



PATIENT & CAREGIVER EDUCATION

Managing Cognitive Changes

This information explains cognitive changes you may have before, during, or after cancer treatment and how you can manage them.

About Cognitive Changes

Many people have cognitive changes before, during, and after cancer treatment. These changes include having trouble with:

- Paying attention
- Concentrating
- Thinking quickly
- Organizing thoughts or tasks
- Short-term memory

Many people describe these changes as a “mental fog.”

These changes are sometimes called “chemo brain” because healthcare providers used to think they were only related to chemotherapy. Now, we know other treatments can also cause them.

Causes of Cognitive Changes

Cognitive changes can be caused by many things, including:

- Some chemotherapies
- Radiation treatment to your head and neck
- Total body irradiation (radiation treatment to your whole body)
- Brain surgery

- Some medications, such as:
 - Hormone therapy
 - Immunotherapy
 - Antinausea medications
 - Antibiotics
 - Pain medications
 - Immunosuppressants
 - Antidepressants
 - Antianxiety medications
 - Heart medications
 - Medications to treat sleep disorders
 - Steroids
- Infections
- Brain cancer
- Other cancers that have metastasized (spread) to your brain
- Other conditions or symptoms related to cancer or cancer treatments, such as:
 - Anemia (low levels of red blood cells)
 - Sleep problems
 - Fatigue (feeling more tired or having less energy than usual)
 - Hypercalcemia (high levels of calcium in your blood)
 - Electrolyte imbalances (high or low levels of minerals in your body)
- Emotional responses (such as stress, anxiety, or depression)
- Vitamin and mineral deficiencies (such as not getting enough iron, vitamin B, or folic acid)
- Other brain or nervous system disorders not related to cancer

Symptoms of Cognitive Changes

Symptoms of cognitive changes include:

- Memory problems
- Trouble paying attention

- Trouble concentrating
- Trouble finding the right word
- Trouble learning new things
- Trouble managing daily activities and multitasking (doing more than one thing at once)
- Slowed thinking speed

You may notice these problems during your cancer treatment. Many people find their cognitive changes get much better within 1 year of finishing treatment. For some people, cognitive changes can last for several years after treatment.

Managing Cognitive Changes

Tell your healthcare provider if you're having trouble with your memory or notice any other changes in your thinking or abilities. They can help address some of the things that can cause cognitive problems. For example, some medications can make you less alert and affect your ability to think clearly. Changing your prescription can help fix this.

Here are some other things you can do to help manage cognitive changes:

- **Make lists.** Carry a notepad or your smartphone with you and write down the things you need to do. For example, keep lists of things to buy, errands to run, phone calls to return, and questions to ask at your appointments. Cross items off as you finish them.
- **Use a portable planner or organizer.** These can help you stay on top of day-to-day tasks and keep track of appointments and special days like birthdays and anniversaries.
- **Use a wall calendar.** For some people, this works better than a portable planner because you can hang it in a place that's easy for you to see every day. Put it in a place where you'll see it several times a day.
- **Set an alarm on your smartphone or tablet for when you need to take your medications.**

- **Organize your environment.** Keep things in familiar places so you'll remember where you put them. For example, always store your car keys in the same place.
- **Avoid distractions.** Work, read, and do your thinking in an uncluttered, peaceful environment. This can help you stay focused.
- **Have conversations in quiet places.** This minimizes distractions and lets you concentrate better on what the other person is saying.
- **Repeat information out loud after someone gives it to you and write down important points.**
- **Use word play (such as rhyming) to help you remember things.**
- **Keep your mind active.** Do crossword puzzles and word games or go to a lecture on a subject that interests you.
- **Proofread.** Double-check the things you write to make sure you've used the right words and spelling.
- **Train yourself to focus.** For example, if you keep misplacing your keys, take extra time to think about or picture what you're doing every time you put them down. Also say out loud to yourself, "I'm putting my keys on my dresser." Then look at your keys again, and repeat: "The keys are on my dresser." Auditory (hearing) cues give your memory an extra boost.
- **Exercise, eat well, and get plenty of rest and sleep.** These things help keep your memory working at its best.
- **Tell your loved ones what you're going through.** They may be able to help and encourage you.

Steps to Improve Your Concentration

Concentration is the ability to stay focused on your work without letting people, feelings, thoughts, or activities get in the way. Here are a few strategies for establishing or improving concentration:

1. Establish concentration

- Be aware of external distractions. For example, give yourself permission to let your voicemail pick up calls when you're in the middle of a task. That way, you're not distracted by the call
- Try to recognize internal distractions, such as thoughts, emotions, physical feelings, and hunger. These things can interrupt your ability to focus. Do something to reduce these internal distractions. For example, if you're hungry, have a snack before starting a task.
- Stop distracting thoughts that pop into your mind as soon as you're aware of them. You can do this by acknowledging the thought, then consciously bringing your attention back to the task you're working on.
- Keep a notebook or pad of paper handy. If something you need to do pops into your head in the middle of a task, write it down to get it off your mind and schedule time later in the day to do it.

2. Increase concentration

- Set aside time to concentrate. Imagine how you may feel or what you may accomplish after your task is done.
- Use a pencil or highlighter when reading. Take notes or highlight important points.
- Divide tasks into smaller, more manageable parts.
- Plan breaks according to your concentration span. Take a walk or a lunch break to help clear your head.
- If you find yourself losing focus, stand up. The physical act of standing brings your attention to the fact that you're losing focus.

- Vary your activities. Change is often as good as taking a break.
3. Develop your concentration habits. Like any other skill, you must learn, develop, and practice concentration.
- Figure out how long your concentration span is. To do this, write down the time you start a task (such as reading). As soon as your mind starts to drift, write down the time again. The length between your start and end times is your concentration span.
 - Learn when your concentration level is at its best. Find a time during the day when you know you won't be interrupted and your energy level matches the particular task. Try to plan your tasks accordingly.
 - Find out if there's an environment that helps you concentrate better. Remove yourself from distractions for set periods of time to accomplish your work. Figure out what works for you, whether it's an uncluttered desk, good lighting, or soothing music playing in the background.

Talk with a Neuropsychologist

Neuropsychologists have special training to measure and treat cognitive changes. If cognitive changes are still getting in the way of your day-to-day activities 1 year after you finish cancer treatment, you may want to see a neuropsychologist.

Our neuropsychologists at Memorial Sloan Kettering (MSK) have special training in assessing and treating cognitive changes in people with cancer. They can evaluate the things you're having trouble with and recommend the right treatment for you. This treatment can help reduce the effect of cognitive changes.

After doing a complete evaluation, your neuropsychologist may suggest cognitive rehabilitation. This involves working on areas you have problems with. You'll also develop a plan that helps improve your functioning. This will help you better manage your daily life.

Some insurance companies and Medicare and Medicaid plans cover these

services, but coverage varies. Call your insurance company before deciding on a treatment plan so you can see what they'll cover.

Resources for People With Cognitive Changes

Resources at MSK

- To make an appointment with one of our neuropsychologists, talk with your healthcare provider about your concerns. If they think a neuropsychological evaluation is right for you, they can refer you to MSK's Neuropsychological Assessment Service. Call 212-610-0489 or visit www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/cognitive-testing for more information.
- The Resources for Life After Cancer Center (RLAC) program has support services for cancer survivors and their families. You can talk with a social worker who understands cancer issues. Social workers at RLAC can provide one-on-one support and refer you to various support groups that may be helpful. Call 646-888-8106 for more information.
- Watch a video on managing cognitive changes after cancer treatment. You can view it on our website at www.mskcc.org/playlists/discussion-about-post-treatment-changes-thinking-and-memory

Other resources

American Board of Professional Psychology

www.abpp.org

Has names of qualified neuropsychologists in your area.

CancerCare

www.cancercares.org

800-813-4673

275 Seventh Avenue (between West 25th and 26th Streets)

New York, NY 10001

Provides counseling, support groups, educational workshops, publications, and financial assistance.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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