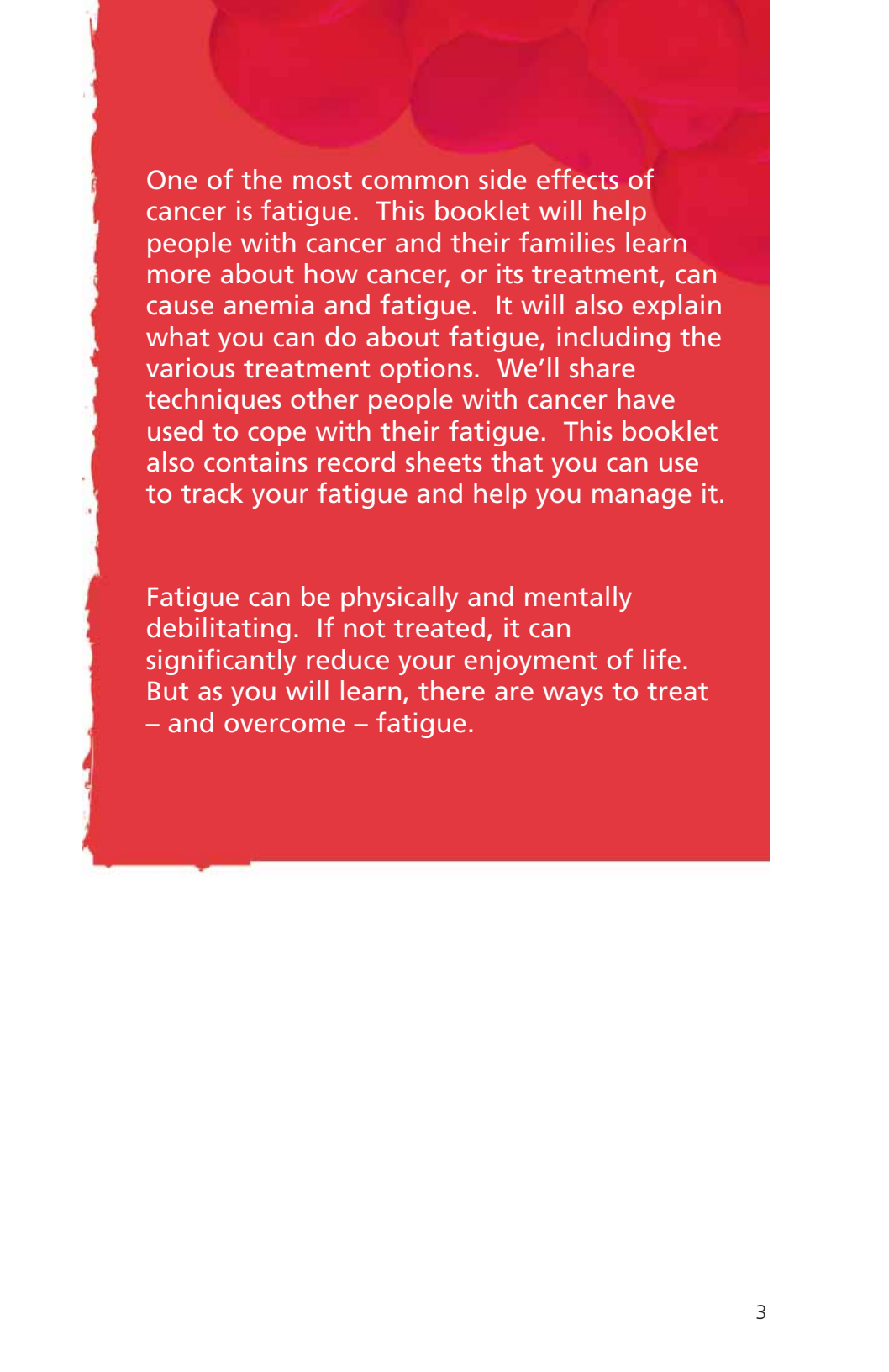




**ALL ABOUT ANEMIA,
FATIGUE AND CANCER**

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One of the most common side effects of cancer is fatigue. This booklet will help people with cancer and their families learn more about how cancer, or its treatment, can cause anemia and fatigue. It will also explain what you can do about fatigue, including the various treatment options. We'll share techniques other people with cancer have used to cope with their fatigue. This booklet also contains record sheets that you can use to track your fatigue and help you manage it.

Fatigue can be physically and mentally debilitating. If not treated, it can significantly reduce your enjoyment of life. But as you will learn, there are ways to treat – and overcome – fatigue.

1. CANCER AND FATIGUE

What is fatigue?

Let's begin by defining what we mean by "fatigue." From time to time everyone has felt tired and "worn out." If the feeling is relieved by a good night's sleep, we refer to it as **acute fatigue**. An example of acute fatigue might be how you would feel at the end of a day doing hard physical labour. Although the feeling of fatigue can be intense, it is typically of short duration and is relieved by rest.

Chronic fatigue, on the other hand, is quite different. Chronic fatigue is unusual, severe and consistent. It persists over time and interferes with everyday activities. It doesn't go away after a good night's sleep.

ACUTE (normal fatigue)	CHRONIC (what you experience with cancer and/or cancer treatments)
<ul style="list-style-type: none">• Intense• Short duration• Relieved by a good night's sleep	<ul style="list-style-type: none">• Unusual, excessive and constant• Does not respond to rest• Persistent over time• Can interfere with activities of daily living

Many people with cancer experience chronic fatigue. If not treated, the fatigue can last for weeks, months or even years. Fatigue affects how you feel physically, as well as your ability to concentrate, think and make decisions.

Common symptoms of chronic fatigue

- Tire easily
- Sleepiness
- Muscle weakness
- Loss of appetite
- Difficulty starting activities
- Lack of interest in life, including sex
- Feel cold (or difficulty staying warm)
- Shortness of breath after even mild exertion
- Needing to rest often
- Lack of energy
- Poor concentration
- Difficulty doing activities



"My grandson asked me to take him to the park and I had to turn him down. I was just too tired to take him."

A study of people with cancer showed that fatigue can negatively affect (in order of frequency):¹

- The ability to work
- Physical well-being
- The ability to enjoy life in the moment
- Emotional well-being
- Intimacy with one's partner
- The ability to take care of family and maintain relationships with family and friends
- Concerns about death and survival

In a survey conducted by the Fatigue Coalition, 28% of people with cancer reported they had stopped working entirely because of fatigue.² Fatigue is often cited by people with cancer as the symptom of their disease that is the most disruptive to their lives.

1. Vogelzang NJ, Breitbart W, Cella D, et al. Patient, caregiver, and oncologist perceptions of cancer-related fatigue: results of a tripart assessment survey. *The Fatigue Coalition. Semin Hematol* 1997;34(3 Suppl 2):4-12.

2. Curt GA, Breitbart W, Cella D, et al. Impact of cancer-related fatigue on the lives of patients: new findings from the Fatigue Coalition. *Oncologist* 2000;5(5):353-60.

What causes fatigue in people with cancer?

Cancer can affect the blood, bones, organs, skin, tissue – any part of the body. What all types of cancer have in common is that they are caused by the unregulated growth of cells. Normal cells are pre-programmed to reproduce only a certain number of times and at a certain rate. In cancer, changes in the genetic material (DNA) of a cell cause it to grow, multiply and invade not only the surrounding area but other parts of the body.

The main causes of fatigue are:

Anemia

- Anemia of chronic disease
- Iron deficiency
- Vitamin B₁₂/folate deficiency
- Stem cell dysfunction (abnormal cell function)
- The breakdown of red blood cells (hemolysis)
- Chemotherapy and/or radiation treatment
- Bleeding
- Tumor infiltration of the bone marrow

Endocrine Disorders

- Adrenal insufficiency (poorly functioning adrenal gland)
- Underactive thyroid (hypothyroidism)
- Underactive sex gland (hypogonadism)

Infection

- Acute infection
- Chronic infections (e.g. tuberculosis, hepatitis)

Main causes of fatigue (continued)

Malnutrition

- Loss of appetite
- Inability to eat
- Decreased ability to absorb nutrients from food
- Vomiting
- Diarrhea

Medications

- Side effects of medications (like chemotherapy)

Mood Disorders

- Depression
- Anxiety
- Agitation

Respiratory Disease

- Obstructed airways
- Respiratory disease that affects intake of oxygen

Can fatigue be treated or managed?

The answer to this question is a definite "yes!" In many cases, the cause of the fatigue can be identified and treated. In other cases, even if the fatigue can't be eliminated, it can be managed. In both cases, the quality of life for people with cancer can be improved.

In managing fatigue, the healthcare team usually starts by looking for common causes. Many of these common causes – such as anemia – can be treated and reversed.

The first step in treating and managing fatigue is discovering its underlying cause. Once the cause is identified, the healthcare team can develop a plan for treating or managing the fatigue. This plan could consist of a combination of medical and lifestyle changes.

Cause of Fatigue	Medical Options	Lifestyle Changes
Anemia	<ul style="list-style-type: none"> • Dietary modification • Iron supplementation • Blood transfusions • Prescription medications 	<ul style="list-style-type: none"> • A healthy, balanced diet • Aerobic exercise or physical therapy
Endocrine Disorders	<ul style="list-style-type: none"> • Depending upon the exact cause, treatment may include: <ul style="list-style-type: none"> • Steroids • Thyroid supplements • Hormonal supplements 	<ul style="list-style-type: none"> • Occupational therapy • Achieving a healthy balance of bed rest and activity
Infection	<ul style="list-style-type: none"> • Antibiotics or other treatments 	<ul style="list-style-type: none"> • Establishing a normal sleep/wake cycle
Malnutrition	<ul style="list-style-type: none"> • Nutritional supplements • Appetite stimulants 	<ul style="list-style-type: none"> • Maintaining a fatigue/activity diary, establishing realistic goals, and prioritizing and planning activities to make the best use of available energy (managing your energy)
Medication Side Effects	<ul style="list-style-type: none"> • Change drug • Change dose • Add psychostimulant • Add another drug to treat side effect 	<ul style="list-style-type: none"> • Maintaining a fatigue/activity diary, establishing realistic goals, and prioritizing and planning activities to make the best use of available energy (managing your energy)
Mood Disorders	<ul style="list-style-type: none"> • Antidepressants • Other psychiatric drugs as required 	<ul style="list-style-type: none"> • Psychotherapy, support groups, or spiritual counselling
Respiratory Compromise	<ul style="list-style-type: none"> • Treat respiratory disease to improve breathing or oxygenation 	<ul style="list-style-type: none"> • Stress management

2. ANEMIA AND CANCER

What is anemia?

Blood is made up of different types of cells. One of the most important is the red blood cell. The red blood cell contains a molecule called hemoglobin which carries oxygen from the lungs to organs and tissues.

Red blood cells are a bit like delivery trucks. When the blood passes through the lungs, the hemoglobin in the red blood cells takes on a load of fresh oxygen. The red blood cells then travel through the blood vessels (like trucks on highways) to all parts of the body. Throughout the trip, hemoglobin releases oxygen (makes deliveries). In this manner, the red blood cells keep the entire body supplied with oxygen.

The oxygen supplied by hemoglobin is essential to feeling healthy. It makes it possible for the various parts of the body to function correctly and provides the energy you need to be active. Without a good supply of oxygen, your energy level drops and you become tired and weak.

Standard levels for how much hemoglobin the typical man and woman needs to be healthy varies somewhat (between different laboratories), but as a rule, the standards used by most doctors are:

Men:	Women:
138 – 172 g/L	120 – 156 g/L

When the number of red blood cells drops below these levels, the amount of hemoglobin in the blood may be too low to provide the body with an adequate supply of oxygen. Doctors call a low hemoglobin count *anemia*.

"I don't know what was wrong with me. I didn't care about doing anything. I used to babysit my grandchildren every week and I had to call up my daughter and ask her to stop bringing them over. I hated doing that but I just couldn't seem to cope."

What are the warning signs of anemia?

The warning signs of anemia can vary from person to person. In the beginning, little or no change may be noticed. But as the anemia progresses, people may report feeling tired and unwell, looking pale, shortness of breath after even mild exertion, headaches, chest pain, fast heart rate and difficulty concentrating. Other people report feeling cold, having difficulty remembering things, a decrease in appetite, leg pains and lightheadedness or dizziness.

Why do people with cancer develop anemia?

There are several reasons why people with cancer develop anemia:

- **Decreased production of red blood cells**

Red blood cells only live for about 4 months. This means the body must continually make new red blood cells to replace those that have died. Some cancers – or cancer treatments – can interfere with the body's production of red blood cells. This can result in anemia.

The process of producing new red blood cells starts with the kidneys. The kidneys produce a hormone called erythropoietin (pronounced "ee-rith-ro-poy-e-tin").

Erythropoietin is like a work order, in that it tells the bone marrow to start making more red blood cells. Cancer or its treatment can interfere with the production or release of erythropoietin and can reduce the bone marrow's ability to respond to it and make more red blood cells.

- **Blood loss**

When you lose blood, you also lose red blood cells.

Sometimes, the blood loss is enough to result in anemia.

For example, it is common for people with colorectal cancer to experience some bleeding into the bowel. Over time, this blood loss can cause anemia. People who lose a significant amount of blood during surgery can also develop anemia.

- **Poor nutrition**

The nutrients iron, folate (folic acid) and vitamin B are essential for the production of red blood cells. The best source of these nutrients is a healthy diet, but many people with cancer find that nausea, vomiting and anorexia (loss of appetite) can make it difficult to eat sufficient amounts, or the right types, of food. Cancer can also affect the body's ability to absorb nutrients from food.

3. HOW DO I KNOW IF I MIGHT HAVE ANEMIA?

The first step is to determine if you are experiencing fatigue. Fatigue is subjective and difficult to measure, but if you have significant fatigue that is interfering with your life, it is important to determine the cause. Your doctor may order a hemoglobin count, which we will discuss.

Fatigue Self-Assessments

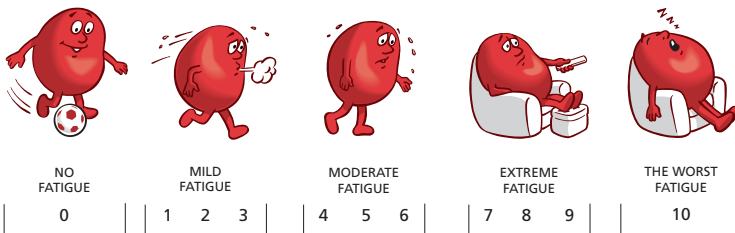
A number of fatigue questionnaires have been developed. Some of these questionnaires use numeric scales to rate the amount of fatigue (e.g. you rate how tired you feel on a scale of 1 to 10). Others use illustrations or pictures, or rely on answers to particular questions.

Key questions a health professional may use to assess fatigue are:

- Are you experiencing fatigue?
- If yes, how severe has it been, on average, during the past week, using a 1 to 10 scale?
- How is fatigue interfering with your ability to function?

The Fatigue Scale

The Fatigue Scale is a handy way of evaluating how you feel at any point in time. The Fatigue Scale combines a numeric scoring system with illustrations. You can use the Fatigue Scale to keep a Fatigue Diary of how you feel at different times of the day and on different days.



Fatigue Diary

Day	Morning	Afternoon	Evening
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			
Day 9			
Day 10			
Day 11			
Day 12			
Day 13			
Day 14			

Keeping a Fatigue Diary can help you and your healthcare team better understand your fatigue condition.

The Fatigue Self-Assessment Questionnaire

The following questionnaire will help you assess if fatigue is interfering with your life. For each question, check the response that best represents how you feel.

YES NO

 Do you have less energy than in the past?

 Do you tire more quickly than usual?

 Do you spend a lot of your time resting or lying down?

 Do you frequently feel tired even when you wake up?

Does your fatigue frequently interfere with:

 - Doing activities you enjoy?

 - Carrying out duties and responsibilities?

 - Your ability to visit or socialize?

 - Family roles and responsibilities?

 Do activities take more effort than they used to?

 Do you find it harder to concentrate?

 Does your level of fatigue affect your emotions and feelings?

 Are you concerned about your fatigue?

The more times you checked "yes", the greater the chance you are experiencing chronic fatigue. Talk with your nurse, doctor or another member of your healthcare team if you are concerned about your fatigue.

Testing for Anemia

If there is evidence that you are suffering from chronic fatigue, your doctor may order a test of your blood. The test will show the level of hemoglobin in the blood. If the level of hemoglobin falls below the standard level for someone of your gender, anemia may be diagnosed.

MALES

Less than 138 g/L: Abnormal (Anemia)	138-172 g/L: Normal	More than 172 g/L: Abnormal
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FEMALES

Less than 120 g/L: Abnormal (Anemia)	120-156 g/L: Normal	More than 156 g/L: Abnormal
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Note: Different laboratories may vary and use slightly different levels and ranges.

Knowing whether anemia is the cause of your fatigue is an important first step in treating it.



"Until my doctor tested my blood, I didn't know why I felt so tired all the time. It turned out I was anemic. It was a relief to know there was a reason for my fatigue – it wasn't just 'in my head'."

"When my hemoglobin level dropped below 90, I didn't care much about anything or anybody. I couldn't believe how much better I felt once my doctor treated the anemia."

4. TREATING CANCER-RELATED ANEMIA

Anemia is one of the leading causes of fatigue in people with cancer. Cancer-related anemia is experienced by approximately 60% of all cancer patients.³

How is cancer-related anemia treated?

There are four main options for treating cancer-related anemia. A combination of approaches may be used. For example, in addition to receiving medical treatments, you may be advised to change your diet.

1. Diet Modification

It is important that people with cancer try to eat a healthy, balanced diet that provides adequate amounts of the nutrients essential for good health. Iron, vitamin B₁₂ and folic acid (folate) are particularly important for people with anemia, as they are needed for the production of red blood cells. The following table shows some good dietary sources of these nutrients.

Nutrient	Some Good Dietary Sources
Iron	Eggs, fish, liver, meat, poultry, green leafy vegetables, whole grains, enriched breads and cereals
Vitamin B ₁₂	Cheese, egg yolks, fish, legumes, meat, milk, poultry, spinach, whole grains, yogurt
Folic acid	Barley, beef, bran, brewer's yeast, brown rice, cheese, chicken, dates, green leafy vegetables, lamb, legumes, lentils, liver, milk, mushrooms, oranges, split peas, pork, root vegetables, salmon, tuna, wheat germ, whole grains

Over-the-counter (non-prescription) iron, vitamin B₁₂ and folic acid supplements are also available. **Check with your doctor and pharmacist before taking any supplement.** Some prescription medications interact with supplements. The same warning applies to herbal therapies or supplements. When in doubt, always check with your doctor and pharmacist before taking any over-the-counter therapy.

3. Manegold C. The causes and prognostic significance of low hemoglobin levels in tumor patients. *Strahlenther Onkol* 1998;174 Suppl 4:17-9.

2. Iron Supplements

If the level of iron in your blood is low, the bone marrow cannot manufacture more red blood cells. If changing your diet does not increase your iron level sufficiently or quickly enough, you may be prescribed an iron supplement. Iron supplements can be taken in the form of pills or through injection.

Your doctor will prescribe the amount and type of iron that you need. Over-the-counter (non-prescription) iron supplements are also available. Always check with your doctor and pharmacist before taking any over-the-counter iron supplement.

3. Medications to Stimulate Red Cell Production

There are prescription medicines that stimulate the bone marrow to make more red blood cells.

Talk with your doctor to see if they may be right for you.

4. Blood Transfusions

Blood transfusions may be used to treat severe, chronic, cancer-related anemia. A blood transfusion is the fastest way to increase your hemoglobin levels. A transfusion is usually given in the hospital and may take several hours.



"One of the best things I did for myself that year was to ask for treatment for my fatigue. It turned out that I had anemia – and could be treated. Having my anemia treated made a tremendous difference in how I felt and what I could do."

"The cancer treatments had a great effect on me because I'm used to being a very busy person. I couldn't do the things I used to be able to do. Gradually I was able to start going out again for lunches with my friends, having family over, and working in my garden."

"Probably the most difficult side effect for me to deal with was just the incredible exhaustion."

5. TAKING CONTROL

Fatigue from cancer-related anemia can make you feel like you're swimming underwater wearing a heavy suit of clothes. Not having enough energy to do the things you need to do – or the things you would like to do – is frustrating and depressing. But there are ways of taking control and improving your energy level and your quality of life.

1. Assess your level of fatigue. One of the biggest barriers to getting treatment for fatigue is the idea that "there's nothing you can do about it." This idea is wrong! Fatigue can be treated. The first step in getting treatment is telling your healthcare team that you have a problem.

Using the Fatigue Scale on page 12, complete the Fatigue Diary on page 13 for two weeks. Complete the Fatigue Self-Assessment on page 14. Show your completed Fatigue Diary and the results of your Fatigue Self-Assessment to your healthcare team. If fatigue is significantly affecting your life, let them know, and tell them if you want treatment.

Questions to ask your healthcare team include:

- *I'm no longer able to do the things I used to do. What could be causing me to feel so weak and tired?*
 - *Could my fatigue be caused by something other than my disease?*
 - *What can we do to treat my fatigue?*
2. Find out why you have fatigue. Work with your doctor to find out what is causing the fatigue. A blood test can quickly determine if your fatigue is the result of anemia. Ask your doctor if your hemoglobin level or red blood cell count should be tested.
 3. If you have anemia, ask about your treatment options. There are a number of treatments for anemia. Find out which ones are right for you.

4. Make healthy lifestyle choices. Healthy lifestyle choices can help to preserve and enhance your energy level. They will also help enhance treatment for anemia. Ask your healthcare team for advice and help with:

- Eating a healthy, balanced diet that is high in essential nutrients
- Being physically active on a regular basis
- Enhancing the quality of your sleep
- Finding the right balance between activity and rest

5. Make optimal use of the energy you have. The 4 Ps of saving your energy are:

Plan: Plan your day the night before. If you have completed your Fatigue Diary, you will know what time of day you have the most energy. Plan to do your most important activities during that time. Also, plan how you can do tasks to save as much energy as possible. For example, can you use a stool to support yourself while cooking? Can you arrange to have groceries delivered?

Prioritize: Decide which tasks are the most important to do and concentrate on doing only those. Eliminate activities that are not important. Decide which activities you must do yourself and those you can delegate to others.

Pace: Balance activities with rest and relaxation. Never work or play until you are exhausted.

Position: Sit as much as possible when doing household activities, hobbies or activities at work. Use trolleys or walkers with baskets to help you carry things and move around more easily.

More information on lifestyle strategies for managing fatigue are available from *Your Bank to Energy Savings*, a booklet produced by Ortho Biotech. A free copy of this booklet can be obtained from your local cancer centre or by calling the Ortho Biotech head office at 1-800-387-8781 and ask for the Ortho Biotech Community Relations Department.

6. RESOURCES

The following is a partial list of resources to help you learn more about cancer-related fatigue and anemia:

Your Bank to Energy Savings

A booklet that will give you more information about fatigue and what you can do about it. A free copy can be obtained from your local cancer centre or by calling the Ortho Biotech head office at 1-800-387-8781.

Bettercancer.com

A comprehensive website for people with cancer and their families. The website offers interactive tools and tailors information to help you make informed healthcare decisions. www.bettercancer.com

Oncology Interactive Education Series (in CD-Rom format)

Relevant, interactive information on the prevention, diagnosis, treatment and support of tumour-specific cancers. These resources can help you better understand your disease and promote meaningful discussions with members of your healthcare team. Available through most cancer care centres through the support of Ortho Biotech Canada.

Anemia Institute for Research and Education

The Institute is dedicated to the prevention, diagnosis and management of anemia. A variety of free resources are available from the Institute and can be obtained by calling 1-877-99ANEMIA or visiting www.anemiainstitute.org

Anemia Information Line

1-800-281-8777

Canadian Cancer Society

The Canadian Cancer Society offers a wide range of resources for people with cancer and their families. Information is available from the Society's website (www.cancer.ca), from their toll-free Cancer Information Service (1-888-939-3333) or from their provincial offices.

Cancer.com

This website is a clearinghouse of credible websites to help you find the information you need – when you need it.
www.cancer.com

Chemocare.com

Visit this site for the latest information about chemotherapy for people with cancer and their families.





19 Green Belt Drive
Toronto, Ontario M3C 1L9
1-877-793-7739

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