

## WHAT CAN I DO TO IMPROVE MY BRAIN FUNCTION?

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For many years, experts believed that brain function could not improve after injury. More recently, researchers have concluded that there may be ways to increase cognitive functioning in some people with brain related difficulties. These include:

- (1) Exercise—multiple studies have shown that aerobic exercise, especially, can significantly enhance cognitive functioning after a brain injury.
- (2) Social engagement—socializing with others and engaging in shared pleasurable activities can help maintain cognition and stave off new cognitive problems.
- (3) Cognitive rehabilitation—formal cognitive rehabilitation, with a speech pathologist, occupational therapist or a psychologist - can be very effective in helping people learn strategies to improve thinking and behavior.
- (4) Brain training—“Brain games” continue to be a subject of debate but some evidence suggests that computerized games and specialized video games may have the potential to improve brain functioning in key areas.

## FOR MORE INFORMATION ABOUT COGNITIVE IMPAIRMENT

**National Institute of Health**  
<https://www.nimds.gov>

**Brainline**  
<https://brainline.org>

**Society for Cognitive Rehabilitation**  
<https://societyforcognitiverehab.org>

## FOR MORE INFORMATION ABOUT ARDS

<https://medlineplus.gov/ency/article/000103.htm>

<http://www.lung.org/lung-health-and-diseases/lung-disease-lookup/ards/symptoms-causes-risk-factors.html?referrer=https://www.google.com/>

## FOR INFORMATION ABOUT POST-INTENSIVE CARE SYNDROME (PICS)

<http://www.myicucare.org/Thrive/Pages/Post-intensive-Care-Syndrome.aspx>

## FOR MORE INFORMATION ABOUT OUTCOMES AFTER CRITICAL ILLNESS

[http://www.hopkinsmedicine.org/pulmonary/research/Outcomes\\_after\\_critical\\_illness\\_surgery/](http://www.hopkinsmedicine.org/pulmonary/research/Outcomes_after_critical_illness_surgery/)

<http://www.icudelirium.org>

## *AFTER THE ICU:*

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## PATIENT AND FAMILY GUIDE TO COGNITIVE OUTCOMES

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ARDS FOUNDATION  
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## WHAT IS ARDS?

- A life threatening condition when fluid develops in the tiny air sacs of the lungs
- ~200,000 people in the U.S. get ARDS every year and nearly 100,000 die
- Survivors often develop brain-based problems
- Survivors rarely are referred for rehabilitation

## WHAT ARE SOME COMMON BRAIN-BASED OUTCOMES AFTER ARDS?

- (1) Memory Difficulties
- (2) Problems with Attention
- (3) Executive dysfunction

## WHAT TYPE OF MEMORY PROBLEMS?

Memory problems occur in between a third and half of ARDS survivors. Memory problems can include unusual forgetfulness, inability to recall memories or make new memories, or problems learning and retaining material.

## WHAT ARE ATTENTION PROBLEMS?

Attention problems occur in between a third and half of ARDS survivors. Attention problems can include difficulties focusing, having problems staying on task while talking, and having a tendency to jump from subject to subject.

## WHAT IS EXECUTIVE DYSFUNCTION?

Executive dysfunction occurs in up to half of ARDS survivors. Problems with executive dysfunction include problems planning, organizing, carrying out complex multi-step tasks, controlling behavior, and finding solutions to new and challenging problems.

## “REAL WORLD” PROBLEMS”

Survivors of ARDS with brain based issues often have problems in day-to-day life. These include:

- Balancing checkbooks and managing finances
- Managing medications and medical devices
- Behaving appropriately in social contexts
- Navigating demanding on-the-job challenges, especially in demanding situations.
- Following recipes
- Making travel plans
- Using technology



## RISK FACTORS FOR BRAIN-BASED PROBLEMS IN ARDS SURVIVORS

Being in the ICU with ARDS often impacts not only the body of patients but also their brains. Risk factors that can increase the chances of developing brain-based problems after ARDS include things like delirium, mechanical ventilation, sepsis, and mental health problems.

- Many patients with ARDS experience episodes of delirium while in the ICU. Delirium, a neurological syndrome which involves rapid changes in consciousness and mental status, has been shown to be closely associated with cognitive decline.
- Patients with ARDS experience prolonged mechanical ventilation and sometimes experience a condition called hypoxia, where their brains are injured by lack of oxygen.
- Patients with ARDS often suffer from common critical illnesses like “sepsis” - sepsis involves low blood pressure (hypotension) and inflammation and these problems can lead to brain damage either individually or together.
- Patients with ARDS can sometimes develop mental health problems like depression and PTSD. These conditions can contribute to cognitive difficulties.