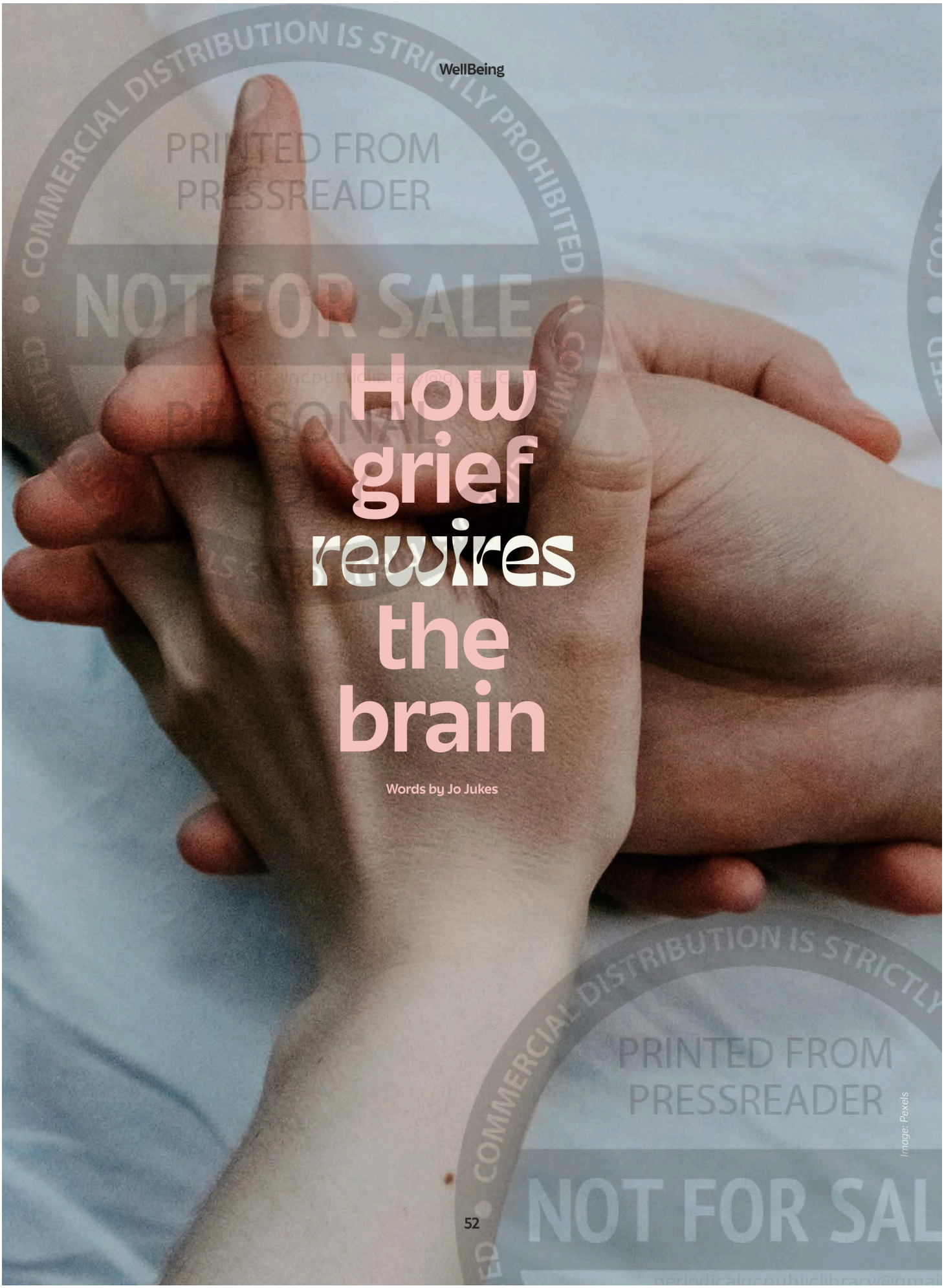
- Grief

How grief rewires the brain

Words by Jo Jukes



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The devastation of loss can evoke physical symptoms, such as exhaustion, insomnia and, of course, crying. But it's not just our bodies that are affected. Neuroscience reveals that grief rewires our brain. By understanding how, we can strive towards healthy healing after loss.

Some say that grief is the price we pay for love. For many, it rings true.

Whether it's a spouse, family member, friend or beloved pet, most of us will experience loss within our lifetime. In 2023, more than 180,000 people died in Australia alone, and according to the University of Cambridge, it's estimated that for every death, nine people are affected by bereavement.

While no two people grieve in exactly the same way, there are chemical changes that take place in the grieving brain that affect us all. These changes can leave us feeling hopeless, anxious and fatigued. They can also cause challenges with cognitive functions such as memory, concentration and decision-making. But by better understanding how our brain is rewired by grief, we can take steps towards healthy healing and find ways to live with loss.

Survival mode, activated

Sometimes a loss happens without warning, leaving loved ones in shock and disbelief. For others, the journey can be long, perhaps filled with hospital visits, bad news and the physical or cognitive decline of their loved one.

Dr Lisa M Shulman, MD, is a professor of neurology at the University of Maryland and author of *Before and After Loss: A Neurologist's Perspective on Loss, Grief, and our Brain.* According to Shulman, regardless of the timeframe or circumstances, grief and loss are forms of emotional trauma. This triggers our brain to default to survival mode and to psychological defence mechanisms, locking our brain into a stress response.

Stress – like that experienced through loss – activates neuroplasticity, the remodelling of the brain's neural connections based on experience. In other words, our brain "rewires" itself during the grief process.

"The brain is agnostic to the type of emotional trauma and has a primitive hard-wired response to traumatic experience," says Shulman. "This hard-wired response – for good reason – is designed to protect us and ensure our survival in the worst of times. It allows us to function, even under dire circumstances."

This survival response activates the body's sympathetic nervous system, engaging the brain's "fight or flight" mechanism. Daily reminders of loss can repeatedly trigger this response, reinforcing it. Over time, this can lead to chronic stress, which can negatively impact health by increasing blood pressure and heart rate, and release stress hormones like adrenaline.

"The loss of a loved one is experienced over periods of days, weeks, months, years, resulting in an accumulation of traumatic experiences," Shulman explains. "Learning of a new diagnosis, the shocking news of a fatal accident, failed medical treatments, are persistent reminders of loss in our daily life.

"Each and every experience reactivates these primitive responses of fight or flight, relentlessly strengthening neural connections in the [brain's] primitive fear centre and weakening connections to the advanced brain regions, [responsible for] controlling sound judgement."

According to Shulman, this rewiring is unavoidable and can result in anxiety, sleep disturbance, disturbing dreams, intrusive thoughts such as flashbacks and a range of psychological defensive mechanisms like repression, denial and dissociation.

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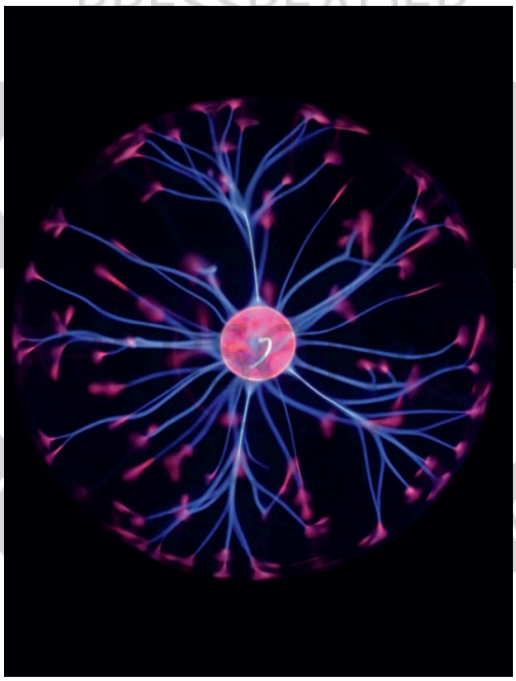





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Grief brain

Anyone who has lost a loved one probably knows the feeling of "brain fog" or "grief brain" that comes alongside it. It's that sense of walking into a room and immediately forgetting why. The sense of reaching the bottom of a page and realising you haven't retained anything you've just read. It's struggling to make simple decisions like what to wear or what to eat for breakfast.

Lucy Archinal-Hudson is a Canberra-based clinical psychologist and the former clinical director at Feel the Magic, an Australian grief charity that supports children and families after the death of a parent. "The term 'grief brain' is used to describe the cognitive impacts of grief due to the fatigue and depleted mental resources experienced when the mind is under acute stress or focused on survival, including activation of the amygdala [the brain's emotional processing centre, which regulates perception of threat] and changes in stress hormone levels," explains Archinal-Hudson.

"Acute grief [experienced immediately or shortly after loss] can result in difficulty concentrating, difficulty making decisions, slower processing speed, being more distractible, experiencing memory problems and forgetfulness, and difficulty engaging the logical areas of our brain."

According to Archinal-Hudson, the impacts of "grief brain" go beyond cognitive skills, they can have a knock-on effect on other elements of our health and wellbeing. Physical effects can include headaches, changes in appetite, muscle tension and fatigue. Emotional impacts include irritability, sadness, numbness, anger, guilt and regret.

"These impacts can often compound and become a vicious cycle," says Archinal-Hudson. "For example, low mood can result in withdrawing from friends or activities, which in turn increases feelings of loneliness, which in turn results in low mood. Similarly, difficulties with attention can result in reduced work capacity or performance, which can lower self-esteem."

Research also echoes the idea that our physical health is impacted by grief. According to research released in 2024 and conducted by Columbia University Mailman School of Public Health and the Butler Columbia Aging Center in the US, people who suffered a loss of a close family member such as a partner, parent, child or sibling appeared to have an older biological age (the gradual decline in how well your cells, tissues and organs function, leading to a higher risk of chronic diseases) compared to those who did not.

Rewiring, relearning, recovering

While dwelling in grief can result in maladaptive or "bad" neuroplasticity, there are proactive ways that you can reverse the effects and encourage "good" neuroplasticity or healthy rewiring. Understanding how can be key to empowering yourself to lead the healthiest life possible after experiencing loss.

There are three principles that Shulman champions to promote healing of the mind and brain after loss. "First, to reconnect with difficult memories, to surface the disturbing experiences buried in our subconscious that continuously respond to daily reminders as threats," explains Shulman. Activities that allow for expression or creativity are key for this step. For Shulman, this was writing and journaling, but for others this could be painting, composing music, curating a photo album or scrapbooking.

The second step is to spend equal time on restorative activities such as being outside in nature, yoga, exercise, hiking or mindfulness. According to Shulman, this distraction allows for a sense of safety and security, which helps elevate the internal work done in step one.

The third step is opening the mind to new possibilities. "As healing evolves, at some point we need to begin to consider how we'll rebuild our identity and our life without our loved one," Shulman says.

Striving for this healthy rewiring is important. It can be easy to get locked into a negative thinking pattern with grief, such as excessive rumination, anger or avoidance. This could be avoiding people or places that remind you of loss, or it could be guilt or resentment, dwelling on what could have been done differently.

"Excessive rumination can prevent you from moving on, keeping the mind stuck in 'what ifs' and feelings of guilt and shame," says Archinal-Hudson. "But if these patterns go unchecked, it can impact our mental health and wellbeing.

"Avoidance, although bringing *temporary* relief, often only reinforces the negative emotions by preventing us from facing the reality of the loss and stopping us from moving forward, as well as making anxiety and fear grow stronger."

Beyond grief

With the symptoms of grief and depression being similar, it can sometimes be difficult to distinguish between them.

According to Archinal-Hudson, depression is persistent and lasts most of the day, nearly every day, and is tied with an inability to experience positive or hopeful emotions. "Another way to differentiate between them is that the intense emotions within grief tend to decrease in intensity over time and may ebb and flow specifically in response to grief triggers or reminders such as photographs, significant dates, objects or other reminders. Whereas the negative

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Seek additional support from your GP if you are concerned that your symptoms may be depression. Prolonged grief disorder – where intense or persistent symptoms last for more than 12 months – is also something that you should speak to your GP about for extra support.

Living with loss

Although it can feel difficult or even impossible, there are ways to move forward and live with loss while still maintaining a connection with the past and with your loved one.

"Maintaining a connection with the person who has died is an important part of learning to live with grief," says Archinal-Hudson. "This will look different for everyone, but things like writing letters to the person, looking at photographs, wearing their jewellery or favourite perfumes or engaging in a meaningful activity – for example cooking their favourite dinner recipe – are common examples I have seen."

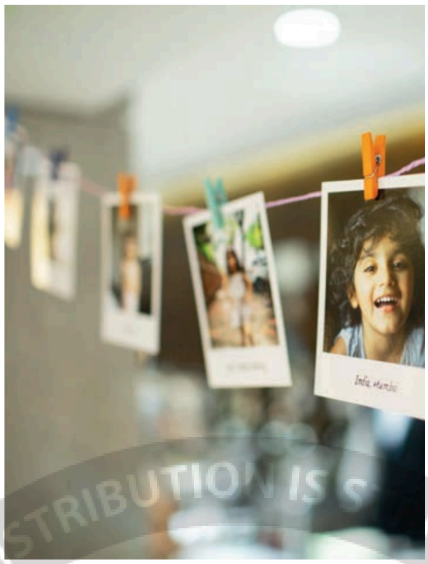
Staying connected and utilising coping strategies are not just useful in the early stages of loss. For many, healing from grief is a lifelong process. Moments such as birthdays, anniversaries, new parenthood or other significant milestones can trigger symptoms of grief. In these moments, be kind to yourself and find ways to minimise stress and decision-making and lessen the cognitive load on yourself.

While grief may feel like a deeply lonely and isolating experience, remember that you are not alone and talking about your grief can help with healing. Reach out to a grief counsellor or look for a support group, whether in-person or online. The Griefline website is a good starting point to find groups, communities and bereavement professionals.

Above all, regardless of how recent your experience with loss was, be kind to yourself and your mind. As Shulman writes in her book, "The derivation of the word grief is 'to burden', as if people experiencing grief are weighed down by external troubles. But grief is a consuming internal process. The injury is hidden, even from us."

For support or resources, contact the Griefline helpline on 1300 845 745 or visit griefline.org.au.





Images: Top: Tobe Roberts, lower: Raj Rana

Jo Jukes is a freelance writer based in Sydney. She is passionate about health, wellbeing and eco-travel, and writes for publications across Australia, New Zealand and the United Kingdom. For more, visit jojukes.com.

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