

Managing

SIDE EFFECTS



queensland
positive
people

napwa

Disclaimer

The information contained in this booklet is not intended to endorse or recommend any particular treatment and not all of the treatments and complementary therapies mentioned are suitable for everyone. This booklet is intended as a guide only and should not be used as a replacement for professional advice. It is strongly recommended that you speak to your doctor or health care provider before commencing any treatments or complementary therapies to manage side effects. Your doctor or health care provider will first need to determine the exact nature and cause of the side effect to ensure you receive proper treatment.

Many of the complementary therapies mentioned have not been proven to be effective or safe through specific and rigorous study in HIV settings, nor for the management of antiviral-related side effects. The strength of evidence in suggesting their use varies, and use of some complementary therapies may be based on anecdotal evidence or limited studies into their benefits for side effects. Further, the efficacy of such therapies can be subject to wide patient variability, just as side effects from drugs vary among individuals. Not all complementary therapies are regulated and some may not be standardised in terms of purity, dosage, effectiveness or safety.

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About this booklet

This booklet is for people with HIV who experience side effects from HIV treatments or other physical symptoms that may be due to HIV infection. It is intended as a guide to help you identify the kinds of side effects that some people with HIV experience, and to provide suggestions on how to prevent, manage, reduce or eliminate some common side effects through the use of medicines, complementary and supportive therapies or practical measures. Because some side effects can be serious, it is highly advisable that you discuss any side effects you have, or treatments you plan to use to manage them, with your doctor or health care provider before deciding on any course of action.

Not everyone taking treatments experiences side effects, but most people can benefit from knowing how to recognise and manage them should they occur. The objective of HIV treatment is to keep you well and maximise your quality of life, but side effects can make it hard to stick to your treatment schedule.

Knowing how to minimise any side effects can make a huge difference to your wellbeing and can help ensure that you get the most from your treatments.

Please remember...

Not all the suggestions in this booklet will be suitable or appropriate for everyone. Also, there is not enough room to list every known side effect or HIV symptom here. If you experience side effects or physical symptoms that worry you, ask your doctor or health care provider for advice. It may be helpful to keep a record of symptoms and side effects to show your doctor. It's also important to tell your doctor about all the medications and complementary therapies you are taking as side effects can occur with any treatment including alternative and complementary therapies. Your doctor or health care provider should be able to provide advice on the most suitable and beneficial choices for you, which may be different from those mentioned in this booklet. And remember, sometimes the solution is not to take anything. Seeking support, getting plenty of rest and exercise and eating well may be just as effective. It may be useful to consider the **SENSE** approach which includes:

Stress Management (relaxation techniques and hobbies for example).

Exercise (both aerobic and stretching).

Nutrition (good diet and the thoughtful use of supplements).

Social and spiritual interaction (communing with friends and family and connecting with your spiritual beliefs and nature).

Education (understanding more about your health and disease).

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Why do side effects occur?

All drugs and complementary therapies have the potential for *both desired (or therapeutic) effects and undesired or side effects*. Some antiviral drugs cause side effects rarely. For others, side effects may be very common. Side effects can vary in severity from very mild problems that most people have little trouble managing, to severe and sometimes life-threatening complications. Before HIV drugs are approved for use, the drug companies must show that any side effects the drugs cause are either mild enough, or rare enough that the benefit to the patient outweighs the problems associated with side effects.

Not all the physical symptoms you experience will be side effects. Many of the symptoms listed in this book can happen to anybody, regardless of HIV status. They could be caused by other health problems such as poor nutrition, injury, infections and even growing older or just plain bad luck. They could also be the side effects of HIV antiviral drugs. Identifying the cause of any physical symptom—whether it's a side effect or not—is the first step towards controlling it.

Side effects often occur in the first two to eight weeks after starting a new treatment, after which time they gradually go away. These are known as *induction side effects*. Sometimes the side effects can continue past this initial period. They are then called *chronic or persistent side effects*. Other side effects only arise after you have been taking treatments for a long period of time. These are called *long-term toxicities* or *long-term side effects*.

Why do side effects occur? *continued...*

Because everybody is different and everybody reacts differently to having HIV, taking treatments and using complementary therapies, it's impossible to predict who will experience side effects and who won't. However, most people who take HIV treatments experience some side effects.

Sometimes one symptom can have more than one cause. Diarrhoea, for instance, can be a symptom of non-HIV-related illnesses such as irritable bowel syndrome (IBS) or viral hepatitis, infection with parasites such as Giardia, dietary and metabolic problems such as lactose intolerance, or HIV-related opportunistic infections such as Mycobacterium Avium Complex (MAC). Diarrhoea is also one of the most common side effects of HIV antiviral drugs.

Sometimes the levels of the drugs you use to treat HIV might be too high, resulting in side effects. A test known as Therapeutic Drug Monitoring is available from some doctors to test the level of drugs in your body. Ask your doctor if this test might assist you.

Many of the long-term side effects associated with current HIV treatments such as lipodystrophy, lipoatrophy and changes in blood fats have other 'lifestyle' risk factors such as smoking, poor diet and lack of exercise. The increased life expectancy that many people taking combinations of HIV antiviral drugs can look forward to also means there is potentially more long-term reward from a renewed attention to a healthy lifestyle.

Which drugs cause which side effects?

The table below summarises the most common side effects associated with each HIV antiviral drug currently in use in Australia. See *the glossary on page 40* if any of the terms used in the table (or elsewhere in this booklet) are unfamiliar to you.

Note: For all the drugs listed below the common or generic drug name is written first with the brand name in parentheses.

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

All drugs in this section can cause:

- Gastrointestinal (gut) problems
- Elevated blood fats
- Lactic acidosis (high levels of lactic acid in the muscles and blood)
- Liver toxicity
- Lipoatrophy (loss of facial and limb fat)

3TC
or lamivudine
(Epivir)

Common: headache, fatigue, diarrhoea, abdominal pain, nausea, vomiting, rash.
Less common: insomnia, hair loss (on the head).

Abacavir
(Ziagen)

Common: headache, rash, fever.
Less common: nausea, vomiting, diarrhoea, fatigue, and lack of appetite.
Rare: severe hypersensitivity reaction (fever, tiredness, nausea, vomiting, flu-like symptoms, possible rash) usually within six weeks of starting therapy (occurs in about 4% of people and may have serious health consequences).
Never take abacavir again, if hypersensitivity reaction has occurred.

AZT
or zidovudine
(Retrovir)

Common: nausea, vomiting, headache, insomnia, diarrhoea, muscle wasting.
Less common: low levels of haemoglobin (anaemia) or platelets (thrombocytopenia) in the blood, muscle pain.
Long-term: loss of subcutaneous facial and limb fat (lipoatrophy).

d4T or stavudine (Zerit)
Common: nausea, diarrhoea, abdominal pain, dizziness, fatigue, rash.
Rare: pancreatitis (may have serious health consequences).
Long-term: peripheral neuropathy, loss of facial and limb fat (lipoatrophy).

ddl, ddi EC or didanosine (Videx or Videx EC)
Common: diarrhoea with ddl (but not with ddi EC), nausea, vomiting, rash.
Rare: pancreatitis (may have serious health consequences), peripheral neuropathy.
Long-term: loss of facial and limb fat (lipoatrophy).

FTC or emtricitabine (Emtriva)
Common: nausea, vomiting, diarrhoea, abdominal pain, dizziness, weakness, rash.

Nucleotide Reverse Transcriptase Inhibitor (NtRTI)

Tenofovir (Viread)
Common: nausea, vomiting, diarrhoea, dizziness, low blood phosphate levels.
Rare: kidney problems (may have serious health consequences).

NRTI & NtRTI Fixed Dose Combinations

3TC & abacavir (Kivexa)
 Side effects of this combined pill will be that of those listed in 3TC and abacavir (see separate entries).

3TC & AZT (Combivir)
 Side effects of this combined pill will be that of those listed in AZT and 3TC (see separate entries).
Note: dose of AZT in Combivir is higher than AZT alone, which may accentuate AZT side effects.

3TC, abacavir & AZT (Trizivir)
 Side effects of this combined pill will be that of those listed in 3TC, abacavir and AZT (see separate entries).
Note: dose of AZT in Trizivir is higher than AZT alone, which may accentuate AZT side effects.

FTC & tenofovir (Truvada)
 Side effects of Truvada will be similar to those listed in FTC and tenofovir (see separate entries).

Protease Inhibitors (PIs)

All drugs in this section can cause:

- Gastrointestinal (gut) problems
- Lipodystrophy (including changes in body fat, elevated blood fats—cholesterol and triglyceride—and blood sugar problems)
- Liver enzyme changes

Amprenavir (Agenerase) **Common:** nausea, diarrhoea.
Less common: tingling around the mouth, rash, headache, fatigue, fat accumulation in the abdomen.

Atazanavir (Reyataz) **Common:** headache, dizziness, nausea, abdominal pain, rash, diarrhoea.
Less common: fever, jaundice (yellowing of the eyes and skin).

Darunavir (Prezista) (Not licensed in Australia. Available only on trial or as part of access scheme)
Common: diarrhoea, nausea, headache.

Fosamprenavir (Telzir) **Common:** headache, dizziness, diarrhoea, nausea, vomiting, abdominal pain, rash, fatigue, tingling around the mouth, lipodystrophy.

Indinavir (Crixivan) **Common:** nausea, diarrhoea, liver problems, kidney stones, fat accumulation in the abdomen, elevated blood fats.
Less common: night sweats, dry skin including loss of hair (head and body), ingrown toenails, blood sugar problems, jaundice (yellowing of the whites of the eyes and skin).

Lopinavir/ritonavir (Kaletra) **Common:** diarrhoea, abdominal pain, headache, mild nausea.
Less common: dry mouth, fat accumulation in the abdomen, elevated blood fats.
Kaletra capsules include a small amount of ritonavir which may result in ritonavir-related side effects.

Nelfinavir (Viracept) **Common:** diarrhoea, nausea, vomiting.
Less common: fatigue, headache, rash (sometimes severe), fat accumulation in the abdomen.

Ritonavir (Norvir) **Common:** nausea, diarrhoea, vomiting, changes in taste sensation, numbness/tingling around the mouth, liver problems, menstrual (period) irregularities, fat accumulation in the abdomen.

Protease Inhibitors (PIs) *continued...*

Saquinavir soft gel (Fortovase) **Common:** diarrhoea, nausea, fat accumulation in the abdomen.
Less common: night sweats.

Saquinavir hard gel (Invirase) **Common:** diarrhoea (less so than soft gel), nausea.
Less common: night sweats, fat accumulation in the abdomen.

Tipranavir (Aptivus) **Common:** diarrhoea, nausea, stomach cramps, lipodystrophy.

Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)

All drugs in this section can cause:

- Gastrointestinal (gut) problems (less so than NRTIs or NtRTIs)
- Liver enzyme changes ■ Serious rash

Efavirenz (Stocrin) **Common:** rash, dizziness, disorientation, vivid or unusual dreams, headache, fatigue, insomnia.
Less common: liver problems.

Nevirapine (Viramune) **Common:** rash (sometimes severe), fever, liver problems, headache, nausea.
Less common: fatigue, sleepiness, muscle pains.
Rare: Stevens-Johnson syndrome (very severe rash, fever, muscle pains, joint pains, if left unchecked may be fatal).

Delavirdine (Rescriptor) **Common:** fatigue, diarrhoea, nausea, liver problems, rash.

Entry & Fusion Inhibitors

Maraviroc (Selzentry, Celsentri) (Not licensed in Australia. Available only on trial or as part of access scheme).
Common: Cough, fever, dizziness, headache, lowered blood pressure.
Rare: Liver problems, elevated blood fats.

T-20, enfuvirtide (Fuzeon) **Common:** Injection site reaction, respiratory tract infections.

Integrase Inhibitor

Raltegravir, MK-0518 (Isentress) (Not licensed in Australia. Available only on trial or as part of access scheme)
Common: diarrhoea, nausea, fatigue, headache, itching.
Less common: constipation, flatulence, and sweating.

MANAGING COMMON SIDE AFFECTS

Nausea & vomiting

Symptoms A 'queasy' and 'rising' unpleasant feeling in the stomach making you feel weak and look pale. Nausea is often accompanied by loss of appetite and may or may not lead to vomiting. Left unmanaged it can lead to weight loss.

Causes Nausea is a known side effect of many HIV antiviral drugs. Most nucleosides and protease inhibitors can cause gastrointestinal (gut) problems including nausea, vomiting and diarrhoea. Some other drugs used by people with HIV, including antibiotics such as Bactrim, can also cause these problems.

Complementary & Supportive Therapy

Herbal teas: Ginger and chamomile teas may help. Ginger (*Zingiber officinale*) is warming (it improves circulation) and may ease digestive problems. Chamomile (*Anthemis nobilis*) can help settle the stomach. Ginger can be taken as tablets or eaten as crystallised ginger.

Acupuncture: This can assist, as can acupressure wristbands that apply pressure to points above the wrists.

Foods: Try to keep eating—bland, light and palatable foods are best. Dry mashed potato and white rice may be easiest to manage. Choose cool foods (sandwiches, salads, dairy desserts) over hot, spicy, fatty, or strong-smelling foods (e.g. curries, cabbage, fried foods). Salty foods such as cracker biscuits and soups may also help. Avoid becoming dehydrated, particularly when vomiting. Maintain a good fluid intake. Water or sports drinks can be frozen and taken slowly as ice blocks.

Herbs: Slippery Elm (*Ulmus fulva*) may soothe and lubricate the lining of the gut. The active ingredient in cannabis (THC) helps some people to control nausea (and improve appetite).

Medical & Drug Treatment

Check with your pharmacist to see which of your antiviral drugs can be taken after food to reduce the irritation to the stomach lining. Some medications need to be taken after food or on an empty stomach. Prescription anti-nausea medications such as prochlorperazine (e.g. Stemetil, Stemetil) and metoclopramide (e.g. Maxolon) can be very effective for drug-related nausea. Domperidone (e.g. Motilium) is also effective. Your doctor will advise which anti-nausea medication is best suited for you.

Special Precautions & Considerations

- Stick to any food restrictions recommended for your medications to ensure they are absorbed properly. If this is difficult ask your doctor or a dietician for advice.
- Skipping meals can worsen nausea. Eating small amounts throughout the day may be easier than managing three full-sized meals.
- Some foods and smells can bring on or worsen nausea. Try to avoid odours which you know make you feel nauseated. If food aromas cause nausea, try cooking meals in bulk and freezing portions for later use, microwaving prepared meals or preparing meals that do not require cooking such as sandwiches and salads.
- Vomiting can dramatically reduce absorption of your drugs. If you cannot keep food and medications down for more than a couple of hours, and this occurs often and repeatedly over a day or so, see your doctor immediately.
- Cannabis may interact with protease inhibitors (and other HIV antiviral drugs) although the degree varies widely between individuals and is unlikely to have any short-term clinical consequences. Smoking marijuana, especially over long periods of time, may create health problems of its own.

Possession and use of cannabis and its derivatives is illegal in Australia. The laws in South Australia, the ACT and the Northern Territory require police to impose minor on the spot penalties or cautions rather than prosecutions for possession or use of small quantities of cannabis. Trials of cannabis, to assess its medicinal use, have been proposed in NSW but had not commenced at the time of going to print.

Symptoms Frequent, urgent and loose or watery bowel motions. These can range from mild to severe and may sometimes be accompanied by 'sickly' pain and cramping in the belly and intestines. Diarrhoea can reduce the absorption of nutrients and medication through the gut. If left uncontrolled it can have negative consequences including weight loss and treatment failure.

Causes Diarrhoea can have several different, and sometimes multiple simultaneous causes, including:

- infection with some types of viruses, bacteria, or parasites;
- food allergies and intolerances to certain foods; and
- stress and emotional problems.

Diarrhoea can also be a result of HIV infection itself or a side effect of many HIV antiviral drugs. Most nucleosides and protease inhibitors (especially nelfinavir) are associated with gastrointestinal (gut) intolerance which can lead to diarrhoea. Less frequently, non-nucleoside reverse transcriptase inhibitors (NNRTIs) cause diarrhoea.

Complementary & Supportive Therapy

Foods: Keep eating. Many people stop eating when they have diarrhoea, which can provide short-term relief but the diarrhoea returns, often worse, when food is resumed. Continuing to eat foods containing soluble fibre and minimal fat can shorten the duration of the problem. Eat several small meals a day if your appetite is poor, focusing on bland, easily digested food and avoid very hot or very cold foods. Fresh nutmeg, sprinkled and mixed with yoghurt containing probiotic 'friendly' gut bacteria, helps by slowing the gut down. Nutmeg should only be used sparingly as it is toxic in high quantities. Probiotic organisms *Lactobacillus acidophilus*, *Lactobacillus casei*, *Enterococcus faecium* and the *Bifidobacterium* species are classed as 'friendly bacteria' which are believed to keep the gut healthy. Probiotics may be especially helpful if you experience diarrhoea after a course of antibiotics.

Foods containing pectin such as rolled oats, bananas, stewed apples, white rice, and peeled potatoes 'glue' stools together. Limit foods high in insoluble fibre (legumes,

Complementary & Supportive Therapy *continued...*

wholegrain breads and cereals, fibrous vegetables and fruits, vegetable and fruit peels).

Limit alcohol and caffeine-containing drinks (coffee, tea, cola and energy drinks). Avoid fatty and spicy foods. Diarrhoea can cause temporary lactose intolerance in some people. This results in the diarrhoea worsening when foods containing milk sugar or lactose are consumed (e.g. milks, custards, ice-creams). Limit lactose-containing foods by choosing low lactose milks or soy drinks. Most yoghurts and hard yellow cheeses have low levels of lactose and are tolerated well.

Herbs and teas: Slippery elm bark (*Ulmus fulva*) or rice bran soothes and lubricates the gastrointestinal (gut) linings where there is irritation. Peppermint tea may relieve bloating and contraction in the digestive tract muscles. Aloe vera helps relieve symptoms associated with irritable bowel syndrome (IBS). It is important to use Aloe products containing the inner leaf gel only, because other whole leaf compounds of the plant have a laxative effect. Drink plenty of water to avoid becoming dehydrated and replace minerals lost with an electrolyte replenisher (e.g. Gastrolyte) if you are losing fluid through frequent bowel movements. These drinks may also be frozen and taken slowly as ice blocks.

Fibre supplements: Soluble fibre such as psyllium husks (e.g. Metamucil) help by absorbing surplus water from the gut. Fibre supplements should be taken a couple of hours before or after HIV antiviral drugs as they can affect absorption.

Medical & Drug Treatment

Diarrhoea can be caused by infection as well as drug side effects. It is important to exclude infection as a cause of this symptom. Your doctor will take a stool sample to determine whether your diarrhoea is the result of infection and will prescribe the appropriate drug treatment if this is the case.

Calcium supplements (e.g. Caltrate) may be particularly useful for nelfinavir-related diarrhoea. It has not been found to be as effective for other protease inhibitor related

Medical & Drug Treatment *continued...*

diarrhoea. The usual dose is 500mg of calcium carbonate twice a day, an hour or two before taking your protease inhibitors.

Anti-diarrhoea drugs (e.g. Imodium, Gastro Stop or Lomotil) can be very useful and are available from the chemist without a prescription. You should not take more than 6-8 Imodium tablets each day.

Codeine helps firm up stools but can lead to constipation in high doses (see precautions).

Special Precautions & Considerations

- Successful management of diarrhoea depends on identifying its cause(s). The potential benefits for each approach to treatment may be specific to certain causes, so talk to your doctor and dietician to identify which approaches are likely to work best for you.
- Long-term use of codeine can lead to addiction. Use codeine only under a doctor's supervision when other methods of controlling diarrhoea have failed.
- Your doctor may recommend changing your HIV antiviral drugs if diarrhoea is intolerable and doesn't respond to other interventions, but don't stop taking your medications unless your doctor advises you to do so.
- Diarrhoea can increase the permeability of the lining of the intestines, leading to fluid loss from the body. This is sometimes referred to as "leaky gut".
- Smoking and alcohol can worsen diarrhoea.
- Stick to the dietary requirements of your HIV treatments (i.e. whether they should be taken with food or on an empty stomach). If you are having trouble doing this, talk to your doctor as soon as possible.
- Some people react differently to different foods, food fibre and sugars. While the fibre in fruit may bulk up stools, the simple sugars (fructose) in some fruit can worsen diarrhoea. Citrus fruits may be worse than other fruits such as apples and bananas. Bananas are usually beneficial for soothing the intestines, but can sometimes make diarrhoea worse due to their 'slippery' nature. Spinach, lettuce and avocados are also 'slippery' type foods. A dietician can assist you in identifying the foods that work for you.

Special Precautions & Considerations *continued...*

- Dietary fibre supplements (e.g. Metamucil), can slow or reduce the absorption of medications. Speak to your doctor or pharmacist if you have concerns about this.

Lack of appetite

Symptoms Decreased interest in, enjoyment of, or ability to eat food. A persistent lack of appetite can have a severe effect on your enjoyment of life and over time may lead to weight loss so it is important to try to maintain a healthy appetite.

Causes Appetite problems may be a secondary effect of nausea and vomiting and the liver side effects of some non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors. They may also be caused by malabsorption (inability to properly absorb nutrients), problems with maintaining a healthy balance of bacteria in the gut, and fungal, bacterial or viral infections which irritate or inflame the gastrointestinal (gut) lining. Some people find that taking medications affects their sensation of taste and can make eating much less enjoyable. Stress, depression and fatigue are also associated with loss of appetite.

Complementary & Supportive Therapy

Appetite stimulants: Ginger tea (*Zingiber officinale*) promotes gastric acid secretion, which stimulates appetite and helps food absorption. Wine or pickles before meals can stimulate appetite, but avoid these if you have digestive upsets, candidiasis, thrush or other fungal conditions. 'Bitter tonics' help to activate the secretion of digestive (gastric) juices. Taking approximately 2-3mls of Swedish Bitters, before meals may help stimulate the appetite.

Swedish Bitters contains a number of herbs including aloe (*Aloe vera*), myrrh (*Commiphora molmol*), saffron (*Crocus sativus*), senna leaves (*Cassia senna*), camphor (*Cinnamomum camphora*), angelica root (*Angelica archangelica*), zedvoary root (*Curcuma zedoraria*), manna ash (*Fraxinus ornus*), carline thistle root (*Carlina vulgaris*), gentian root (*Gentiana lutea*) and Chinese rhubarb root (*Rheum palmatum*).

Complementary & Supportive Therapy *continued...*

Eating and drinking: Raw foods are often more palatable than cooked foods, and they stimulate the gut to produce digestive juices which may improve the appetite (try carrots, celery, pineapples, paw paws or papaya for example). Eat when you are hungry, pay attention to your cravings and enjoy your favourite foods. If you rarely feel hungry then structure your meal times by eating at regular intervals e.g. every three to four hours. Eat frequent small meals, rather than two to three large meals daily. Try to shop for food and prepare your own meals as anticipation of food can stimulate your appetite, but if the smell of cooking makes you nauseous, accept offers from friends and carers to help prepare meals or eat foods which require little or no cooking. Zinc helps the body to make saliva and low levels of zinc are linked to reduced appetite. However, supplements can only help if you are zinc-deficient. Lean meats, milks, cheese, nuts and seeds are all good sources of zinc. Limit low energy fluids (tea, coffee, diet drinks) and choose more nutritious drinks (milk, juice, energy supplements such as Sustagen and Ensure Plus, and soups). Choose high-energy snack foods such as nuts, yoghurts, cheese and dairy desserts.

Exercise: Regular exercise and physical activity can help to stimulate the appetite. Even small amounts of exercise can help.

There is some evidence that the active ingredient in cannabis (THC) helps some people to control nausea and improve appetite.

Possession and use of cannabis and its derivatives is illegal in Australia. The laws in South Australia, the Australian Capital Territory and the Northern Territory require police to impose minor on the spot penalties or cautions rather than prosecutions for possession or use of small quantities of cannabis. Trials of cannabis, to assess its medicinal use, have been proposed in NSW but had not commenced at the time of going to print.

Lack of appetite *continued...*

Medical & Drug Treatment

Appetite loss due to nausea or drug induced hepatitis (liver inflammation) requires treatment which addresses these underlying causes. Salivary replacement and stimulant medications are sometimes prescribed if there is a lack of saliva leading to a dry mouth.

Special Precautions and Considerations

- Successful treatment depends on first identifying the cause of the problem. Your doctor can offer appropriate management suitable to your individual situation.
- Zinc supplements can cause nausea in those who are not deficient and may cause vomiting.
- Try to avoid refined sugar, fatty foods, excessive alcohol and smoking as they can reduce appetite.
- Raw and pickled foods should be avoided if you have ongoing digestive upsets, such as nausea, vomiting and diarrhoea. In this case, it may be better to have steamed or stir-fried vegetables.

Peripheral neuropathy

Symptoms

Pain, numbness, tingling and burning sensations in the extremities of the body, beginning in the feet (particularly the soles of the feet), sometimes in the lower legs and later the hands. Peripheral neuropathy may cause little or no discomfort at first but can become progressively more painful.

Causes

Peripheral neuropathy is most commonly associated with HIV antiviral drugs in the Nucleoside Reverse Transcriptase Inhibitor (NRTI) class i.e. d4T/stavudine (Zerit) and ddI/didanosine (Videx). Less commonly, it is related to AZT/zidovudine (Retrovir), 3TC (lamivudine) and abacavir (Ziagen). In addition to antivirals, HIV itself (usually in advanced HIV disease) or drugs used to treat HIV opportunistic infections, may also cause peripheral neuropathy. Diabetes and vitamin B deficiency may also contribute to neuropathy.

Complementary & Supportive Therapy

Topical applications: Capsaicin ointments (e.g. Zostrix or APR Cream) made from the active heat ingredient in capsicums, other deep heat creams or liniments, and local anaesthetic preparations such as lidocaine gel may be applied to the skin surface. Peppermint oil (*Mentha piperita*) applied externally to the skin is used in pain relieving balms, massage oils and liniments, due to its main constituent—menthol—which is cooling and anaesthetic when applied to the skin. Camphor (*Cinnamomum camphor*), menthol (*Mentha arvensis*) and eucalyptus oils (*Eucalyptus globulus*) may be suitable alternatives. Cool applications (but not ice) to feet help reduce pain or warm baths may be helpful.

Massage, acupressure and acupuncture may also be useful. Brushing the skin with a soft brush can help soothe and invigorate the irritated nerves, but avoid skin brushing on any areas where the skin is broken.

Therapy: A podiatrist, physiotherapist or occupational therapist can provide you with additional specialised therapies and support to alleviate peripheral neuropathy.

For severe pain referral to a pain clinic can assist.

Footwear: Wear loose fitting but supportive padded shoes and innersoles.

Dietary supplements: Lecithin, an essential dietary fat, may assist nerve regeneration where there has been demyelination of the nerve (myelin is a fatty substance surrounding the nerve). B complex vitamins (especially biotin, choline, inositol, cobalamin [B12], folic acid [B9], niacin [B3] (but see precautions page 26), pyridoxine [B6], & thiamine [B1]) promote proper nerve function. L-acetylcarnitine (LAC) may assist in improving the proper nerve conduction. Alpha-lipoic acid (also known as thioctic acid) acts as an anti-oxidant that helps prevent the neuropathy seen in diabetes. Gamma-linolenic acid is an essential fatty acid found mostly in Evening Primrose Oil (*Oenothera biennis*), which provides nutrition to the nerves and assists in the proper nerve conduction of sensory impulses. Chromium and magnesium may provide further supportive therapy for proper nerve function.

Medical & Drug Treatment

Symptomatic treatment with tricyclic antidepressants can reduce the pain. Amitriptyline is one type of tricyclic antidepressant (e.g. Tryptanol and Endep), which is often prescribed to counter neuropathy pain. Imipramine (e.g. Tofranil) may also be used. Anticonvulsants such as carbamazepine (e.g. Tegretol), gabapentin (e.g. Neurontin), and lamotrigine (e.g. Lamictal) have shown some success in treating neuropathy pain. Pain relievers such as paracetamol (e.g. Panadol) may help. Stronger painkillers may be prescribed to assist with strong or intense pain.

Special Precautions and Considerations

- When a drug causes peripheral neuropathy, withdrawing that drug sometimes stops the condition worsening. Initially the symptoms may get worse before they improve.
- In the early stages of peripheral neuropathy a podiatrist can provide supportive therapy. When there is more persistent pain and nerve damage that does not respond to available therapies, referral to a neurologist may be required.
- Discuss the pain with a nurse or doctor regularly.
- Try to avoid walking or standing for long periods.

Symptoms Considerable tiredness and ongoing lack of energy.

Causes Fatigue may be a drug-related side effect of antiviral therapy or may be due to HIV disease itself. Fatigue can sometimes be caused by anaemia, but this is not the only cause of fatigue.

Other causes include:

- Inadequate diet along with gut disturbance problems which affect the absorption of nutrients for energy.
- Lifestyle, sleeping habits (insomnia) and lack of exercise.
- Depression and anxiety.
- Infections such as Mycobacterium Avium Complex (MAC), cytomegalovirus (CMV), or candidiasis.
- Liver problems, and adrenal and thyroid gland problems.
- Sensitivity to environmental toxins or allergies.
- Excessive use of alcohol.

Complementary & Supportive Therapy

Dietary supplements: B complex vitamins, Royal jelly, Panax ginseng and Coenzyme Q10.

Sleeping and lifestyle patterns: If insomnia or other sleeping problems are the cause, try to establish a routine for going to bed at a regular time, and include relaxation exercises before bed, or when you get into bed, as part of this routine. Establish healthy life habits, a balanced diet, and recreational and social activity.

Diet: Low glycaemic index (GI) foods may be included in every meal to promote a sustained source of energy for the body to use (eg. multigrain breads, high fibre cereals, certain rice types like Basmati and Doongarra, pasta, fruit, vegetables and dairy products.) Accept offers from friends and carers to help prepare meals if fatigue stops you from having the energy to cook. Prepare bulk meals and freeze for later use. Stock up on easy to prepare food, and keep high calorie snacks on hand such as dried fruit and nuts.

Fatigue *continued...*

Medical & Drug Treatment

Medical and drug treatment depends on identification of the underlying causes.

Special Precautions & Considerations

- Panax ginseng is broken down in the liver by the same pathway used by protease inhibitors. This may result in high blood levels of protease inhibitors. Check with your doctor before using Panax ginseng if you are being prescribed protease inhibitors.
- Panax ginseng may, in some cases, increase blood pressure and should be used under supervision in consultation with your doctor, health care provider or professional herbalist.

Anaemia

Symptoms

Pale complexion, breathlessness on exertion. This can result in fatigue due to poor oxygen supply to the body's cells.

Causes

Anaemia develops when the body doesn't have enough red blood cells or their structure is altered and impeded in the body. It may result from HIV itself, from HIV antiviral drugs, or from drugs used to treat or prevent opportunistic infections. It affects one out of every four HIV-positive people and 5-10% of people taking AZT. Anaemia may also be the result of certain viral and bacterial illnesses. Inadequate diet or gut disturbance problems which affect the absorption of iron in the diet may be associated with anaemia.

Complementary & Supportive Therapy

Diet and dietary supplements: If iron deficiency is the cause of the anaemia, iron supplements or eating iron-rich foods such as red meat, fish, eggs, poultry, dried beans, lentils, green leafy vegetables, nuts, seeds, wholegrain breads and cereals may help. Eating vitamin C rich foods such as citrus fruits, tomatoes, broccoli, rockmelon/cantaloupe and strawberries in the same meal can increase iron absorption. Iron absorption may be reduced by the tannins in tea, coffee and red wine. HIV itself commonly causes vitamin B12 deficiency. Vitamin B12 supplements or

Complementary & Supportive Therapy *continued...*

foods containing this vitamin such as meat, fish, chicken, eggs and fortified products such as soy milks and some breakfast cereals can assist. Vitamin B12 deficiency is often accompanied by folate deficiency so folic acid supplements may also be useful.

If haemoglobin levels remain low and it is possible that this is due to your HIV medications, then your doctor will stop the drug that is likely to be causing the anaemia. In severe cases a blood transfusion may be necessary and sometimes erythropoietin (e.g. Procrit/Eporex) may be prescribed.

Special Precautions & Considerations

■ Causes of anaemia can be complex, so seek medical advice and assessment first.

Night sweats

Symptoms

Night sweats are defined as drenching sweats that require you to change your bed clothes. However, many people with HIV have what they describe as 'night sweats' characterised by persistent sweating at night which disturbs their sleep. Night sweats can be accompanied by high fluctuating fevers, low grade fevers, flushed cheeks and warm palms and soles.

Causes

HIV itself—or another infection or illness—is the most likely cause. Menopause can be accompanied by night sweats. Diabetes or low blood sugar is often associated with night sweats. Some medications including antidepressants are associated with night sweats. Taking paracetamol (e.g. Panadol) or aspirin to relieve the symptoms of fever can result in a rebound of the fever and night sweats as the drugs wear off. Alcohol use, particularly alcohol dependence can be a cause. Emotional and mental factors such as depression, stress, and anxiety may result in night sweats. Other causes include some HIV antiviral drugs such as indinavir (infrequent) and saquinavir (less than 2%).

Night sweats *continued...*

Complementary & Supportive Therapy

Drink: Nettle tea (*Urtica dioica*) or sage tea (*Salvia officinalis*) (steeped in boiling water for at least four to six minutes), then strained and sipped throughout the day—two to five cups. Whole Lemon Drink (see recipe at the end of this booklet) can also help.

Medical & Drug Treatment

It is important to seek advice from your medical practitioner as night sweats are rarely a drug side effect and are most likely due to an infection or uncontrolled HIV disease. Medical and drug treatment depends on the underlying causes. Replacement of fluid lost through sweating by increasing water intake and Gastrolyte to replace important electrolytes (minerals) is important. Taking anti-fever drugs before bed like paracetamol (e.g. Panadol), aspirin or ibuprofen (e.g. Nurofen) may result in the rebounding of fever and night sweats when the drugs wear off. However, if you wake up from night sweats and fever is the cause, these drugs can help relieve the fever and the associated night sweats.

Special Precautions & Considerations

- Sage can be especially drying—do not take for more than two weeks.
- If you have diarrhoea, **DO NOT** take the Whole Lemon Drink remedy as it can make diarrhoea worse in some people.

Skin problems / rash

Symptoms

The skin is probably the organ most commonly affected by HIV infection. Conditions such as eczema, psoriasis, dry skin and seborrhoeic dermatitis tend to occur. These conditions are due to HIV itself and can make the skin more vulnerable to other infections. Rashes caused by reactions to drugs are usually characterised by a widespread red rash across the back, chest, arms, and legs. Occasionally the rash includes the face and mucous membranes (eyes, nasal passage and mouth). The rash can be flat, resembling a sunburn, or with red raised bumps, but any sort of rash can happen. When widespread rashes occur it is advisable to seek medical advice immediately.

Causes Drug reactions causing rashes occur mostly from antibiotics, especially penicillins, and sulpha drugs. HIV antiviral drugs which can cause rashes include nevirapine, abacavir, nelfinavir, delavirdine, efavirenz, and amprenavir. Nevirapine rash is usually mild to moderate and occurs in up to 16% of patients, while a severe hypersensitivity rash can occur with fever, muscle pain and weakness and inflamed lymph glands (4.1% severe: 1.1% life threatening). Rash will usually occur within the first six weeks of taking nevirapine, but patients are monitored for up to eight weeks. Severe hypersensitivity, which may include a rash, occurs in about 4% of people starting abacavir (usually within six weeks of starting therapy). Stevens-Johnson Syndrome occurs rarely and is potentially life threatening requiring discontinuation of the causative drug. Some HIV antiviral drugs such as indinavir can affect the hair and nails. Some protease inhibitors may cause ingrown toenails. A whole variety of skin conditions including eczema, psoriasis, dry skin and seborrhoeic dermatitis occur regularly in HIV disease. These conditions are often treatable with correct diagnosis and where they are persistent and proving difficult to treat, referral to a dermatologist may be useful.

Complementary & Supportive Therapy

Itching and dry skin: Soothing lotions as well as sodium bicarbonate baths help pruritus itch. Oatmeal soaps and baths can be soothing to irritated, itchy and inflamed skin. Sorbelene cream and soap is moisturising. To reduce itching try paw paw cream. Skin moisturising creams assist dry rash and cracked skin, particularly creams with 50% liquid and 50% paraffin wax, or creams containing chamomile (*Anthemis nobilis*), lavender (*Lavandula officinalis*) or calendula (*Calendula officinalis*). Adding a few drops of lavender, chamomile, calendula or apricot kernel oil to bath water can help soothe inflamed skin and/or improve the moisture content of dry skin. Decrease the frequency of bathing and lower the water temperature to help dry skin. Dry scalp can have many different causes and if it persists, your doctor or dermatologist should recommend appropriate treatment. Red Clover tea (*Trifolium pratense*) can soothe itching and irritation caused by eczema or psoriasis.

Complementary & Supportive Therapy *continued...*

Gamma Linoleic Acid found mostly in Evening Primrose Oil (*Oenothera biennis*) can improve the symptoms of eczema and moisturise skin.

Lifestyle factors: Drink plenty of water to hydrate the body cells and give buoyancy to the skin. Fresh outdoor environments are generally beneficial to most skin conditions, but avoid over exposure to the sun. Wearing 100% cotton clothing and underwear can be helpful. Try to avoid clothing made of synthetic fibres, which stops the skin from 'breathing' naturally.

Some rashes which affect skin pigment in the skin can be made worse by excessive sun exposure. Daily sun exposure in the mid morning for a short period is beneficial to psoriasis.

If you have a boil or skin infection, maintain good hygiene and wash towels and other materials that come into contact with infected areas. A doctor should examine any skin infection that looks particularly aggressive, with a sample taken for culture. Because some skin infections, such as *Staphylococcus aureus*, are becoming increasingly resistant to antibiotics, it is important that if you are prescribed antibiotics, the full course is taken to minimise resistance to the drug and provide a better chance of clearing any infection.

Medical & Drug Treatment

Treatment of rashes caused by drug reactions depends on the drug and the severity of the rash. Sometimes the drug may be reintroduced in slowly escalating doses. It is important to seek immediate medical advice if a rash develops soon after commencing a new drug. Some rashes may become life threatening.

Special Precautions & Considerations

- Severe open wounds should not be treated with Aloe vera directly. Seek a doctor's advice before use.
- Tea-tree oil can worsen wounds if applied directly. Seek a doctor's advice before use.
- If any widespread rash appears quickly, medical advice should be sought immediately. Only consider using supportive therapies for symptom relief after medical advice has been sought.

Special Precautions & Considerations

continued...

- Severe rash caused by HIV drugs may require use of the drug to be discontinued immediately. Mild reactions can sometimes resolve themselves, but your doctor will continue to assess and monitor your reaction during the first two to eight weeks of commencing HIV antiviral drugs known to cause severe rash. Never attempt to treat an emerging skin problem without first obtaining your doctor's advice.

Blood sugar changes

Symptoms

Changes to blood sugar can be associated with fatigue, lethargy and fluctuating energy levels. Sometimes changes may not be noticed. If left unmanaged, it can lead to diabetes where additional symptoms will be experienced including frequent urination (especially at night) and excessive thirst. The Oral Glucose Tolerance Test will determine if there is a problem with blood sugar changes in the body.

Causes

Blood sugar problems are related to changes in insulin resistance that also affect blood fats associated with lipodystrophy. Risk factors for diabetes include a family history of diabetes, obesity and diet. Drug side effects are an additional risk factor. Protease inhibitors are the most common cause of blood sugar changes. Nucleosides can cause mitochondrial damage. This affects the way blood sugars are processed in body cells.

Complementary & Supportive Therapy

Dietary supplements: Various supplements can assist blood sugar problems including chromium and the herbs gymnema (*Gymnema sylvestre*) and fenugreek (*Trigonella foenum-graecum*). Stevia (*Stevia rebaudiana*) is a naturally sweet herb that can be used as an alternative to sugar and is suitable for diabetics.

Exercise and diet: Thirty minutes a day of moderate physical activity such as walking is recommended. Dietary modifications to improve blood glucose control can be achieved using the glycaemic index (GI). The GI ranks food based on their effect on blood sugar levels.

Complementary & Supportive Therapy *continued...*

When a carbohydrate-containing food such as pasta, fruit or milk is consumed and digested, it releases sugar (mainly glucose), which is then absorbed into the blood. The body responds by releasing a hormone called insulin, which causes glucose to be stored in the body, mainly into muscle and liver tissue, for future use. GI is a measure of how fast the glucose from a food is absorbed into the blood. The lower the GI, the slower and more evenly glucose is absorbed into the blood. Foods that result in a slow release of glucose are generally termed low GI foods. Low GI foods are generally less processed carbohydrate foods that are higher in fibre. Consultation with a dietician can help you to find foods that are right for you. General recommendations for improving blood (glucose) sugar includes eating multigrain breads, cereals, pasta, milks, yoghurts, legumes, fruit and vegetables (low GI foods), eating foods that are low in fat especially saturated fat, and minimising simple sugar intake or high GI foods.

Medical & Drug Treatment

Metformin is sometimes used to help control blood sugar, but can cause lactic acidosis in people with HIV and should be used with care. Sulfonylurea drugs and glitazone drugs (e.g. Avandia) are prescribed when blood sugar problems progress to diagnosis of Type II Diabetes. Insulin is required when the oral medications are unable to control blood sugar at appropriate levels.

Special Precautions & Considerations

- See your doctor before commencing herbal remedies and complementary therapies for blood sugar problems.
- Seek advice from a dietician since early approaches can help control blood sugar problems and may help to prevent the onset of diabetes which is much harder to manage and a more serious condition.

Cholesterol (blood fat) problems

Symptoms High cholesterol is not immediately noticeable by a specific and obvious physical symptom. Long term increases in cholesterol are associated with increased risk of heart disease. Diabetes (now more common in people with HIV) also greatly adds to the risk of heart disease. A blood test is used to measure cholesterol levels.

Causes Many antiviral drugs, particularly protease inhibitors, are associated with rises in cholesterol levels. HIV disease can cause alterations in blood fats. Smoking, lack of exercise, inadequate diet (especially diets high in saturated animal fats) and increased age are all associated with increased cholesterol levels.

Complementary & Supportive Therapy

Dietary supplements: Omega 3 Fish Oils are a key essential dietary fat that helps reduce triglycerides. Good sources are deep-sea fish with dark flesh such as tuna, halibut, salmon, mackerel and cod. Several studies have shown that Policosanol (an oil extract from sugar cane) has a beneficial effect in the reduction of total cholesterol and reduces LDL (bad) cholesterol. Policosanol also appears to raise HDL (good cholesterol). Many of the trials enrolled people whose cholesterol levels had not previously improved with diet alone. A high dose of vitamin B3 (niacin) acts to reduce the levels of complex blood fats called triglycerides, and increases HDL (good) cholesterol, although it is less effective at reducing LDL (bad) cholesterol. Red yeast rice may also reduce cholesterol and triglyceride levels. *(Note: this substance has not yet been approved for use in medicines in Australia. The products currently available are presented as foods and therefore cannot make therapeutic claims. Also, red yeast rice is reported to contain statins, some of which are scheduled in State and Territory drugs and poisons legislation as 'prescription only' substances. Until a full safety evaluation has been undertaken, due care should be exercised.)*

Diet: Dietary modifications are suggested as a first line treatment. Limiting saturated fat intake (mostly from animal food sources such as fatty meats, full dairy cream products, coconut and palm oil and bakery items) and replacing with monounsaturated and polyunsaturated fats (mostly from plant food sources such as nuts, seeds, canola, olive oil and avocado) has been shown to decrease blood fat levels. Increasing plant food fibre such as wheat,

Cholesterol (blood fat) problems *continued...*

Complementary & Supportive Therapy *continued...*

oats, rice and grains, fruit and vegetables, nuts, seeds and legumes (beans), is often effective in reducing cholesterol. Simple sugar and alcohol intake is linked to increasing triglyceride levels, meaning refined carbohydrate foods such as white breads, cakes, lollies and soft-drinks should be replaced with less processed foods such as multigrain breads and cereals, fruit, vegetables, legumes and low fat dairy products. Alcohol should be consumed in moderation.

Exercise: Physical activity can help control heart disease risk factors such as obesity, elevated blood fats and high blood pressure. The Heart Foundation recommends that people include at least 30 minutes of moderate intensity activity on most, if not all days of the week (e.g. brisk walking, swimming, etc.). The amount of activity can be accumulated in shorter bouts if necessary e.g. 3 x 10 minute walks daily. Weight training may also be beneficial.

Medical & Drug Treatment

Lipid-lowering drugs are used to lower blood fats but will only be recommended when blood fats continue to increase or persist over a long time, and have not responded to diet and lifestyle changes, or switching your HIV antiviral drugs. Lipid lowering drugs can interact adversely with HIV antiviral drugs. This interaction can worsen side effects and can cause additional kidney, liver and muscle side effects, which can be severe.

Changing your HIV antiviral drugs may be recommended. Depending on your HIV treatment history and other indicators, it may be recommended that you swap from protease inhibitors to non-nucleoside reverse transcriptase inhibitors. Your doctor will only recommend stopping the causative HIV drug in extreme circumstances.

Special Precautions & Considerations

- A dietician will assist with improving dietary food choices.
- Your doctor may prescribe niacin (vitamin B3) to further enhance the capacity of prescribed lipid-lowering drugs. Niacin can have side effects when high doses are taken including intense red flushing of the skin, a burning feeling, rapid heart beat (palpitations) and upset stomach and nausea.

Muscle inflammation, pain & soreness

Symptoms Generalised pain, swelling and tenderness in the muscles and tendons. Muscles may be more easily bruised and harder to heal. Symptoms include vague or mild muscle pains and aches. Muscles may also reduce in size as a result of muscle wasting from some HIV antiviral drugs. Sometimes, extreme muscle weakness can occur, which can be the result of serious and life threatening drug side effects.

Causes A high level of lactic acid is a known long term side effect of the nucleoside inhibitors. This can result in lactic acidemia and rarely can cause a severe condition known as lactic acidosis. Higher levels of lactic acid cause muscle inflammation, pain and soreness. These symptoms may also be directly due to the effect of some drugs (e.g. AZT).

Complementary & Supportive Therapy

Therapy: Massage, acupuncture and other forms of physical therapy can be useful. Heat therapies and relaxation therapies may reduce pain in the muscles.

Dietary supplements: Antioxidants such as vitamin C and E, selenium, coenzyme Q10, L-Glutamine, L-Carnitine, N-acetylcysteine (NAC), vitamin B1 (thiamine) and vitamin B2 (riboflavin) may also be of assistance. Vitamin B1 is essential in the formation and maintenance of muscle tissue and assists muscle to make efficient use of carbohydrates for muscle energy. Good food sources of vitamin B1 are whole grains, wholemeal bread, brown rice and pulses.

Diet: Reduce simple carbohydrates and add good sources of magnesium to the diet such as nuts, wheat bran and wheat germ, legumes, beans, bananas, berries, prunes, dried fruits, spinach and brown rice.

Medical & Drug Treatment

Appropriate medications and therapy will depend on the type, intensity, and location of the muscle pain. In severe cases of lactic acidosis where extreme lethargy and shortness of breath prevails, the causative drug will be withdrawn.

Current recommendations for hyperlactatemia and acidosis are to cease HIV antiviral drugs immediately. There is little evidence that coenzyme Q or riboflavin have an effect on reversing lactic acidosis.

Pain relievers such as paracetamol or aspirin may provide temporary relief. Stronger painkillers may be prescribed if needed.

Special Precautions & Considerations

- Lactic acidosis is a potentially life threatening condition. At the first sign of unusual muscle pain, shortness of breath and lethargy, see your doctor. Nucleosides can affect the liver resulting in serious lactic acidosis, but this occurs rarely.
- Low-level acidemia and metabolic acidosis (called lactic acidemia) is more common than lactic acidosis. The symptoms are similar to those of lactic acidosis but they are less severe and are not life threatening. Lactic acidemia can occur in up to 15% of people taking nucleosides, but protease inhibitors can make this problem worse. Studies suggest d4T may be associated with the greatest risk, but all NRTIs can cause the underlying problem with liver toxicity and inflammation.

Liver inflammation

Symptoms Hepatitis is the common term for liver inflammation from any cause. It may not cause any symptoms, or it may cause pain in the upper right quadrant of the abdomen, swelling near the bottom right of the rib cage or tenderness under the right side of the rib cage. Occasionally jaundice (yellowing of the whites of the eyes and skin) will occur depending on the severity of the liver problem. Infrequent symptoms of liver inflammation include bloating and wind from eating fatty and fried foods. Tiredness, fatigue or lethargy are common symptoms. Changes may occur with blood fat levels (cholesterol and triglycerides).

Causes Hepatitis A, B and C are viral infections that are common causes of hepatitis. Most HIV antiviral drugs affect the liver to some degree (see drug side effects table). Nucleosides can cause the development of a syndrome of fatty liver (hepatic steatosis), and this may be more common in people who have pre-existing liver damage (from hepatitis C for example).

Causes
continued...

Protease inhibitors can also cause liver inflammation and liver enzyme changes. When used at full dose, rather than in a 'baby dose' to boost the absorption of other protease inhibitors, ritonavir causes liver inflammation more frequently than other protease inhibitors. Of the non-nucleosides, nevirapine and delavirdine are more likely to cause liver enzyme elevations (and even liver failure) than efavirenz. Liver inflammation can also occur because of poor diet (particularly saturated fat diets), recreational drug side effects, alcohol or other infections.

Complementary &
Supportive Therapy

Dietary supplements: Dandelion tea (*Taraxicum officianalis*) is a useful tonic for all liver diseases and jaundice. Chicory (*Cichorium intybus*) resembles dandelion in its medicinal action, and may also be drunk as a coffee substitute like dandelion. Yellow Dock (*Rumex crispus*) herb is a useful herb for cleansing the liver, and is particularly useful for bilious complaints (e.g. jaundice). Globe artichoke is a liver tonic, often used as a component in liver supplements. Vitamin E is a key liver nutrient and is stored in the liver. Vitamin E lowers the level of the liver enzyme ALT (used as an indicator of liver function in liver function tests). Vitamin E may reduce scarring when liver tissue heals. Vitamin E, and a number of other herbal compounds, have been cited as beneficial treatments for hepatitis C. Spirulina may be a useful supplement to support liver health. The essential amino acid, methionine, is sometimes prescribed by naturopaths to improve liver function and prevent liver damage by removing toxins and heavy metal contaminants from the liver. Methionine may also assist in the prevention of accumulation of fat in the liver. Vitamin C, alpha lipoic acid and lecithin may also assist liver health through their antioxidant capacities and nutrients. Milk thistle (*Silybum marianum*) is a common herbal liver tonic often used to combat viral hepatitis and the liver toxic effects of some HIV antiviral drugs by reducing liver inflammation. Milk thistle is useful for rebuilding the liver when it has been compromised or weakened by promoting the growth of new liver cells. It prevents toxins from penetrating through healthy liver cells by binding itself to the cell membranes.

Complementary & Supportive Therapy *continued...*

Diet: Dietary needs are dependent on the degree of liver damage and the presence or absence of other complications. Individual requirements will vary greatly so it is important that advice be sought from a dietician. General nutrition recommendations for hepatitis include maintaining a healthy balanced diet, with adequate water intake (eight glasses per day), limiting overly fatty foods, and limiting or avoiding alcohol consumption, particularly binge drinking sessions or heavy drinking.

Medical & Drug Treatment

Appropriate medications and therapy will depend on the extent and nature of the type of liver inflammation (hepatitis). Liver Function Tests (LFTs) are used to assess the level of damage to your liver. Mild to moderate hepatitis can be reasonably well controlled through supportive dietary and natural approaches. Your doctor may recommend modification of your HIV antiviral drugs. Many of these drugs are broken down in the liver, which can lead to liver inflammation. Treatments include interferon and ribavirin for hepatitis C and 3TC/tenofovir/adefovir for hepatitis B.

Special Precautions & Considerations

- Some herbs may have negative interactions with HIV antiviral drugs, and either reduce or increase drug levels. Always check herbs for known or possible interactions with your doctor or health care provider.
- Milk thistle (*Silybum marianum*) may potentially interact with protease inhibitors and non-nucleosides and should be avoided when taking these HIV antiviral drugs, despite potential benefits to liver health. Milk thistle may cause mild nausea, diarrhoea, loose stools or an allergic reaction.
- Several herbs and plant compounds including some Chinese herbs have been reported to have various degrees of adverse effects on the liver. The herb Kava (*Piper methysticum*) has been shown to cause liver injury, resulting in a death in a few cases. There are some concerns about the purity of some herbal medicines. Impurities may occasionally cause serious liver injury or complications in people with (or without) chronic viral hepatitis. The tendency for people to alter herbal formulas and use larger doses than prescribed

Special Precautions & Considerations *continued...*

may be why remedies that have been used traditionally for hundreds of years have recently been identified as causing liver problems. Consultation with your doctor is recommended to assist your decisions in relation to herbal treatments.

- Dandelion (*Taraxicum officianalis*) creates excessive urination, which can result in the loss of important minerals and tissue salts. It may also be laxative, worsening diarrhoea if present. Use dandelion tea in moderation.
- Avoid excessive fat-soluble vitamin intake (e.g. vitamins A & D) as toxicity is possible with compromised liver function. Toxicity is less likely from beta carotene but it may cause problems in some people, so check with your doctor before taking any additional supplements.

Kidney problems

Symptoms

Kidneys help to remove waste products from blood, remove excess fluids and are involved in the breakdown and excretion of some drugs. Initially kidney disease may have no associated symptoms. There may be vague pains or aches in the mid-lower back. There can be fatigue and a general feeling of being unwell. Once kidney function becomes sufficiently impaired there can be a range of serious health problems including loss of bone health, high cholesterol and swelling. Because some HIV drugs are broken down by the kidneys, impaired kidney function can result in higher drug blood levels and increased chances of experiencing the side effects associated with those drugs.

Causes

Indinavir in particular can cause kidney stones. Problems with protein in the urine can occur as a side effect of tenofovir use (in rare cases).

Complementary & Supportive Therapy

Diet: Drink plenty of water (at least 1.5 litres/day) when taking indinavir (more in hot weather). Dandelion tea (*Taraxicum officianalis*) is a useful kidney tonic. Dietary

Kidney problems *continued...*

Complementary & Supportive Therapy *continued...*

needs are dependent on the level of kidney function. Advice from a dietician is usually only sought in episodes of acute or chronic renal failure. In general, a healthy balanced diet including plenty of fluids is recommended.

Supportive therapy: Hot packs in the lower portion of the back can help relieve kidney pain.

Medical & Drug Treatment

Your doctor will routinely monitor your kidney function through various blood and urine tests. The medical management of kidney problems varies and your doctor will recommend appropriate treatment. Drugs which cause severe kidney problems may need to be stopped, but this will be advised by your doctor. Your doctor will advise on managing the use of HIV drugs that cause milder kidney problems.

Special Precautions & Considerations

- Your doctor will advise on the health of your kidneys and offer the appropriate treatments where necessary.
- Avoid too much dandelion tea as it may flush out other important minerals through the kidneys.

Mouth ulcers & other mouth conditions

Symptoms An open sore, or lesion. Usually results in red inflammation around the ulcer, which may be sore to touch. Size varies from 1mm to 2cm in diameter.

Causes Mouth ulcers are a common side effect of HIV itself as a result of a declining immune system. Causes can be herpes simplex virus, cytomegalovirus (CMV) or coxsackie virus. Ulcers may be worse when there are other conditions in the mouth, such as when the gums are inflamed and become tender and bleed. If there are bacterial infections in the mouth, such as *Candida albicans*, which is a white growth, these can also make aphthous mouth ulcers worse. Candida in the mouth may also cause lesions and be tender to touch. The Epstein-Barr virus is thought to be the cause of

Causes
continued... another oral condition called Hairy leukoplakia which can form raised white patches and lesions on the tongue. When symptoms of any ulcer or lesion first occur they should be mentioned to your doctor for an early diagnosis, to determine whether the ulcer is drug related or due to some other cause or infection.

Complementary & Supportive Therapy

Dietary supplements: Vitamin C and the bioflavonoids hesperidin, rutin and quercetin, improve skin tissue and the fine blood capillaries in the mouth. Crushed or powdered vitamin C applied directly to a mouth ulcer can assist in healing it, but consult your doctor about this first. Zinc supplements can assist healing, especially for moist areas of the mouth that are difficult to treat with topical applications because the wound does not get enough air to dry and heal. The amino acid L-Glutamine, vitamin A or Beta-carotene can benefit skin and wound healing in the mouth. Lysine supplements may assist in the healing of oral herpes ulcers. Acidophilus (taken as a supplement) can assist where ulcers are associated with inflammatory and bacterial gut problems. Garlic is believed to have antifungal properties which can assist when there is candida or thrush in the mouth. Bee propolis can help alleviate candida in the mouth and has been shown to be beneficial for oral herpes (cold sores around the mouth). Propolis is non-toxic, but allergic reactions have occurred from ingestion. Topical application to ulcers can cause allergic reactions, but may be safer than taking propolis internally. Propolis has exhibited antifungal, antiviral, and anti-tumour properties.

Mouthwash: Golden seal (*Hydrastis canadensis*), and/or sage (*Salvia officinalis*) are useful as a mouthwash or gargle to combat infected gums, sore throats, and mouth ulcers associated with infections such as *Candida albicans* (thrush). Tea tree oil is a natural anti-fungal agent, which can be used as a mouthwash to help guard against fungal infections and protect against infections getting into ulcerated wounds in the mouth. Apple cider vinegar used as a mouthwash may also help. Salt-water gargle can assist to sterilise infections in the mouth and throat, and may

Mouth ulcers & other mouth conditions *continued...*

Complementary & Supportive Therapy *continued...*

heal small wounds and open cuts in the mouth (it may sting for a while when doing this).

Diet: Dietary strategies include limiting acidic and spicy foods (e.g. citrus fruits and juice, chillies and curries), choosing small frequent meals that are moist and soft in texture and cold foods such as canned fruits, ice-cream, ice-blocks, yoghurts and other dairy desserts. Using a straw when drinking may be useful. If food intake is hard to sustain, nutritional supplements can assist in increasing energy and nutrient intake, helping to prevent weight loss and promote the healing process.

Medical & Drug Treatment

Specific treatments for mouth ulcers include steroids or anaesthetics applied directly to the lesion/s for symptomatic relief of inflammation and pain. Biopsy (removal by surgery) may be considered in people with large ulcers (1 to 2cm in diameter) if they continue to recur and look like malignant lesions (growths). Thalidomide is a drug used for severe types of mouth ulcers, but there are restrictions on its use. Your doctor can advise if this treatment is applicable. Mouth rinses with dexamethasone or viscous lidocaine are other treatments. Your doctor will try to treat any infections such as candidiasis or symptoms such as leukoplakia, which may be sometimes due to an infection, in order to prevent infections getting into any mouth ulcers. Dry mouth conditions can be treated with sugarless gum to help stimulate saliva, or your doctor may recommend a saliva replacement if needed. Oral gels (e.g. Bonjela or SM33) are pain-relieving preparations that reduce inflammation, irritation and swelling. They do not heal mouth ulcers, but help fight infection and numb pain in toothache, denture sore spots and cold sore lesion areas (due to their anaesthetic action). Treatment for candida in the mouth varies according to your level of immune function. When the immune system is near normal, candida treatment may consist of nystatin (e.g. Mycostatin, Nilstat) solution swished and swallowed five times daily. When there is moderate immune damage or poor response to topical treatment, stronger (systemic) antifungal drugs are

Mouth ulcers & other mouth conditions *continued...*

Medical & Drug Treatment *continued...*

used such as fluconazole (Diflucan) for both prevention and treatment. Amphotericin B (Fungizone) may also be used in very severe cases.

Special Precautions & Considerations

- Some evidence exists for avoiding garlic supplements if taking saquinavir and other protease inhibitors.
- Vitamin A is toxic in large doses and causes vomiting and liver toxicity. Use only under prescription and supervision of your doctor.
- Bee propolis, and other bee products can cause allergic reactions which can be severe and life threatening, especially if taken internally, such as in the form of lozenges or tinctures. Talk to your doctor first before taking propolis or other bee products.
- Golden seal (*Hydrastis canadensis*) should not to be taken when pregnant as one of its ingredients (berberine) stimulates the uterus to contract.
- Any lesion, tumour, ulcer or growth in the mouth that does not show signs of healing within a week or two should be seen by your doctor for diagnosis and treatment. It is important not to treat mouth ulcers and oral lesions with home remedies until a doctor has assessed them, so that serious conditions are not worsened by the wrong treatment.
- Kaposi's sarcoma (KS) lesions occur in the mouth, but they are not a side effect of HIV antiviral drugs.
- Oral Hairy Leukoplakia rarely requires treatment, as it often goes away by itself. It can be treated with high doses of acyclovir if painful.
- When there is gum disease and inflammation (called gingivitis), a referral to a dental surgeon may be provided, so that any treatment for ulcers has the best chance of success and is not worsened by infection in the gums. Treatment by a dental surgeon may be followed by a short course of treatment with metronidazole (e.g. Flagyl), and sterilising mouth rinses such as povidone iodine and further daily mouth rinsing with chlorhexidine gluconate.
- If you have peripheral neuropathy, metronidazole may make it worse and therefore should not be taken if you

Mouth ulcers & other mouth conditions *continued...*

Special Precautions & Considerations *continued...* are on d4T (stavudine, Zerit), or ddI (didanosine, Videx). In this case, clindamycin or amoxicillin may be prescribed.

Headache

Symptoms Headaches can be dull or intense, and either generalised or localised to a specific area of the head. Sometimes the neck is involved. Vision may be affected. Headache frequency and severity usually subsides within a couple of weeks if it is a side effect of an HIV antiviral drug you have just commenced.

Causes Most HIV antiviral drugs can cause headache. Headache can be a symptom of advanced HIV disease and is also a symptom of some opportunistic infections. Chronic sinusitis which is common in people with HIV infection also causes headaches. Some foods such as chocolate and oranges can cause headaches, as can certain perfumes and environmental chemicals.

Complementary & Supportive Therapy Ensure adequate hydration, as headache can be a symptom of dehydration.

Supportive therapies: Calming aromatherapy oils such as lavender, rose, and jasmine can assist in the relief of headaches. Cupping the hands over the eyes and staring gently into the darkness can help headaches caused by eyestrain (best done in a darkened room). Acupuncture and acupressure can reduce headaches. White flower oil is a Chinese remedy readily available at most Asian herb dispensaries and supermarkets, and can be rubbed onto the temples. Basil oil (*Ocimum basilicum*) may help and is applied in the same way. Feverfew (*Tanacetum parthenium*) is a preventative herbal remedy for migrainous type headache (blurred vision/sensitivity to light), but its ability to stop migraine altogether may be slow and limited for some people. Retiring to a dark room and resting may

Complementary & Supportive Therapy *continued...*

relieve headaches. Head massage may help or as a counter initiative, a foot massage may assist by drawing blood away from the head, and lessening the tension and pain of certain headaches. Alternatively, place your feet in a tub filled with hot water.

Dietary supplements: A multi B vitamin tablet (e.g. Berocca) can help relieve tension headaches. Alternatively, vitamin C taken with an aspirin can assist cluster type headaches where the blood flow is 'stagnant' (not moving).

Headaches may be soothed by tiger balm rubbed into the temples and brow (test your skin sensitivity first) or laying a chilled cloth on your brow.

Lifestyle: Adequate rest, good quality sleep, good diet, fresh air and healthy lifestyle choices can prevent headaches occurring. Relaxation and stress management techniques such as meditation, creative visualisation, massage and hypnosis can assist.

Medical & Drug Treatment

Aspirin is usually enough to reduce the pain of headaches. Paracetamol (e.g. Panadol) and other simple analgesics may also help relieve headaches. Tricyclic antidepressants may sometimes be prescribed by your doctor in severe cases.

Special Precautions & Considerations

- Persistent ongoing headaches can signify health problems and serious health issues such as tumours. More often than not, there may not be distinguishable causes, in which case holistic approaches to health will reduce the likelihood of headaches occurring or their frequency or intensity. If you have persistent or frequent headaches, regardless of their degree of intensity or pain, consult your doctor about them.
- Chiropractic manipulation will not help with headaches caused by HIV antiviral drugs. Chiropractic neck manipulation may only assist headaches if they are the result of a problem with the physical structures of the body.

Menstrual problems

Symptoms Symptoms and conditions vary and include no periods, heavy periods, frequent or infrequent periods, or early menopause. Headaches, breast pain, bloating and low stomach cramps, as well as hot flushes, tiredness, irritability and depression can occur where there are hormonal disturbances.

Causes Conditions associated with menstrual problems may be due to multiple causes, which need diagnosis by a doctor. Causes can be hormonal, HIV infection itself or a side effect of HIV antiviral drugs.

Complementary & Supportive Therapy

Loss of period: The herb *Vitex agnus castus*, better known as chaste tree, has been found to be effective in the treatment of premenstrual disorders. False unicorn root (*Chamaelirium luteum*) contains steroid-like hormone substances (called saponins), which account for its reputation as a tonic for the ovaries and uterus. Herbalists use false unicorn root to encourage fertility in women and to treat impotence in men. This herb is also used to treat disturbances of menstruation accompanied by a bearing-down sensation. False unicorn root is sometimes confused with true unicorn root (both plants have been called 'Blazing Star'). True unicorn root (*Aletris farinosa*) contains a steroid-like hormone (diogsgenin) that is thought to have oestrogenic properties (providing an effect similar to natural oestrogens). Rue (*Ruta graveolens*) is a traditional therapy used when the menstrual period becomes absent.

PMS: Evening primrose oil (*Oenothera biennis*) may be used to treat headaches, depression, irritability, breast pain and bloating related to premenstrual syndrome. The Chinese herb dong quai (*Angelica sinensis*) has been traditionally used as a tonic for the uterus and the treatment of menstrual problems. Iron supplements are sometimes recommended during heavy periods to replace iron lost during menstruation.

Menopause: Black cohosh herb (*Cimifuga racemosa*) has been clinically proven to reduce the symptoms of menopausal hot flushes. Soy supplements (phytoestrogens) may also help. Acupuncture, acupressure as well as

Menstrual problems *continued...*

Complementary & Supportive Therapy *continued...*

relaxation and stress management techniques may also be helpful. Talk with your doctor about the possibility that HIV antiviral drugs are contributing to your menstrual problems, and discuss ways of reducing the impact of related side effects. A switch in your HIV antiviral drugs may help if your doctor determines this is appropriate for you. Depending on the type of menstrual problem other specific treatments will be prescribed.

Special Precautions & Considerations

- Please note that black cohosh (*Cimifuga racemosa*) has, in some cases been associated with liver failure, and should be used under supervision in consultation with your doctor, health care provider or professional herbalist.
- Many herbals treatments for menstrual problems are specialised and should only be taken under supervision, in consultation with a professional herbalist.
- Rue should not be used during pregnancy, as it is strongly stimulating to the uterus and traditionally has been used to induce miscarriage.

Glossary of terms

Alcohol moderation:

Two standard alcoholic drinks for women and four standard drinks for men per day, with one to two alcohol free days per week. People who have hepatitis C and pregnant women should limit their intake of alcohol. People with hepatitis C who choose to drink should avoid binge-drinking, stick to low alcohol drinks, and have several alcohol free days a week. A standard drink provides 10g alcohol, for example:

- 100ml wine (12% alcohol/volume)
- 285ml full strength beer (5% alcohol/volume)
- 375ml can reduced alcohol beer (3.3% alcohol/volume)
- 2 x 285ml light beers (2.2% alcohol/volume)
- 60ml port or sherry (18% alcohol/volume)
- 30ml spirits (40% alcohol/volume)

Antiretroviral drugs:

Drugs which suppress the replication of retroviruses, such as HIV. They are called antiviral drugs in this resource. Other terms you may hear include HIV drugs, anti-HIV drugs, Highly Active Antiretroviral Therapy (HAART), and sometimes Antiretroviral Therapy or Combination Therapy.

Candidiasis (Candida):

A bacterial fungal infection usually *Candida albicans*, which can infect the gut, throat or mouth.

Carbohydrate foods:

Include bread/bread products, cereals, pasta, rice, fruit, starchy vegetables (potato, sweet potato, corn, legumes), sugary foods and drinks.

Cholesterol:

An essential blood fat produced in the liver, which is only required in small amounts by the body. Excess cholesterol increases the risk of heart disease.

Complementary therapies:

The various systems of healing that are not regarded as medical treatment by the medical profession. Some medical professionals may support the use of complementary therapies, and others may not. Complementary therapies are sometimes referred to as natural or alternative therapies, and more recently as integrative therapies. 'Complementary therapies' is the preferred term as it means natural therapies that are complementary to medical treatments, and are not intended to replace them.

Fat accumulation:

The development of fat deposits in the belly, breasts and base of neck between shoulders. Part of the lipodystrophy syndrome.

Folliculitis:

A skin condition with symptoms of red pustules around hair follicles that can itch severely. It can occur anywhere, but is often found on the trunk. It is often caused by the bacteria staphylococcus.

Gastrointestinal intolerance (gut problems):

A general term that describes the common effects of nausea, vomiting and diarrhoea and other gut-related problems. It can also describe any intestinal symptom, such as pain or wind, which is the result of a reaction to anything ingested, including drugs.

Glycaemic index (GI):

A way to rank food based on its effect on blood sugar levels. GI can be rated from the numbers 1 to 100. Low GI foods have a number rating of 55 or less, intermediate GI foods have a value between 56 and 69, and high GI foods have a rating of 70 or more. Low GI foods release glucose slowly into the bloodstream, intermediate GI foods release glucose at a moderate rate, whereas high GI foods are rapidly digested and absorbed resulting in marked fluctuations in blood sugar levels—which is undesirable in normal day-to-day life. Including one low GI food in each meal can assist in blood glucose regulation.

Healthy balanced diet:

Eating mostly grainy breads and cereals, pasta, rice, fruits and vegetables, a moderate amount of lean unprocessed meats, dairy products, nuts, legumes and soy-based products, with small amounts of processed high fat and sugar foods (e.g. soft drink, lollies, cakes, biscuits, butter).

The National Health and Medical Research Council (NHMRC) produces dietary guidelines for Australians <http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm>

Hepatitis:

A general term meaning inflammation of the liver.

Integrase Inhibitors:

A class of antiviral drugs that blocks the action of integrase, an enzyme that integrates genetic material from the HIV into its target cell.

Lactic Acidosis (Lactic Acidemia):

This is excess lactic acid in the blood, and it may have life-threatening effects. When the antivirals in the Nucleoside Reverse Transcriptase Inhibitor (NRTI) class of drugs affect the liver by fatty deposit, serious Lactic Acidosis may occur. Lactic Acidosis results from high levels of a by-product in the muscles called lactate, which may cause symptoms including profuse muscle weakness, tiredness or extreme lethargy, muscle soreness or tenderness, difficulty breathing and shortness of breath. If it is serious, your doctor will stop the drug leading to the condition. More often, a milder or more subtle form of this condition can occur, giving rise to low level acidemia and metabolic acidosis (called lactic acidemia). Symptoms will be similar and less noticeable, but not life threatening. Increased blood levels of lactate occur in about 15% of people taking NRTIs. Studies suggest d4T may be associated with the greatest risk, but all the NRTIs can cause the underlying problem with liver toxicity and inflammation. There may be symptoms such as mild muscle pains and aches. This milder condition may be more easily controlled and managed with effective therapies and treatment, but is still serious and requires ongoing monitoring by your doctor so that it doesn't worsen.

Lesion:

This is a general term used to describe any area of altered body tissue such as a wound, injury, or inflammation, usually caused by disease or trauma.

Lipoatrophy:

Refers to that part of the lipodystrophy syndrome which results in loss of facial and limb fat of the arms and legs, and accumulation of fat in other parts of the body such as the belly, breast, and base of the neck between the shoulders. The condition is sometimes referred to as altered body shape (or body fat redistribution and fat accumulation). It occurs due to HIV, and seems to be worsened in some people through the taking of nucleosides and protease inhibitors in particular. The key cause of this condition is suggested to be due to mitochondrial toxicity. Most nucleoside drugs cause this condition, especially d4T, ddI and AZT.

Lipodystrophy:

This is a syndrome of loss of fat in the arms, legs, and face; and fat accumulation in the belly, breasts, and base of neck between the shoulders. It is also referred to as altered body shape, body fat redistribution/fat accumulation, or peripheral fat loss/central adiposity. It is associated with blood sugar problems (sometimes called glucose intolerance or insulin resistance) and elevated blood fats such as cholesterol and triglycerides. These conditions may not occur all together, or may be more pronounced or milder for various people, for reasons not well understood. Although lipodystrophy is due to many causes, including HIV disease itself, HIV antiviral drug toxicities do contribute to the syndrome. However, the reasons for this have not been fully identified.

Mitochondrial toxicity / Damage to the Mitochondria:

Mitochondria are microscopic simple organ-like structures contained within all cells of the body. They are the source of energy in the cell and are involved in the oxygen exchange which allows cells to 'breathe' and to produce energy. Some HIV antiviral drugs may destroy mitochondria or cause them to become abnormally large.

Nucleoside Reverse Transcriptase Inhibitors (NRTIs, 'Nucleosides' or 'Nukes'):

Antiviral drugs which interrupt the HIV protein called reverse transcriptase. They work by disrupting the viral reverse transcriptase from binding with the DNA of the host cell (e.g. CD4 cells). Instead of stealing nucleosides from the human cell's DNA, the viral reverse transcriptase takes the nucleosides of the drug instead, acting like a 'dummy'.

Nucleotide Reverse Transcriptase Inhibitor (NtRTI):

Antiviral drugs, which interrupt the HIV protein called reverse transcriptase, in the same way as NRTIs do, but do not require as many biochemical changes in the cell for the drug to become active.

Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs, 'Non-nucleosides' or 'Non-nukes'):

Antiviral drugs, which interrupt the HIV protein called reverse transcriptase. They work similarly to the NRTIs by disrupting the viral reverse transcriptase, but do not act as a 'dummy' building block like the NRTIs do. They act as a 'blocker' by stopping the stealing of the host cell's DNA. However, the precise way in which they do this blocking remains unknown.

Pancreatitis:

Inflammation of the pancreas gland. Disorders of the pancreas can affect insulin levels which control blood sugars, and also affect the digestion and breakdown of foods. Symptoms of pancreatitis include intense pain in the lower back.

Peripheral Neuropathy:

Nerve damage causing pain, numbness, tingling in hands, feet, and wrists.

Protease Inhibitors (PIs):

Antiviral drugs which interrupt the HIV protein called protease. They work at the last stage of HIV virus reproduction. They act against the HIV enzyme called protease which assembles and releases new virus particles from the CD4 cells.

Psoriasis:

A skin condition which often occurs as a new disease after HIV infection. People who have psoriasis before HIV infection may experience a more severe form. Symptoms include red, scaly and itchy lesions. The initial lesions often begin like seborrheic dermatitis, but usually spread to moist areas of the body such as the armpits and groin, then to the elbows, knees, and lower back. Psoriasis lesions in the armpits and groin look identical to seborrheic dermatitis, but when psoriasis effects the trunk, it tends to be more fixed and with thicker scales.

Seborrheic dermatitis:

A common skin condition in people with HIV. It is more commonly known as dandruff when it affects the scalp. It is also commonly found on the face (especially around the eyebrows), chest, back, groin and armpits. A fungus called *Pityrosporum ovale* can cause it.

Thrush:

See Candidiasis

Triglycerides:

A major form of fat that is also found in the bloodstream. High triglycerides, as well as high cholesterol levels, are both linked to increased risk of heart disease and diabetes.

Xeroderma (dry skin):

A fairly common skin condition for people with HIV. It appears as a flat, slightly scaly and flaky rash which comes and goes. It can occur anywhere on the body, but is most commonly found on the front of the lower legs. The cause is unknown, but is likely to be directly related to HIV. Other possible causes include inadequate nutrition, long-standing illness, lowered immunity, and poor hygiene.

Complementary medicine in Australia is mostly self-regulated. The only state-regulated complementary medicine practitioners are those practising Traditional Chinese Medicine (TCM) in the state of Victoria. However, there are now degree-based courses in complementary medicine and a number of self-regulated practitioner groups. These groups can be contacted to identify qualified practitioners.

National Herbalists Association of Australia (NHAA)

Tel: 02 8765 0071

<http://www.nhaa.org.au/>

Australian Natural Therapists Association (ANTA)

Tel: 1800 817 577

<http://anta.com.au/>

Federation of Natural and Traditional Therapists (FNTT)

Tel: 08 8366 6516

<http://www.fntt.org.au>

Australian Traditional Medicine Society (ATMS)

Tel: 02 9809 6800

<http://www.atms.com.au>

Contacts

Australian Capital Territory	
AIDS Council of the ACT	02 6257 2855 http://aidsaction.org.au
PLWHA ACT	02 6257 4985 http://aidsaction.org.au/plwha
New South Wales	
AIDS Council of New South Wales (ACON)	02 9206 2000 Freecall 1800 063 060 TTY 02 9283 2088 www.acon.org.au
Positive Living Centre Sydney	02 9699 8756
Western Sydney	02 9204 2400
Hunter Newcastle	02 4927 6808
Illawarra Wollongong	02 4226 1163
Mid North Coast Port Macquarie	02 6584 0943
Northern Rivers Lismore	02 6622 1555
PLWHA NSW	02 9361 6011 Freecall 1800 245 677 www.plwha.org.au
Northern Territory	
Northern Territory AIDS and Hepatitis Council	Darwin 08 8941 1711 Freecall 1800 880 899 Alice Springs 08 8953 3172 www.ntahc.org.au
PLWHA NT	08 8941 7711
Queensland	
Queensland Association for Healthy Communities	
Brisbane and South East Queensland	07 3017 1777
Men's Line Freecall	1800 155 141
North Queensland	07 4041 5451
Central Queensland	07 5451 1118 www.qahc.org.au

Queensland <i>continued...</i>	
Queensland Positive People State Resource Centre Brisbane	07 3013 5555 Freecall 1800 636 241 www.qpp.org.au
South Australia	
AIDS Council of South Australia	08 8334 1611 Freecall 1800 888 559 www.acsa.org.au
PLWHA SA Positive Living Centre	08 8293 3700 08 8293 3700 www.hivsa.org.au
Tasmania	
Tasmanian Council on AIDS, Hepatitis and Related Diseases	03 6234 1242 Freecall 1800 005 900 www.tascahrd.org.au
Victoria	
Victorian AIDS Council/Gay Men's Health Centre	03 9865 6700 Freecall 1800 134 840 www.vicaids.asn.au
PLWHA Victoria	03 9865 6772 www.plwhavictoria.org.au
Western Australia	
Western Australian AIDS Council	08 9482 0000 www.waaid.com
HAPAN	08 9482 0000

Acknowledgements

Thanks to all those who assisted with the development of this booklet:

- Murray Altham
- Jane Anderson
- Australasian Society for HIV Medicine (ASHM)
- Phillip Bennett
- Dr. David Bradford
- David Casteleijn
- Dr Ken Clare
- Jo Cleary
- Marc Cohen
- Susan Connors
- Dr. Gary Deed
- Peter de Ruyter
- Paul Kidd
- Karen Low
- Kevin Marriott
- Dr. Nick Medland
- Dr. John Patten
- Queensland Association for Healthy Communities (formerly Queensland AIDS Council)
- Queensland Positive People
- Neville Raymond
- Michelle Rosenthal
- Treatments Officers' Network (National Association of People Living With HIV/AIDS)
- Ross Volteas
- Pat Wall
- Peter Watts
- Mim Weir

Recipe for whole lemon drink

- 1) Scrub one whole lemon with peel intact, with brush or scourer to remove residual wax, dirt and chemical sprays
- 2) Cut entire lemon with the peel still on into small pieces and place in a blender
- 3) Add one and a half cups of filtered water or spring water (or water that has been boiled and refrigerated)
- 4) Add one to three tablespoons of special oil blend (see * below)
- 5) Add one to three capsules of lecithin (see ** below)
- 6) Add one teaspoon of raw 100% honey (see *** below)
- 7) Add a small knob of fresh ginger root (*Zingiber officinale*)
- 8) Blend all these ingredients all together in a blender for a short period of 30 to 45 seconds
- 9) Over a large bowl, strain off all the pulp in a fine sieve, and press or squeeze the ingredients through the sieve with the back of a large spoon to remove all possible liquid
- 10) Throw away the pulp left behind in the sieve, and save the liquid in the bowl
- 11) Divide the liquid into two or three equal portions and refrigerate
- 12) Drink each portion with each meal, by sipping slowly

* Special Oil Blend:

Buy linseed/flaxseed oil and cold pressed or expeller expressed extra virgin olive oil from the health food store. This linseed/flaxseed oil will be stored in the refrigerator at the health store (not on the shelves). Next mix these two oils together in equal portions (i.e. 1/2 flaxseed + 1/2 olive oil). Use this mix as mentioned in step 4 of the recipe above.

** Use only lecithin which comes in a capsule form, as granulated lecithin will froth up in the blender and ruins the recipe.

*** Do not use honey if you have candidiasis or other fungal gut infections.

Precaution:

This remedy can make diarrhoea worse in some people who have a compromised or weak gut function. Use less lemon and less oil if diarrhoea occurs.



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ISBN 1 876469 32 3

Printed January 2008