The Neutropenic Diet

What this leaflet is about: how to handle, store and prepare food safely while your white cells are low, and which foods to choose.

> Quick emergency advice
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> A neutropenic diet is not a special diet, and it does not mean going hungry. It means eating normally while being careful about how food is handled, stored and prepared.
> It matters most when your absolute neutrophil count is low, and at the point in a chemotherapy cycle when the count is at its lowest. Ask us which part of your treatment cycle that is.

Why food safety matters to you

When the number of neutrophils in your blood is low, your body has much less ability to deal with bacteria and fungi that get in through the gut. Food that is perfectly safe for a healthy person can carry enough bacteria to cause a serious bloodstream infection in someone with a low neutrophil count. Salmonella, listeria, campylobacter and clostridium are the organisms we are most worried about, and they come from ordinary foods.
There is no way of sterilising food at home. The aim of the advice in this leaflet is not to make your kitchen sterile, but to reduce the number of bacteria that reach your mouth and stomach, and to stop them multiplying in food that is left standing warm.

General food hygiene

- Wash your hands with soap before handling any food, and before eating. Wash hands after using the toilet, after touching raw meat, after handling pets and after returning from outside.
- Protect any cuts, grazes, sores or weeping spots on your hands. Cover them with a clean plaster or waterproof dressing while you cook, and keep them covered.
- Heat cooked food to at least 70 degrees C and eat it immediately. Food that has been kept warm sits in the temperature range where bacteria multiply fastest, so this matters more than the exact temperature.
- Avoid reheating food. If you want it hot, cook it fresh from raw ingredients.
- Use frozen ready meals only exactly as the manufacturer's instructions say, including the cooking time. Do not eat them part-cooked or lukewarm.
- Cover every item of food, label it with your name and the date you cooked or opened it, and eat it within 24 hours of opening.
- Respect all use-by dates, not just best-before dates.
- Buy food from clean, reputable shops, and choose shops that keep chilled and frozen goods properly frozen and refrigerated.
- Wash the tops of cans before opening them, because the rim of a can has been exposed to handling, storage and dust.
- Do not drink straight from cans or bottles. Pour the drink into a clean glass, or use a clean straw.
- Do not eat food sold loose from a delicatessen, a butcher or a baker.
- Defrost frozen food in the refrigerator, or in the microwave, and never in warm water or on a worktop.

Storing food at home

Food kept in the fridge is not a safe place forever. Everything in the fridge is eventually going to spoil, and bacteria keep growing at 4 degrees C, just more slowly.

Type of food	How long it can be kept at home
Dry goods, such as biscuits, crackers, bread, breakfast cereals, tinned and vacuum-packed food, unopened drinks and sealed bottles	Up to 1 week in a sealed container. Once the container is opened, eat the contents within the time printed on the pack.
Moist foods, such as milk, yoghurt, custards, opened sauces, cooked meat, cooked rice, pasta and desserts	Refrigerated and eaten within 24 hours. After 24 hours, throw them away.

Cooked rice is worth singling out. Bacillus cereus spores survive cooking and grow in cooked rice left at room temperature, and they produce a toxin that reheating does not destroy. It is far safer to eat freshly cooked rice than to reheat yesterday's.

Avoid, and the safer choice

The table below is a practical guide, not a ban on eating. If a food is on the avoid list and it matters a great deal to you, tell us - for many people the joy of eating matters as much as the bacterial count, and together we can find a version that works.

Food group	Avoid	Safer choice
Drinks	Large cartons and large bottles of fruit squash, which are not sterile and may have been opened and handled; draught or bottled beer, which is not pasteurised.	Bottled water, canned drinks, and drinks in small cartons (tetrapaks); tea; coffee; hot chocolate. Pour from the container into a clean glass rather than drinking from the container.
Fruit and vegetables	Unwashed raw salad, ready-prepared salad bags, unpasteurised fruit juices, and dried fruit such as raisins, dates and figs.	Fruit and vegetables that have been washed, and peeled where possible. Well-cooked vegetables. Pasteurised or long-life (UHT) juice. Frozen peas, corn and other frozen vegetables, cooked thoroughly.
Meat and fish	Raw, undercooked or lightly cooked meat, steak, mince, kebabs, carpaccio, raw sushi, oysters, raw shellfish, smoked or lightly-salted fish, and pâté.	Well-cooked meat that is piping hot all the way through, with no pink parts. Cooked fish, and canned fish such as tuna and sardines. Meat that has been cooked to at least 70 degrees C.
Eggs	Raw or lightly cooked eggs, raw egg whites, homemade mayonnaise, mousse, prawn cocktail sauce, tiramisu, and ice creams made with raw egg.	Well-cooked eggs, whether boiled, fried, poached or scrambled until firm. Pasteurised egg products, and commercially produced mayonnaise and meringue.
Milk and yoghurt	Unpasteurised milk and yoghurt, raw-milk cheese, and live or "bio" yoghurt containing active cultures. Probiotic drinks, which are designed to contain live bacteria.	Pasteurised or UHT long-life milk, pasteurised yoghurt, and hard pasteurised cheeses such as cheddar and parmesan. Probiotic drinks are best avoided while your count is low.
Bread and cereals	Uncooked, unpackaged, or very stale bread; and bread from a bakery that is not handling it hygienically.	Bread from a reputable bakery or supermarket, used within the packaging instructions. Well-cooked cereals, porridge and pasta. Breakfast cereals straight from the sealed box or bag.
Ice cream	Soft ice cream and scooped ice cream from a counter, which is handled and kept warm, and any ice cream that has melted and been refrozen.	Ice cream from a sealed tub or stick-packet, stored in the freezer and handled with a clean scoop. Avoid soft ice cream entirely.
Cakes and puddings	Custards, trifles, puddings and pastries made with raw egg or unpasteurised milk; any dessert assembled in advance and kept warm or at room temperature.	Puddings made with pasteurised milk and cooked egg, eaten within 24 hours and refrigerated. Plain, simple desserts are the safest choice.
Cheese	Soft-ripened and mould-ripened cheeses such as brie, camembert, roquefort, stilton and gorgonzola, and any cheese cut from a wheel at a deli counter.	Hard, pasteurised cheeses such as cheddar, edam, gouda and parmesan, and individually packaged soft cheeses, provided they are pasteurised.

Food group	Avoid	Safer choice
Cream	Raw, unpasteurised or lightly pasteurised cream, and cream that has been kept warm.	UHT or pasteurised cream in a sealed carton or bottle, and individually sealed single portions. Whipped and pouring cream from a sealed pack is acceptable.

Food group	Avoid	Safer choice

The pattern running through all of this is heat, cleanliness and freshness. Well-cooked food that is eaten straight away is almost always a safer choice than food that is raw, or that has been kept standing, however expensive or fashionable it is.

Getting the right help

If you have neutropenia and you are not sure how strict you need to be - for example because your count is only slightly reduced, or because you are between courses of treatment - please ask. We would much rather answer the question twice than have you follow advice that is stricter than you need, or looser than you need.

> Ask your specialist nurse, doctor or GP to refer you to a dietitian. A dietitian who knows your blood counts and your treatment can help you build a realistic, enjoyable eating plan for the days that matter, and can also help with diabetes, kidney problems, weight loss and swallowing difficulties, which are common and change what is safe to eat.

When to contact us

If you are worried about yourself, or about the person you are caring for, please get in touch. We would always much rather hear from you early than late. If you have read something in this leaflet that worries you, that is a good reason to telephone us, even if you feel well.

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If you cannot reach us, or you are very unwell

Please go to the emergency department of KPJ Ampang Puteri Specialist Hospital, or call the emergency ambulance service. Do not wait for a routine appointment, and do not wait for a reply to an email.

Important medical disclaimer

This leaflet is written for patients and their families and carers. It is general patient education only. It is not a substitute for medical advice, and it is not a substitute for the diagnosis and treatment that your own haematologist, nurse, pharmacist or doctor will give you.

Nothing in this leaflet should be used to change, stop or start a medicine, a test or a treatment. If anything you read here is different from what your healthcare team has told you, follow your healthcare team and ask us about the difference.

Information about medicines names, strengths, test turnaround times and supportive care is current at the time this leaflet was prepared. It may be updated from time to time, and the version printed here may therefore not be the newest one. Please ask reception for the current copy.

If you think that you or someone you care for is seriously unwell, do not wait for an appointment and do not wait for this leaflet to be read. Contact the clinic, or go to the emergency department of KPJ Ampang Puteri Specialist Hospital, straight away.

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