



## DEVELOPMENT OF HIGHER MENTAL PROCESSES IN THE PERIOD OF AGING

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**Annotation.** Higher mental processes are complex and lifelong formed. Systemic mental processes are social in origin. Higher mental processes include arbitrary memory, voluntary attention, thinking, speech, etc. An independent problem is sclerosis - a disease characterized by sclerotic foci (degeneration of organ tissue into solid connective tissue) in the white matter of the spinal cord. In everyday life, most people tend to believe that the minds of the elderly are weakening. For example, if a young person cannot remember where he put his thing, then no one sees anything wrong with it. However, if such inattention is noted in the old, those around him evaluate it as a manifestation of old age changes and call it sclerosis.

**Keywords:** logical memory, figurative memory, semantic memory, mechanical reflection, cognitive processes, age-related changes.

### Introduction.

What changes in cognition occur in old age, and what are the causes and nature of the cognitive decline in the elderly?

There are some disagreements in the scientific literature about the degree of decline in intellectual activity during normal aging. Many researchers who have studied the problem of changing the cognitive characteristics of people who have reached old age believe that most mental skills remain relatively subject to storage.

Thus, large-scale memory studies have shown that the memory impairment associated with aging is not as general (or representative) and as severe as previously thought. Many memory problems that affect older people cannot be considered inevitable consequences of aging. They are primarily due to other factors, such as depression, cessation of vigorous activity, or side effects of medicines.

At the same time, no one denies that when a person reaches the period of late adulthood, a specific decrease in cognitive development occurs. For example, there is a decrease in the speed of information processing in the process of cognition, as well as the speed of mechanical memorization. However, when this happens, the corresponding compensations begin to function. As a result, almost any loss of specific cognitive characteristics has practically no effect on a person's daily life.

### Main text.

One of the main changes in a person's cognitive abilities in late adulthood is a decrease in physical and mental operations speed.

Many studies confirm that those intellectual functions highly dependent on the speed of operations reveal a decline in late adulthood. People who have reached this age have a *reaction time* to be increased, the processing of *perceptual information* slows down, and the speed of *cognitive processes* decreases.

Some researchers explain this phenomenon partly because changes in a person's characteristics can cause slowness. So, it is known that older people value accuracy



more than young people. Reaction time is the time interval between the presentation of a signal (optical, acoustic, tactile, etc.) and the beginning of the response to this signal stipulated by the instructions (during the examination).

Perceptual information is the information about objects and phenomena of reality obtained as a result of their perception by the individual.

Cognitive processes are a set of processes that ensure the transformation of sensory information from the moment a stimulus hits receptor surfaces to receiving a response in the form of knowledge.

Older people tend to answer each question correctly and are less likely to try to guess the correct answer. In addition, some types of tasks used in conducting modern psychological testing may need to be more familiar to them.

*Memory changes.* Memory is the process of organizing and preserving experience, making it possible to reuse it in activities or return to the sphere of consciousness.

Sensory (super-short-term) memory is a hypothetical memory subsystem that provides retention for a brief time (usually less than one second) of the products of sensory processing of information entering the senses. Primary (working) memory is a memory that ensures the execution of an operational task.

Among all the problems of cognitive decline in the elderly due to aging the body, changes in memory functions have been most thoroughly studied. Moreover, most researchers study not only memory as a whole as a single mental process but also varieties of its manifestation.

Sensory memory is a very short-term visual or auditory memory. It can hold sensory information entering the input for a short period - about 250 milliseconds, before the start of its processing. This type of memory is called by some authors super-short-term memory.

The studies suggest that older people can still receive and hold less information than young people. On average, their perception volume is smaller, mainly when two events coincide. The causes of this phenomenon remain unexplained. Some authors believe this phenomenon is likely because the visual and auditory systems work worse. Older people in the process of aging probably have a decrease in the selectivity of attention and the ability to recognize individual signs of objects.

At the same time, most modern researchers believe that the identified negative changes in sensory memory in people who have reached late adulthood are so insignificant that they are unlikely to be very noticeable in everyday life. In real life, most objects and phenomena can be considered much longer than in laboratory experiments, where fractions of a second are allotted.

Researchers characterize primary memory as a repository with a limited amount of information. It contains only what a person now has "in his thoughts", for example, the value of the goods that a person will buy just seen on the price tag. Therefore, it is called working memory. It should be noted that in most studies on age-related changes in primary memory, no significant differences have been found between the primary memory of young and middle-aged people. Therefore, it is generally accepted that aging does not affect the function of primary memory.

Secondary memory is a longer-term type of memory. Compared with sensory



and primary memory in secondary memory, as numerous studies show, there are apparent age differences. According to works devoted to studying the processes of memorization and reproduction, older people often memorize fewer words from the list and fewer details of the picture.

However, until now, there has yet to be a clear idea of the cause of these differences: an actual decrease in memory capacity or a change in the processes of memorization and reproduction. Some studies note that older people probably have lower efficiency in organizing memory, repeating and coding memorized material. Nevertheless, if a person carefully instructs the subjects and gives them little practice, they cope with these operations much better. Even those who are eighty or above will benefit from such training.

Consequently, preserving the memory functions of the elderly largely depends on the characteristics of the activities in which they are engaged.

There are age differences in the results of tests for long-term (secondary) memory. In several experimental studies, it has been found that older people perform tasks for cognition better than reproducing word lists. They tend to show remarkable selectivity concerning what is stored in memory. Memorizing useless word lists in many of those surveyed, those who have reached late adulthood may cause internal protest. In this regard, their results are low in experiments on memorizing meaningless words and syllables. However, in retelling the meaning of the text divided into paragraphs, older people demonstrate very high results.

Thus, older people better remember what is important to them or can be helpful in life. This feature allows them to maintain skills and abilities in good shape. In addition, older people usually perform tasks better if they receive detailed instructions on organizing the memorized material and have the opportunity to practice.

At the same time, age still makes itself felt. Even after training, people over 70 in various experiments do not consistently achieve the same results as young people.

*Hence, older people remember what is important to them or can be helpful in life better.*

Tertiary memory (autobiographical memory) is the memory for distant events. For example, in older people, it can be memories of the events of childhood or early youth.

Mechanical reflection is a type of memorization that consists in repeating the material many times before memorizing it from beginning to end without using special techniques and algorithms for simplified or accelerated memorization. Logical or verbal-logical memory deals with the memorization and reproduction of thoughts.

Figurative memory is the memory for representations and pictures of nature and life, as well as sounds, smells, tastes, and so on.

Semantic memory is a memory for thoughts, particularly the meaning of the information received.

*Training both older people and young adults.* As a result, training has only increased the gap in results between age samples because young people are given more training than older people.



Consequently, the reserve development opportunities in older adults are significantly less than in young adults, at least in specific skills. Therefore, it is fair to believe that older people have less room for improvement.

Tertiary memory (autobiographical memory) is a memory for distant events. The experimental data that is currently available suggest that this type of memory in older people is preserved almost entirely. Moreover, several studies note that older people remember the details of historical events better than younger people. This is especially true of events in which older people were directly involved.

It should also be noted that there are individual differences in the functioning of the memory of different older people. For example, it is known that more educated people usually perform memory tests better than their less educated peers. People actively engaged in intellectual work perform these tests much better than those who do not. Thus, numerous studies have not been able to find such changes in memory functions in older people that would significantly impact their daily lives.

Some exception is secondary (long-term) memory. Most researchers agree that these differences primarily depend on several factors unrelated to age but are most likely due to the peculiarities of the activities that people were engaged in during late adulthood.

### **Conclusions.**

Thus, according to the results of research by psychologists observing changes in age-related memory functions, it is known that with age, *mechanical reflection* begins to deteriorate in older people, and *logical memory* is preserved. *Figurative memory* weakens more than *semantic*, but at the same time, memorization is still preserved better when images associated with meaning are remembered than when they do not carry a semantic load. The basis of memory in old age is a logical connection. Since logical memory is closely related to thinking, it can be assumed that the thinking of older people is significantly developed.