Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

Managing Cognitive Changes

This information explains cognitive (KOG-nih-tiv) changes you may have before, during, or after cancer treatment. It also explains 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 (focusing).
- Thinking quickly.
- Organizing thoughts or tasks.
- Short-term memory.

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

Cognitive changes can be mild (not bad) and short-term, or they can be more noticeable and last longer. These changes are common, and they often happen because several things are affecting you at the same time.

Causes of cognitive changes

Cognitive changes are sometimes called “chemo brain.” This is because healthcare providers used to think these changes were only caused by chemotherapy (chemo). Chemotherapy is a treatment that uses medicine to stop or slow cancer cells from growing.

We now know that cognitive changes can be caused by many things, including:

- Cancer itself. Some people notice cognitive problems even before treatment starts. This may be from:
  - Inflammation from cancer.
  - Your immune system working to fight cancer.
  - Stress about your cancer diagnosis and treatment plans.
  - Changes in what you eat or how much you eat.
  - Trouble sleeping.
- Some cancer treatments, such as:
  - Chemotherapy.
  - Radiation therapy, including:
    - Radiation of the head and neck.
    - Total body irradiation (ih-RAY-dee-AY-shun). This

is radiation therapy that's given to your whole body.

- Hormone therapy. This is a treatment that uses medicine to stop your body from making hormones that help cancer cells grow.
- Immunotherapy (IH-myoo-noh-THAYR-uh-pee). This is a treatment that uses your immune system to stop or slow cancer cells from growing.
- Surgery and anesthesia (medicine to make you sleep during surgery). Short-term cognitive changes can sometimes happen after surgery, often in older adults.

- Some medicines, such as:

◦ Antinausea medicines ◦ Antibiotics ◦ Pain medicines ◦ Immunosuppressants (IH-myoo-noh-suh-PREH-sunts)	◦ Antidepressants ◦ Anti-anxiety medicines ◦ Heart medicines ◦ Medicines to treat sleep disorders ◦ Steroids

- Infections.
- Brain surgery.
- Brain cancer and other cancers that have metastasized (spread) to your brain.

- Other problems or symptoms caused by cancer or cancer treatments, such as:
  - Anemia (uh-NEE-mee-uh).This is when your body does not make enough red blood cells.
  - Sleep problems.
  - Fatigue (when you feel more tired and weak than usual). Fatigue can happen as a side effect of radiation therapy and can cause cognitive changes.
  - Pain. Pain can take up a lot of your mental energy, making it harder to focus and remember things.
  - Hypercalcemia (HY-per-kal-SEE-mee-uh). This is when you have high levels of calcium in your blood.
  - Electrolyte imbalances. This is when the levels of minerals in your body are too high or too low.
- Strong emotions (feelings), such as stress, anxiety (strong feelings of worry or fear), or depression (strong feelings of sadness).
- Other health problems, such as:
  - Vitamin and mineral deficiencies, such as not getting enough iron, vitamin B, or folic acid
  - Thyroid disorders
  - Hormone changes
  - Hearing or vision problems

- Other brain or nervous system disorders not caused by cancer, such as:
  - Alzheimer's disease
  - Stroke
  - Parkinson's disease
  - Multiple sclerosis
  - Traumatic brain injury, such as a concussion
  - Seizure disorders
  - Other health problems that affect the brain and nervous system

Symptoms of cognitive changes

- Memory problems, such as:
  - Forgetting appointments or recent conversations
  - Misplacing items more often
  - Trouble learning new information
  - Trouble recalling (remembering) information quickly
- Attention and concentration problems, such as:
  - Trouble focusing on conversations, reading, or doing work tasks.
  - Getting easily distracted. A distraction is something that takes your attention away from what you're

doing.
    - Trouble following complex (complicated) information.
    - Needing to read something a few times to understand it.
- Communication problems, such as:
    - Trouble finding the right word when talking
    - Forgetting what you were saying mid-sentence
- Mental fatigue (tiredness), such as:
    - Feeling mentally tired after doing tasks that used to be easy
    - Needing more breaks during the day
    - Feeling like you have no energy left after focusing on something

- Planning and problem-solving problems, such as:
    - Trouble multitasking (doing more than one thing at a time)
    - Trouble organizing or planning activities
    - Trouble prioritizing tasks (deciding what to do first)
    - Feeling less able to solve problems or handle changes

in plans or situations

- Problems with how fast you think, such as:
  - Thinking more slowly than usual
  - Taking longer to finish tasks
  - Feeling mentally sluggish (slow) or overwhelmed

Most cognitive symptoms are mild to moderate. But they can still affect your work, ability to do daily tasks, and quality of life.

If you notice any of these symptoms during your cancer treatment, tell your care team. They can find out what's causing these symptoms and recommend ways to make them better.

How long do cognitive symptoms last?

For most people, cognitive symptoms do not get worse after cancer treatment. Symptoms usually stay the same or improve (get better) over time. Symptoms often improve when other issues are treated, such as fatigue, sleep problems, pain, or side effects from medicines.

Most people feel much better within 1 year of finishing treatment. For other people, symptoms can last for a few years after treatment.

If you're on long-term hormone therapy, you may have

cognitive symptoms for as long as you're taking hormones. How long it takes to feel better after hormone therapy ends is different for everyone.

Managing cognitive changes

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

Keep a healthy lifestyle

- Make exercise a part of your routine. Talk with your care team about which exercises are good for you to do.
- Follow a healthy diet. To talk with an MSK clinical dietitian nutritionist, ask a member of your care team for a referral.
- Drink water to stay hydrated.
- Focus on getting good sleep.
- Keep your pain under control.
- Get treatment for other health problems you may have.

Take care of your mental and emotional health

- Find support for any stress, anxiety, or depression you may be feeling. Share your feelings with your loved ones, who can offer emotional support and comfort. You also can find support from a mental health professional, such as a social worker, counselor, or

psychologist. They can provide counseling or therapy to help you manage your emotions.

- Practice relaxation techniques (such as deep breaths, stretching, and meditating) to help manage stress. Visit www.msk.org/meditation to listen to our Integrative Medicine and Wellness Service's free, guided meditations.
- Do activities that you enjoy.

Use cognitive rehabilitation strategies

Cognitive rehabilitation strategies are ways to help manage cognitive changes, such as problems with thinking, memory, and concentration.

- Develop routines and habits. Doing the same tasks the same way each day can help you rely less on memory. Routines and habits make daily tasks more automatic, so you have to think about them less. Examples of this are taking your medicines at the same time and always putting your keys in the same place.
- Use external (outside) memory aids. These are tools that help you remember things, stay organized, and get tasks done. Examples of external memory aids are calendars, to-do lists, and reminder apps or alarms.
- Learn compensatory strategies. These are tools and techniques that help you manage thinking or memory

problems. Instead of trying to fix the problems, you learn new ways to get things done. Examples of compensatory strategies are writing things down instead of trying to remember them and reducing distractions when you need to focus.

Some people benefit from working with cognitive rehabilitation specialists, such as occupational therapists, speech language pathologists, or neuropsychologists.

Tips to help improve your cognition

Work in a peaceful, quiet environment

- Silence notifications on your smartphone that are not important
- Close computer browser tabs you're not using
- Reduce background TV or noise

Focus on one task at a time

- Avoid multitasking when you can
- Finish one task before starting another
- Break up large tasks into smaller, more manageable tasks

Plan important tasks for the right time of day

- Figure out when you feel most focused and clear-headed, and do your hardest tasks during those times
- Plan tasks around times when you will not be interrupted and your energy level matches what you need to do

Write things down and use reminders

- Keep a paper or digital planner or a calendar to help you stay on top of daily tasks
- Write down important information and double-check what you write to make sure you use the right words and spelling
- Use reminder apps or alarms on your smartphone, such as to remind you when to take your medicines
- Make to-do lists using a notepad or note-taking app, and cross off items as you finish them

Repeat and review important information to help you remember it

- Say information out loud after someone gives it to you
- Take notes during conversations
- After appointments, review what you heard and go over the main points

Take breaks at the right time

- Take breaks before you start feeling mentally tired
- Take short breaks to stay focused and get more done
- Switch between harder tasks and easier ones to give your brain a break

Keep your mind active

- Read often
- Learn new skills or hobbies
- Do puzzles, word games, or other activities that make you think
- Stay socially active (spend time with other people)

Tips to help with your concentration

Concentration is being able to stay focused on what you're doing without letting distractions get in the way. These distractions can be people, feelings, thoughts, or other activities.

Here are some tips to help you with your concentration:

Tips to help you build concentration

- Be aware of external (outside) distractions. Silence notifications on your smartphone that are not

important, close computer browser tabs you're not using, and reduce background TV or noise. For example, let your voicemail pick up phone calls when you're in the middle of a task. This way, you're not distracted by the call.

- Try to notice internal (inner) distractions, such as thoughts, emotions, and physical feelings, like hunger. These things can get in the way of your ability to focus. Figure out why these internal distractions are happening and then do something to reduce them, if you can. For example, if you're hungry, have a snack before starting a task.
- Stop distracting thoughts as soon as you're aware of them. When you notice a distracting thought, pause and acknowledge it. Then, bring your attention back to the task you're working on.
- Keep a notebook or notepad always near you, if you can. If something you need to do pops into your head in the middle of a task, write it down. This will help to get it off your mind. You can then schedule time later in the day to do it.

Tips to help you concentrate better

- Set aside time to concentrate. Imagine how you may feel or what you may accomplish after your task is done.

- When you're reading, use a pencil to take notes and a highlighter to highlight important points.
- Break up large tasks into smaller, more manageable tasks.
- Plan your breaks around how long you can stay focused. Take a walk or a lunch break to help clear your mind.
- If you find yourself losing focus while sitting down, stand up. The physical act of standing brings your attention to the fact that you're losing focus.
- Do not work on the same task for too long. Switch between different tasks, if you can. Switching between tasks can be as good as taking a break. It can help clear your mind and help you focus better.

Tips to help you learn and practice concentration habits

- Figure out how long your concentration span is (how long you can stay focused). To do this, write down the time you start a task (such as reading). As soon as your mind starts to wander, 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 and plan your tasks around it. Find a time during the day when:

    - You know you will not be interrupted.
    - Your energy level matches the task you need to do.
- Create a setting that takes away distractions and helps you concentrate better. This may be an uncluttered desk, good lighting, or soothing music playing in the background.

Talk with a neuropsychologist

Most cognitive changes improve within 1 year of finishing cancer treatment. If your problems are still affecting your daily life after 1 year, you may want to see a neuropsychologist (NOOR-oh-sy-KAH-loh-jist). This is a psychologist who has special training in diagnosing and treating cognitive problems.

At Memorial Sloan Kettering (MSK), your neuropsychologist will evaluate (study) the cognitive changes you're having. After the evaluation, they'll work with you to make a treatment plan that's right for you. They may recommend cognitive rehabilitation therapy. This kind of therapy works on the areas you have problems with. It can help reduce the symptoms of your cognitive changes and help you better manage your daily life.

Most insurance companies and Medicare and Medicaid plans cover these services, but coverage depends on your

plan. Before you choose a treatment plan, check with your insurance company to see what they'll cover. You can call them yourself, or the cognitive rehabilitation therapy facility you're referred to can call for you.

When to call your care team

Call your care team if your cognitive symptoms:

- Get in the way of work, school, or daily activities.
- Keep getting worse over time.
- Happen along with big changes in your mood or behavior.
- Make it hard to manage your medicines, finances (money), or both.
- Worry you and your family a lot.

Resources

MSK resources

- If you want to make an appointment with an MSK neuropsychologist, talk with your primary MSK oncologist first. Your primary MSK oncologist is the cancer doctor who prescribes your cancer treatment. If they think a neuropsychological evaluation is right for you, they can refer you to MSK's Neuropsychology Service. To learn more, visit www.msk.org/cancer-

care/diagnosis-treatment/symptom-management/cognitive-testing or call 212-610-0489.

- Cognitive rehabilitation therapy is offered at MSK sites in Manhattan, New Jersey, and on Long Island. Our trained occupational therapists can help if you're having trouble doing usual daily activities. Call 646-888-1900 to learn more.
- At MSK, care does not end after your treatment. The Resources for Life After Cancer Center (RLAC) program is for patients and their families who have finished treatment. Social workers at RLAC offer seminars, workshops, support groups, and counseling on life after treatment. They can also help with insurance and employment issues. Call 646-888-8106 to learn more.

Other resources

American Board of Professional Psychology

https://abpp.org

This website has a directory that can refer you to board-certified neuropsychologists in your area.

CancerCare

www.cancercare.org

800-813-4673

This organization 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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