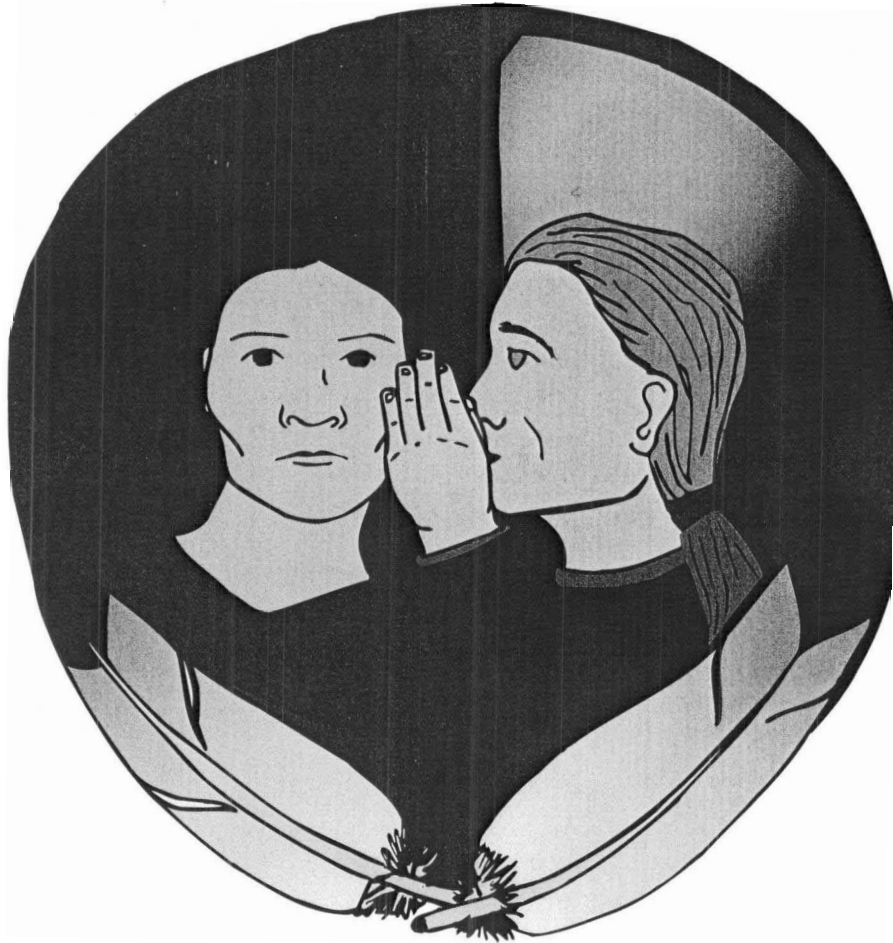


# HEPATITIS C

BETWEEN YOU AND ME



Second Edition funding provided by



## Foreword

This booklet was originally developed with a grant from the Aboriginal Health Div. of the BC Min. of Health. The second edition is an update made possible by an unrestricted grant from Hoffmann-La Roche Ltd, who have provided funding only and assume no responsibility for content. It is hoped that the booklet will provide a positive platform to learn about hepatitis C. Consult your doctor for any treatment that may be required

### We Would Like To Thank The Following People

For Making This Book Possible

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**May 2005**

# Chapter 1

## The Liver: What it does and its importance in health

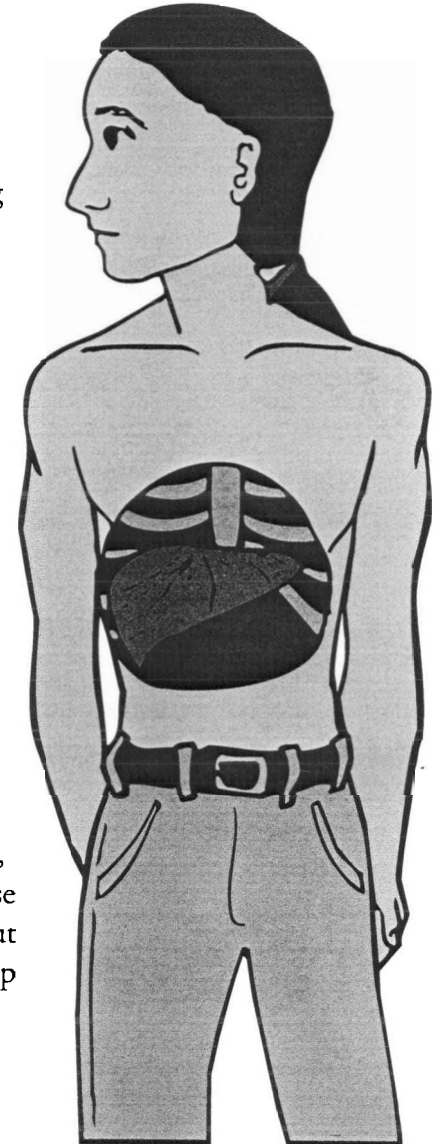
The liver is the largest organ inside the body.

It is found above your stomach on the right by the ribs .

It acts as a combined chemical factory, storage facility, and filtering system.

It takes the food after we eat it and turns it into chemicals that the body can use to keep it healthy and strong. It takes the chemicals (like drugs) that we put into our body and tries to make them safer, and easier for our body to get rid of. It also turns waste from the body's breakdown processes into safer ones that are easier to get rid of . It produces bile, a product which helps make fats easier for our bodies to digest.

The liver stores vitamins, minerals, fats, sugar and blood. If any of these compounds run low the liver lets out what is needed into the body to keep it running smoothly.

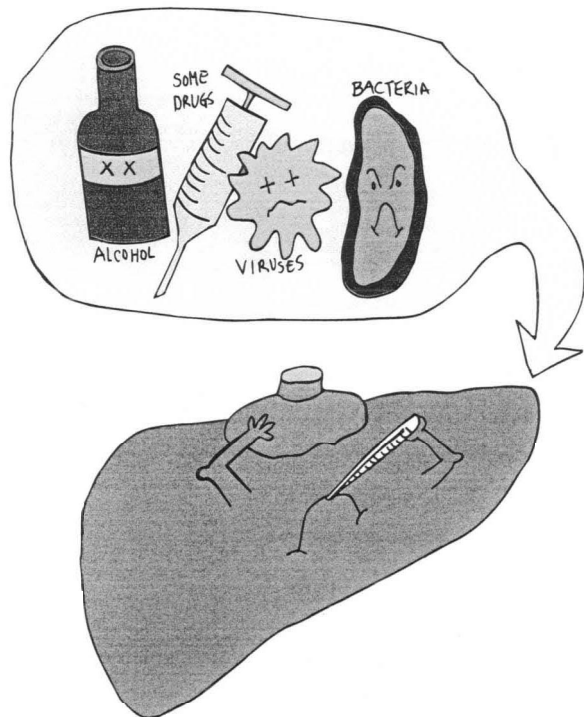


The liver works really hard to keep your body running smoothly and happily. The liver can also fix itself if it is injured.

When the liver is hurt or swollen it is called hepatitis (hepat = liver, itis = inflamed). That means it has to work a lot harder. Many things can cause hepatitis - alcohol, some drugs, bacteria, and viruses. When this happens for a long time, the inflamed liver cells start to die. When they die they are replaced by scar tissue. This is called fibrosis. If the fibrosis spreads to most of the liver it is called cirrhosis.

When the liver is damaged it cannot perform all of its functions. This may make you tired and have trouble with energy, and it is harder for your liver to remove toxic wastes from your body. You might have trouble with digestion and feel bloated. Your body and skin might not fix itself properly. Cuts and wounds may take longer to heal. You could also have problems with bleeding longer.

Hepatitis C, also called HCV, is one of the viruses that can damage your liver. It can lead to cirrhosis.

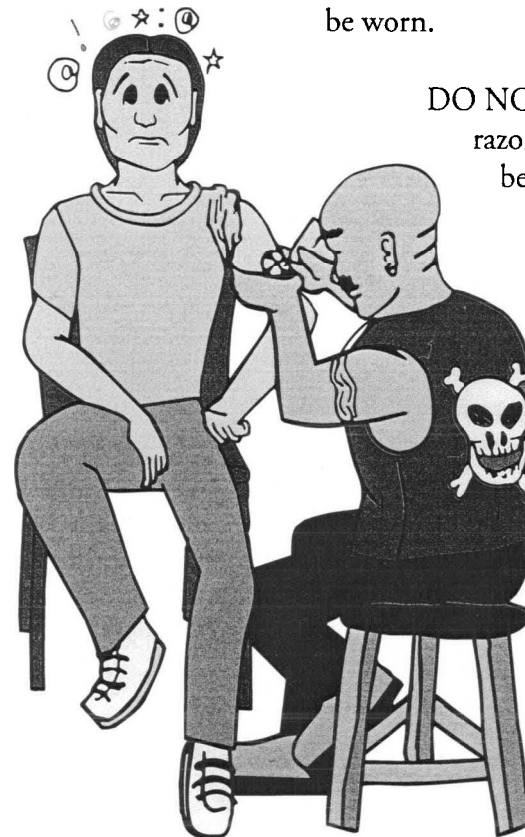


# Chapter 2

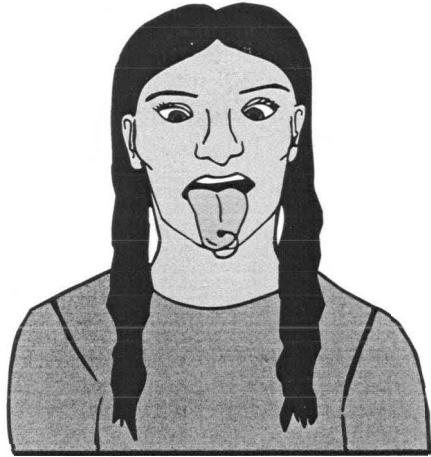
## Transmission and Prevention

People with hepatitis C should be vaccinated against hepatitis A & B. Infections of hepatitis A with Hep C can be fatal. There is no vaccine for hepatitis C yet.

Hepatitis C virus is NOT spread by kissing, hugging, sharing kitchen utensils. Having sex is considered to be low risk for the spread of this virus but the risk increases with the number of partners you have. The risk of not knowing if your partner has any disease that might be spread by sexual activity indicates that condoms should be worn.



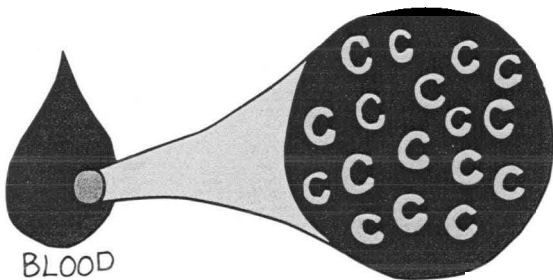
Body piercing could also spread the virus blood to blood.



The risk of mother to baby is believed to be fairly low but enough to be a concern.

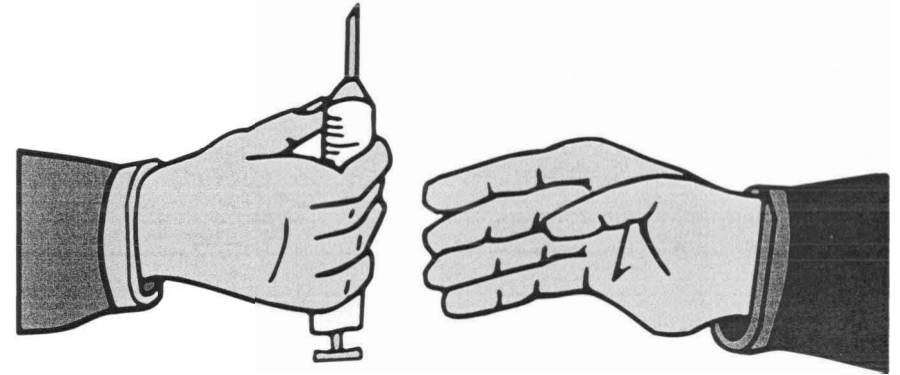


Screening of the donated blood supply for Hepatitis C began in 1990. Many people who had blood transfusions before then got the virus in that way.



## Injection Drug Use

Sharing of needles or rigs, water, cotton, the "works" used by injection drug users, is the most common way the disease is spread today. All of this drug equipment can have the blood of an infected person. The risk is very great and very real. Many injection drug users don't realize that they carry this virus until they later show symptoms. By then they could spread it to a lot of people, friends or companions by sharing infectious needles and other equipment.



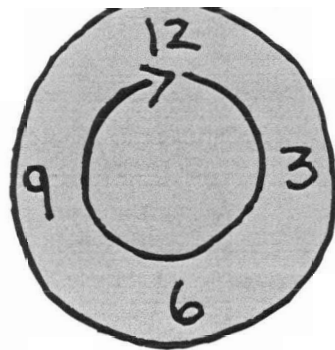
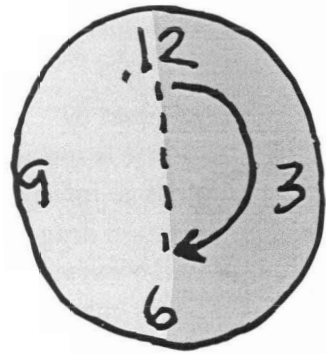
The disease can make some people so ill they are unable to function and if they are not treated or don't do well with treatment they can die.

Bleach may lessen the risk of a used needle. Rinse the needle well with clean water, then a bleach solution ( 1 part bleach to 9 parts water ) for 30 to 60 seconds. Repeat a few times. End with a good rinse of clean water.

What about the rest of the works though? They may be soaked and rinsed in a bleach solution followed by clean water.

Remember the safest way to keep Hepatitis C and HIV from spreading by injecting is by always having your own personal equipment and **NEVER SHARE.**

Act responsibly, respect yourself and others.



30 sec to 60 sec



# Chapter 3

## Symptoms, Diagnosis, and Prognosis



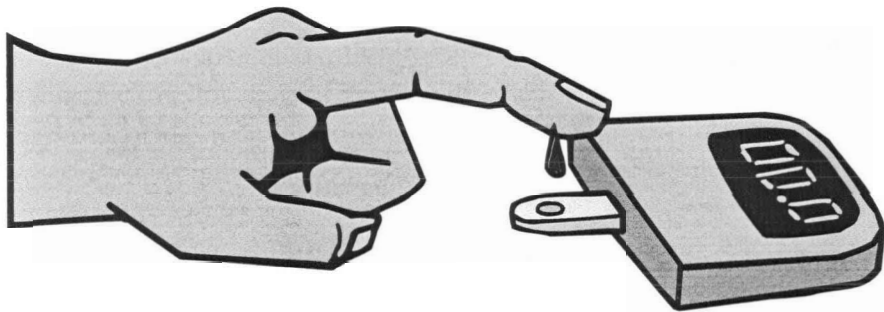
### How to find out if you have Hepatitis C

Your doctor should routinely check your liver enzymes from time to time but make sure to ask him about it. Hepatitis C is a disease of the liver and the hepatitis C virus attaches to its cells. The liver is the largest organ inside the body and its health is very important.

The virus makes the liver cells spill abnormal amounts of the enzymes called ALT and AST into the blood. If testing reveals that these enzymes are not in the normal range in the blood it can indicate problems with your liver requiring further testing and you should make sure it is followed up.

It was previously believed that hepatitis C patients who exhibited normal ALT levels had little risk of progressing to liver disease and were generally not urged to seek treatment. It is known that some patients with persistently normal ALT levels may progress to advanced fibrosis and cirrhosis.

The next step is the antibody test. The body produces antibodies when it detects something that does not belong like the Hepatitis C virus. The antibodies try to absorb the virus so it can be destroyed by another part of the immune system. The immune system does not deal well with the Hepatitis C virus and the antibody test for most people is the one that reveals if you have Hepatitis C or not. It is a true indicator about 99% of the time but if you had HIV when you got Hepatitis C there can be a false negative reading because the immune system is too weak to produce Hepatitis C antibodies. A person in this situation might really be Hepatitis C positive. A more sensitive test called PCR might be considered in this case to make sure.



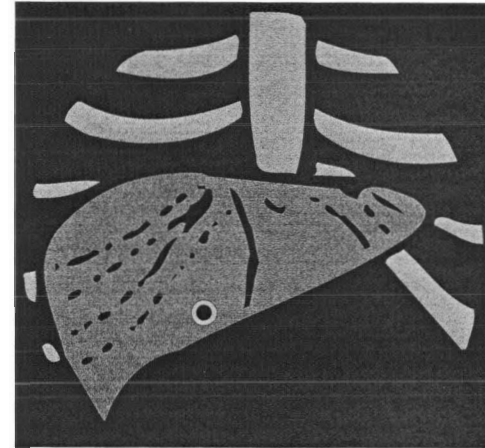
## Genotypes

There are many different types of the Hepatitis C virus. The most common in North America are genotypes 1a, 1b, 2a, 2b, 3, and 4. Type 2a, 2b and 3 are easiest to treat with success rates as high as 75%. These genotypes require 24 weeks of treatment. Types 1a, 1b and 4 are more difficult to treat and require 48 weeks of treatment with a success rate of about 40%. In BC 65% of people with Hepatitis C are genotype 1.

## Ultrasound

People with active Hepatitis C should have an ultrasound on a yearly basis checking for signs of how the disease is affecting the liver. A high level of scar tissue can mean cirrhosis. People with cirrhosis of the liver are four times more likely to develop liver cancer. The ultrasound may show if liver cancer is present.

There are also a number of other blood tests that can give a broader indication of the liver's state.

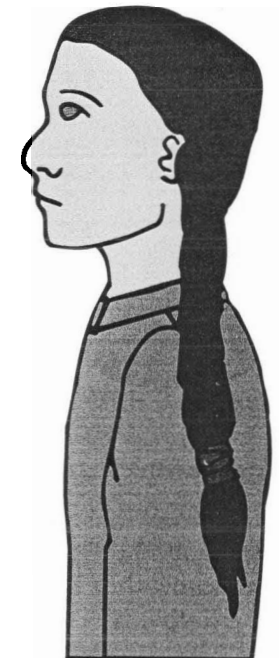


## Liver Biopsy

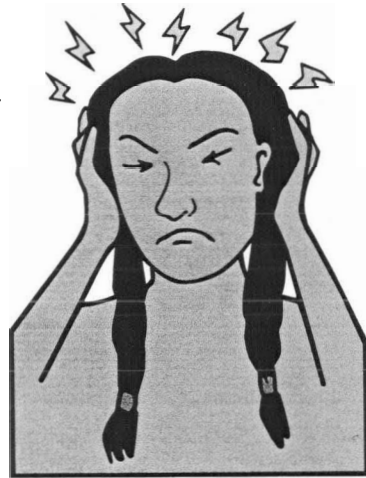
A liver biopsy means that a piece of your liver is taken for viewing under a microscope. First an ultrasound machine scans the liver to find the best location to remove a sample. Then the spot is frozen and a spring loaded syringe gun is inserted and immediately pulls out a sample. It's over before you know it. The biopsy can show how much the liver is inflamed, the number of its cells that are negatively affected and the amount of scarring.

## What Kinds of Health Problems Face A Person With Hep C

Some people are surprised to learn that they have Hep C because they don't feel sick. This can be the case even if the person's liver is quite damaged. A treatment plan is necessary though because the liver performs a lot of functions to keep a healthy body. Because it is such an important organ, people can suffer from a lot of different complaints if the liver is sick. It affects each person differently and also depends on how far the liver damage has gone. Some people with less scarring than others experience more severe symptoms.

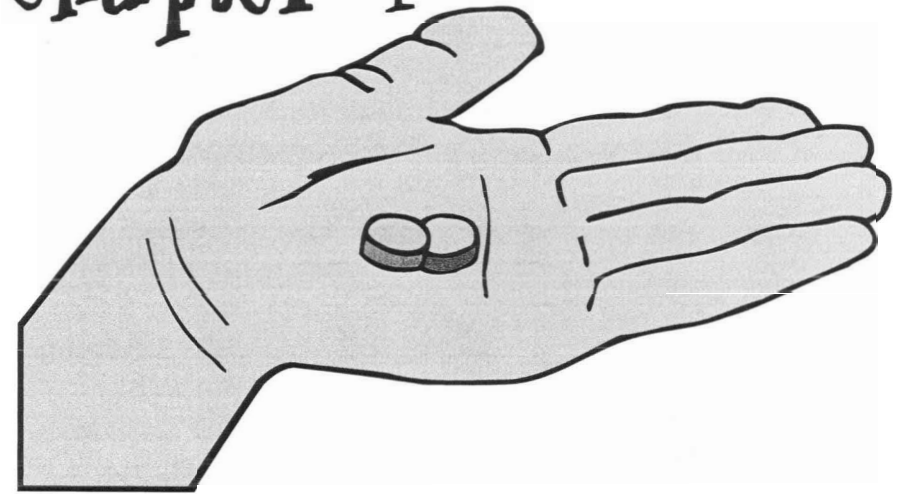


Common symptoms affecting people with Hep C can include: headaches, nausea, pain below the belly button and/or sharp pain just below the ribs on the right, night sweats, lack of energy and complete fatigue, low energy causing loss of sex drive, general aches and pains in muscles and joints like the flu, depression, easy bruising or bleeding gums, insomnia, constipation, feeling bloated or diarrhea, dark urine, skin conditions, wounds heal slowly, grouchiness, unclear thinking, diabetes problems especially with First Nations people, and thinning hair.



Some people experience many of these symptoms and others few. The symptoms can come and go. People who know they have Hep C can learn to recognize that some are caused by their illness. People who don't know they have Hep C might experience some of these symptoms and see them as a sign that getting tested might be a good idea.

# Chapter 4



## Treatment

To get Hepatitis C treatment your disease must be at a certain point.

1. Generally your ALT and AST (see chapter 3 for more info) must be 1.5 times the upper normal limit twice in 3 months.
2. A liver biopsy showing inflammation and damage or severe extrahepatic manifestations

If your liver enzymes are normal or your biopsy is stage 0 or without inflammation, it may not be appropriate to treat you at this time.

### First Line Treatment

Currently the drugs of choice are pegylated interferons in combination with ribavirin. There are two forms of pegylated interferon with ribavirin. Pegasys RBV is produced by Roche and Pegatron is produced by Schering. With Pegasys RBV, you use a prefilled syringe to inject pegylated interferon under the skin, once a week. The ribavirin is taken in tablet form twice a day. With Pegatron you mix the powder and water together, then inject under the skin once a week. The ribavirin is taken twice daily in capsule form. Success of pegylated interferon therapy is between 40-80% depending on your genotype. Type 1 and 4 are harder to treat while types 2 and 3 have an 80% success rate

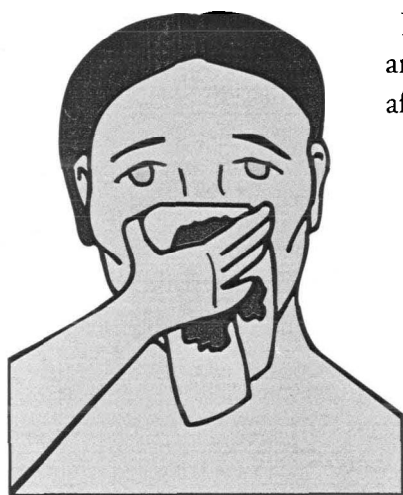
### When Can't I Be Treated with ribavirin (Copegus or Rebetrol)

The ribavirin causes a loss of red blood cells, as it is toxic to them. This can lead to further fatigue. For some people with heart conditions and those with already low red blood cells it can't be used.

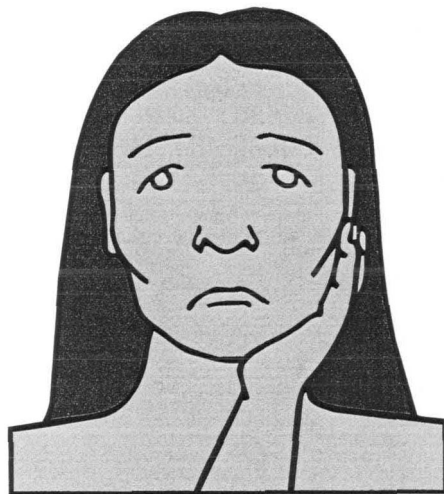
### When Can't I Be Treated with Interferon?

If your white blood cell count is too low, interferon can't be used because the drug makes these cells go even lower and that can be very dangerous. White blood cells help you fight other infections.

Also some autoimmune diseases make it unsafe to use interferon.



Interferon also causes platelets to lower and this is also dangerous because it affects your ability to stop bleeding.



If you have depression, that can be a problem. Interferon can make you more depressed, maybe even to the point of suicide. Doctors usually try to control the depression with drugs and/or therapy first before they will consider you for treatment.

The depression is a funny thing. Lots of people with Hepatitis C are depressed because they have the disease. That's called secondary depression. Hey- we're normal! We know we have to fight for the quality of our lives and it could be a long battle. This kind of depression is usually easier to treat.

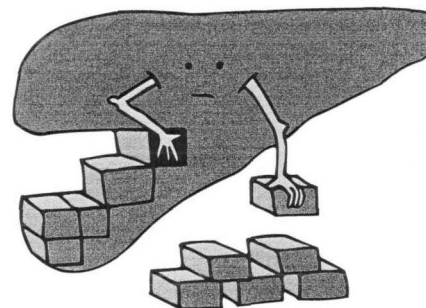
### How We Think Interferon and Ribavirin Works

Interferon makes your body produce more of the kind of proteins that help your immune system function better. So it acts by stimulating your own immune system to attack the virus.

Ribavirin may cause the Hepatitis C virus to make lots of mistakes when it makes copies itself. We aren't sure of other ways it might be helping. We just know that the combination works better than interferon alone.

### What is Success ?

The first thing you hope to see is your ALT and AST return to normal levels in the first 3 months. The next thing you want to see is the virus disappear from your blood. They will do a PCR test at 12 weeks and a genotype if one has not been done. If you are negative or you show a big drop in your viral load they will continue treatment. If the viral load is still high they may discontinue treatment. If you have genotype 2 or 3 you may stop treatment at 24 weeks. If you have genotypes 1 or 4 you will continue on treatment for 48 weeks.



### Real Success

The most desirable outcome of hepatitis C treatment is for the virus to be undetectable at the end of a six-month treatment free follow up period. This is called a Sustained Virological Response or SVR. If the virus is still undetectable at 6 months, odds are you have cleared the virus. 80%% of people who are virus free at 6 months stay that way.



Even people that aren't virus free may find that their biopsy shows that their liver has improved. Many people go one step back in damage and inflammation e.g. a stage 2, grade 2 biopsy can go to a stage 1, grade 1. People often state they feel better and find that their quality of life improves. Wow! That means a lot and you may find you enjoy doing things more than before. The treatment will buy you time. Research is ongoing to find a cure for people that fail interferon and ribavirin.



### How will I feel on the treatment?

Many people feel like they have the flu like symptoms in the beginning. The first week is the worst and people often have aches and pains and a fever. This is normal it usually lasts for the first few weeks.

After the first few weeks many people find that the treatment isn't that bad. Lots of people continue working. But you will hear many stories about how bad the drug is. Remember that the people that feel the sickest often talk the most. So you are really only hearing from a small group. Individual responses vary widely.



Common side effects include fatigue, generally not caring about a lot of things (apathy), muscle aches and pains, achy joints, poor appetite and weight loss, not having much patience for other people, and sleeping problems. A small percentage of people have very difficult side effects. This can include an upset stomach and throwing up. These people may find it necessary to stop taking the treatment.



## Can Treatment Be Stopped?

Sometimes it becomes too difficult to continue on the treatment. In summary treatment may be discontinued because your white blood cells are too low, your red blood cells and hemoglobin are too low, if depression is a problem, if you do not show an improvement in liver enzymes and viral load or if you do not take your medication as instructed.

The use of alcohol is not permitted on treatment.



And finally some people develop problems associated with an immune system that is too active. For example problems with diabetes can develop or worsen.

## New Medications

There is a new form of interferon called PEG interferon or pegylated interferon. This is a slow release interferon that is given by injection once a week. It is combined with ribavirin and people that have failed at Rebetron (normal interferon and ribavirin) have a high chance for success. The length of time for this treatment is the same. Right now they are doing clinical trials across Canada. It is currently approved in the United States so we hope that Canada will follow soon.

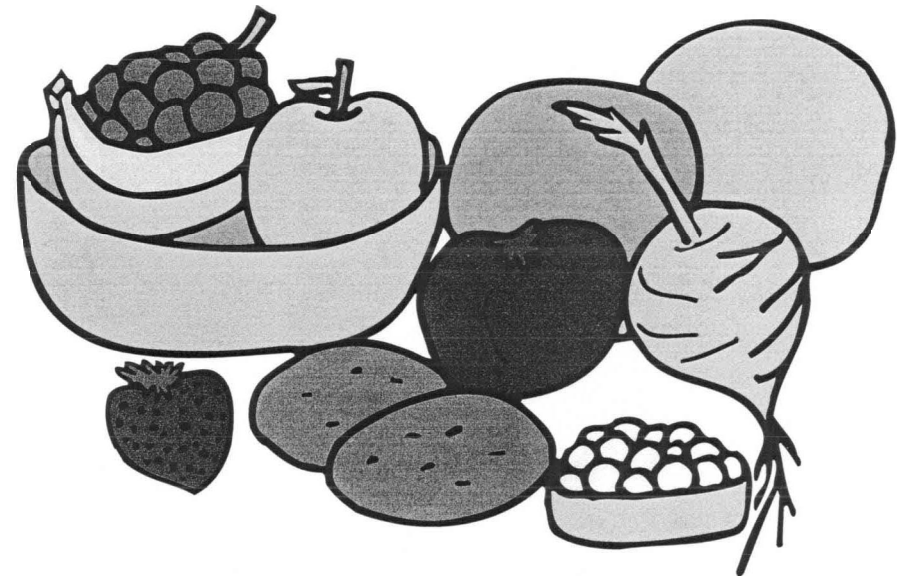
## Research

Other drugs are also being studied but are probably at least a few years away from being available to use.

# Chapter 5

## Nutrition

Good nutrition is very important. How you feel can depend on what you eat. The liver helps break down and make the food you eat work for your body. A basic healthy diet is great for you. The Canada Food Guide is really easy to follow. Here is a sample of things that you should eat.



## Fruits and Vegetables

All colours of fresh vegetables and fruits contain different vitamins and minerals. Think of the colours of things like tomatoes, lettuce, bananas, beets, oranges, apples, etc.

A serving would be one piece of fruit or a half cup of vegetables for example and you should have between 5-10.

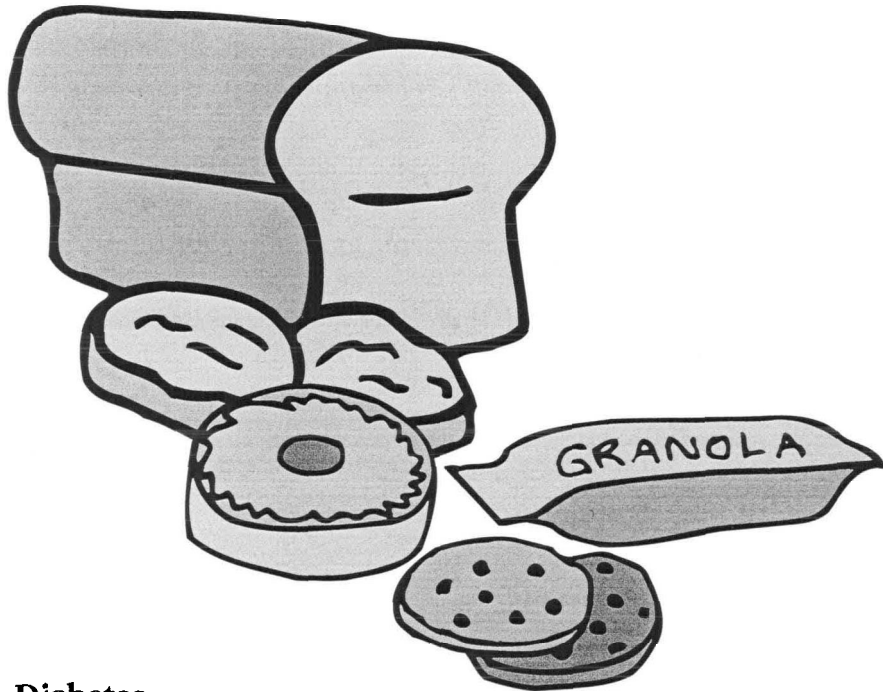
If your stomach is sore, you may find that cooked vegetables are easier and when eating is a real problem try juices.

## Breads, and Grains

We get more food value from brown or whole products. Brown rice or bread is better than white. They also give us more fiber. That's good for lowering cholesterol and keeping you regular. Other grain examples would include bannock, rice, pasta, and corn.

A serving would be half a cup of rice or pasta or a slice of bread and you should have between 5-12.

Store bought products can be high in sugar (like donuts, cookies, cakes) and fat and don't give you many vitamins.



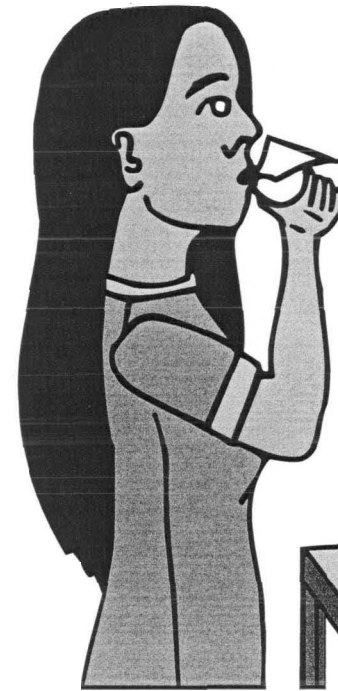
## Diabetes

People with hepatitis C often have problems with sugar (glucose). First Nations' Peoples already have an increased incidence in the rate of diabetes so the risk could be even higher in those infected with HCV.

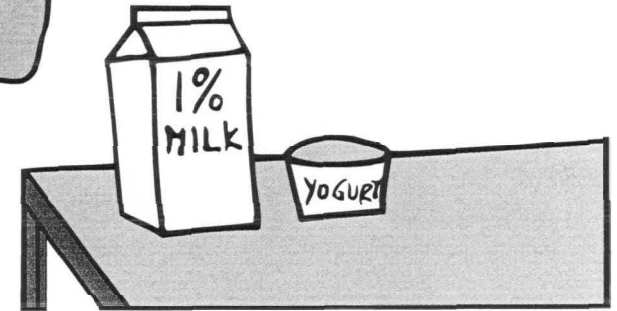
If you are diabetic, exercise is really important. A recent study compared people with high blood sugar that were on a medication (metformin) and with people that watched their diet and exercised 30 minutes a day. The exercise group improved their sugar response by 57% compared to a 15% in the group that used the drug metformin!

## Milk and Milk Products

Milk is important for healthy bones and teeth. People with hepatitis C can have problems with bone thinning so milk is really necessary.



Adults require 2-4 servings a day. Examples of a serving size are 1 cup of milk or 2 ounces of hard cheese (but watch the fat and salt!) Choose 1% or skim milk. Yogurt is good for helping with digestion and is often okay in small amounts even in people that can't drink milk.



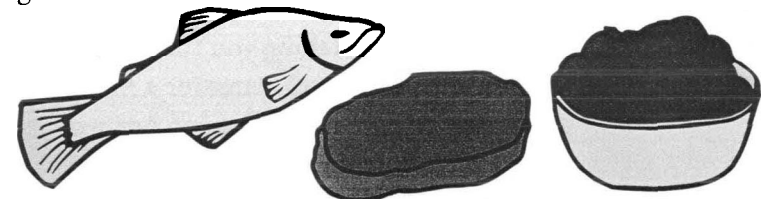
## Protein

Protein is needed to help rebuild liver tissue. The liver is a great organ. Even as the hepatitis C kills the liver cells it is busy trying to fix itself.

But Protein should not make up more than 25% of your daily food and one meal should not be more than 25% protein.

You need 2 to 3 servings a day. A serving size would be 2-4 ounces of meat or 2 small eggs. The protein should be a good quality cut without too much fat.

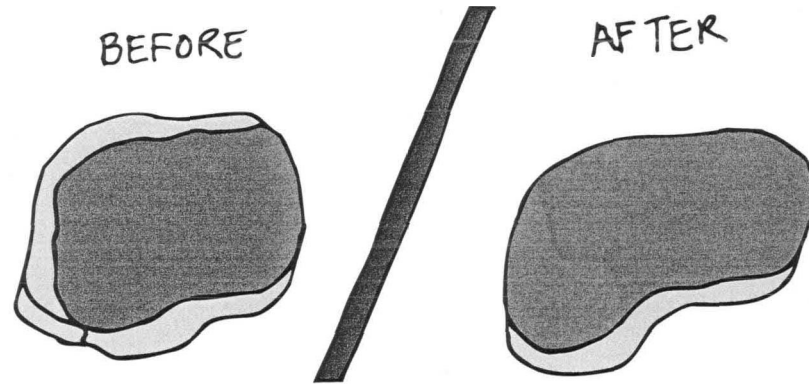
Protein can come from many sources including animals, poultry, fish and vegetable.



## Fats

Some people with hepatitis C can also have a fatty liver (steatosis). This can lead to an increase in scarring of the liver. These people need to be especially careful about how much fat they eat.

The best kinds of fats are from vegetables or plants. These fats are called unsaturated and can be helpful in lowering your cholesterol. Saturated fats are found in baked goods and meat. You don't want to eat too much of this so choose good quality lean cuts of meat in small amounts.



## Coffee, Tea and Cola

Caffeine can be hard on your liver. It is a little bit like adrenaline and makes your liver work hard and can make you tired. A cup or two of coffee or tea a day is okay. And watch soft drinks. Some have a lot of caffeine plus sugar. And if you drink the sugarless kind, it contains aspartame and too much of that isn't good either.

Water is really the best thing you can drink. It helps to flush out the bad stuff in your body. If you are on treatment and you have a lot of side effects, a simple thing like drinking water can make you feel better! If you can, drink about 2 liters a day.

## Buyer Beware!

There are many people that want to take advantage of sick people. Everywhere you look someone will be telling you they can cure the disease. They might help some people feel better for a short time but keep in mind if it were so easy to cure hepatitis c, no one would have it. And even natural things can hurt the liver so you need to be careful.

## Some Things to Avoid

Vitamin A is stored in the liver. The amount found in a regular multivitamin tablet is OK in most cases but too much can increase scarring.

Iron can also be a problem. Some people with hepatitis C can also have a disease that causes storage of iron in the liver. This increases liver damage. So taking an iron tablet is not a good idea. The amount found in a multi vitamin is so low you don't need to worry about it.

Niacin is a B vitamin that is not recommended especially in large doses. A multi vitamin does not contain niacin.

St. John's Wort is a herb that is very popular. But it can interfere with medications such as birth control pills and some HIV drugs. It can also cause you to be sensitive to the sun. Always talk to your doctor before taking this herb.

## Alternative Therapies

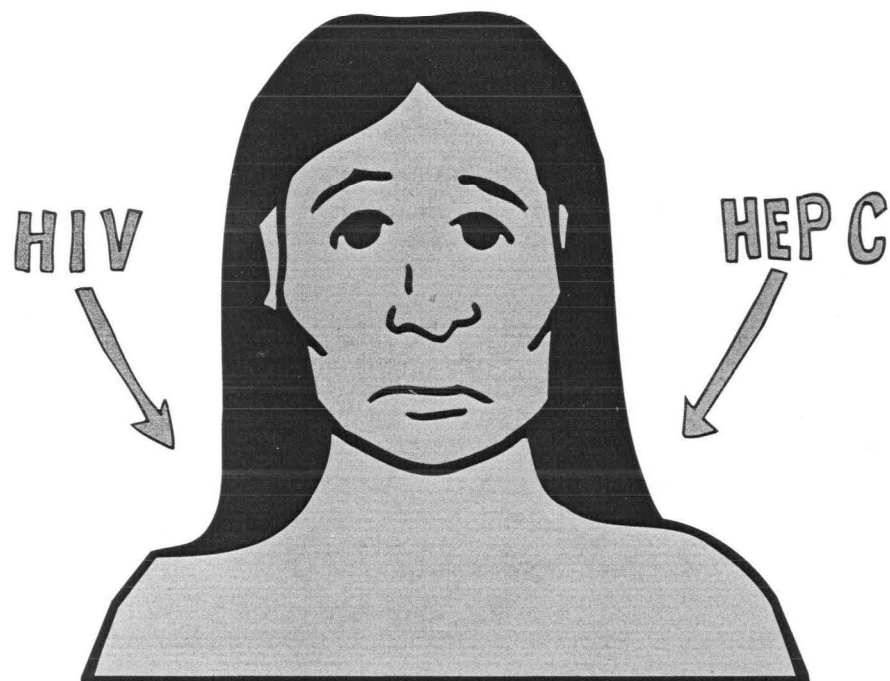
Certain vitamins, minerals and herbs can be helpful in both lowering your enzymes and in increasing your energy. People have had very good results with the following antioxidant cocktail (see the Resource Guide for natural sources):

Alpha Lipoic Acid 100-600mg, Vitamin E 800-1200IU, Folic acid 1 mg and Selenium 200mcg.

Many people have also had success with milk thistle. This herb has been shown to slow down scarring and make the liver generate new cells.

# Chapter 6

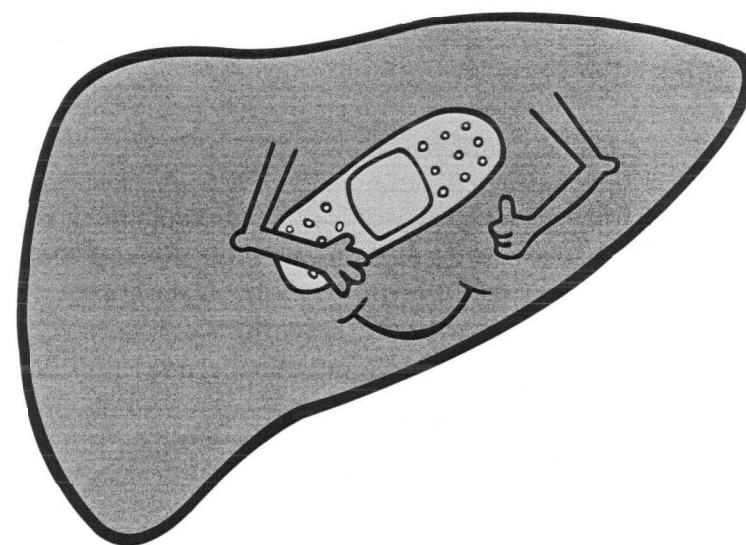
## Coinfection



Coinfection is having two infections at the same time. Coinfection of HIV and hepatitis C is very serious. Either disease can make you really sick. Together they can make a person sicker, they may advance faster. The treatment becomes more complicated. The drugs for HIV are hard on your liver and they usually have to be taken for life. It becomes very important to keep your liver as healthy as possible.

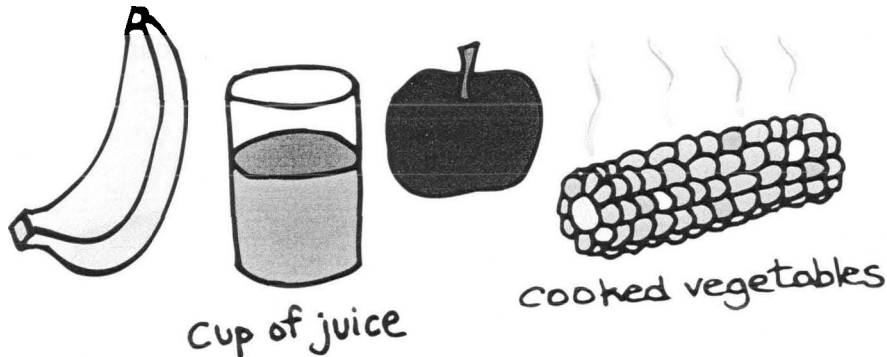
Many people who have HIV from using drugs also have hepatitis C. Hepatitis C is easier to get sharing drugs than HIV.

The two diseases have a major impact on one another. Liver scarring may happen faster with HIV, about twice as fast. Fatigue is often greater for those who are coinfecting. The nausea from liver disease may make it harder for people to eat and keep their weight up. Some HIV medications are hard on the liver especially when taken for a long time. HIV medication usually has to be taken for life so it is harder for the doctor to find the right medications that are easier on your liver. It is very important to stay on your HIV medications. If you develop resistance, you may have fewer choices than someone without liver disease.



There is some debate about which disease to treat first. Generally HIV is the most serious disease so it must be brought under control. If the HIV is under control then the hepatitis C can be treated. Treatment is tougher if you are on HIV drugs, the side effects can be worse. The doctor will have to monitor your blood more carefully to make sure that the treatment is working and not making things worse. Treatment for hepatitis C can work better for people on HIV meds but it may need longer treatment times. New forms of interferon (pegylated) may even be helpful in reducing HIV.

Lifestyle is extra important if you are coinfectd. Alcohol should be avoided as much as possible. The hepatitis C and HIV drugs are already damaging the liver so you do not want to increase the damage any more. Street drugs are not good as they may have impurities, and increase the chance of getting other infections if they are injected. They may make you less interested in eating and in following your medication schedule.



Nutrition is very important as your body needs good nutrition to stay healthy and repair itself. Eating small meals more often is good, making sure you get enough protein. Following Canada's Food Guide is a good way to make sure that you are getting everything you need to stay healthy. See Chapter 5 on Nutrition.

Many people find taking supplements helpful but make sure your doctor knows what you are taking. Some supplements may change the way your medication behaves.

Make sure you get enough rest, but also do some exercise as it can make you feel better and may help your energy. Exercise can help to build up your immune system.

Coinfection is more serious, but treatment and taking good care of yourself can help you feel better.

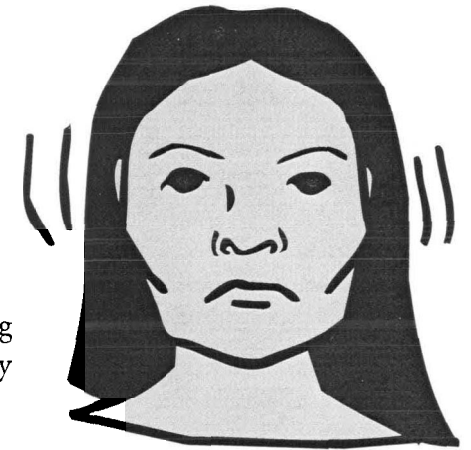


# Chapter 7

## Lifestyle

When people first find they have hepatitis C, they go through a variety of steps before they can accept having to live with the disease. You can make a choice and gain back some control of your life by learning to hope. Learning about your disease is the first step. Knowledge can help you gain back some of that control, and help you see the future in a more positive way.

At first people don't want to believe they have hepatitis C. There must be some kind of mistake! That's called denial and we all go through it. But denying the disease keeps you from dealing with it and doing things that may improve your quality of life.



"No, not me. There's been a mistake!"



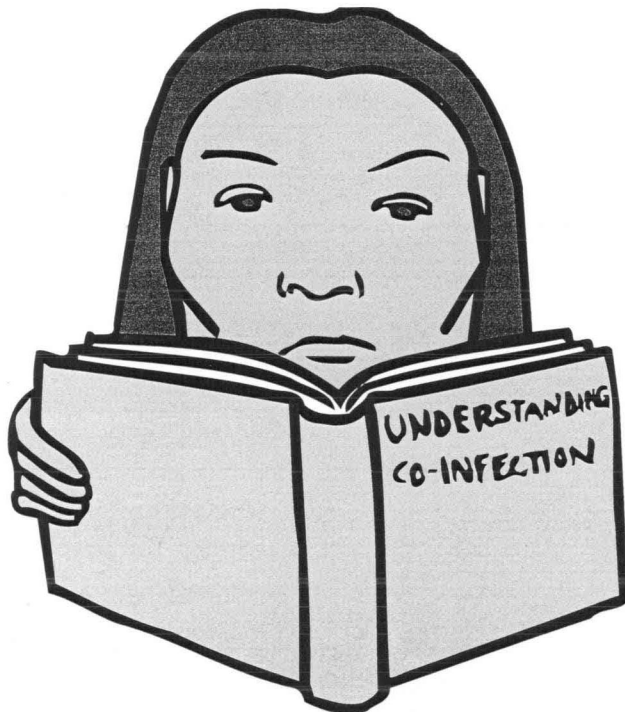
Next people get really angry. You're frightened and anger is a natural reaction. You want to blame your doctor, your partner, anyone. Don't get stuck here! You have to move on if you're going to live a better life.



"OH NO!"

Next people suffer from depression. A great big sadness seems to overcome people. It happens when they realize they can't change things the way that they would like to. This is a really tough place to be and you may come back here many more times. Learn coping skills to help at times like this.

Then finally people move on to acceptance. The reality sets in. You need to know that everyone goes through these stages and that you're not the only one. It's normal to feel this way but there's light at the end of the tunnel. Now you can move on to action.



Many people can't or don't want to go on treatment or the time for treatment is not right for them. They don't feel well and their day-to-day lives are very difficult. Be kind to yourself! You're going to have to learn to listen to your body and what it's trying to tell you.

Hepatitis C is a relatively new disease and there are lots of things we don't know about it. Because it involves the liver there are many possible complications. If you feel sick, you are. We don't understand why some people feel sick and others don't. Learn to trust yourself. Make sure your complaints are looked into.

### First Nations Traditional Healing

Medicine wheels are a creative way of illustrating some of the ideas of traditional healing that can be a beneficial source of positive energy.

The view that a person is a balance of different aspects such as body, mind, spirit that each require nurturing as parts of a whole is part of this traditional healing way. Seeking the counsel of elders for their wisdom, sweat lodges, smudge ceremonies are all valuable ways of making a good foundation for a healthy person.

### Exercise and Rest

It's tough to exercise when you feel so tired. And you need to listen to your body. Don't try to push through the fatigue. Lots of people find that naps help them. If you have trouble sleeping at night, the naps shouldn't be longer than 20 minutes at any one time.

Pace yourself- don't schedule more than one appointment in the day. Spread things out.

BUT exercise is very important. First of all, it can relax you. That makes walking a great stress buster. And stress is tough on your liver.



## **Glossary**

### **Acute Hepatitis**

Inflammation in the liver of less than six month's duration.

### **Albumin**

A protein or molecule made in the liver that circulates in the blood. Albumin functions to bind other molecules and drugs in the circulation, and also serves a significant function in holding fluid inside blood vessels.

### **ALT & AST**

Liver enzymes that are measured in the blood. When liver cells are injured these enzymes leak into the blood. Often followed as a marker for response to treatment during a course of therapy for hepatitis C.

### **Antibody**

A protein made by the immune system that recognizes and binds to a foreign invader or antigen to try to destroy it. A diagnostic test for hepatitis C is to look for antibodies.

### **Ascites**

The accumulation of fluid within the abdomen.

### **Bilirubin & Jaundice**

A breakdown product of hemoglobin, which functions to carry oxygen in blood cells. This is a waste product that is normally eliminated from the body through the liver. As bilirubin increase in the body, it gives the skin and eyes a yellow colour, called jaundice.

### **Chronic Hepatitis**

Generally defined as inflammation in the liver of greater than six months' duration.

### **Cirrhosis**

Most of the healthy cells in the liver have been replaced with scar tissue. This often results in impaired function in which the liver is not able to keep up with all of its work.

### **Combination Therapy**

When two or more drugs are used together to treat an illness (eg pegylated interferon and ribavirin for hepatitis C)

### **Encephalopathy**

Hepatic encephalopathy is mental confusion thought to be caused by the buildup of toxic waste products in the body that the liver normally clears or removes.

### **Interferon**

A naturally occurring class of proteins called cytokines used to stimulate the immune system to fight viruses and some forms of cancer.

### **Liver Biopsy**

A sample of liver tissue taken with a needle for microscopic analysis.

### **Necrosis**

Dead tissue

### **Pegylated Interferons**

Interferons that are protected by strands of polyethylene glycol so that they stay in the body longer to fight the virus

### **Prothrombin Time (PT)**

PT (also called INR) is a measure of blood clotting and clotting time increases as the liver fails.

### **Qualitative RNA**

A test for the presence of hepatitis C RNA in the blood. Results are reported as "positive" or "negative." Usually more sensitive than quantitative hepatitis C RNA assays.

### **Quantitative RNA**

A test to determine the quantity (actual number) of hepatitis C RNA present in the blood= the viral load.

### **Pegasys RBV**

Hoffmann-La Roche's formula of pegylated interferon alpha 2a and Copegus (ribavirin)

### **Pegetron**

Schering's formula of pegylated interferon alpha 2b and ribavirin

### **Ribavirin**

An antiviral compound shown to have activity against hepatitis C in combination with interferon. Because this drug can cause damage to an unborn baby, men and women of childbearing age should both use contraceptives while using this drug and for six months after completing treatment.

### **SVR Sustained Viral Response**

No detectable virus in the blood six months after the end of treatment. An important indicator of the efficacy of the medication

### **Viral Hepatitis**

Viral hepatitis is an inflammation of the liver caused by one of several viruses: hepatitis A, B, C (formerly non-A, non-B), D and E.





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