

# Managing Stress

How stress affects you and ways to cope



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# What is stress?

Feeling stress is one of the most common human experiences. Everyone experiences stress at some point in life, but not everyone experiences stress in the same way. Most people use the word “stress” when they refer to a feeling of being overwhelmed by negative events or experiences. However, stress in its simplest form can be described as a person’s reaction to changes or demands in his or her life.

Stress is not always a consequence of a negative circumstance. Positive life events such as getting married, changing jobs or having a baby can also cause stress. This type of stress is known as “eustress,” or positive stress. In contrast, negative life events such as job loss or a cancer diagnosis may cause a negative form of stress called “distress.” Either type of stress—eustress or distress—can spark personal growth.

## Stress and Cancer

After a diagnosis of cancer, it is natural for feelings of distress to surface among patients and their caregivers. Distress is defined by the National Comprehensive Cancer Network (NCCN) in its *Guidelines for Distress Management* as “a multifactorial unpleasant experience of a psychological (ie, cognitive, behavioral, emotional), social, spiritual and/or physical nature that may interfere with the ability to cope effectively with cancer, its physical symptoms and its treatment.”

Stress may be caused by many factors in different ways:

**Physical discomfort** due to the cancer itself

**Physical discomfort** because of treatments such as chemotherapy, radiotherapy or stem cell transplant

**Tests and treatments** that require you to wait for results

**Identity and relationship** changes

**Sense of grief** for your pre-diagnosis life; the life you imagined you would have

**Sense of betrayal** by your body

**Finances, work and family** (normal stressors) may be made worse by treatment and recovery issues

**The effect of medications**, or changes in the body caused by treatment

**Depression and recurring worry** may surface years after treatment, even though the person is in good health

**Dread or sadness** around the time of anniversaries of the diagnosis or other major medical event(s)

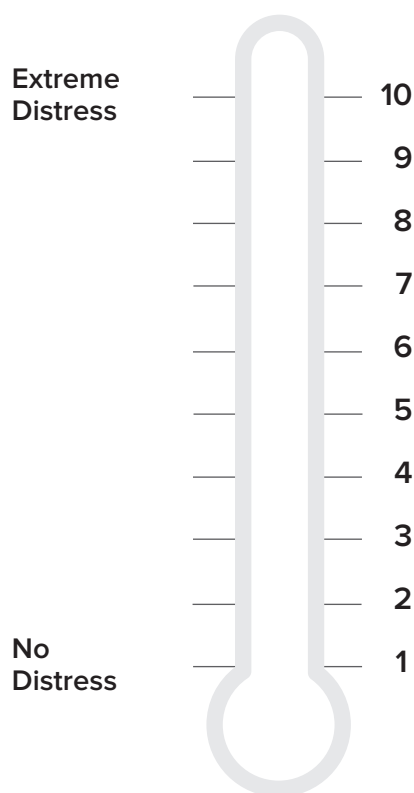
**Distress Screening.** Distress can occur at any time during or after cancer, even many years after treatment has ended. Ideally, patients are checked for distress at every healthcare visit. At times, the patient may not want to speak about stress in front of his or her caregiver. The caregiver should be sure that the patient has private time to talk with a healthcare professional. If the patient is not able or is not aware of his or her distress, a caregiver should speak up for the patient.

In August 2012, the Commission on Cancer of the American College of Surgeons set standards for hospital cancer programs. Their patient-centered focus includes checking all patients with cancer for signs of distress.

In response to these standards, the NCCN developed the “Distress Thermometer.” This is now a well-known tool for initial screening. It is similar to the rating scale used in doctor’s offices to measure pain: 0 (no pain) to 10 (extreme pain). The distress thermometer serves as a rough, initial, single-item questionnaire, which identifies distress from any source, even if unrelated to cancer (see *Figure 1, right*). A high number indicates that patients should speak to a healthcare professional for assistance in decreasing their distress.

## NCCN Distress Thermometer

Instructions: Please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.



**Figure 1.** From NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Distress Management.

The NCCN also developed “The Problem List” (see *Figure 2, below*), designed to be used at the same time as the Distress Thermometer. This list asks patients to identify their problems in five different categories. If a patient has many items in the “Yes” column checked, he or she should speak to a trained healthcare professional.

Problem List			
Please indicate if any of the following has been a problem for you in the past week including today. Be sure to check YES or NO for each.			
YES	NO	<u>Practical Problems</u>	
<input type="checkbox"/>	<input type="checkbox"/>	Child Care	
<input type="checkbox"/>	<input type="checkbox"/>	Housing	
<input type="checkbox"/>	<input type="checkbox"/>	Insurance/Financial	
<input type="checkbox"/>	<input type="checkbox"/>	Transportation	
<input type="checkbox"/>	<input type="checkbox"/>	Work/School	
<input type="checkbox"/>	<input type="checkbox"/>	Treatment Decisions	
		<u>Family Problems</u>	
<input type="checkbox"/>	<input type="checkbox"/>	Dealing with Children	
<input type="checkbox"/>	<input type="checkbox"/>	Dealing with Partner	
<input type="checkbox"/>	<input type="checkbox"/>	Ability to Have Children	
<input type="checkbox"/>	<input type="checkbox"/>	Family Health Issues	
		<u>Emotional Problems</u>	
<input type="checkbox"/>	<input type="checkbox"/>	Depression	
<input type="checkbox"/>	<input type="checkbox"/>	Fears	
<input type="checkbox"/>	<input type="checkbox"/>	Nervousness	
<input type="checkbox"/>	<input type="checkbox"/>	Sadness	
<input type="checkbox"/>	<input type="checkbox"/>	Worry	
<input type="checkbox"/>	<input type="checkbox"/>	Loss of Interest in Usual Activities	
<input type="checkbox"/>	<input type="checkbox"/>	<u>Spiritual/Religious Concerns</u>	
Other Problems:			
<hr/>			
<hr/>			
<hr/>			
<hr/>			

**Figure 2.** From NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Distress Management.



Early and routine evaluation and screening leads to early management of distress. In general, research suggests that early detection and treatment of distress leads to:

**Better  
adherence to  
treatment**

*(taking medications  
as prescribed by  
the doctor)*

**Better  
communication  
with the  
healthcare  
team**

**Fewer calls  
and visits  
to the  
oncologist's  
office**

**Decreased  
risk of  
developing  
severe anxiety  
or depression**

## The Stress Response

In order to learn how to cope with stress, it is important to understand how our bodies respond to stressful situations. Stress can cause physical changes in the body, including high blood pressure, muscle tension or shaking, digestive issues, insomnia, irritability and depression.

When the body is subjected to a real or imagined threat, the senses send that information to a part of the brain called the amygdala. This part of the brain is involved in emotional processing. The amygdala interprets the information and when it perceives danger, it sends a distress signal to another part of the brain called the hypothalamus. The hypothalamus is like a command center, communicating with the rest of the body through the autonomic nervous system, which controls normal body functions that are automatic, such as breathing, blood pressure, heartbeat and the dilation or constriction of key blood vessels and the bronchioles (small airways) in the lungs.

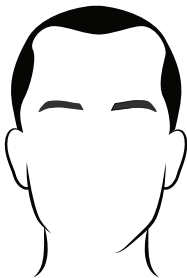
The autonomic nervous system has two components: the sympathetic nervous system and the parasympathetic nervous system. The sympathetic nervous system triggers the “fight or flight” response, providing the body with a burst of energy so it can respond to danger. The “fight or flight” response is a useful and necessary mechanism that enables us to act appropriately in an emergency situation. It quickly impacts the heart rate, blood flow, blood pressure, blood

sugar, breathing, metabolism and digestion. The parasympathetic nervous system acts like a brake. It promotes a rest response that calms the body down after the danger has passed. After a brief stressor, the body returns to its natural resting state (called homeostasis).

## “Fight or Flight” Response



**After the amygdala sends a distress signal, a hormonal cascade is initiated, adrenaline circulates through the body, and the body becomes very alert, sensing danger. The heartbeat becomes faster than normal. Pulse rate and blood pressure go up, and breathing speeds up. Sight, hearing and other senses become sharper.**



**As the initial surge of adrenaline subsides, hormone levels return to normal and the body slows down and starts to relax.**

If the stressor continues and becomes chronic stress, additional hormones, such as cortisol, keep the body in a heightened state of alert.

## The Importance of Stress Management

The prolonged activation of stress hormones affects many organ systems throughout the body. Elevated cortisol suppresses the immune system, decreasing the body's ability to fight infections. Stress hormone imbalance can affect blood pressure, kidney function, thyroid function, fertility, inflammation, fat and protein metabolism, and blood sugar levels. This may in turn increase risk for serious diseases like heart disease and stroke.

Cancer may develop due to an indirect effect, because stressed individuals may engage in unhealthy behaviors (smoking or drinking too much alcohol) as they try to cope with their feelings. Such behaviors can, in turn, increase a person's risk for cancer. Fifty percent of cancers are related to lifestyle behaviors, and could be prevented by changing everyday habits.

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There is great benefit to managing stress, in particular for cancer patients.

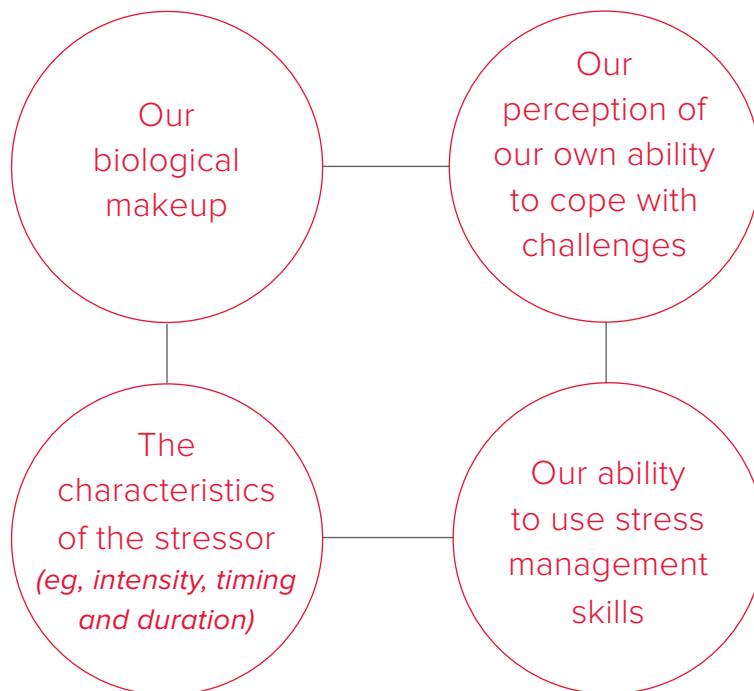
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There is great benefit to managing stress, in particular for cancer patients. One study examined the effects of behavioral factors on the immune response of female breast cancer patients and found that the patients who had higher levels of perceived social support—and lower levels of stress—had a greater immune response shown by NK-cell activity, compared with women who felt less supported.

The goal of stress management is to develop effective coping strategies that return the body to its resting state as soon as possible. Certain types of psychotherapy can increase a person's ability to cope with stress and traumatic events (*see Evidence-Based Approaches on page 11*).

## Stress Management Skills for Cancer Patients and Their Caregivers

A person's well-being relies on balance of the body, mind and spirit. How well we cope with stress depends on a variety of individual factors including



Some of these factors are out of a person's direct control, and everyone will experience stress at different points in their lives. But a person can influence his or her ability to react and cope with stress.

Stress management skills are coping skills. People with good coping skills are less likely to experience negative stress reactions. Cancer patients and their caregivers can benefit greatly from learning and utilizing these skills as they face the stress associated with cancer and its treatment.

## Evidence-Based Approaches

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Evidence-based approaches are interventions that have been well-researched and proven to have an effective outcome for many when used as intended. The following are current evidence-based approaches used by mental health professionals to assist cancer patients with stress.



**Cognitive Behavioral Therapy (CBT)** is a type of psychotherapy that focuses on modifying one's thoughts and actions that contribute to anxiety, depression and insomnia. CBT and its variations are very powerful techniques that have been adapted to help people cope with all types of conditions and stressful events. There is strong evidence that CBT can help with depression, anxiety, post-traumatic stress, pain and fatigue in people with cancer.



**Acceptance and Commitment Therapy (ACT)** is a type of psychotherapy that can help people overcome distress and counterproductive thinking. It is based on the idea that a greater well-being can be achieved by accepting negative thoughts, feelings and hardships. Cancer patients who received interventions based on ACT showed a better emotional state, better quality of life and greater psychological flexibility in regard to a variety of stressors.

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*Speak to your healthcare team for a referral to a mental health professional to access these therapies.*

## Relaxation Techniques

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Relaxation techniques promote health by relaxing the body and quieting the mind. These are used to relieve stress and muscle tension, lower blood pressure and reduce pain. These techniques can be used for relieving stress during treatment, challenging procedures, or at bedtime, for both children and adults.



**Deep breathing/belly breathing** involves focusing on taking slow, deep, even breaths. The way you breathe affects the whole body. Breathing exercises help people relax, reduce tension and relieve stress. When a person breathes deeply, a message is sent to the brain to calm down and relax. The brain then sends this message to the body. Breathing exercises are easy to learn and don't require any special tools or equipment. See *page 17* for an example.



**Guided imagery** focuses the mind on a sequence or story of positive thoughts and mental images. Guided imagery can be performed individually or in group settings. There are many recordings and apps available that enable people to practice guided imagery anywhere.



**Progressive muscle relaxation (PMR)** is a technique used to evoke a relaxation response in the body. During PMR, major muscles of the body are systematically tensed and relaxed, and attention is paid to the sensations felt during the process. Many people find it helpful to practice PMR during stressful situations or before going to bed, to assist with relaxation. See *page 20* for an example.

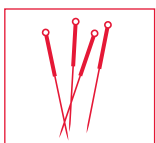
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# Integrative Medicine and Complementary Therapies

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Integrative medicine is a type of approach that combines complementary therapies with conventional therapy. This promotes the physical, emotional and spiritual health of a person. Many complementary therapies have been studied and have shown benefits for cancer patients dealing with stress, anxiety or depression. A growing number of cancer centers and hospitals offer complementary therapies as part of a patient's plan of treatment. This is very useful to patients, because they can receive their standard treatment and their complementary treatment in the same setting.

The following is a list of complementary therapies that may be effective in managing stress and anxiety. They also help improve a patient's overall well-being. Some of these therapies have been used for years as complementary therapies and have been studied in clinical trials, while others are relatively new. Patients should always consult with their healthcare team before starting any type of complementary therapy. These therapies do not work for everyone. Patients should try different ones to find one therapy or a combination of therapies that is effective for themselves.



**Acupuncture** – Acupuncture has been used for thousands of years as a part of traditional Chinese medicine. Acupuncturists insert very thin needles through the skin at strategic places in the body. Sometimes heat and pressure is used along with the needles.

Acupuncture has been found helpful in relieving anxiety in cancer patients with fatigue.



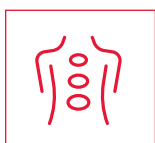
**Physical Activity** – Several studies have demonstrated that physical exercise (walking, swimming, strength training) improves a cancer patient's fatigue, increases energy levels and improves quality of life. Patients who exercise are generally less tired, less depressed

and sleep better than patients who do not exercise. The National Comprehensive Cancer Network (NCCN) recommends 30 minutes of aerobic exercise 5 days a

week or more. Strength-training and stretching should also be included. Some patients may want to start with a 10-minute walk around the block while others may feel they can do more. If you have mobility issues, ask to be referred to a physical therapist to learn exercises tailored to your needs, such as exercises done while sitting in a chair or other modified techniques. Before starting an exercise program, patients should consult with their healthcare team.



**Hypnosis** – Hypnosis involves a therapist who induces relaxation in a patient to bring on a suggestive state. Then the therapist directs the person’s attention to specific thoughts and feelings. While under hypnosis, a person may feel calm, relaxed and more open to positive suggestions that may help reduce physical symptoms such as pain, nausea, stress and anxiety.



**Massage Therapy** – Research suggests that massage therapy may help relieve symptoms such as pain, fatigue and anxiety in cancer patients. Massage therapy involves pressure to muscle and connective tissue to reduce tension and pain, improve circulation and encourage relaxation. Patients should consult with their healthcare providers before starting massage therapy to learn if there are any special precautions needed.



**Meditation** – Meditation is a mind-body practice that focuses the mind and increases awareness. Meditation has a long history of use for increasing calmness and physical relaxation, improving psychological balance and enhancing well-being. The most widely studied form of meditation in cancer patients is mindfulness-based stress reduction (MBSR), which includes meditation, yoga and group dynamics. This technique may help cancer patients relieve anxiety, stress and fatigue.



**Music/Art Therapy** – Music and art therapy may help improve a person’s health and well-being. Music therapy may include listening to relaxing music, singing, and/or moving to music. In recent years, the use of music therapy has become more common for cancer patients. Music therapy may reduce stress and anxiety as well as help patients cope with stressful medical procedures and treatments such as radiotherapy and chemotherapy sessions.



Art therapy provides a safe environment for patients to express feelings that are difficult to communicate with words by choosing materials and projects and creating art. Art therapy may help reduce stress and anxiety and increase self-esteem. Patients do not need to be skilled artists or musicians to benefit from music or art therapy. The process of art-making provides the benefits. See *Art Templates to Reduce Stress* starting on page 27.



**Tai chi** – Tai chi comes from China. It combines physical movement, breathing exercises and meditation to improve health and quality of life. In some patients, tai chi is effective in relieving pain, reducing fatigue and stress, and improving sleep quality.



**Yoga** – This is an ancient Indian practice combining both the mind and the body. The various types of yoga usually combine physical postures, breath control and meditation or relaxation. Yoga may help improve anxiety, depression and stress in cancer patients. Some studies suggest it may be particularly effective to reduce anxiety in patients undergoing chemotherapy or radiotherapy and to help patients who have fatigue.



**Spirituality** – For many people, spiritual practices and prayer provide stress reduction benefits. For some, prayer for oneself or others, prayer to heal an illness, or simply sitting in silence to quiet the mind can help people reduce stress.

**For more information about integrative medicine and complementary therapies that may help cancer patients manage stress, see the free LLS publication *Integrative Medicine and Complementary Therapies Facts*.**

## Stress Management for Medical Procedures

Aside from the stress caused by a cancer diagnosis, patients report that having to undergo frequent medical procedures may add to their distress. Healthcare professionals also report that many patients do not complete cancer treatment because of procedure-related panic, distress and claustrophobia.

Patients should have the chance to use a relaxation technique before a potentially distressing procedure to instill a sense of confidence and control. The following can be used before a medical procedure, such as a blood draw, in order to relieve anxiety and stress.

- **Mindful moist mouth.** Take a sip of water, hold it on the tongue for ten seconds before swallowing and then repeat the process three times. This helps alleviate dry mouth, a common symptom of stress.
- **Squeeze balls (also known as stress balls).** Using a stress ball or another squeezable item such as a small bean bag, squeeze tightly and slowly release the ball. At the same time take a slow comfortable breath. Each time you squeeze the ball, take a slow breath. Repeat four times.

## Stress Management Tips for Caregivers

If you are a caregiver, you cannot always take a day off, but learning techniques to ease stress throughout the day can be extremely helpful. In order to care for your loved one, you have to take care of yourself too. Whatever you choose to do to “get away,” you need at least 30 minutes for yourself every day.

**Be Prepared.** When caring for a loved one with cancer, there will be times that are difficult and emotional. It is unavoidable. Prepare for these moments by having a strategy in place to help yourself calm down if you feel anxious or overwhelmed. Having a plan in place, in advance, will help you better manage unexpected intense emotions.

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You need at least  
30 minutes for  
yourself every day.

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Try the following strategies:

- Do a breathing exercise.
- Repeat a meaningful mantra or affirmation.
- Close your eyes and sit in silence.
- Listen to a guided imagery.
- Stand up and stretch.
- Take a quick walk outside.
- Call a close friend or family member.

A variety of breathing exercises can be found online. Try a few different ones to find one that works for you.

### Deep Belly Breathing Exercise:

#### One:

Sit in a comfortable position  
and close your eyes.

#### Two:

Place one hand on your  
stomach and your other  
hand on your chest.

#### Three:

Take a deep breath  
through your nose. Notice  
the hand on your stomach  
will rise. The hand on your  
chest will remain still.

#### Four:

Exhale through your nose.  
The hand on your stomach  
will move, and the hand on  
your chest will remain still.  
Focus on your breathing  
and your hands.

**Ask for Help and Delegate Tasks.** As a primary caregiver for a loved one with cancer, you may worry that if you do not take care of your loved one, then no one else will. More than likely, there are friends and family members who really want to help and can assist you in some way—they just may not know how. Be sure to contact these people and let them know you need help or a break.

**Support for Caregivers.** Caregiving can be a lonely experience. Caregivers often do not feel they should seek support for themselves. But in order to ensure that they can care for a loved one, it is very important that they take good care of themselves, too.

There are several ways to reach out to other caregivers who are in similar situations or have recently been through similar experiences. You can contact LLS for helpful resources. And you can always call members of the patient's healthcare team for suggestions about local meetings and programs. Many hospitals and treatment centers host support groups for survivors and caregivers.

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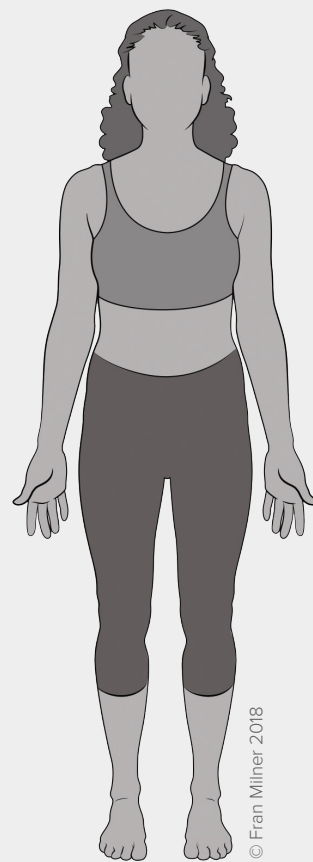
## Do-It-Yourself Stress Management

There are many techniques that patients and caregivers can perform by themselves on their own time or as part of a small group. The following are some examples of specific stress-relieving exercises.

**Yoga Exercise.** The most basic of all poses in yoga is the Mountain Pose. Every yoga practice begins with this simple pose. The pose encourages your connection with earth, connects you with your own body, and grounds you in the present moment. It is very relaxing and calming. Here is how to do it:

### Mountain Pose

- 1 Stand barefoot on a mat, rug or the floor. Shoulders, neck, and upper body are relaxed, yet straight. Your arms are at your side.
- 2 Become aware of your breath. Inhale slowly into your belly and exhale. Continue taking deep slow breaths.
- 3 Feel the ground underneath your feet. Spread your toes and lift them off the ground. Then relax and let them fall back on the mat.
- 4 Imagine roots spreading from your feet deep down into the earth. Feel the connection and the stability that these roots offer you.
- 5 Continue breathing slowly and evenly. You are now standing strong as a mountain.



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From: Stephanie Petrillo Gould, MED, IAYT, CYT. Yoga and breathing strategies for coping with stress.

**Progressive Muscle Relaxation Script.** Here is an example of this type of relaxation.

Begin by finding a comfortable position—either sitting or lying down in a place where you will not be interrupted. Many people find just sitting in a comfortable chair or on the couch is a good position to start. Allow your attention to focus only on your body. If you begin to notice your mind wandering, that is okay. You should accept that your mind will wander during this exercise. Just bring it back to the muscles you are working on when you realize you are thinking about something other than this exercise. Your mind may wander many times; this takes practice.

Take a deep breath into your abdomen (stomach), hold for a few seconds and exhale slowly. As you breathe, notice your stomach rising and your lungs filling with air. Take your time and just spend a minute or two breathing and noticing your breathing. As you exhale, imagine the tension in your body being released and flowing out of your body. And again inhale... and exhale. Feel your body already relaxing. As you go through each step, remember to keep breathing normally. Try not to hold your breath.

## Now let us begin progressive muscle relaxation.

Tighten the muscles in your forehead by raising your eyebrows as high as you can. Hold for about five seconds. Release your eyebrows back to normal, feeling that tension fall away.

Pause for about 5-10 seconds and just breathe.

Now smile widely, feeling your mouth and cheeks tense. Hold for about 5 seconds and release, appreciating the softness in your face.

Pause for about 5-10 seconds, and just breathe.

Next, tighten your eye muscles by squinting your eyelids tightly shut. Hold for about 5 seconds, and release.

Pause for about 5-10 seconds and just breathe.

Gently pull your head back as if to look at the ceiling. Hold for about 5 seconds, and release, feeling the tension melting away.

Pause for about 5-10 seconds and just breathe.

Now feel the weight of your relaxed head and neck sink. Breathe in and breathe out. Let go of all the stress...Breathe in...and breathe out. Then lift your head back up.

Now, tightly, but without straining, clench your right fist and hold this position for about 5 seconds...and release.

Pause for about 5-10 seconds and just breathe.

Now, feel the tension in your right forearm and hand. Feel that buildup of tension. You may even visualize that set of muscles tightening. Hold for about 5 seconds...and release, enjoying that feeling of limpness.

You can continue the exercise by progressively tightening the muscles in your other hand and arm. You can continue to do this series in the shoulders, the upper back, the chest, the lower back, the stomach, the legs and the feet. Be sure to pause for about 5-10 seconds in between muscle groups in order to breathe and relax. At the end of the exercise, there should be a feeling of complete body relaxation.

## General Tips for Reducing or Managing Stress

### To Reduce Stress

Some types of stress are predictable and, if so, may be avoidable. You can reduce your amount of stress by making some simple and small changes.

#### Avoid scheduling conflicts

Use a day planner, smart phone or online calendar to keep track of appointments and activities. When you schedule activities, allow plenty of time to finish one task before starting the next. Avoid scheduling too many events for the same day or week.

#### Be aware of your limits

If you do not have the time, energy, or interest, it is fine to nicely say “no” when people ask you to take on tasks. At work, do not volunteer for projects that would make your workload unmanageable. If saying “no” feels difficult, tell the person asking what you are willing to do instead, if anything. This could be doing a smaller part of the task or having more time to complete the task.

#### Ask for help

Ask family and friends for help. Your loved ones are likely to offer their support, so think about particular tasks you need help with beforehand. Your support system will be pleased to help in specific ways. You can ask for help with shopping, driving you to a doctor’s appointment, meal preparations, pet-sitting, or picking up a child from school.

#### Prioritize your tasks and break them down into smaller steps

Make a list of the things you routinely do, such as work and household chores. Rank these things by importance, considering the things you must do and the things that are most important to you. Look at large tasks and if possible, break them down into smaller steps. This process can make seemingly overwhelming tasks easier to handle.

#### Get help with financial problems

Talk with an oncology social worker or a financial advisor who specializes in cancer-related insurance and financial matters. Financial aid programs exist and you may be eligible to join one. Call (800) 955-4572 for resources.



## To Manage Stress

Although you can reduce stress in your life, you can not completely avoid it. Still, there are strategies to help you cope, relax and feel less anxious.

<b>Spend time outside</b>	Take a walk outside in a park or other natural setting to experience sunlight, fresh air and the sounds of nature.
<b>Schedule social activities</b>	Make time to socialize with family or friends. This also is a good opportunity to share your feelings, if you choose to.
<b>Eat well</b>	Maintaining a healthy diet will give you more energy to deal with daily stressors. Visit <a href="http://www.LLS.org/nutrition">www.LLS.org/nutrition</a>
<b>Get plenty of sleep</b>	Sleep is essential to help the body stay healthy and heal. Try to get seven or more hours of sleep each night. Naps during the day can also help. If you are having difficulty sleeping, talk with your healthcare team about ways to manage insomnia.
<b>Schedule daily relaxing time</b>	Spend time reading a book, watching a TV show, gardening, or listening to music.
<b>Do things you enjoy</b>	Laughter can reduce stress. Do activities that bring fun, humor and joy into your daily life.
<b>Speak to a therapist</b>	Talking about your challenges with a licensed psychologist or clinical social worker can help. Many insurance companies cover these types of services.
<b>Join a support group</b>	Support groups offer the chance to talk about feelings and fears with others who share and understand similar experiences.
<b>Find comfort in spirituality or religion</b>	Attending religious services or finding a religious or spiritual community can help relieve anxiety, fear and stress.
<b>Write in a journal</b>	Writing about the stresses and events in your life provides a private way to express your feelings at your own pace.

## How Technology Can Help

One of the benefits of the increased use of technology and the Internet is that people have access to web- and smartphone-based tools to help them manage their own stress levels. Below is a list of a few websites and mobile applications that are designed to help patients relieve stress, get help with emotional and practical concerns and improve quality of life.

**American Institute of Stress.** The American Institute of Stress is a non-profit organization established to serve as a clearinghouse for information on all stress-related subjects. There is a blog as well as current research about stress, plus information and resources about how stress affects daily activities. Both information and resources about stress (including military-induced stress) are available. Visit [www.stress.org](http://www.stress.org) for more information.

**Breathe2Relax.** Free for iPhone or Android. Breathe2Relax is a portable stress management app that provides detailed information on the effects of stress on the body. You can also access instructions and practice exercises to help learn deep (“diaphragmatic”) breathing. Breathing exercises can decrease the body’s stress response and help stabilize mood, control anger, and manage anxiety. This app can be used as a stand-alone stress reduction tool or can be used together with clinical care directed by a healthcare worker.

**Calm.** Free for iPhone or Android. Calm is a “mindfulness meditation” app which provides guided meditation sessions in a variety of lengths. It also features a daily 10-minute meditation program and offers sleep stories to lull you to sleep, breathing exercises, calming music and soothing nature sounds.

**CareZone.** Free for iPhone or Android. This organizational app helps patients remember treatments, make notes on plan-of-care, summarize drug administration protocols, and give reminders of medication times and doctors’ visits. It can also help simplify treatment by taking and keeping pictures of medications, prescriptions and supplements. The app also has a journaling area for tracking appointments and keeping notes of items to discuss with doctors.

**Create To Heal.** Free for iPhone. Though this app is not meant as a treatment management tool, it does focus on creativity and stress relief as a complement to standard treatment. The app was tested over five years using hundreds of cancer patients. It provides guided meditations, soothing music, and art to reduce stress and assist in the healing process.

**Relaxation Videos.** Online videos are available to help people with stress. Search water sounds, bird calls, quick relaxation, guided meditation, and relaxing yoga. You can also search for topics of personal interest such as cookie decorating, woodworking or videos about cats. These videos are about things you like or love and you can relax as you watch.

**Smiling Mind.** Free for iPhone or Android. Smiling Mind is a modern meditation app, based on a program developed by psychologists and educators to help bring balance to people's lives and make mindfulness meditation accessible to all.

**The Center for Stress and Anxiety Management Blog.** The Center for Stress and Anxiety Management provides a blog on their website that includes information about a variety of topics around stress and anxiety for adults and children. It provides tips and tools to combat anxiety and stress. Visit [www.csamsandiego.com/blog](http://www.csamsandiego.com/blog) for more information.

## Study of Complementary Therapies

Patients are encouraged to explore clinical trials. Clinical trials test new drugs and treatments before they are approved by the FDA and become standard treatments. Clinical trials are carefully controlled research studies, conducted under strict guidelines to help researchers determine the good effects and possible side effects of new treatments. Clinical trials are designed to be accurate and safe. Patient participation in clinical trials is important in the development of new and more effective treatments for cancer, and may provide patients with additional treatment options.

Conventional cancer treatments like chemotherapy, immunotherapy and radiation therapy have undergone years of rigorous study. Clinical trials to study various stress management and complementary therapies are underway in many locations across the country to assess their safety, benefits and effectiveness.

An example of a stress management intervention under study includes Cancer Distress Coach. This study, being conducted by Duke Cancer Institute, aims to examine the effectiveness of a mobile app for managing post-traumatic stress. Patients can join the study by downloading the Cancer Distress Coach app for free. The app will walk participants through the enrollment process step by step. For more information, visit <http://www.dukecancerinstitute.org/distresscoach>.

## The Silver Lining About Stress

As mentioned earlier, stress is a normal body reaction to change. In fact, many people facing cancer, both patients and caregivers alike, have reported personal growth from facing stressful experiences. This phenomenon, called “post-traumatic growth” demonstrates that in the face of trauma or great challenge, humans can find greater meaning, richer relationships, a sense of resiliency and deeper spirituality in their lives.

This is not to say that the emotional and physical stresses of cancer disappear, but many people do change their thinking in ways that allow them to “not sweat the small stuff,” and “discover what’s really important in life.” While you may not come to feel that “cancer is the best thing that happened to me,” as some with the most extreme form of post-traumatic growth have exclaimed, you may find that life’s sweet moments are a little sweeter. The good news is that many of the mind-body therapies listed in this resource help cultivate post-traumatic growth. And cultivating post-traumatic growth can be your best tool for managing stress.

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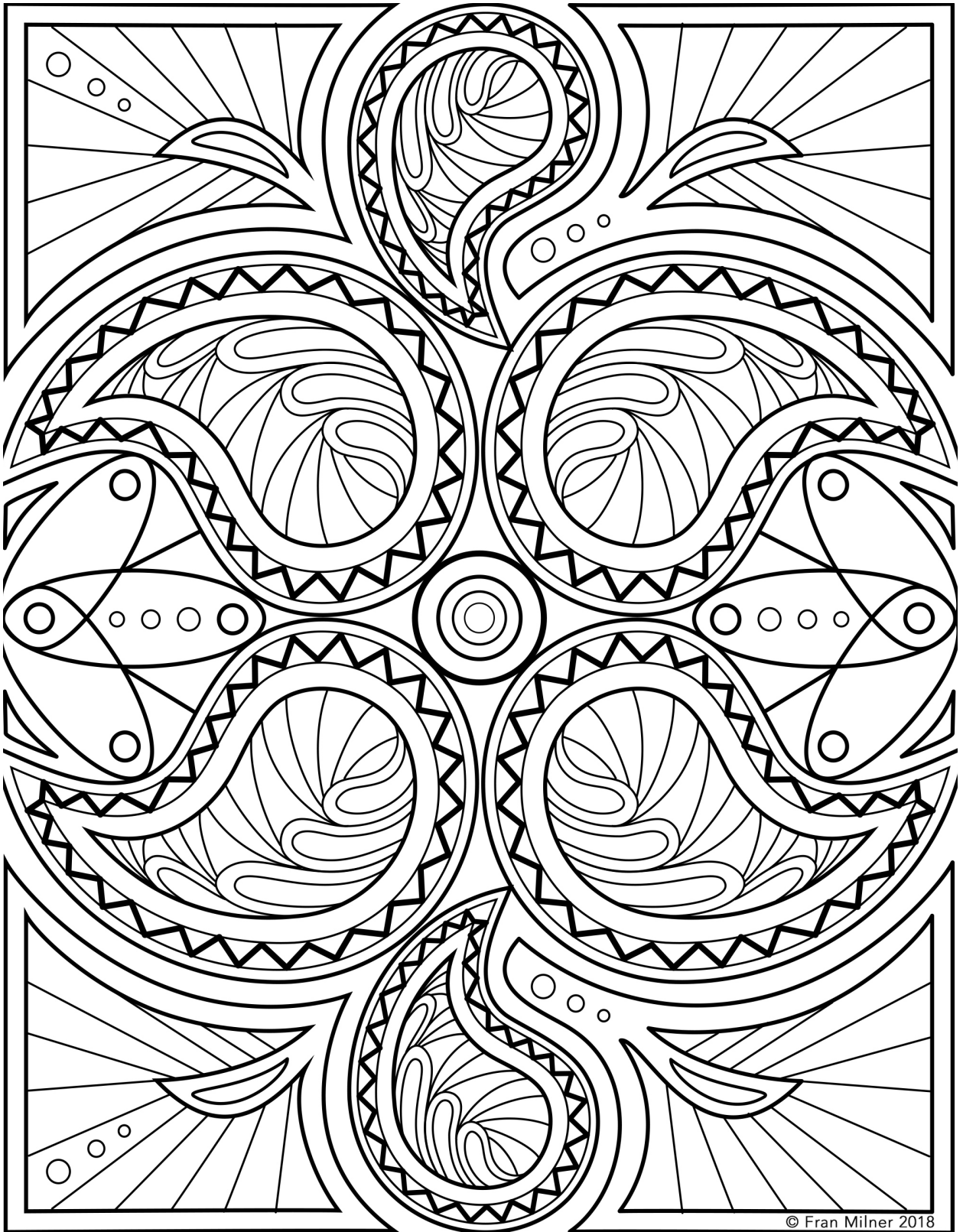
Many people do change their thinking in ways that allow them to not sweat the small stuff.

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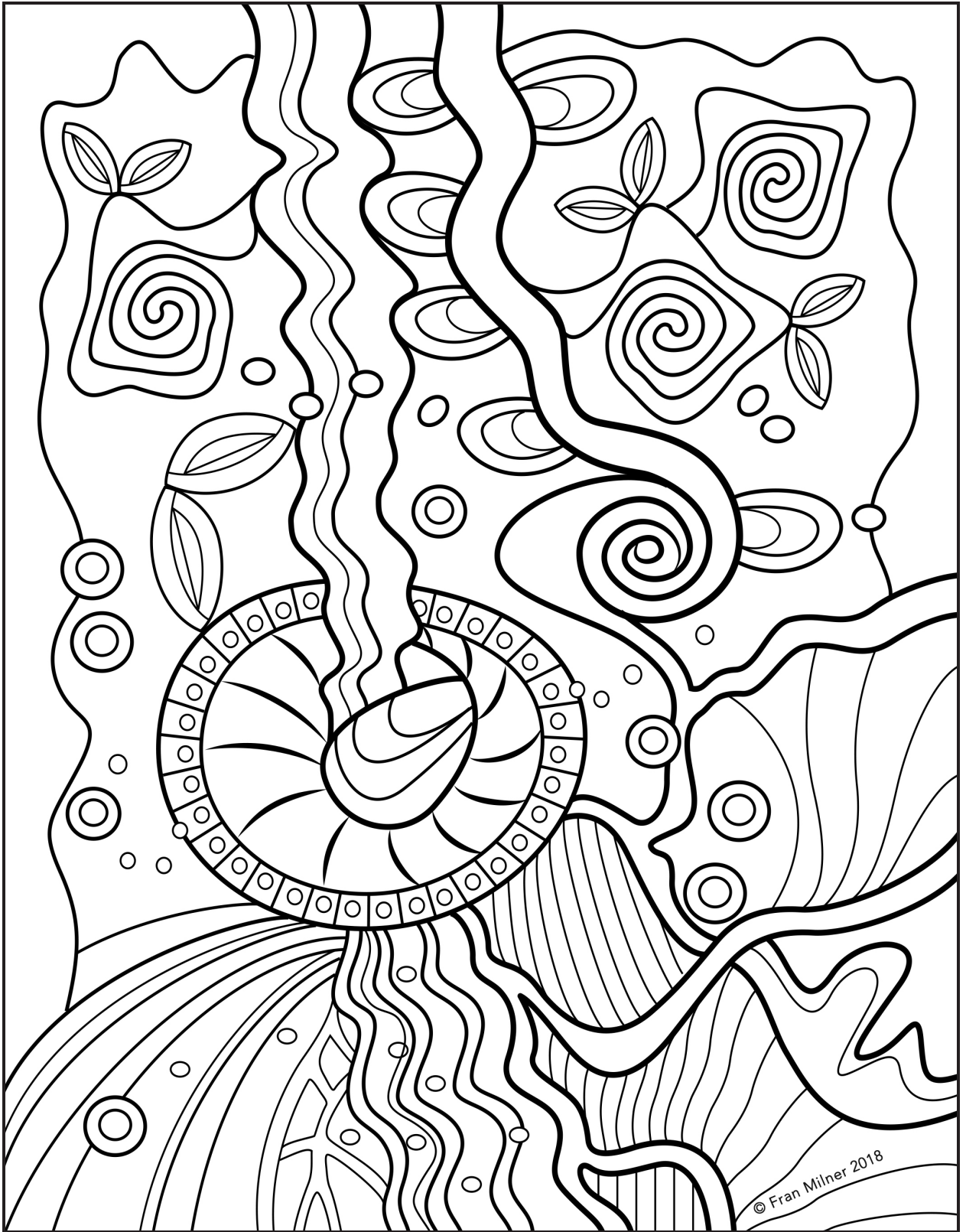
## Art Templates to Reduce Stress

*As a way to relax, use the following coloring pages to take a few moments for yourself.*

A special thanks to Fran Milner and Erin Carney for providing the illustrations for this book.

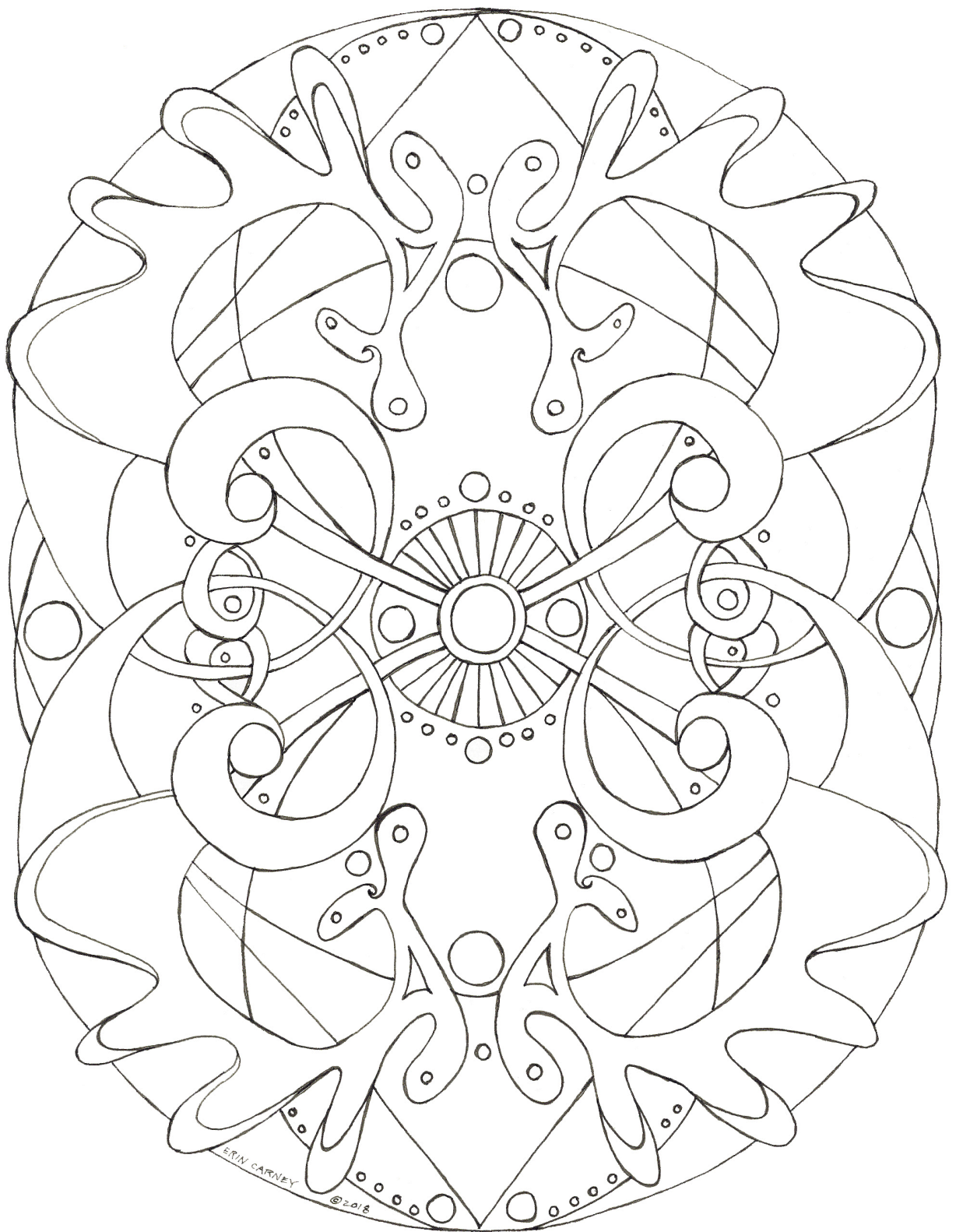


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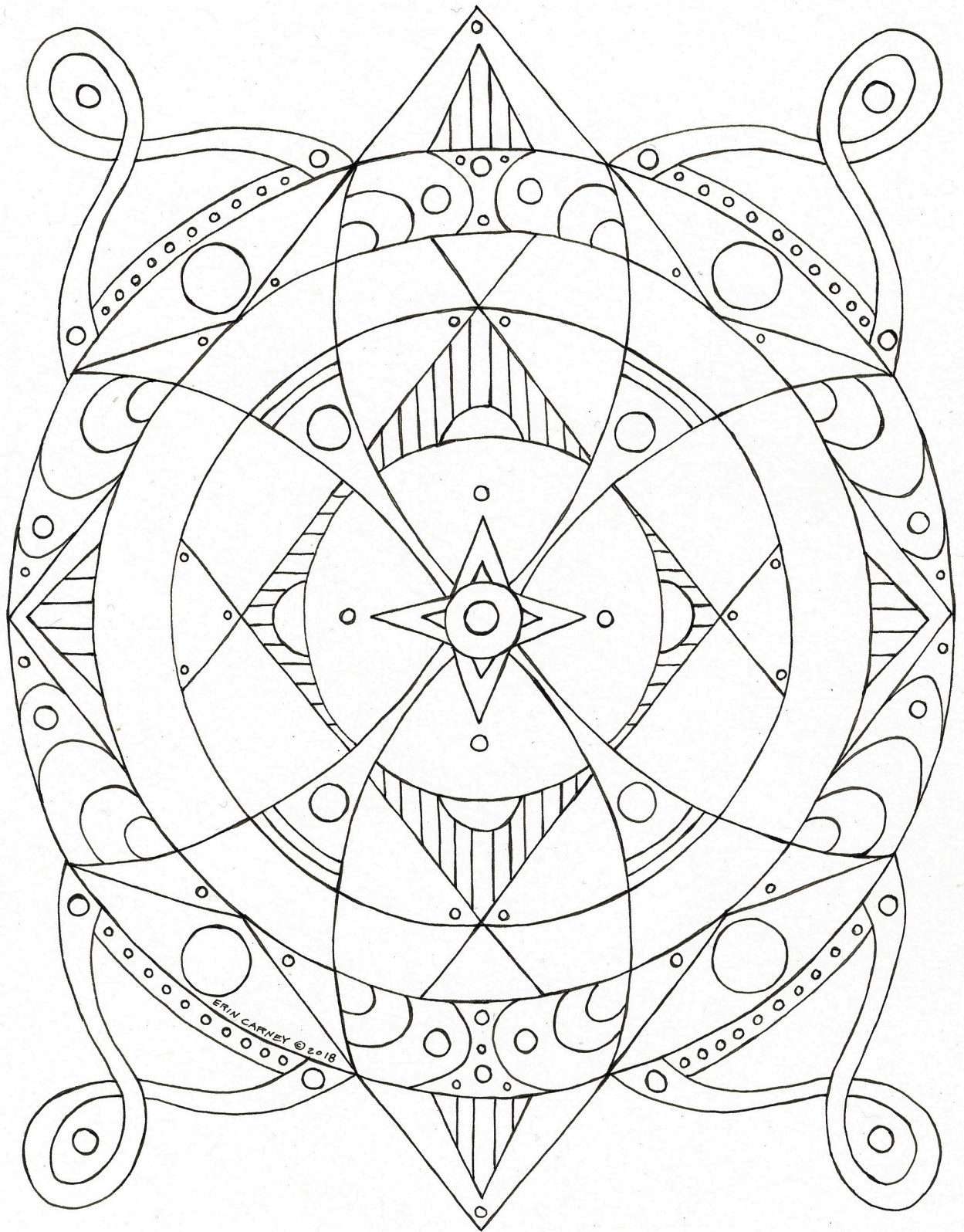


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## Glossary

**Adrenal glands.** The adrenal or endocrine glands are located on top of each kidney. They hold and release several stress hormones including epinephrine, norepinephrine and cortisol.

**Amygdala.** The part of the brain that reacts with fear to things that we think are scary or dangerous. It also controls the way we react to certain stimuli or an event that causes an emotion that we see as potentially harmful or threatening.

**Adrenaline.** See Epinephrine.

**Autonomic nervous system (ANS).** The ANS consists of the sympathetic and parasympathetic nervous systems. This part of the nervous system requires no conscious thought. It regulates automatic body functions like breathing and heart rate.

**Bronchioles.** The smallest airways within the lungs that are not surrounded by any cartilage. Each lung has around 30,000 bronchioles.

**Cortisol.** A stress hormone released by the adrenal glands that helps the body prepare for “fight or flight” by promoting the release of glucose and lipids in the body. Cortisol also helps the body go back to normal after a stressor, but too much stress produces too much cortisol, causing increased blood sugar levels.

**Epinephrine.** Also known as adrenaline. A special neurochemical that is responsible for immediate physical readiness for stress, including increased heart rate and blood pressure. It works in unison with norepinephrine.

**Hypothalamus.** Part of the brain involved with emotional processing. When a threat is perceived, the hypothalamus secretes a substance called corticotropin-releasing factor into the pituitary gland to activate the fight-or-flight response.

**Norepinephrine.** A special neurochemical also known as noradrenaline. It is responsible for immediate physical readiness for stress, including increased heart rate and blood pressure. It works in unison with epinephrine (adrenaline).

**Parasympathetic Nervous System.** The branch of the central nervous system that specifically calms the body. It slows the heart, dilates blood vessels, decreases pupil size, increases digestive juices and relaxes muscles in the gastrointestinal tract.

**Post-Traumatic Stress Disorder (PTSD).** An anxiety disorder that develops in reaction to physical injury or severe mental or emotional distress such as military combat, violent assault, natural disaster, or other life-threatening events. Symptoms of PTSD may interfere with daily life and include re-living the traumatic event in nightmares or flashbacks; avoiding people and places connected to the event, and having trouble concentrating and sleeping. Having cancer may also lead to PTSD.

**Sympathetic Nervous System.** The branch of the central nervous system that triggers the fight-or-flight response when some element of threat is present. It is in charge of increasing heart rate, blood pressure, breathing rate and pupil size. It also causes blood vessels to narrow and decreases digestive juices.

## Other Organizations

### **MedlinePlus**

[www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

MedlinePlus provides links to current healthcare information. It is compiled by the National Library of Medicine at the National Institutes of Health (NIH).

### **National Cancer Institute**

Office of Cancer Complementary and Alternative Medicine (OCCAM)

<http://cam.cancer.gov>

(800) 4-CANCER or (800) 422-6237

OCCAM's website contains information and research on complementary and alternative therapies. Visit: <https://www.cancer.gov/about-cancer/treatment/clinical-trials/search> to search complementary and alternative clinical trials for cancer patients.

### **National Center for Complementary and Integrative Health (NCCIH), National Institutes of Health**

[www.nccih.nih.gov](http://www.nccih.nih.gov)

(888) 644-6226

NCCIH's website contains reliable, objective and evidence-based information on integrative healthcare including the fact sheets "Cancer: In Depth" and "Health Topics from A to Z."

### **Society for Integrative Oncology**

[www.integrativeonc.org](http://www.integrativeonc.org)

(518) 694-5543

Develops practice guidelines on the use of integrative therapies during cancer treatment for clinicians and patients.

## Resources and Information

LLS offers free information and services to patients and families affected by blood cancers. This section of the booklet lists various resources that can be helpful to you. Use this information to learn more, to ask questions, and to make the most of your healthcare team members' knowledge and skills.

### For Help and Information

**Consult with an Information Specialist.** Information Specialists are master's level oncology social workers, nurses and health educators. They offer up-to-date disease and treatment information. Language services are available. For more information, please

Call: (800) 955-4572 (Monday through Friday, from 9 am to 9 pm EST)

Email: [infocenter@LLS.org](mailto:infocenter@LLS.org)

Live chat: [www.LLS.org/InformationSpecialists](http://www.LLS.org/InformationSpecialists)

Visit: [www.LLS.org/InformationSpecialists](http://www.LLS.org/InformationSpecialists)

**Free Information Booklets.** LLS offers free education and support booklets that can be either read online or ordered. Please visit [www.LLS.org/booklets](http://www.LLS.org/booklets) for more information.

**Financial Assistance.** LLS offers financial assistance to individuals with blood cancer. Visit [www.LLS.org/finances](http://www.LLS.org/finances) for more information.

**Co-Pay Assistance Program.** LLS offers insurance premium and medication co-pay assistance for eligible patients. For more information, please

Call: (877) 557-2672

Visit: [www.LLS.org/copay](http://www.LLS.org/copay)

**One-on-One Nutrition Consultations.** Access free one-on-one nutrition consultations by a registered dietitian with experience in oncology nutrition. The dietitian can provide assistance with healthy eating strategies, side effect management, and survivorship nutrition as well as provide additional nutrition resources. Please visit [www.LLS.org/nutrition](http://www.LLS.org/nutrition) for more information.

**Telephone/Web Education Programs.** LLS offers free telephone/Web and video education programs for patients, caregivers and healthcare professionals. Please visit [www.LLS.org/programs](http://www.LLS.org/programs) for more information.

**Podcast.** Listen in as experts and patients guide listeners in understanding diagnosis and treatment, and suggest resources available to blood cancer patients. *The Bloodline with LLS* is here to remind you that after a diagnosis comes hope. Visit [www.LLS.org/TheBloodline](http://www.LLS.org/TheBloodline) for more information and to subscribe.

**Suggested Reading.** A list of books that are recommended for patients, caregivers, children and teens. Visit [www.LLS.org/SuggestedReading](http://www.LLS.org/SuggestedReading) to find out more.

**Continuing Education.** LLS offers free continuing education programs for healthcare professionals. Please visit [www.LLS.org/ProfessionalEd](http://www.LLS.org/ProfessionalEd) for more information.

### Community Resources and Networking

**LLS Community.** The one-stop virtual meeting place for talking with other patients and receiving the latest blood cancer resources and information. Share your experiences with other patients and caregivers and get personalized support from trained LLS staff. Visit [www.LLS.org/community](http://www.LLS.org/community) to join.

**Weekly Online Chats.** Moderated online chats can provide support and help cancer patients reach out and share information. Please visit [www.LLS.org/chat](http://www.LLS.org/chat) for more information.

**LLS Chapters.** LLS offers community support and services in the United States and Canada including the *Patti Robinson Kaufmann First Connection Program* (a peer-to-peer support program), in-person support groups, and other great resources. For more information about these programs or to contact your chapter, please

Call: (800) 955-4572

Visit: [www.LLS.org/chapterfind](http://www.LLS.org/chapterfind)

**Other Helpful Organizations.** LLS offers an extensive list of resources for patients and families. There are resources that provide help with financial assistance, counseling, transportation, patient care and other needs. Please visit [www.LLS.org/ResourceDirectory](http://www.LLS.org/ResourceDirectory) for more information.

**Clinical Trials (Research Studies).** New treatments for patients are underway. Patients can learn about clinical trials and how to access them. For more information, please call (800) 955-4572 to speak with an LLS Information Specialist who can help conduct clinical-trial searches. When appropriate, personalized clinical-trial navigation by trained nurses is also available.

**Advocacy.** The LLS Office of Public Policy (OPP) engages volunteers in advocating for policies and laws that encourage the development of new treatments and improve access to quality medical care. For more information, please

Call: (800) 955-4572

Visit: [www.LLS.org/advocacy](http://www.LLS.org/advocacy)

### **Additional Help for Specific Populations**

**Información en Español (LLS information in Spanish).** Please visit [www.LLS.org/especialistas](http://www.LLS.org/especialistas) for more information.

**Language Services.** Let a member of your healthcare team know if you need a language interpreter or some other resource, such as a sign language interpreter. Often, these services are free.

**Information for Veterans.** Veterans who were exposed to Agent Orange while serving in Vietnam may be able to get help from the United States Department of Veterans Affairs. For more information please

Call: the United States Department of Veterans Affairs at (800) 749-8387

Visit: [www.publichealth.va.gov/exposures/agentorange](http://www.publichealth.va.gov/exposures/agentorange)

**World Trade Center (WTC) Survivors.** People involved in the aftermath of the 9/11 attacks and subsequently diagnosed with a blood cancer may be eligible for help from the World Trade Center (WTC) Health Program. People eligible for help include

Responders

Workers and volunteers who helped with rescue, recovery and cleanup at the WTC-related sites in New York City (NYC)

Survivors who were in the NYC disaster area, lived, worked or were in school in the area

Responders to the Pentagon and the Shanksville, PA, crashes.

For more information, please

Call: WTC Health Program at (888) 982-4748

Visit: [www.cdc.gov/wtc/faq.html](http://www.cdc.gov/wtc/faq.html)

**People Suffering from Depression.** Treating depression has benefits for cancer patients. Seek medical advice if your mood does not improve over time—for example, if you feel depressed every day for a 2-week period. For more information, please

Call: National Institute of Mental Health (NIMH) at (866) 615-6464

Visit: NIMH at [www.nimh.nih.gov](http://www.nimh.nih.gov). Enter “depression” in the search box.

**Feedback.** Visit [www.LLS.org/PublicationFeedback](http://www.LLS.org/PublicationFeedback) to give suggestions about this booklet.



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The Leukemia & Lymphoma Society team consists of master's level oncology social workers, nurses and health educators who are available by phone Monday through Friday, 9 a.m. to 9 p.m. (ET).

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- Know the questions to ask your doctor
- Discuss financial resources
- Receive individual clinical-trial searches

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**[www.LLS.org/](http://www.LLS.org/InformationSpecialists)**  
**InformationSpecialists**

(Language interpreters can be requested)





For more information, please contact our Information Specialists  
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**National Office** 3 International Drive, Suite 200, Rye Brook, NY 10573

The mission of The Leukemia & Lymphoma Society (LLS) is to cure leukemia, lymphoma, Hodgkin's disease and myeloma, and improve the quality of life of patients and their families. Find out more at [www.LLS.org](http://www.LLS.org).