- Add the grape juice in a pot, along with the sugar and stir well.
7. Boil over high heat until jelly mixture sheets from a spoon.
8. Remove from heat; skim off foam quickly.
9. Pour jelly immediately into hot containers and seal.
10. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
11. Once the jelly begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.



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Conserve

Apricot-orange conserve

Recipe yields around 7 jars (175ml)

Ingredients:

- 3 1/2 cups chopped fresh apricots (around 500gm)
- can use dried ones (see how to prepare)
- 1 1/2 cups orange juice
(around 3 or 4 medium-sized oranges)
- Peel of 2 oranges, shredded very fine
- 2 tablespoons lemon juice
- 3 cups sugar
- 1/2 cup chopped nuts (optional)

To prepare dried apricots.

Cook the apricots uncovered in 3 cups water until tender (about 20 minutes); drain and chop.

Directions:

1. **To make conserve.** Combine all ingredients except the nuts.
2. Cook until the mixture thickens, stirring constantly.
3. Add the nuts; and stir well.
4. Remove conserve from heat; skim and stir alternately for 5 minutes.
5. Ladle into hot containers and seal immediately.
6. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
7. Once the conserve begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.



Grape conserve

Recipe yields 10 – 11 jars (175ml)

Ingredients:

- 4.5 cups grapes with skins removed (around 2 kg)
- 1 orange
- 4 cups sugar

- 1 cup seedless raisins (optional)
- ½ teaspoon salt
- Skins from grapes
- 1 cup nuts, finely chopped (optional)

Directions:

1. **To prepare fruit-** Sort and wash grapes; remove from stems.

2. Slip skins from grapes; save skins.

3. Add the skinned grapes into a pot and boil, stirring constantly, for about 10 minutes, or until the seeds show.

4. Press through a sieve to remove seeds.

5. Chop the orange fine without peeling it.

6. **To make conserve.** To the sieved grapes add the orange, sugar, raisins, and salt.

7. Boil rapidly, stirring constantly until the mixture begins to thicken (about 10 minutes).

8. Add the grape skins and boil, stirring constantly (about 10 minutes).

9. Do not overcook; the mixture will thicken more on cooling.

10. Add nuts and stir well.

11. Remove from heat; skim and stir alternately for 5 minutes.

12. Ladle conserve into hot containers and seal immediately.

13. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.

14. Once the conserve begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.



Marmalade

Apple marmalade

Recipe yields around 8 jars (175ml)

Ingredients:

- 1 orange - quarter the orange, remove any seeds, and slice very thin.
- 8 cups apples (4 large apples) – thinly sliced
- 5 cups sugar
- 2 cups water
- 2 tbsp lemon juice



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Directions:

1. **To prepare fruit.** Wash apples and orange and thinly slice them. Make sure you core the apples and remove the seeds from the oranges.
2. **To make marmalade.** Heat 8 cups thinly sliced apples with water and sugar until sugar is dissolved.
3. Add the lemon juice and orange slices.
4. Boil rapidly, stirring constantly until the mixture thickens.
5. Remove from heat; skim and stir alternately for 5 minutes.
6. Ladle marmalade into hot containers and seal immediately.
7. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
8. Once the conserve begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.

Citrus marmalade



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Recipe yields 4-5 jars (175ml)

Ingredients:

- 1 cup grapefruit juice (1 grapefruit) – can replace with 3 oranges
- 1 ½ cups orange juice (4 medium oranges)
- 1 cup lemon juice
- Peel of 1 grapefruit (optional)
- Peel of 1 orange
- Peel of 1 lemon
- 1 liter cold water
- 2 cups boiling water
- 3 cups sugar

Directions:

1. **To prepare fruit-** Wash fruit and extract juice.
2. Remove membrane from inside of the peel. Cut peel into very thin strips about 2cm long.
3. **To make marmalade.** Add the cold water to the peel and simmer slowly in a covered pot (30 minutes).
4. Drain off and discard the liquid; add the boiling water to the peel.
5. Add the sugar and boil rapidly (about 20 minutes).
6. Add the fruit juices and cook again to the same temperature (about 25 minutes), stirring frequently.
7. Remove from heat; skim and stir alternately for 5 minutes.
8. Ladle marmalade into hot containers and seal immediately.
9. Carefully place the jar on a kitchen towel where the jar will not be disturbed for twelve hours.
10. Once the conserve begins to cool, the seal will create a popping sound, assuring you that the jar is sealed.

Pickles

Pickling involves preserving food, like vegetables or fruit, in an acidic liquid, along with salt and spices. Sometimes, you will see pickles preserved in a salt-water brine. Brine is usually used when the pickling process is longer, which is known as fermentation. Other times you will find you can consume or sell your pickles within 3 days!

There are many health benefits of pickling, but the most talked about benefit is the fact that they are probiotic . Because of the fermentation process, they are good sources of bacteria that can help to balance and maintain beneficial gut flora.

They also contain antioxidants and many of the nutrients present in the original vegetables that are pickled, but it should be noted that the pickling process does destroy water-soluble vitamins, like vitamins B and C. Pickling also requires a lot of additional salt—one dill pickle can take up about half of your daily sodium allowance. However, pickles are more good than bad, and they also make for good snacks, and a sure cash-cow.



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Probiotics are live microorganisms that can be consumed through fermented foods or supplements. More and more studies show that the balance or imbalance of bacteria in your digestive system is linked to overall health and disease.

Probiotics promote a healthy balance of gut bacteria and have been linked to a wide range of health benefits. These include benefits for weight loss, digestive health, immune function and more.

Healthline Media, 2005-2018 - <https://www.healthline.com/health/food-nutrition/pickle-recipes#1>

Mixed pickles

Preparation time: 45 minutes

Recipe yields 6 jars

Ingredients:

- 2 pcs carrots – peeled
- 3 pcs small - medium cucumbers – peeled
- 6 cloves of garlic
- ¼ cup baby onions
- 6 bay leaves
- ½ cup hot red pepper (optional)

Directions:

2. Cut the carrots, turnips and cucumbers into slices. You could use a serrated knife in order for the vegetables to look nice and special;

3. Peel the onions and garlic;

4. Sterilize the jar that will be used for the pickles by dipping it in boiling water in order to remove any bacteria present.

5. Put the sterilized jar in another container/tray – tilt the jar when filling it for easier use, and create whatever shape you want with the vegetables (optional);

6. Boil the water, vinegar, bay leaves, salt. Nigella seeds and black pepper together;

7. Add the cucumbers as the first layer in the jar, then add two cloves of garlic, two bay leaves, and 1 layer of hot red pepper (optional);

- ½ cup hot green pepper (optional)
- 2 pcs turnip
- ½ cup cauliflower
- 4 pcs lemon – sliced into 4 but not till the end
- 2 cups water
- 1 cup white vinegar
- ½ cup salt
- 1 tbsp nigella seeds (optional)
- 1 tbsp black pepper – whole
- 3 tbsp olive oil (can be replaced by any vegetable oil)

8. Pour some of the boiled vinegar mixture on top;

9. Layer the turnips then carrots, then add some more of the vinegar mixture;

10. Add two cloves of garlic, one sliced lemon, two bay leaves and then the hot green pepper.

11. Add the cauliflower then onions as the final layer of vegetables. Then add the sliced lemon, garlic and bay leaves.

12. Pour the remaining vinegar mixture, then add the olive oil on top.

13. Seal the jars tightly and move it around.

14. Store in a dry area for fermentation.

Your pickles will be ready to consume or sell within two to two and a half months!

Dill cucumber pickles

Can consume/sell two days after preparation!

Preparation time: 30 minutes

Recipe yields 4 – 6 jars

Ingredients:

- 1kg small cucumbers – slice for bigger cucumber sizes
- 8 cloves of garlic
- 2 cup water
- 3 tbsp salt
- 2 pcs bay leaves
- 2 tsp fresh dill – chopped
- 2 tsp dried chili pepper
- 2 cup white vinegar or apple vinegar
- 2 tbsp lemon juice



Directions:

- Wash the cucumbers thoroughly, cut both ends and set aside;
- Grind the garlic then place in the jar along with the dill, chili pepper and bay leaves;
- Add the salt to half the water (1/2 cup) and shake well, until all the salt has dissolved;
- Heat the mixture on medium heat, then add the vinegar and the remaining water (1/2 cup);
- Mix well, and leave to boil then remove from heat;
- Add the mixture to the jar, and mix well with the existing ingredients;
- Leave to cool completely;
- Add the cucumbers to the jar – make sure that the water is covering the cucumbers completely;
- Seal the jar tightly, and store in a dry area.

You can consume/sell your pickles in 2 days!

Onion pickles

Preparation time: 100 mins

Recipe yields 6 jars

Ingredients:

- 1 kg baby onions
- 1 cup salt (used for step 1)
- 2 cups white vinegar
- 1 tsp salt
- ½ tsp white sugar
- ½ tsp pickle spices (or any spices you like)
- 1 tsp black pepper



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Directions:

1. Combine the onions (without peeling them) with the salt in a container, add some boiling water until the onions are covered;
2. Cover and leave for two days, stirring occasionally;
3. Remove the water through a sieve, then start peeling the onions carefully, taking care not to destroy the end of the bud;
4. Place the peeled onions in a container and add some boiling water. Leave for 3 minutes then remove the water;
5. Repeat step 4 twice, then move the hot onions to a sterile hot and dry jar;
6. Boil the remaining ingredients together, and leave on high heat for 15 minutes;
7. Pour the mixture into the jar until all onions are completely covered.
8. Cover and store in a dry and dark area.

Pickled green olives

Preparation time: 90 mins

Recipe yields 6-8 jars

Ingredients:

- 2kg green olives
- 5 pcs lemon
- 100gm hot green peppers (optional)
- $\frac{3}{4}$ cup olive oil
- 4 cups water
- $\frac{1}{3}$ cup coarse salt



Directions:

1. Go through the olives and select the big olives and get rid of any damaged or bad olives;
2. Wash the olives thoroughly, then slice the olives twice deep enough for the knife to touch the olive seed;
3. Place the olives in a large container and soak in cold water and leave aside for four hours;
4. Remove the water and repeat again for another four hours;
5. Boil 2 cups of water, then add the salt and stir. Then add the remaining water and stir again;
6. Leave the mixture to cool aside;
7. Slice the lemon and hot green peppers into medium pieces;
8. Place the olives in a big container, add the lemon slices, olive oil, hot green peppers and lemon juice from 2-3 lemons; stir well;
9. Divide the mixture into separate jars, press the olives in the jar tightly by using the base of a cup and pressing the olives, then cover the olives with lemon peel/slices. Seal the jars tightly.

Pickled carrots with garlic



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Preparation time: 25 mins

Recipe yields 6-8 jars

Ingredients:

- 1kg carrots
- Reasonable amounts of the following ingredients with the following ratios: 1 cup water to 3 tbsp of vinegar to 1 full tsp of salt – add around 2 cups of water
- 10 cloves of garlic
- Vine leaves or celery stalks to cover the carrots in the jar
- 1 tsp mustard / jar (optional)

Directions:

1. Wash the carrots thoroughly and slice into whatever shape, size or design you prefer – easiest is to cut into four long slices;
2. Place the carrots into the jar;
3. Peel the garlic cloves and add into the jar with carrots;
4. Mix the water, vinegar and salt in the recommended ratios, until the salt has dissolved;
5. Pour the water mixture into the jars;
6. Cover the carrots with a final layer of vine leaves or celery stalks in order to avoid letting the air get out;
7. You can add 1 tsp of mustard in each jar for extra flavor, but this will increase the time needed to ferment;
8. Seal properly and store in a dry area until fermented.

Sweetened pickled carrots



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Preparation time: 30 mins

Recipe yields 6-8 jars

Ingredients:

- 1 kg carrots
- 8 tbsp white sugar
- 2/3 cup white vinegar
- 4 tbsp salt
- 8 cups warm water

Directions:

1. Wash the carrots thoroughly, then slice into very thin vertical slices;
2. Divide and place the carrots into the jars;
3. Melt the salt and sugar in the warm water and mix well;
4. Pour the water mixture into the jars filled with carrots;
5. Seal the jars tightly and refrigerate for at least 3 days before consuming or selling.

8.3

Drying

????????????????????????????



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8.4

Homemade luncheon meat recipe

Homemade luncheon meat is so easy to make. It literally takes **five minutes of hands on time**. Start with **whatever ground meat you like**. Puree the meat with water and seasoning. Then cook it. That is all there is to it!

What is really great about homemade luncheon meat is that **you control the ingredients**. That means NO high fructose corn syrup, nitrates/nitrites, fillers/thickeners/gums, artificial flavors or colors, GMOs, MSG, solutions, BHT and carrageenan.

Directions:

1. Combine all of the ingredients in a food processor and process until well combined and smooth.
2. Split the meat mixture into two equal parts.
3. Place each half in a 2-cup glass container (like a Pyrex dish).
4. Spread the mixture in the dish and smooth the top.
5. Place each glass dish in a large pot. Fill with water half way up the glass. Cover with a lid.
6. Bring the water to a low simmer and cook for 45 minutes.

Just a few **simple ingredients** will give you great tasting, homemade luncheon meat for easy sandwiches. Cook it on your stove!

Ingredients:

- 1 lb. beef, chicken or turkey
- 2 tsp. salt
- 1 tsp. sugar
- 1/2 tsp. garlic powder
- 1/2 cup. water
- Liver (optional)

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7. Remove the glass container from the pan and drain any excess liquid.
8. Allow the glass to cool at room temperature for 15 minutes.
9. Chill the glass dishes in the refrigerator, about 2 hours.
10. Remove the meat from the glass dishes and slice to desired thickness.
11. Store in a sealed container in the refrigerator or freezer.

Notes: You can add as much liver as you tolerate. You can also add extra seasoning if adding liver. This is a very mildly flavored meat. You can add any extra herbs or seasonings you like to change the flavor.

Dairy products

Most farmers keep only a few dairy animals. Therefore milk production is not stable throughout the year, but fluctuates with the season. These farmers would like to obtain more milk and dairy products for family consumption. They would also like to sell milk and dairy products on the market, to earn more income. To do this, they need to learn simple processing methods to improve the quality of milk and milk products such as butter, cheese and yogurt.

What are the advantages of milk processing?

- Provides regular income
- Improves nutrition
- Selling processed milk products is more profitable than selling fresh milk
- Generates employment
- Improves quality and safety

Pasteurization

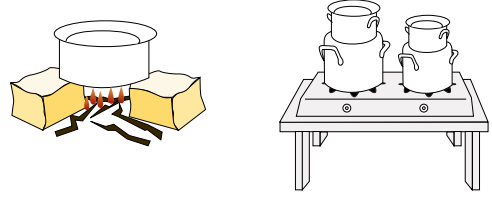
Pasteurization is the first step in milk processing. Pasteurization means heating every particle of the milk or milk product to a specific temperature for a specified period of time (63°C for 30 minutes). This destroys bacteria and other microorganisms that may affect consumers' health. It makes the milk safe and healthy, and also improves the keeping quality,* so that milk and milk products can be stored for longer periods without being spoiled.

Simple method of pasteurization: Many farmers pasteurize their milk by direct boiling. However, direct boiling is unhygienic, because it can lead to contamination from outside particles or bacteria. Direct boiling is also inefficient, i.e. it requires more energy (more fuel or firewood).

Indirect heating: is a better way to pasteurize milk. Place the milk can inside a larger metal vessel containing water, so that the water forms a jacket around the milk can. Heat the larger outside vessel using an open flame, or gas stove, or electrical hot plate. Fast pasteurization: Heat milk either directly or indirectly at 72°C for at least 15 minutes, and this is a good approach to use when pasteurizing big quantities of milk (more than 250 liters).

Milk standardization :

Milk standardization means adjusting the fat content in milk to the exact percentage required. Different products require different percentages, which can easily be calculated and adjusted.



Cream

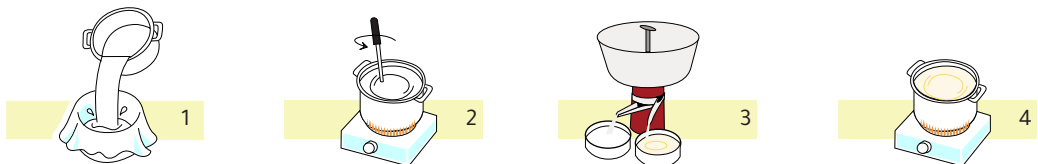
Cream is created by separating the fats in milk.

Directions:

1. Prepare the cream milk - filtration and standardization
2. Heat the milk to 50°C
3. Separate cream from fresh milk by using one of two methods:
 - a. Gravitational separation: allow the milk to settle. The cream is lighter than the other milk components. It rises to the top, and can be separated.
 - b. Centrifugal separation : this requires a simple machine called a centrifuge. The centrifuge can be driven (i.e. rotated) by hand, or by an electric motor.
4. Sterilize the cream at 90°C then cool.



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Centrifugal separation can be used for any liquid, to separate different components. Milk is placed in a bowl, which is then rotated. When it rotates, the heavier portion (i.e. the skim milk) moves to the outside, and the lighter portion (cream) moves towards the center of the bowl.

Therefore the two portions can be separated. The speed of rotation can vary from 2000 rpm in small manual separators to 20,000 rpm in large electric separators.

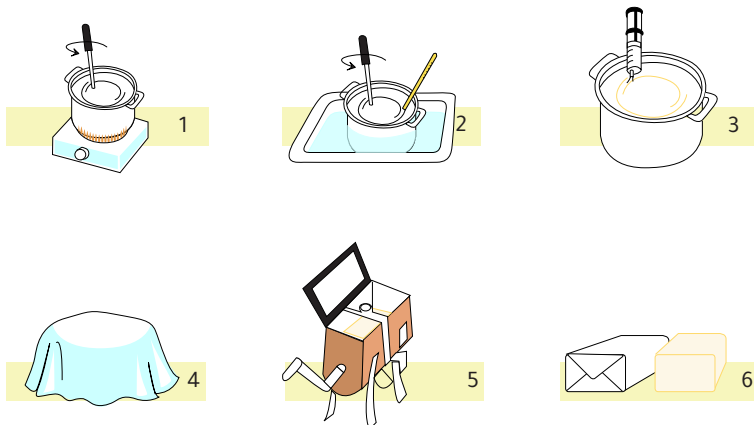
Butter

Butter is reached when the milk fat concentration reaches 80%, humidity level in the butter 16%, fatty solids reach 2%, and salt component reaches 2%. In the case where humidity levels exceeds 16%, the butter is usually low in quality.



Directions:

1. Following the steps of the cream until the separated milk reaches a temperature of 90 – 95°C.
2. Cool down in a cold water bath until temperatures reaches inoculation - 45 °C.
3. Inoculate the cream using a stirrer and thermometer.
4. Leave the cream aside for 2 to 3 hours (45 °C) covered with a cheese cloth, then cool down until it reaches 8 °C.
5. Mix the butter solution either in a jar, mixer, butter churn (manual or automatic), or hand mixer for 5 to 10 minutes until the butter granules reach the size of grains of wheat (texture should be firm but not hard). Make sure that the temperature is kept as low as possible during churning.
6. Shape the butter in whichever form you want (jar, twist in a cloth, tray) and refrigerate.

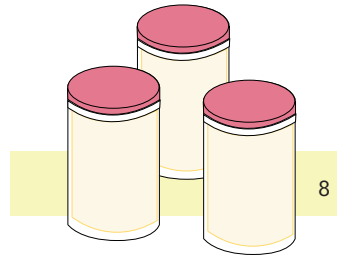
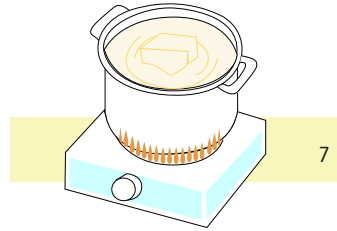


Milk standardization :

Ghee is milk fat free from any water particles. It is usually made after finishing butter, where all water is evaporated. Ghee has 99.9% fat and is usually used for cooking. Producing ghee from butter is usually much easier (less steps) than producing it from cream.

Directions:

1. Finish all steps of producing butter
2. Heat butter on low heat until water has evaporated and temperature of the mix is around 120 – 125 oC.
3. Pack in jars.



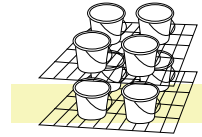
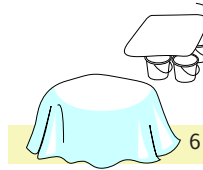
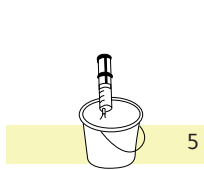
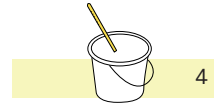
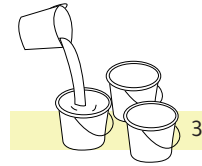
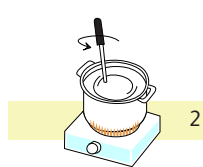
Yoghurt

Yoghurt is a semi-solid fermented milk product. In order to produce yoghurt, fresh milk of good bacteriological quality, free from antibiotics and dairy sanitizers should be used. Do not use colostrum milk for making yoghurt.

Directions:

1. Prepare the yoghurt milk – filtration and standardization
2. Heat the milk at a temperature of 90-95 oC for 30-45 minutes.
3. Pour yoghurt milk into clean cups
4. Cool until it reaches inoculation temperature - 45oc
5. Inoculate the milk by whisking the thinned yoghurt into the milk
6. Leave the mixture aside covered with a cheesecloth at 45 oC for 3 to 4 hours.
7. Cool down in the fridge (4-8 oC)
8. Ready for consumption or sale





Dry yoghurt - labnah

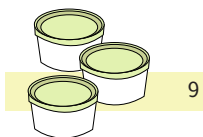
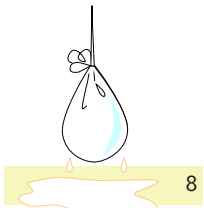
Dry yoghurt / labnah is a result of intensifying the flavor and consistency of yoghurt.

Directions:

1. Conduct all the steps in producing yoghurt
2. Pack the yoghurt in a cheese cloth and hang it overnight in room temperature in order to get rid of all the water in the yoghurt milk.
3. After all water has been removed from the labnah, and the labnah has intensified, pack the labnah in the right containers.
4. Ready for consumption or sale



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Cheese

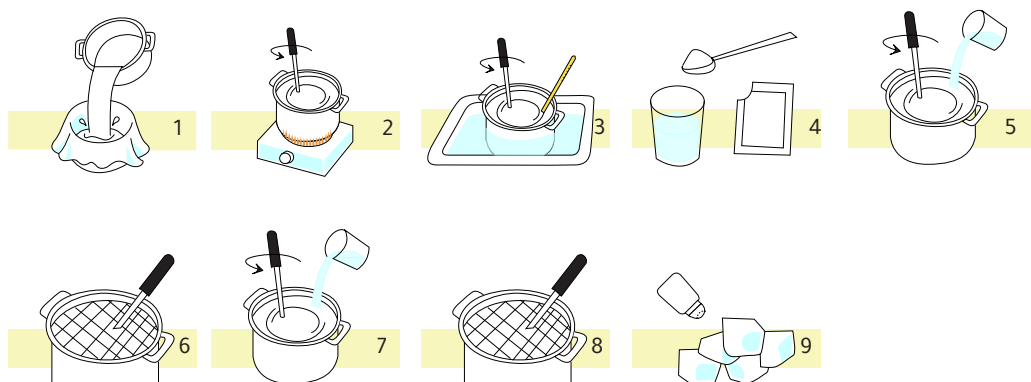
Cheese is a semi-solid fermented milk product. You could pasteurize the milk at a temperature of 63-65°C for 30 minutes before producing cheese.

White Cheese

White cheese is one of the most commonly produced cheese by small-scale farmers. Every 3-4 liters of sheep milk produces around 1 kg of cheese, and same goes for 8 liters of cow milk. As white cheese is one of the fresh cheeses, it must be served cold and should be stored in a refrigerator.

Directions:

1. Prepare the cheese milk – filtration and standardization
2. Pasteurize the milk at the right temperature (63-65°C) for 30 minutes
3. Cool in a water bath until temperature reaches
4. As per instructions, prepare the rennet* mixture (1ml rennet per 4 liters of milk)
5. Add rennet in the cheese milk. The milk will coagulate in 20-30 minutes
6. Gently slice the cheese curds after 60 minutes, then leave to rest for 10 mins, and finally stir for another 10 minutes.
7. Transfer the cheese curds into a rectangular coriander or tray lined with a cheesecloth.
8. Cover the cheese with the cheesecloth and apply pressure on the cheese (weights, heavy plate etc.) for 1 to 6 hours.
9. Cut the cheese into cubes, and sprinkle them with salt and leave for another hour.



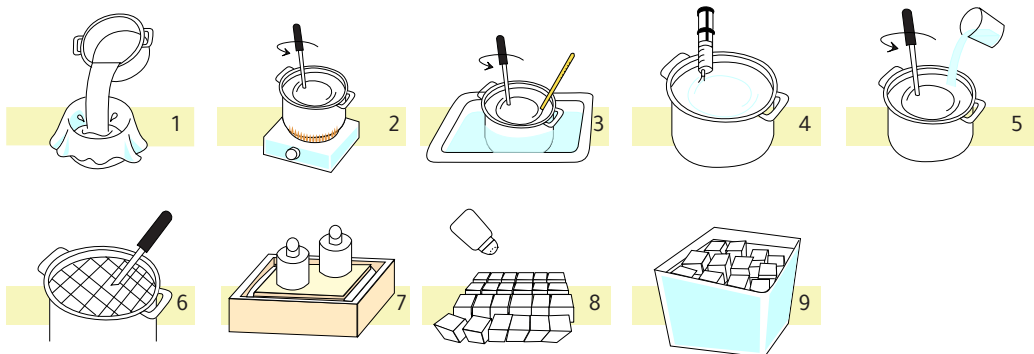
Feta Cheese

Salty white cheese produced from goat or sheep milk, where every 4 liters of milk produce 1 kg of cheese. Feta cheese should be stored in a brine solution up to 5-6 months.



Directions:

1. Prepare the cheese milk – filtration and standardization
2. Pasteurize the milk at the right temperature (63-65 oC) for 30 minutes
3. Cool in a water bath until temperature reaches 38 oC
4. ?
5. Add the rennet to the cheese milk and leave until the curds are ready, this process will be ready in 50 to 60 minutes
6. Cut the curds into cubes with a distance of 2 to 3 cm, and leave for 15 mins. Then stir slowly to separate the cubes
7. Transfer the cheese curds into a rectangular wooden box lined with a cheese cloth. Cover the cheese with the cheese cloth and apply pressure on the cheese (weights, heavy plate etc) and leave in the box for 1 day.
8. Cut the cheese into cubes, and sprinkle them with salt.
9. Place the cheese cubes in brine solution (16%), and cheese is ready for consumption and sale.





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