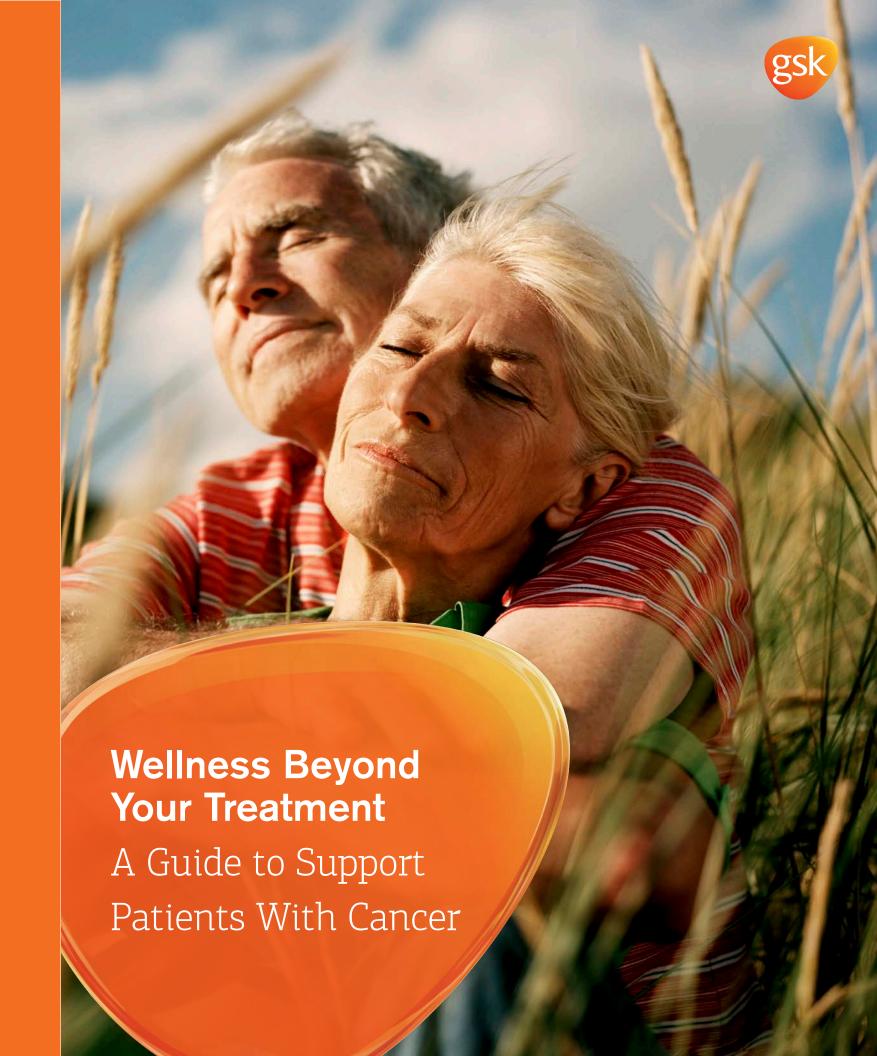
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### How to boost your immune system

Keeping your body as healthy and strong as possible during cancer treatment is crucial. Your immune system is instrumental in maintaining this strength.

The immune system plays a critical role in helping you fight off attacks from viruses and bacteria. The key players of the immune system are white blood cells. White blood cells move throughout the blood and tissue in your body and look for foreign invaders such as bacteria and viruses. White blood cells include B-cells, T-cells, and natural killer cells, and many other types of immune cells. There are many ways to maximize the immune system's ability to protect you from these viruses and bacteria through diet and lifestyle changes.

#### Make sure you are getting enough vitamins

One of the main protections against infections is our nutrition. Key nutrients include vitamin A, C, E, B<sub>6</sub>, D, and minerals like zinc, iron, and selenium. Examples of foods that are rich in these are carrots, sweet potatoes, bell peppers, strawberries, almonds, avocados, salmon, tuna, lean chicken breast, and beef. The recommended intake of these vitamins and minerals depends on your sex, age, and weight. It is important to talk to your doctor about how much you should be having each day.

### Consume the right amount of protein

It is important to talk to your doctor about how much protein you should be having each day. You can fulfill your daily protein suggestions by eating appropriate portion sizes of ground beef, chicken breast, fish, or even yogurt. If you don't have enough protein, it can have a negative effect on your T-cells, which send out disease-fighting antibodies to viruses and bacteria. Protein also contains a high amount of zinc.

### Try eating prebiotic foods

Prebiotics are a type of fiber that the human body cannot digest. They serve as food for probiotics, which are tiny living microorganisms, including bacteria and yeast in the gut. Prebiotics are found in foods such as onions, garlic, bananas, and asparagus. They assist in maintaining a balanced amount of good stomach bacteria. Prebiotics increase the good bacteria in your stomach that help turn on anti-inflammatory cytokines, which are tiny proteins that help the immune system function.

The wider variety of fruits, vegetables, and protein you consume daily will help build a wider range of nutrients the body uses to boost its immune system.

### **Get sufficient sleep**

If you lack sleep, you will be more at risk of infection. Sleep is when your body works its hardest to fight inflammation and infection. Inflammation is part of the body's defense mechanism. It is a process where your body's white blood cells and the things they make protect you from bacteria and viruses. However, if there is too much inflammation in your body, it can overstress the immune system, making it harder to fight viral and bacterial infection. Although each person may need a different amount of sleep, it is recommended that most adults get between 7 to 8 hours a night.





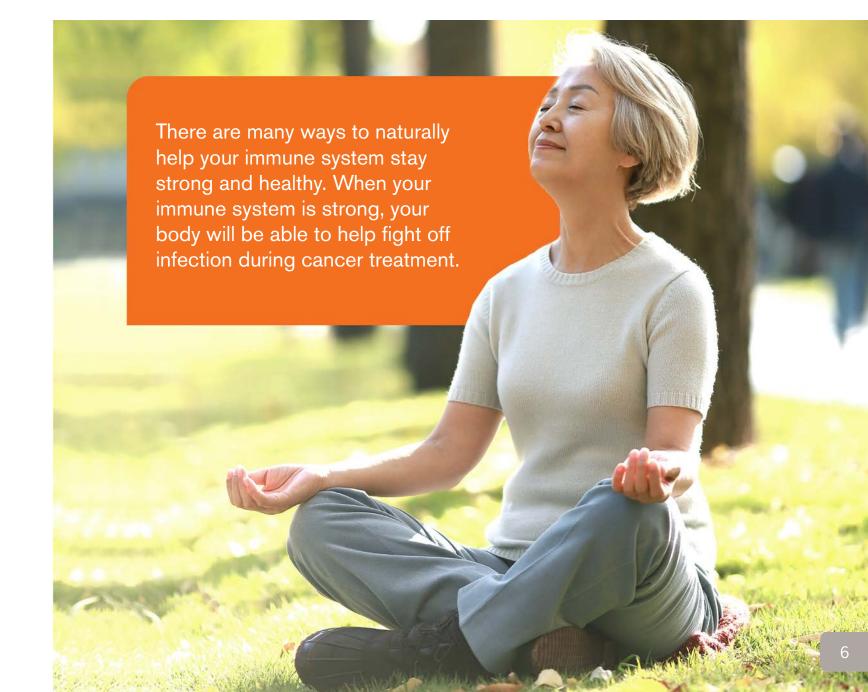


#### **Exercise regularly**

Exercise has many benefits, including decreasing inflammation and improving immune regulation. Exercise improves cardiovascular health, lowers blood pressure, helps control body weight, and protects against a variety of diseases. It is important to talk to your doctor about an exercise regimen that is right for you.

#### Reduce your stress

Ongoing stress makes us more vulnerable to illness because the brain is constantly sending signals to the endocrine system, which then releases an array of hormones that severely depresses our immune system. Your endocrine system is responsible for producing hormones that regulate metabolism, growth and development, tissue function, sexual function, reproduction, sleep, and mood.





# Overcoming changes in your self-perception and body image

When you are diagnosed with cancer, it may cause overwhelming changes in your life. With the physical challenges, there are mental hurdles to overcome as well, such as changes in your body image and self-perception. It is important to maintain a positive self-perception even though you may start to notice changes in your physical appearance while undergoing cancer treatments. Remember to always treat yourself with compassion and kindness while adjusting to these changes.

### There are ways to manage physical changes

Some of the physical changes that you may experience during cancer treatment include hair loss, weight gain or weight loss, scars from surgery or rashes. While most of these changes in your appearance may get better after your treatment has ended, they may lead to a negative self-view. Going through these changes may lead to difficult emotions, such as feeling out of control, frustration, sadness, anxiety, or even anger.

Speak with your doctor or other members of your healthcare team about ways to manage changes in your appearance. For example, you may be able to develop an exercise plan to regulate your body weight and muscle mass. You might also consider cosmetic solutions such as a new hairstyle or wigs if you're concerned about hair loss. Some reconstructive surgeries or prosthetic devices may also be available.

### Change isn't always negative

Feeling this way is understandable. However, it is important to remember that these changes do not define who you are and that you are in always in control of how you perceive things. Continue to find the beauty in yourself while allowing yourself the time to adjust to these changes you may be noticing. You may even find that everything you are experiencing only makes you appreciate things more and helps you find strength in your body.







### Be open about how you feel

Communicating about how you feel is important while adjusting to changes in your physical appearance. It may be helpful to speak to other cancer survivors for advice and understanding, since they have gone or are going through a similar situation. Continue to maintain a strong relationship with your trusted friends and family, so you can express yourself more openly about the challenges you are experiencing. Speaking to a professional counselor or therapist may also help you cope with these changes.



Remember that changes to your physical appearance do not define who you are as an individual.

Even though you may be experiencing changes to your self-perception, there is a lot of help and resources available to you. Your doctor may be able to provide advice, prescribe medication, or recommend certain procedures to help you adjust to these changes in your physical appearance.





### Managing your anxiety







It's almost impossible to avoid anxiety completely when you are diagnosed with cancer, as it certainly gives you lots of things to worry about! Whether it's concerns about treatment, if you can keep working, how your cancer will affect your family, the added stress of COVID-19—what does the future hold? It's really not surprising that you sometimes feel anxious.

### Anxiety can affect your body

When you feel anxious, your body is effectively put on "high alert", to look out for possible danger and to be ready to activate fight or flight responses. This can make you feel restless and on edge, make your heart beat faster, and cause your breathing to speed up. You could find it difficult to concentrate and, try as you might, you just can't get a good night's sleep.

If you're feeling tired, it could be that anxiety is keeping your body constantly in "threat mode" and it may be exhausting.

Has anyone mentioned that you never sit still? You may not be aware of it but, when you're anxious, you may fidget, play with your hair, or jiggle your leg up and down. You might pace around the room or keep standing up, sitting down, and changing position. If your body is constantly moving, then you are never truly at rest. Your heart rate doesn't get a chance to settle and your muscles are permanently burning up energy—no wonder you feel drained!

### Breathwork and mindfulness can calm your mind

Here are a few ideas that you may like to try. They are simple, but they work. Breathe in for 4 counts, then out for 4 counts, do this for 5 minutes at a time. By evening out your breath, it will help to slow your heart rate. Or you could try to literally "walk away" from whatever's on your mind—a 15-minute walk around your neighborhood could be all you need to change your focus.

Mindfulness and meditation can be really helpful, or why not give yoga a try? Yoga can improve bone strength, and it's good for both body and mind. You can do yoga at any age; it has become increasingly popular with older adults in recent years. You don't need to rush out to buy any special equipment and you can do it anywhere. You'll be focusing so hard not to fall over while in the tree pose that it may take your mind off other things.

### Friends, family, and support groups can help

Most people living with a serious illness like cancer have times when they feel anxious or depressed, so don't be too hard on yourself if you feel this way.

Do you find it difficult to be completely open about your feelings with your partner or closest friend? Even if you usually share everything, many people with cancer find that they hold back from sharing their innermost thoughts as they don't want to give their loved one anything more to worry about.

This is why it's great to form connections with others who are undergoing treatment as well; they know what you are going through, so you can be completely honest about how you are feeling. Try not to hold back, it's not good to bottle up your feelings.

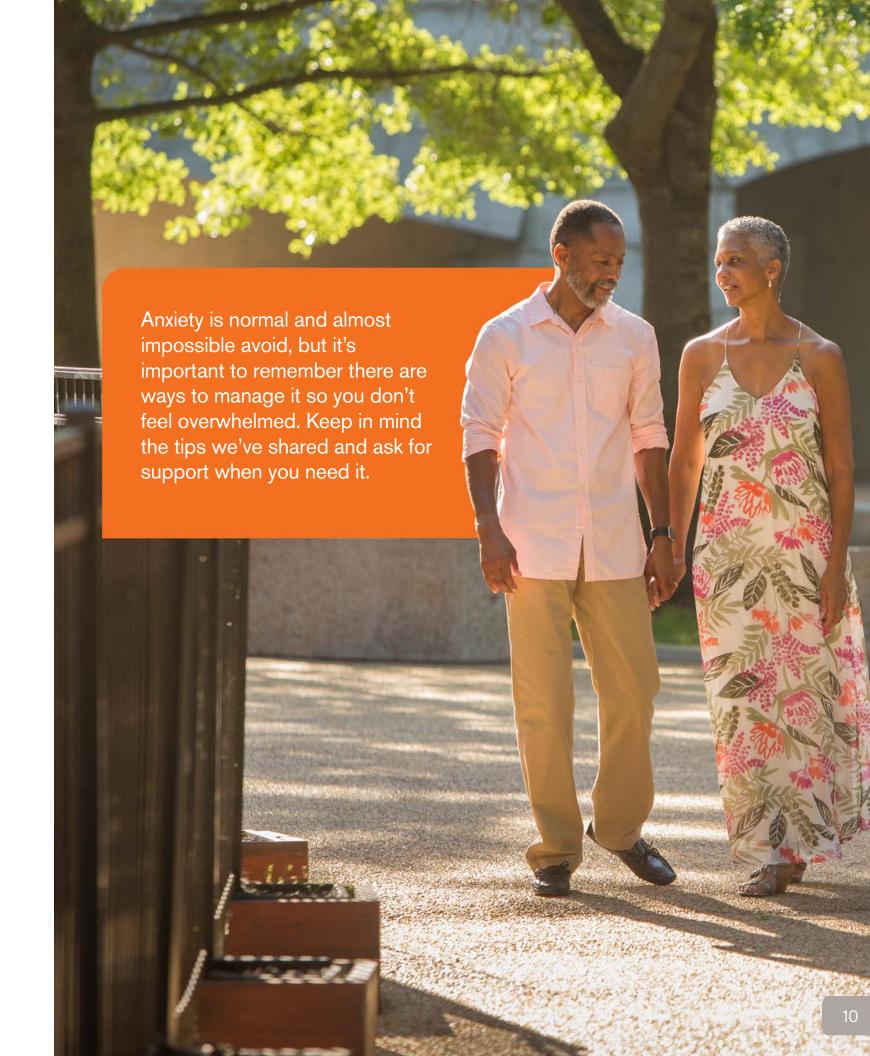
Tell your healthcare team if you are feeling anxious. It's really important that they know.

#### Remission is time to relax

Good news, you're in remission! So why do you still feel anxious? Don't worry, this is a very common reaction. On the one hand, you feel relieved; on the other hand, you worry that a relapse could happen at any point. You've been through a lot, so be kind to yourself and try to enjoy the moment.

### Are finances on your mind?

Most of us worry about money at some point in our lives. You may have needed to make changes in the way you work due to your cancer, and this might have affected your income. Then, as luck would have it, you had to replace your car or pay for repairs to your home. Dealing with financial worries can be challenging, but you can seek out additional resources through manufacturer websites and patient advocacy organizations. There may be benefits you could claim or other forms of financial assistance you could qualify for.





## Coping with cancer-related fatigue



Cancer-related fatigue describes a feeling of low energy levels experienced during and after cancer treatment. Feeling fatigued may make you both physically and mentally exhausted, at times making it hard to go about everyday activities. Overall, this lack of energy may negatively impact your quality of life. It's important to understand the factors that contribute to your fatigue if you are to begin to manage it.



### Common causes of fatigue during treatment

While fatigue is a common symptom of cancer, certain treatments such as chemotherapy and radiotherapy may cause increased fatigue. The effects of treatment are felt strongest during and shortly after each treatment cycle. The initial feelings of fatigue may fade in the days following each treatment cycle. You should listen to your body and may find it helpful to avoid strenuous tasks during treatment cycles. Speak with your doctor about managing feelings of fatigue.

### Managing cancer-related fatigue

It is important that you eat enough healthy foods, as proper nutrition provides a critical source of energy for your body. Some effects of treatment may include a loss of appetite or changes in your sense of taste or smell. To get the right amount of energy from your food, you may find it preferable to eat multiple smaller meals throughout the day instead of a traditional three-meal schedule.

One of the more effective ways to control your energy levels throughout the day is through light exercise. While physical activity may seem counterintuitive when you are already fatigued, light exercise may help stimulate your energy levels throughout the day and

create a more restful sensation at night. Along with affecting your energy levels, light exercise may improve your physical and mental health as well. You may start small, with a short walk, and continue to increase how often you exercise. Speak with your doctor or other members of your healthcare team to find the right exercises for you.

It is common for people living with cancer to have trouble sleeping. Many of the factors that affect your ability to fall and stay asleep are controllable throughout your day-to-day routine. See the tips we've provided on the next page for ways to help improve your restfulness.

Managing the effects of cancer-related fatigue may be started with a series of small sustained changes to your daily routine. You may find new habits help to create noticeable improvements in your energy levels. Improved energy levels along with increased physical and mental wellbeing are important to improving your overall quality of life.

Understanding the factors that affect your energy levels is an important first step to meeting the challenges of cancer-related fatigue.

### Six tips for better sleep

While some treatments may be largely responsible for the initial drain you feel, an irregular sleep pattern can also result in constant fatigue. There are small changes you can make to your daily routine that may help you sleep better and feel well-rested when you wake up in the morning. Remember to take an active role in your care and speak with your doctor if you experience persistent fatigue.

### 1. Create a regular sleep schedule

Sticking to a regular sleep schedule may help your body maintain a sleep-wake cycle. Try to go to sleep and wake up at a consistent time, even on weekends and while on vacation. Regularly sleeping seven or more hours per night can make a noticeable difference in your daily energy levels.

#### 2. Limit daytime naps

While a daytime nap can help with serious fatigue, try to limit how much you sleep during the day. This may help you be more prepared for a full night's sleep.

### 3. Avoid caffeine, nicotine, and alcohol

Caffeine and nicotine have stimulating effects that can take hours to wear off. Avoid consuming these in the afternoon, as they can impact your ability to fall asleep and remain asleep. Additionally, alcohol may disrupt your sleep throughout the night, making the rest you get feel less refreshing.

### 4. Avoid screen use before sleeping

It is recommended that you stop watching TV and using your cellphone an hour before you go to sleep. The blue light that these devices produce can be stimulating. Blue light can reduce the amount of the sleep-inducing hormone melatonin, making it more difficult to fall asleep at night.

#### 5. Create a restful environment

An ideal sleeping environment is a cool, dark, and quiet space. You may find earplugs or a night eye mask to be helpful once you are ready to go to sleep. It may also be beneficial to do calming activities such as taking a bath or meditating shortly before going to bed.

### 6. Exercise during the day

Daytime exercise can increase your energy levels during the day and provide for a more relaxing night's sleep. To increase the likelihood of better sleep, avoid exercising shortly before going to bed. Remember to always check with your healthcare provider regarding an exercise routine.

While it is important to improve the quality of your sleep, it is also important to be realistic on days when you feel fatigued. If you are not feeling refreshed, you may want to prioritize your more important tasks in the morning, or when you have the most energy. It may be helpful to track your quality or duration of sleep each night to better understand how your energy levels change as a result of your sleep schedule.







Good sleep habits are essential to managing your fatigue and overall health.