

‘Chemo brain’ (cancer-related cognitive impairment)

Cancer-related cognitive impairment can be a side effect of cancer treatments including chemotherapy and radiotherapy. It describes general difficulties and a slowness in thinking processes such as memory and attention.

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We have separate information about the topics in **bold font**. Please get in touch if you'd like to request copies or if you would like further information about any aspect of lymphoma. Phone 0808 808 5555 or email information@lymphoma-action.org.uk.

What is chemo brain?

Chemo brain is cancer-related cognitive impairment that affects many people who have been diagnosed with cancer. It is a change in thinking processes.

Most commonly, chemo brain affects:

- memory
- concentration
- attention
- complex thinking processes (sometimes called ‘executive function’), which includes planning and multi-tasking.

You might therefore experience difficulties such as the following:

- Forgetting names and where you have put things.
- Finding it difficult to remember the word you want to use.
- Difficulty focussing on tasks, activities or conversations, particularly if there are other things going on around you. It can be especially difficult to multitask, for example, tying your shoelace while talking to someone.
- Having a shorter attention span, making it more difficult to learn new skills and take in information.
- Finding it difficult to switch your attention quickly between different tasks.
- Taking longer to react to things, for example, stopping at a red traffic light while driving.
- Difficulties with coordination, such as balancing on one leg.

Some people describe chemo brain as feeling in a mental fog or cloud, or feeling 'a bit spaced out'.

If you're having treatment, the symptoms might be different at different times in your treatment cycle. They can also be worse when you're tired or busy.

Chemo brain can affect your day-to-day life. It can be hard, for example, to remember to take medications, and to go to medical appointments. Some people feel frightened and awkward about chemo brain – it's a lot to manage when you're undergoing treatment. I tried to think of it as a side effect, just like any other. Remember that there is support with both the practical and emotional aspects of chemo brain.

Anne, affected by chemo brain.

How is chemo brain diagnosed?

There is no set way to diagnose chemo brain. Your doctor or nurse will talk to you about the difficulties you are experiencing. If you give them consent to do so, they might also ask someone who knows you well to describe any changes they've noticed in you.

Your doctor or nurse might also ask you to:

- complete a questionnaire or rating scale
- do some pen-and-paper tasks, for example, copying a shape
- follow a set of instructions
- answer some questions to test skills such as your memory and language.

Your doctor should also talk to you about how your difficulties are affecting your **day-to-day life**, and how they can support you in managing these.

Possible causes of chemo brain

Despite its name, there are a number of possible factors that could have an effect on thinking process in people with cancer, including:

- Heightened levels of **stress** and anxiety
 - **Sleeping** difficulties
 - Extreme tiredness (**fatigue**)
 - Side effects of **treatment for lymphoma**, such as **anaemia** (shortage of red blood cells), **infection**, changes to chemicals and blood flow in your brain, and damage to nerve cells in your brain.
 - **other medical conditions**, as symptoms and treatments for these might also have an effect on your thinking processes (cognition).
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Will I experience chemo brain?

There are many **possible causes of chemo brain**. Lots of people who are affected by cancer experience cognitive difficulties at some point.

There's no clear answer on who is most at risk of getting chemo brain. However, the following factors might play a part:

Age

It seems that chemo brain affects more older than younger people. Possible reasons for this include that, in general, older people are more likely to:

- get cancer than younger people
- experience an effect on cognition in general – it might therefore be that the statistics reflect this rather than being linked specifically to cancer
- have other medical conditions and factors that can affect thinking, for example **dementia**, **diabetes** and **menopause**.

Type and intensity of treatment

The type, intensity and how long treatment goes on for can affect your likelihood of experiencing chemo brain. For example, you might be at an increased risk with some antibody therapies or high-dose chemotherapy (used before a **stem cell**

transplant). Certain chemotherapy treatments used to treat **Burkitt lymphoma** or **CNS lymphoma** can also heighten the risk.

Low mood

Living with cancer can have a significant impact on your **emotional wellbeing**. For example, some people experience low mood, **depression** and anxiety, all of which can affect thinking processes such as concentration and memory.

It can also be a bit of a vicious cycle: if you experience low mood, you might be more likely to get chemo brain. This, in turn, might lower your mood and make it harder to cope with chemo brain. Speak to a member of your medical team for support if you feel low – your clinical nurse specialist is often a good first point of contact.

What might help with chemo brain?

Speak to a member of your medical team if you experience chemo brain. They can offer advice and support, which might include **addressing other issues that could be affecting your cognition**. There are also **things you could try that could help**. Hard as it can be, try to be patient with yourself, particularly with tasks that need a lot of attention.

Addressing other issues that could be affecting your cognition

Your doctors should address any underlying issues such as **anaemia** or an **infection** that might be affecting your cognition.

It's also important to get support if you are experiencing **emotional difficulties**, such as low mood, stress or anxiety.

Practical tips

Below are some tips and strategies that some people find helps them to manage chemo brain.

To help with focus

- Try to do one thing at a time. You could also break tasks down into manageable chunks.
- Build in rest between activities.
- Try to get enough good quality rest and **sleep**.
- Find somewhere quiet to focus on a task or conversation.

- Keep a diary to try to see if there's a pattern to when your concentration levels seem to be higher – if possible, try to do any tasks or activities that need more attention during these times.

To help with planning and remembering

- Leave yourself written reminders. You could also set yourself alerts on your phone.
- Add items to lists as and when you think of them. You could also add to a shopping list when you start to run low on something.
- Use a calendar on your wall or on your phone to keep track of appointments.
- Write down any **questions you'd like to ask your medical team** and take them with you to your appointments.
- Visualise things to help you remember them. For example, you could imagine yourself posting a letter if you need to remember to do so. You can find other **ideas for ways to support your memory on the HelpGuide.org website**.
- Use GPS or other navigations systems if you find it hard to remember how to get to places.
- Do some **physical activity** as this could have a positive effect on thinking processes such as memory, attention and speech. Physical activity can also have positive effect on your mood, which can in turn improve thinking processes.

To help with the stress that can come with chemo brain

- Consider telling other people about the difficulties you are experiencing. For example, if it's hard for you to find the words you want during conversations. This can help to alleviate the pressure you might feel.
- Try a mind-body approach, such as mindfulness or other types of meditation.

Chemo brain and work

If you are employed and chemo brain effects your work, you could talk to your line-manager about how they could support you. For example, allowing you longer to complete tasks and training, or working in a quiet environment where possible.

Macmillan Cancer Support have tips for employers to help support someone who is affected by chemo brain. You might also be interested in **Working with Cancer**, an organisation that supports employees, employers, the self-employed, job seekers and carers to manage cancer and work.

Frequently asked questions about chemo brain and lymphoma

Below are some questions people often ask about chemo brain and lymphoma. Speak to your medical team for advice specific to your situation.

How long does chemo brain last?

For many people, chemo brain usually gets better over time. However, for some people the effects last much longer.

Does keeping an 'active brain' or 'brain training' help?

Research has looked at whether it is helpful to do activities that aim to keep your brain active – for example, crosswords, wordsearches and Sudoku, can help to protect against cognitive decline. Some evidence suggests that it could be useful but more research is needed.

Is there any medication to treat chemo brain?

The [National Comprehensive Cancer Network \(NCCN\)](#) recommends trying non-drug approaches to help manage cognitive difficulties. For people who have tried these and continue to experience significant challenges, doctors might suggest medication that is primarily used as an anti-depressant or anti-dementia drugs.

Can any dietary supplements help?

Some people ask whether certain vitamins (such as [vitamin E](#) and the [B vitamins](#)) can help to improve cognition. Although these vitamins are an important part of a [healthy diet](#), there is not evidence to say that these vitamins can prevent or improve symptoms of chemo brain.

There has also been interest in whether the herb ginkgo biloba could help to improve cognitive function. It can help to increase blood flow to the brain and might help protect damage to the cells that carry messages between the brain and other parts of the body (neurons). However, further research is needed before scientists can say whether ginkgo biloba can improve cognitive function.

If you are thinking of taking any herbal or other dietary supplements, speak to a member of your medical team first to check that they are safe for you.

Is there a link between chemo brain and dementia?

Dementia is the term to describe a set of symptoms related to ongoing difficulties with cognitive functioning (such as memory, thinking and decision making) that affects day-to-day life.

There are currently no clear conclusions about chemotherapy and dementia, and scientists continue to research whether there is a link between the two. Some studies have found that people who experience chemo brain are no more likely than other people to develop Alzheimer's dementia in later life. Other studies have found that people who have had cancer are less likely to develop dementia.

References

The full list of references for this page is available on our website. Alternatively, email publications@lymphoma-action.org.uk or call 01296 619409 if you would like a copy.

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