10 Signs of AD

1. Memory loss
2. Difficulty performing familiar tasks
3. Problems with language
4. Disorientation to time and place
5. Poor or decreased judgment
6. Problems with abstract thinking
7. Wandering things
8. Changes in personality
9. Changes in mood or behavior
10. Loss of initiative

For more information, call the Alzheimer’s Association at 1-800-272-3900.

National Caregiver for Alzheimer’s Disease

For additional information, please visit www.alz.org.
To some extent, physical exercise produces a wide range of positive effects in older adults and those with NCI, and these benefits include improved cognitive function. In the brain, activity is the basis of cognition: "Physical activity is how the brain learns," Kempermann argues that the notion that physical activity can induce neurogenesis makes sense if one considers that the exercise effect on cognition may be mediated by volumetric increases and the studies indicating that the combination of exercise and enrichment (a surrogate for a "standard" environment) increases neurogenesis in adult mice. Therefore, exercise is a very good thing for the brain.

The link between exercise and improved cognition includes activity-induced growth in neurons (neurogenesis). In a large review of decades of animal research, Kempermann, G., et al., 2010 concluded that adult neurogenesis is necessary in the brain for learning in an activity-dependent manner and that both physical and cognitive exercise independently increase the number of neurons in the brain. Neuron stimulation neural precursors to cells while maintaining cognitive function.

According to the American Heart Association, "Physical activity is the basis of cognition. Physical activity is necessary for the brain to function properly. It is necessary for the brain to grow and learn. It is necessary for the brain to create new connections and to store new memories. It is necessary for the brain to protect itself from injury." Physical activity and its consequences are evolutionarily irreversible from cognitive function, training to improve cognitive function will continue to benefit from, if not depend on, physical exercise.

Although exercise effects have been demonstrated in animal studies, showing that the combination of exercise and enrichment is a surrogate for a "standard" environment increases neurogenesis in adult mice. However, exercise is the basis of cognition, the brain learns, and activity is the basis of cognition. Physical activity is how the brain learns, Kempermann argues that the notion that physical activity can induce neurogenesis makes sense if one considers that the exercise effect on cognition may be mediated by volumetric increases and the studies indicating that the combination of exercise and enrichment (a surrogate for a "standard" environment) increases neurogenesis in adult mice. Therefore, exercise is a very good thing for the brain.

BENEFITS OF PHYSICAL ACTIVITY

Abnormalities in blood flow through the brain can have several effects on the body, including:
- Decreasing blood glucose levels
- Reducing the risk of coronary heart disease
- Reducing high cholesterol levels
- Lowering blood pressure
- Bone density
- Flexibility
- Osteoarthritis

Exercise is a very good thing for the brain. It does seem that physical exercise produces a wide range of positive effects in older adults and those with NCI, and these benefits include improved cognitive function. In the brain, activity is the basis of cognition: "Physical activity is how the brain learns," Kempermann argues that the notion that physical activity can induce neurogenesis makes sense if one considers that the exercise effect on cognition may be mediated by volumetric increases and the studies indicating that the combination of exercise and enrichment (a surrogate for a "standard" environment) increases neurogenesis in adult mice. Therefore, exercise is a very good thing for the brain.

Alzheimer’s disease (AD) is a progressive brain disease, characterized by the development of amyloid plaques, neurofibrillary tangles, and decreased numbers of connections between nerve cells in the brain, and the death of those cells. There are two types of AD: early-onset and late-onset. Both types are caused by genetic factors. Most cases of AD are the late-onset form, with an onset of disease after the age of 60. The cause of late-onset AD is unknown. Studies conducted to date have failed to demonstrate consistent with the idea that exercise may fundamentally enhance the neural substrates and in a way that can maximally benefit brain function and performance when compared to control interventions in young, middle-aged, and elderly adults [Colcombe, S.J., et al., 2006; Kempermann, G., et al., 2010; Kempermann, G., et al., 2012]. This suggests that exercise actually changes the brain structure.

Alzheimer’s disease (AD) is a progressive brain disease and it shows that the combination of exercise and enrichment is a surrogate for a "standard" environment increases neurogenesis in adult mice. However, exercise is the basis of cognition, the brain learns, and activity is the basis of cognition. Physical activity is how the brain learns, Kempermann argues that the notion that physical activity can induce neurogenesis makes sense if one considers that the exercise effect on cognition may be mediated by volumetric increases and the studies indicating that the combination of exercise and enrichment (a surrogate for a "standard" environment) increases neurogenesis in adult mice. Therefore, exercise is a very good thing for the brain.

• Absence

"..."
Alzheimer’s disease (AD) is a progressive brain disease, characterized by the development of amnestic symptomatology that is often accompanied by changes in connections between nerve cells in the brain, and the death of those cells. There are two types of AD: early-onset and late-onset. Both types are caused by genetic factors.

Most cases of AD are the late-onset form, with an onset of symptoms after the age of 60. The cause of late-onset AD is unknown, but thought to be linked to genetic, environmental, and lifestyle factors that influence a person’s risk of the disease. Individuals with a first-degree relative with AD are at increased risk for developing the disease. Exercise training also appears to alleviate endothelial dysfunction in healthy older adults, and information about how cognition may be mediated by changes in brain-derived neurotrophic factor (BDNF) is consistent with the idea that exercise may fundamentally enhance the neural substrate in a way that could maximize the effects of exercise on the brain in older age. Exercise training has been shown to result in increased frontal and temporal lobe gray matter volume measured by MRI in older age. Exercise interventions in AD produce positive changes in brain structure in a good way.

The link between exercise and improved cognition includes activity-induced growth in neurons (neurogenesis).

In a large review of decades of animal research, Kempermann [Kempermann, G., et al., 2011] concludes that adult neurogenesis (the growth of new cells in the brain) occurs in an activity-dependent manner and that both physical and cognitive exercise can increase neurogenesis in the brain. Neurogenesis stimulates neural precursors cells to multiply while maintaining the brain’s ability to retain new information and thinking abilities promote survival of the new cells. Kempermann argues that this new brain tissue is restrained, but that activity is the basis of cognition: “Physical activity is the basis of cognition: It is the basis of thinking, it is the basis of learning, it is the basis of survival.” Exercise training increases neurogenesis in the brain, and neurogenesis increases cognitive abilities. Exercise training has been shown to improve tasks that are thought to require brain plasticity. Exercise training increases neurogenesis in the brain, and neurogenesis increases cognitive abilities. Exercise training has been shown to improve tasks that are thought to require brain plasticity. Exercise training increases neurogenesis in the brain, and neurogenesis increases cognitive abilities.
Physical activity and its consequences are evolutionarily dependent animal activities like food caching and territory defense. The animal that is then used to construct a representation of the environment. This environment forms the basis for cognitive control and survival. Animal activity is a very good thing for the brain. Exercise is a very good thing for the brain. Exercise is good for the brain.

Benefits of Physical Activity

Exercise has been shown to improve cognitive function. The brain is affected by exercise in multiple ways. Exercise increases the number of connections between nerve cells in the brain, and the death of those cells. There are two types of AD: early-onset and late-onset. Both types are caused by genetic factors.

Most cases of AD are the late-onset form, with an onset of disease after the age of 65. The cause of late-onset AD is unknown, but it is thought to be caused by environmental, and lifestyle factors that influence a person’s risk.

Researchers have not found a specific gene that causes late-onset AD. However, several genetic variants have been found that increase the risk of developing AD. Apolipoprotein E (APOE) is the first risk gene identified, and reduces the gene with strongest impact on risk. APOE gene is carried in a person as a trait and it can influence the age at which the disease begins. Those who have the ε4 allele are more likely to develop AD. People who carry the ε4 allele have an increased risk of developing AD. About 40% of people who develop AD have at least one ε4 allele. However, many people who have one or two copies of the ε4 allele do not develop AD. The ε4 allele is a risk factor, not a cause. The ε4 allele increases the risk of developing AD, but it is not for determining any one person’s risk. People with one or two copies of the ε4 allele may develop AD, but others who do not develop AD may have the ε4 allele.

Although a blood test can identify whether a person has ε4, it cannot predict who will or will not develop AD. Because of this uncertainty, APOE testing is not recommended for healthy individuals. However, APOE testing may be useful for studying AD risk in large groups of people but not for determining any one person’s risk.

Most researchers believe that AD testing is useful for diagnosing small groups of people but not for identifying any one person’s specific risk.

References:
Exercise and Cognition

Do cognitive exercises really help improve cognitive function?

A recent analysis of many studies showed that people with mild cognitive impairment (MCI) did not receive moderate cognitive benefits by participating in cognitive training and those benefits lasted through follow-up [J. Ill., et al., 2011]. The MCI patients given training actually showed improvement over baseline whereas control MCI subjects (those who did not receive training) declined in nearly all areas from the baseline measurements to the post-test. Also, significant net gains were noted in those studies that included a follow-up but the average post-training interval is not specified. The analyses suggested the effect of subtest age 65 or years of education on outcomes and no differences between training delivered by computer versus in-person methods nor was there a difference between group versus individual instruction. Overall, these findings strongly support the idea that patients with cognitive impairment and MCI do not benefit from cognitive training and that the benefits lost beyond the immediate post-training time frame.

What about physical exercise... does that help?

A comparison of 18 studies examining the effect of physical exercise interventions on cognition in older adults found a result in favor of exercise over control activities [Smith, P.J., et al., 2010]. A significant effect of exercise on cognition in older adults found a result in favor of exercise over control activities [Smith, P.J., et al., 2010]. The MCI patients given training actually showed improvement over baseline whereas control MCI subjects (those who did not receive training) declined in nearly all areas from the baseline measurements to the post-test. Also, significant net gains were noted in those studies that included a follow-up but the average post-training interval is not specified. The analyses suggested the effect of subtest age 65 or years of education on outcomes and no differences between training delivered by computer versus in-person methods nor was there a difference between group versus individual instruction. Overall, these findings strongly support the idea that patients with cognitive impairment and MCI do not benefit from cognitive training and that the benefits lost beyond the immediate post-training time frame.

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**10 Signs of Alzheimer’s Disease**

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7. Misplacing things
8. Changes in personality
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10. Loss of initiative

**For more information, call the Alzheimer’s Association at:**

800-272-3900 (In Indiana)

800-272-3900 (Outside Indiana)

**National Cell Repository for Alzheimer Disease (NCRAD)**

The National Cell Repository for Alzheimer Disease (NCRAD) is a data and specimen repository conducted in the United States that seeks to study Alzheimer’s disease (AD) and other related diseases. It is anticipated that changes in the DNA sequence will be found and these differences will help us to understand the genetic basis of AD.

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1-800-272-3900

**Indiana University**

**PhD, Professor of Clinical Medical and Molecular Genetics**

**Tatiana Foroud, Ph.D., P. Michael Conneally Professor of Medical and Molecular Genetics and Director, Hereditary Genomics, NCRAD**

**What about physical exercise…does that help?**

A recent analysis of many studies showed that with modest cognitive impairment (MCI) did we see hints of moderate cognitive benefits by participating in cognitive training and these benefits lasted through follow-up (J. Ill. et al., 2011). The NCI patients given training actually showed improvement over baseline whereas control MCI subjects (those who did not receive training) declined in nearly all areas from the baseline measurements to the post-test. Also, significant net treatment gains were noted in these studies that included a follow-up but the average post-training interval is not specified. The analysis suggested the effect of subject age on years of education on outcomes and no differences between training delivered by computer versus in-person methods nor was there a difference between group versus individual instruction. Overall, these findings strongly support the idea that patients with cognitive impairment and MCI do benefit from cognitive training and that the benefits last beyond the immediate post-training time frames.

**What about physical exercise…does that help?**

A comparison of 18 studies examining the effect of physical exercise interventions on cognition in older adults found a clear trend in favor of exercise over control activities (Crichton, S. and A.P. Kramer, 2012). The findings also indicated that exercise can improve substantial cognitive ability (umbrella terms for connecting past experiences with present actions) showed the greatest returns to exercises as compared to other cognitive domains (e.g. spatial skills). Gains were also greater for training that lasted 30-45 years of age and exercise programs as short as 1 month in duration showed the largest net treatment gains were noted in these studies that included a follow-up but the average post-training interval is not specified. The analysis suggested the effect of subject age. Gains were also greater for training that lasted 30-45 years of age and exercise programs as short as 1 month in duration showed the largest net treatment gains were noted in these studies that included a follow-up but the average post-training interval is not specified. The analysis suggested the effect of subject age. Gains were also greater for training that lasted 30-45 years of age and exercise programs as short as 1 month in duration showed the largest net treatment gains were noted in these studies that included a follow-up but the average post-training interval is not specified. The analysis suggested the effect of subject age. Gains were also greater for training that lasted 30-45 years of age and exercise programs as short as 1 month in duration showed the largest net treatment gains were noted in these studies that included a follow-up but the average post-training interval is not specified. The analysis suggested the effect of subject age.