



SUOMEN MUISTI-  
ASIAANTUNTIJAT



# IMPROVING BRAIN HEALTH!

ETNIMU  
PROJECT

IMPROVING BRAIN HEALTH  
OF ETHNIC MINORITY ELDERLY





**IMPROVING  
BRAIN HEALTH!**

This guidebook is developed as a part of the Society for Memory Disorders Expertise in Finland (Suomen muistiasiantuntijat ry) ETNIMU-project, which improves the brain health of ethnic minority elderly and has been funded with support from the Ministry of Social Affairs and Health and the gaming revenue of Veikkaus Oy.

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# Introduction

Dementing illnesses and the deterioration of brain health are not dependent on language, culture or nationality. This guidebook is addressed to group leaders promoting the mental well-being of immigrants living in Finland and having a different cultural background. It is also meant for aging immigrants, who are interested in improving their brain health and memory-related problems.

Various information on memory and its functioning have been widely published in Finland. This guidebook covers all the key topics and is easy to read and understand. The guidebook is based on the content of courses organized in the frame of the ETNIMU-project in 2015–2016. According to the languages of the courses, the guidebook is also published in four languages: Finnish, Estonian, Russian and Somali – and now also in English .

The guidebook is supported by two booklets; Exercises to Activate the Brain 1 & 2, which are recommended to be used together with this book. The guidebooks are a tool for group leaders helping to arrange respective activities in their groups.

We have discussed the content of this guidebook with experts in various fields, whose contribution to the guidebook has been invaluable. For that we sincerely thank them! Our sincere thanks also to the ETNIMU project team, our partners, and the Society for Memory Disorders Expertise in Finland for their assistance with and contribution to the book.

## **Step by step towards better brain health!**

**Siiri Jaakson**  
*Project manager*

**Urve Jaakkola**  
*Project coordinator*

*Memory does not go to waste in use, quite the opposite!*

# Improving brain health!

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# 1. Information about memory

## What is a memory?

Memory is located in the brain, which is the most sensitive organ of our body and essential for all what we do. Our brain is a complex system and prone to external damages. The brain should be protected – by using a helmet when cycling, a seat belt in a car and avoiding blows and beating. The best way to take care of our brain is to use it – using brain does not waste it. Remembering and learning are an essential part of maintaining brain health.

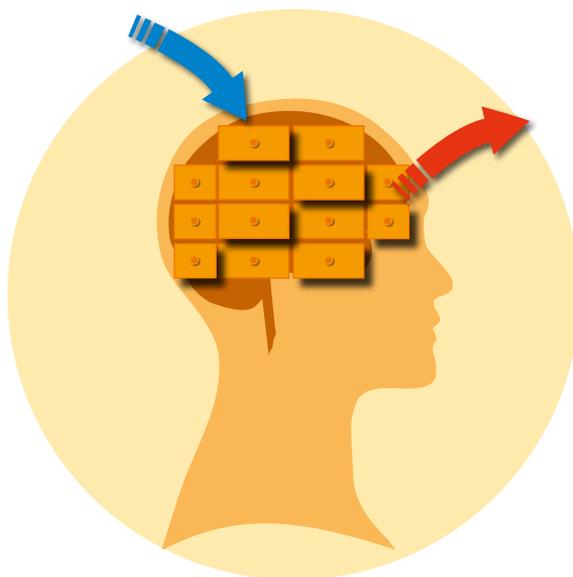
We need memory for all our intellectual and physical activities. Memory helps us through our regular day-to-day routines and enhances both the learning of new things and making use of knowledge and skills accumulated earlier in the course of our life.

Learning something new is easier, when we are interested in the subject, repeat the subject several times, and concentrate on what we are doing. With age, the repeating becomes ever more critical.

Our identity, i.e., our personality and our past are stored in memory. We also carry our cultural heritage in memory. Things we have learned and essential things related to our culture are alive in our memory and remain with us for a long time.

## Memory is affected by a lot of things

**STRESS:** Stress may be either short-term or long-term. Short-term stress does not affect memory. It is transient and may at its best be even beneficial



and refresh our memory. Long-term stress is a burden on our mind and causes memory problems. Significant changes in life such as moving to live in another environment are always a strong stress factor. If you feel stressed out or worried, find out the reasons for it. Consider whether you could affect the reasons of stress or where you could get help for finding solutions to your problems.

**ANXIETY:** Anxiety is related to stress. We experience anxiety when we have worries or are under pressure. Anxiety may be triggered for instance by a change in environment or deterioration of health.

**DISEASES AND PAIN:** Many diseases and pains strain our memory. It is worthwhile to find out the reason for your problems and get proper care.

**MEDICINES:** Medicines may have adverse effects on the functioning of memory. These are always individual. In case you notice that a new medication affects your memory or worsens it, you should talk to your doctor. S/he will look for a replacement.

**FATIGUE:** When you are tired, your memory does not work as well as usual. In addition to lack of sleep, the reason for fatigue may lie in anemia caused by iron deficiency or lack of vitamins.



**SLEEP DISORDERS:** Sleep disorders are a common phenomenon. With age, we do not need as much sleep as we used to, and sleep may be disturbed for many reasons. If you have trouble with sleeping, you should talk to your doctor.

**LONELINESS:** Loneliness affects our state of mind and may easily cause melancholy, depression, and feeling of needlessness.

**Brain health has several pillars:**

- physical condition
- state of mind
- social activity.

Our own culture, i.e., where we come from and what we always carry with us plays an essential role in supporting brain health.

**By brain health, we mean the well-being of brain and lifestyle that improves it covering**

- a healthy diet
- adequate levels of physical activity
- temperance: abstinence from alcohol as much as possible and drug-free life.
- adequate challenging and activating of the brain – learning new things
- enough sleep
- avoiding constant stress.

An active lifestyle and social relationships are good for the brain and its health. Physical activities, favourite hobbies, meeting friends and loved ones are good for us. The brain is never entirely ready, it adjusts, develops and changes throughout our lifetime. The brain is also affected by environmental factors.

Our well-being is regardless of age influenced by the way our memory functions and the way how we can use information and skills stored in the memory in our everyday lives regardless of age. A well-functioning memory is, among other things, a prerequisite for learning, ability to work, and independent living.

We all may influence our brain health by our lifestyle.

**Aging and forgetting**

The other side of memory is forgetting. It is a source of worry for many people. There are so many things going on around us all the time that we can't store and keep everything in our memory. It is only natural and inevitable that we forget things that are not important for us. Everyone's memory plays tricks sometimes and, which is not as such a cause for concern.

### **We tend to be more forgetful, when**

- we are in a great hurry
- we are tired
- we are not focused on what we are doing, and
- we are worried.

It is not worth trying to cope with too many things at the same time, but instead take one thing at a time and focus on it. We can all influence and maintain the functioning of our memory.

### **Things improving the functioning of memory**

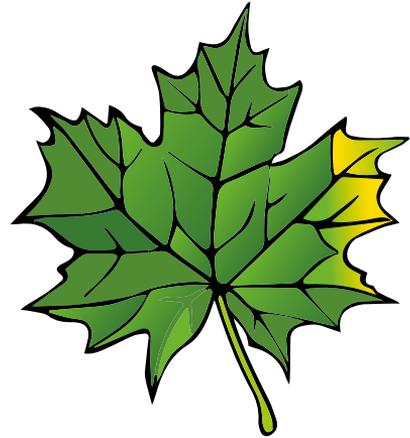
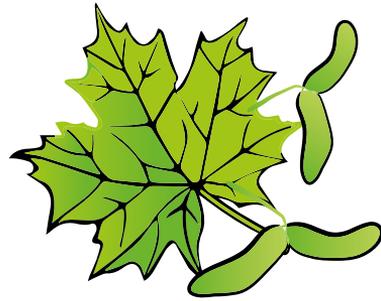
- correct nutrition
- adequate levels of physical activity
- good mood
- enough sleep
- exercising brain

## **When should you get worried about your memory?**

Many people wonder whether it is normal not to remember the name of a person they know, or what they were just about to say. If memory problems interfere with everyday life and people who are close to you also note the changes, it is essential to find out why it is happening (see p. 14 "You should be worried about memory symptoms when..."). Memory disorders may be transient or curable, and there are ways to treat them.

If you notice changes in your memory in comparison with earlier, it is essential to seek help. Finding out the reason for those changes is critical. A right start would be to contact your doctor or the health center's memory clinic/ memory nurse.

Memory does not go to waste in use, quite the opposite. It pays off to break the routines and do familiar things differently! It is a good idea to learn something new and undertake challenging tasks that require reasoning skills!



## 2. Brain health

**A human being is a whole – everything is in connection with everything else. Our health is affected by inherited factors, by the environment, we live in, and by choices, we make in the course of our life. In addition to physical and mental health, the social surroundings and culture, in which we live and have grown up, also have a substantial impact on our memory. The social environment is an asset for us, and we often face a heightened risk to fall ill, when we get separated from it and find ourselves alone surrounded by a foreign culture.**

Genetic and environmental factors together affect our risk substantially to become ill with different diseases.

Many factors influence the well-being and health of the brain. Some of the factors such as excessive stress or poor sleep, immediately impair how we feel. At the same time as elevated blood pressure, high cholesterol or overweight affect the well-being of our brain and brain health only after a long period.

### Heredity

Our physical characteristics are passed on to us through genes, i.e., genome, which is our birth gift. However, our way of life and circumstances we live in influence how well these genes function. Genes determine, among other things, appearance, the color of skin, height, the foot size, the color of eyes, fingerprints. From the health point of view, the inherited predisposition to various diseases is even more critical. In some families, there is a

higher occurrence of dementing illnesses, in others of heart diseases or diabetes. Hereditary cancers are also known.

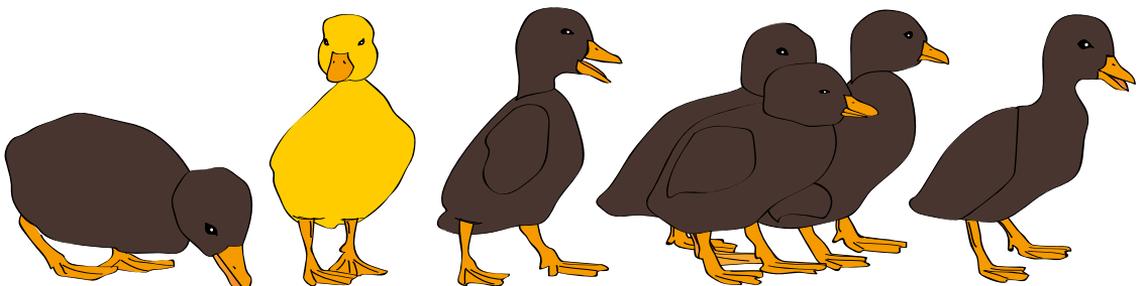
Health and diseases often pass on in families from one generation to another. Quite often traditions and culture effect memory and health even more than genes. That is why it is essential to pay attention to the way how we live our lives.

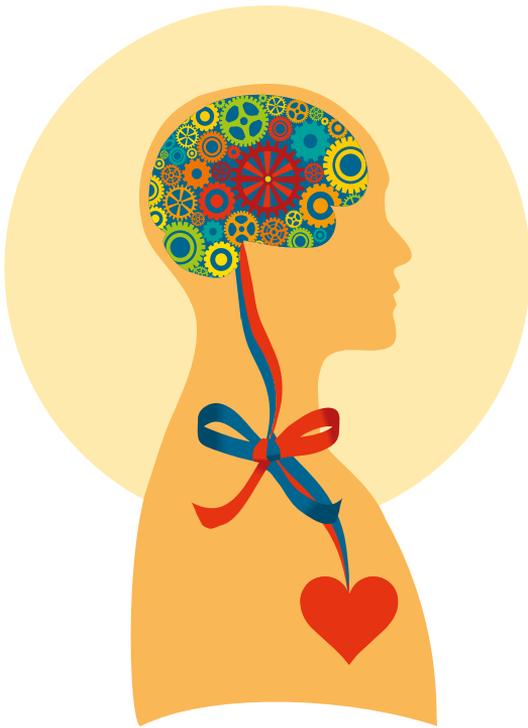
### Factors influencing brain health: physical, mental and social health

The body and mind are interconnected and need each other. Well-being cannot be measured solely based on physical condition or health. The mental side, i.e., the health of the mind, is also of great importance to the way we cope. The significance of the social environment has become clear only in recent years.

### Physical condition

Physical health or condition means good performance ability and control over the body. With regards to good health, the critical issues are for example normal blood pressure and blood cholesterol, healthy weight, strong musculoskeletal system (bones, muscles) and functional mobility of joints. Exercising and overall physical activities are essential for maintaining physical fitness. Physical activities should be an integral part of a regular, continuous lifestyle.





## Mental health

Taking care of mental well-being is equally important as maintaining physical health since both affect our general well-being. We may affect our mental well-being and ability to cope in many ways. We can learn to know and accept ourselves and find the best ways to take care of our well-being. We can often influence the circumstances on which our state of mind depends.

## Social well-being

The support that we get from others, especially from the members of your community, may enhance health and protect us from diseases. Loneliness adds to the risk of many diseases. People who have been drifted to an unfamiliar environment and separated from their cultural roots and family may be more predisposed to diseases.

## Falling ill

Falling ill signals usually about severe and long existing stress, i.e., mental and physical strain. In stress, the pain feels stronger, and therefore the effectiveness of medicines may decrease.

Even the symptoms of short-term diseases such as a headache or a toothache affect our physical and mental well-being. We feel better when the pain is over.

Long-term or chronic diseases affect both physical and mental health. Mentally strong people can face diseases and accept changes in their body better.

Cardiovascular diseases are the biggest threat to brain health. People have different risk level to contract these diseases.

## Heart and brain

Heart and brain are strongly interconnected. Changes in the heart also affect brain health. The heart is the engine of the entire body. The heart muscle is strong, responding, however, sensitively to internal and external factors.

### Factors influencing heart condition:

- congenital heart defect (abnormality)
- heart rhythm disorders
- elevated blood pressure
- elevated blood lipid levels (cholesterol)
- changes in thyroid function, hypo- and hyperthyroidism
- diabetes
- infections or inflammations
- viral diseases
- the condition of mouth and gums
- obesity
- unhealthy lifestyle: smoking, unhealthy nutrition, low physical activity.

### How do the factors mentioned above affect the body?

Heart changes affect the condition of blood vessels and vice versa. Over a more extended period, the elevated blood pressure and blood vessel blockage may cause heart or brain stroke. When the blood cholesterol is too high, it damages heart and blood vessels. Plaque is formed in the blood vessels, blocking the vessels and destroying their natural elasticity. The adequate circulation of oxygen and nutrients in the body is thus also inhibited.

**Stress factors have an extensive effect on the body. Small individual stress factors may pile up into tremendous stress. The entire body responds to the stress strongly:**

- Muscles contract and cause muscle tension.
- Blood pressure rises, increasing heart rate.
- Metabolism slows down.
- Pain sensitivity increases.
- Anxiety strikes and memory plays tricks.
- Senses sharpen, concentration is disturbed.
- Headaches intensify.

We are not burdened by the things as such but rather by the way we respond to them.

Any positive or negative change may increase our stress level. No single reason as such causes stress, respond to changes depends mostly on our perspectives and attitudes. We are bothered not by things as such but by our understanding about the things.

#### **We can influence our health**

- by listening to our body
- by paying attention to our individual needs

It is crucial that we always take care of our health by taking care of our lifestyle choices. Health should be nurtured before it starts to deteriorate. Many serious diseases may be left unnoticed at an early stage unless you pay attention to your health condition. Fortunately, health may be improved by small steps at a time.

It's not vain or a waste of time to focus on taking care of oneself. We can improve our health condition, enhance our state of mind and increase the quality of our life. When we are feeling well, we can also take better care of our loved ones.

We can either improve our health or neglect it – it all comes down to the choices we make daily. We can't underestimate the effect of lifestyle on health. Many different health problems may be addressed with the same, sometimes quite small lifestyle choices, which shall be discussed below in more details.



# 3. Memory disorders, dementing illnesses and dementia

Memory is located in the brain just as are the problem-solving abilities, social interaction and feelings. Remembering is one of the most critical functions of the brain. It is a complex mental event chain involving the brain's neural networks and billions of nerve cells working extensively together. When we use our memory, we process many things in different brain areas simultaneously. Thus, no single specific place in our brain could be considered memory.

**Memory can be divided into short-term working memory and long-term memory:**

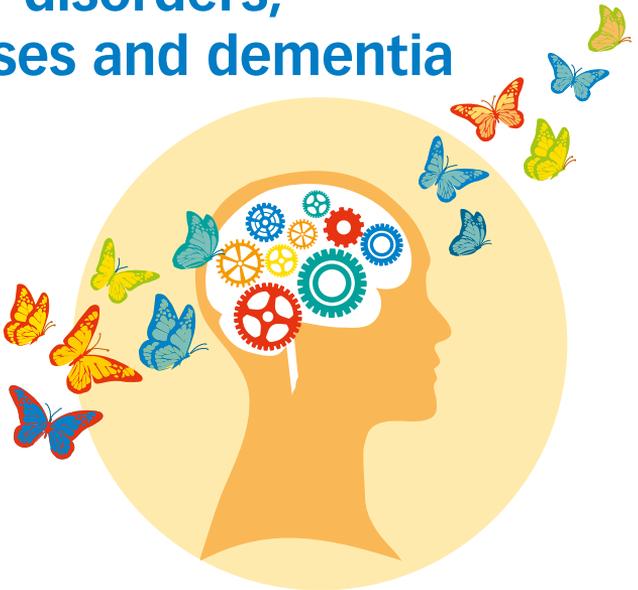
**SHORT-TERM WORKING MEMORY** is the brain's capacity of holding and handling information for maximum a couple of minutes. Short-term working memory is used, for example, when we are reading, counting, remembering reference numbers and learning something new. Short-term working memory can hold only a limited number of issues at a time. From the short-term memory, information is either stored in the long-term memory or forgotten. The number of things that can be kept in the short-term working memory decreases with aging and also, for example, when we are depressed.

**LONG-TERM MEMORY** stores information for an extended period. Long-term memory can store an endless number of things. When we recall something, it is as digging information from the memory storage.

Different dementing illnesses damage different parts of memory. For example, in the case of the most common dementing disease, the Alzheimer's disease, the main problem is that information is not stored from the short-term working memory to the long-term one but is somewhat forgotten.

**By content, the memory is divided into three parts:**

- **EPISODIC (AUTOBIOGRAPHICAL) MEMORY** containing, for example, the events and experiences occurred to us during our life.
- **SEMANTIC MEMORY**, containing acquired knowledge such as meanings of words and math.



- **PROCEDURAL (IMPLICIT) MEMORY**, containing various skills and learned series of movements such as cycling or typing.

## Forgetting

Forgetting is an essential aspect of remembering. Forgetting is inseparable from remembering. If we wouldn't sometimes forget things, the functioning of memory would be impossible.

**Forgetting happens in two different ways:**

- When we do not use the information, our memory sort of fades over time
- When there is too much new information pouring in, it is difficult to recall earlier remembered things.

## Aging and memory functions

When aging is normal, we never lose the memory to the extent that coping with daily activities will become difficult.

**Aging-related changes are individual, but the following is true with regards to most people:**

- Learning capacity remains
- The process of retaining information in memory and retrieving from memory slows down
- The effect of the environment increases – focusing may become more difficult

- Ability to keep stored memories does not weaken
- Previously learned skills and knowledge are retained.
- Ability to retrieve memories based on references and recognition is preserved.
- Minor changes may be detected at the age of 40 already, more apparent changes occur after the age of 75.
- At first remembering of details such as names, phone numbers, etc. becomes more difficult.
- Ability to deal with things that require efficiency and effort deteriorates
- The effect of situational factors such as fatigue and stress increases.

### You should become concerned about memory changes when

- you or people close to you get worried about your short-term memory.
- you start to forget things that you have agreed upon, such as appointments
- following care-instructions becomes difficult for you.
- you struggle to find words when you speak and often feel that they are lost.
- your reasoning and problem-solving skills deteriorate. Managing financial matters such as bills, and other banking stuff is not as easy as it used to be.
- you can't find your wallet, phone, keys or other familiar things and these seem to be missing all the time. Things just get lost, or you have trouble remembering for what they are used.
- you have rapid mood swings being either anxious or apathetic, and you don't seem to be able to get anything done.
- memory disorder interferes with activities of daily living.
- you still often do not notice yourself the changes in your personality, such as confusion, suspiciousness or fear. Other people close to you may notice that you are retreating from the company of others more than ever before and prefer to be alone.

## Memory disorders

Many things cause memory disorders, some of which are transient and harmless, some are treatable, and some are associated with progressive dementing illnesses. Memory disorders should be



taken always seriously.

Various short-term and long-term factors strain memory. For example, rush or fatigue may weaken memory and concentration ability, but once the hustle is over, and after a good night's sleep the memory is functioning again as usual.

### Transient causes after which the memory may return to its normal state:

- some disorders of cerebral circulation
- minor brain damage
- medicines and intoxicants
- mental reasons and state of confusion

### Reasons that can be treated and the early detection and proper treatment of which is critical:

- mental disorders such as depression and anxiety
- metabolic disorders and deficiencies such as thyroid changes or lack of vitamin B12.
- certain brain diseases such as meningitis or some brain tumors.

**Lasting sequelae that are not progressing and the proper rehabilitation of which is of great importance. Rehabilitation can bring**

**about at least partial recovery in case of:**

- sequelae of various brain damages, such as brain injuries, brain stroke (cerebral infarction), brain bleeding (Intracerebral hemorrhage) or infections.
- sequelae of resuscitation.

**Progressive dementing illnesses, in case of which it is possible to slow down the development of memory disorders and improve the quality of a patient's day-to-day life if the problems are addressed as early as possible:**

- Alzheimer's disease
- Vascular dementing illnesses
- Lewy body dementia
- Frontotemporal degenerations

**Risk factors of dementing illnesses are:**

- age: the prevalence of disorders increases with aging
- elevated blood pressure
- diabetes
- high total cholesterol level
- lack of physical activity
- obesity
- low education

The more risk factors there are, the higher the risk of memory diseases.

**Progressive dementing illnesses include among others:**

**Alzheimer's disease**

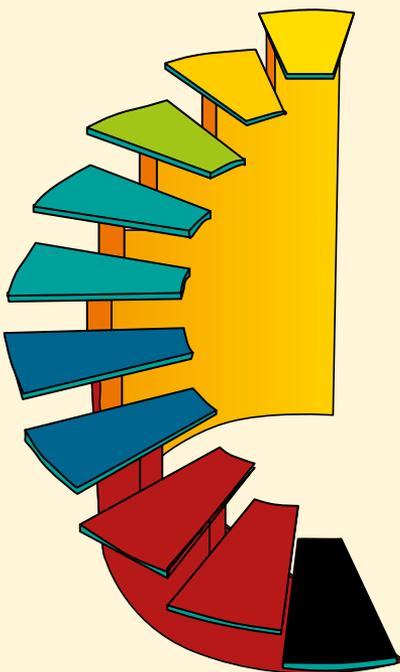
Alzheimer's disease is the most common progressive dementing illness, which prevalence is about 65–70 % of all progressive dementing illnesses.

Alzheimer's disease is a neurodegenerative disease, which progresses in typical stages, slowly

## Dementing illnesses

Memory disorders may be caused by several factors, the most serious of these are progressive dementing illnesses.

### Alzheimer's disease usually progresses through stages.



**EARLY STAGE:**

- A person still has his/her own will and can't be steered and controlled.
- Difficulties may occur regarding financial matters such as understanding bank statements or paying bills.

**MILD STAGE:**

- Ability to process complex problems is deteriorated, speech and language disorders may occur.
- A person may still function independently in everyday life.

**MODERATE STAGE:**

- The ability to understand more complicated speech and express oneself has deteriorated.
- The diseased is dependent on the support and assistance of others.

**SEVERE STAGE:**

- Impaired performance capability. The diseased is no longer able to take care of his/her daily activities.
- The diseased needs round-the-clock surveillance and assistance. In general, living alone is not an option at this stage.

and evenly. The disease can be contracted even at middle age. Aging is increasing the risk to get Alzheimer's disease. The disease lasts on average ten years, but its range may be from a couple of years up to 20.

The first symptoms may often be difficult to identify, and the patient usually is either unaware of the symptoms or is not willing to admit these. Persons suffering from dementing illnesses often regard their problems as temporary and insignificant. People who are close to the diseased notice the changes in his/her behaviour first.

The symptoms of the disease vary individually. The most significant symptom is deterioration of the short-term episodic memory. Diseased doesn't remember what was just spoken about, asks the same things repeatedly. Learning new things has become more difficult, and the following symptoms may occur:

- Impairment of expressive language: difficulties to find correct words while speaking.
- Perception difficulties: diseased may get lost even in familiar places.
- Control over actions is slowing: it becomes more difficult to start or kick off something.
- Problem-solving skills deteriorate.
- Behavioural changes: possible depression, restlessness, aggression, and changes in personality.
- Those who are working may experience at the early stage of the disease stress symptoms, fatigue, and melancholy.

## Vascular dementia

Vascular dementia is caused by impaired blood flow in the brain, which is at the moment the second most common reason for dementing illnesses.

Alzheimer's disease and vascular dementia may occur together. The disease may progress in stages.

### The most common symptoms include:

- difficulties in controlling one's actions
- slowness and stiffness of movements
- impaired balancing ability and walking difficulties
- visual field deficiencies and perception problems
- weakened ability to control passing urine
- memory disorders.

## Lewy body dementia

Lewy body dementia is the third most common dementing illness but occurs rarer than the two diseases mentioned above.

Lewy body dementia is usually characterized by visual hallucinations, or delusions, movement problems similar to the symptoms of Parkinson's disease such as stiffness, slowness and tremor, and alternation of states of alertness and confusion. The diseased may occasionally fall or faint.

Lewy body dementia may occur together with Parkinson's disease. Most people with Parkinson's disease do not have severe memory disorders; however, some milder information processing difficulties impeding daily life may occur. Memory disorders linked to Parkinson's disease may often go unnoticed as the whole attention is focused on the motoric symptoms of Parkinson's disease and the possible depression of the diseased. Parkinson's disease causes slowness and difficulty of speech, which may give an incorrect impression of deteriorated mental capacity.

## Dementing illness caused by frontotemporal degeneration

Dementing illness caused by frontotemporal degeneration is a disease that degenerates brains frontal lobes. The disease usually begins between 45–65 years of age. About half of the diseased have a family member suffering from the same disease. Changes in personality and behaviour often characterize dementing illnesses caused by the frontotemporal degeneration. Memory disorders will usually follow later, unlike in case of Alzheimer's disease.

### The typical symptoms are:

- lack of judgment
- loss of inhibition
- emotional flattening
- speech disorders
- depression
- hallucinations.

Also, a few different, more rare dementing illnesses are known, some of which are hereditary.

## Dementia is as syndrome

Dementia is caused by a disorder of brain function, which may have many reasons. It usually involves



not only memory problems, but also difficulties with language and perception and affects daily functioning.

Different dementing illnesses affect different functions at their early stage. It is critical to diagnose dementing illnesses as soon as possible before the symptoms have evolved into dementia level.

The cluster of dementia symptoms includes in addition to memory disorders one or more of the following;

- speech and language disorders such as the difficulty of remembering, understanding, or finding the right words
- deterioration of fine motor skills, which is expressed, for example, in dressing or shaving difficulties.
- recognition difficulties: the identification of faces and objects may be difficult
- deterioration of complex mental functions: for instance, following of the instructions or orientation in unfamiliar places has become more difficult.

Dementia is classified according to its level into three stages: mild, moderate or severe decline.

## Clinical pathway of dementing illnesses

The first step is to contact one's health center. Local municipalities often have a memory clinic or

a memory nurse, from where help can be found and who may direct to memory studies.

Preliminary studies include a thorough interview, a memory questionnaire, and memory tests (such as MMSE, CERAD), lab tests and brain imaging. The professional checking the state of patient's memory will also appreciate the opinion of relatives and other persons close to the patient about the situation.

It is advisable to discuss memory problems with a doctor at the health center or a private clinic.

If the cause of the memory disorder is not clear, the patient will be directed for further studies to a physician who is a specialist in neurology or geriatrics.

If you suspect or have noticed, that your memory has changed in comparison with earlier, it is essential to seek help from a memory specialist. If you are concerned about the brain health or memory disorders of a person close to you, it is critical to make him/her seek help and go to memory studies.

Dementia  
is a cluster of  
symptoms,  
not a separate disease.  
Behind dementia,  
there is always a disease  
that needs to be  
diagnosed.

## 4. A Happy brain remembers best

The way we store things in our memory is individual. We all can identify and develop methods and means that suit us best and make remembering and storing information in memory easier. The brain's motivation system works best when we are interested in the things we are dealing with.

Information is stored through seeing, hearing, touching, and other senses. Some of us remember best through seeing, some through hearing and some through sensory perception or movement. Learning and remembering are more efficient when we use several senses simultaneously.

### Remembering is a good thing

Remembering is retrieving, interpreting, and assessing of past events and information. Remembering is vital for mental wellbeing because it gives meaning to past events. Remembering brings out the dignity and significance of life. Remembering may be assisted by photos, scents, music or literature, fairy tales, and stories. You may look at photograph your own life or use pictures to illustrate and phrase emotions.

Remembering is critical for mental well-

being. There are no rules for remembering – each of us has a unique way for that. When we remember, we dig up images and emotions, which give purpose to life and support our self-esteem. Remembering helps us to process our feelings and things that have happened in the past.

Remembering helps us to envisage the course of our lives and the happy and sad things related to it. Remembering makes your voice heard. When you remember, you are a unique expert of your own life.

When you look back at your past, some events may be understood better as time has passed. Sharing memories helps to build understanding, sense of community and culture of empathy. By remembering we pass on the invaluable cultural heritage of past generations.

### **Remembering is closely connected to cultural activities and intercommunication between people:**

- Cultural and art experiences stored in memory may have an effect of balancing and calming down the mind, furthermore: they may add to wellbeing and health.
- Active cultural activities together with other people facilitate learning, thinking and observation increasing creativity and problem-solving capacities.

For the elderly, it is essential to participate in events, where other people may be met. Being engaged with cultural activities in the company of others influences health and longevity as efficiently as physical activity.

Joy and happiness are the brain's best friends. Remembering is also good for the brain.



## How to support memory

Memory can be supported by both external and internal means.

**THE EXTERNAL MEANS OF SUPPORT** don't compensate the memory but instead support it.

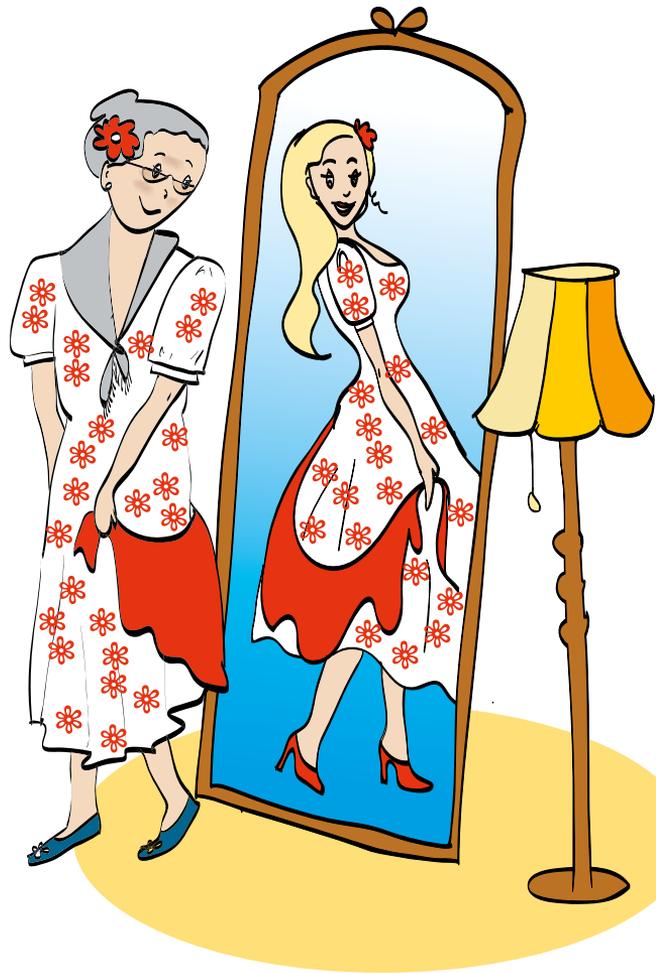
### Some examples:

- Organization of surroundings: if every object and thing have its place, they may be found better, and there is no need to look for them all the time.
- Writing down: sticky notes, almanac, calendar, diary, and shopping list help to cope with daily chores and activities.
- Technical memory aids: pill reminders, cell phone's reminder features or even an alarm-clock tell you when it is time to take medicine, go out or start to eat.
- Sometimes even reminders that seem at first funny help us to remember, what we must do: a cord around your wrist or clothespin in curtains reminds of a task associated with it.

**BY THE INTERNAL MEMORY TRICKS**, we mean connecting new information with known and familiar knowledge and skills. Tricks enhance learning. With aging, learning ability is slowing down. Elderly people compensate the lost time by connecting a new piece of information or skill to their previous know-how and life experience.

### Some examples:

- Repetition or reiteration. Repeating a name aloud or in mind helps to store it in memory.
- Organization and classification of things to remember:
  - Classification according to similarities: shopping is done in groups, for example in the order the goods are placed in the market starting from the door to the cash register. First all fruits and vegetables, then dairy products and at last meat products.
  - Organization according to importance and location.
- Use of images, associations, and rhymes.



It is easier to remember when the thing to be remembered is familiar, meaningful and fun. We also tend to remember better things associated with strong feelings – fear, excitement, happiness or joy.

Good as well as bad events and memories are better stored in our memory because they involve emotions.

## Brain training and exercises

The brain does not go to waste in use, quite the opposite. The brain likes action and needs exercise and activation. The best way to take care of your brain is to do things that are interesting and appealing for you, either alone or in a group. The more diversely you use your brain throughout your life, the better it functions when you are aging.

Brain, mind, and body are a whole. For the brain, it is when activities, leisure, and pleasure are balanced.

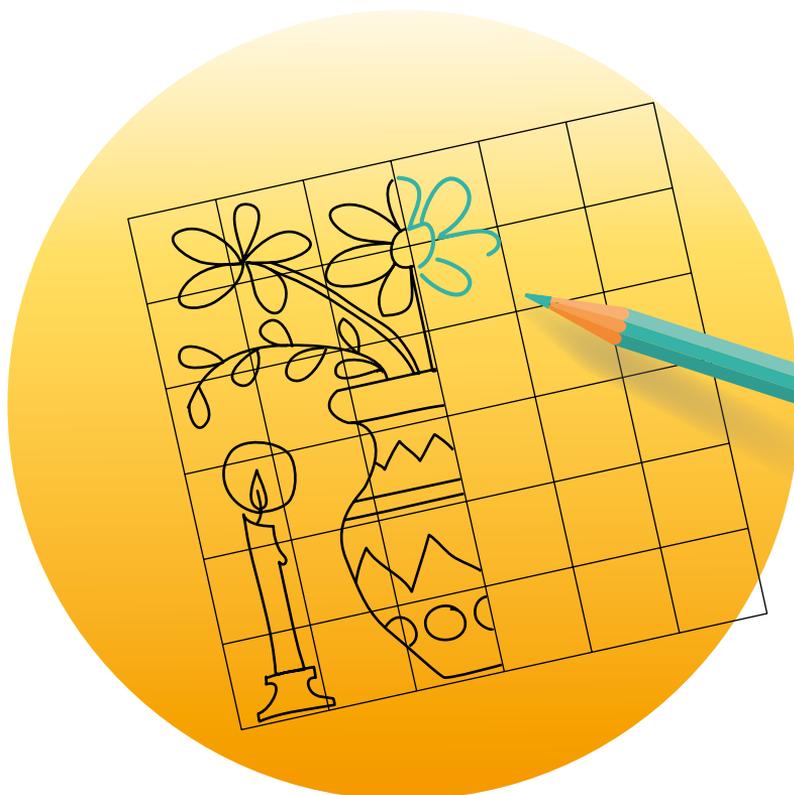
Social interaction activates the functioning of memory and improves mental health. Some things are better done together in the company of others. Conversation and exchange of thoughts activate the brain and add to communication between neurons. It's not good to stay alone at home; a much better idea is to participate actively in the life of your community. It is better to join in, even if you always do not feel up to it. It is essential to stay

in touch with friends – meet or call them. Sharing thoughts and views with others helps to manage stress and prevent depression.

Sometimes it is good to challenge yourself and do something you have never done before. New skills and experiences create new connections in the brain. It is important to take an interest in what's happening in the world, watch the TV, read newspapers or listen to the radio. Or engage yourself with DIY arts and crafts projects or listen to music or even learn new languages.

Daily routines could also be broken, and things could be done differently. Simple things, such as sitting at the table in a different place, sleeping in the bed on the other side or even rearranging furniture.

Many tips and tricks for improving memory may be found in the literature. The following advises have been adjusted from the website of the Alzheimer Society of Finland.



## Remembering may be made easier

- By listening carefully.
- By focusing and avoiding distractions and by doing only one thing at a time.
- By repeating things – by replaying things to be remembered in your mind or half aloud.
- By remembering that well prepared is halfway done and remembered – things to be taken along may be put in a visible place.
- By using aids – sticky notes, egg timer or alarm clock, and other timers help to remind of things.
- By learning to make use of the cell phone – using an alarm, reminder and calendar are helpful in many situations.
- By active remembering – try to recall the morning paper news in the afternoon.
- By making shopping lists and to-do-lists of daily chores. Writing things down helps to remember.
- By seeking help from the alphabet – by going in your head through the alphabet you may remember the first letter of the word you have forgotten.
- By sleeping well – memory works better when you are well-rested.
- By eating well and often. It is also good to drink a lot, particularly on a hot summer day.
- By keeping in touch with friends – by calling and meeting them.
- By doing things, that make you feel good.
- By physical activity – you should find a way to of physical activity that suits you best.
- By enjoying life!

Source: muistiliitto.fi

# 5. Senses



## The world of senses

Brain and memory use the information retrieved from the surroundings. Senses help us to perceive our surroundings both consciously and unconsciously. Through senses, the information is transferred into our brain as a continuous flow. Sense perceptions and attention are influenced by age and experience.

The most common way to understand the structure of memory and its functioning is to distinguish between sensory memory, short-term working memory, and long-term memory.

Sensory memory provides brains with information obtained through the senses. Sensory memory is part of the consciousness, even if we are always not aware of this. Information received through different sensory modalities is temporarily stored in the sensory memory. Part of this information remains unnoticed because the processing ability of the short-term working memory is restricted. Only a part of the sensory information is transferred to the brain to be processed in the short-term working memory and through that



further on to be stored in our long-term information storage, the long-term memory.

The five basic senses are sight, smell, taste, hearing, and touch. Besides, there are vestibular and proprioceptive senses that contribute to balance and spatial orientation. Often the following three sensory perceptions are distinguished:

- sight (visual)
- hearing (auditory)
- touch (somatic).

Some of us remember best through seeing, some through hearing and some through sensory perception of touch and movement. Learning and remembering are more efficient when we use several senses simultaneously. Learning and remembering can be improved if you know which of your sensory channels is dominant. However, it is not always easy or even possible to distinguish, which of your sensory channels is prevailing.



### Sight = the ability to see

Sight gives us most of the information through reflected light received by the eye. Eyes and the inner ear send to the brain the information to be processed simultaneously. The brain interprets what we have seen. Visual information is transferred from the eye to the brain by the optic nerve. Optic nerves of both eyes meet before reaching the brain.

**PERSONS WITH STRONG VISUAL MEMORY** remember things best by looking. Images, colors, designs and written text help them to adopt unfamiliar things. When listening to a presentation, the pictures shown by the speaker support remem-

brance of the subject. Retrieving visually remembered information is quick because the information is stored as a picture.

Everyone has an individual visual perception of what we see. Even if these perceptions are different from each other, it does not necessarily mean, that they are wrong. This has been revealed by studies focused on how different viewers see and experience a situation.

*Example: There was a bank robbery, which was witnessed by several persons at the street. When the bank robbery was later on investigated, every eyewitness remembered the event slightly differently. There were several different statements hair length, and other details.*

A person with strong visual memory remembers faces better than names.



### Hearing = the ability to hear

Through hearing, we perceive various sounds. Our left and right ear receive sounds at a slightly different time, and the distance of the source of the sound is calculated in our brain based on this time difference. Ears channel the information to brain and brain interprets its content.

The inner ear is where the organ of balance, the vestibule is located. The vestibule of the inner ear regulates the movements of eyes and limbs. Stress may be to a great extent caused by the tremendous amount of unstoppable sounds surrounding us. Hearing deteriorates with age.

When the brain is tired, it does not withstand intense sounds such as loud music. Favourite music played quietly is good for your brain and mind. Favourite music may be justly considered medicine for the brain because it improves memory and ability to concentrate. Music has also been proven to have a good effect on suffering from dementing illnesses.

**PEOPLE WITH GOOD AUDITORY PERCEPTUAL SKILLS** remember and learn better by hearing and don't necessarily need visual perception. Sounds around us may interfere with concentration. Music and rhythm support remembering. Retrieval from

memory is slower than in case of a person whose memory is based on visual perceptions.

A person with strong auditory perception remembers what has been said, as the ear mediates, and the brain interprets.

*Some examples: If you have been in an accident, then, for example, the alarm of an ambulance or loud sound from sudden braking brings back memories of the accident.*

When listening is not supported by visual perception, the brain capacity must be used more extensively.



### Touch = the ability of perception through multiple channels

Touch is the common term for multiple senses mediated by the skin. Skin is our largest sense organ. It has millions of neurons communicating to the brain information about everything which is in touch with our body. Through the skin, we sense pressure, tension, movement, temperature, and pain. The sense of touch helps to avoid danger and adapt to the surrounding temperatures. The sense of touch gives us information about our body, about the objects we touch and their properties.

The most sensitive parts of our body are:

- hands, in particular, the fingertips
- lips
- face
- tongue

Sensations received through touching and feeling complement the information obtained through other senses and thus help to perceive the surroundings.

**KINESTHETIC PERSON IS A PERSON** whose memory and learning are supported by senses of touch, smell, and taste, motions and movements, as well as feelings.

Some people, for example, find it easier to concentrate and listen when they make notes and draw. Images of action, movements, and action can help to recall stored information. For other people, it

might be easier to concentrate when they are knitting. Recalling may last a while because images are sought from the body and feelings.



### The sense of taste = the ability to perceive tastes

The five basic tastes – sweet, bitter, sour, salty and umami are located in different zones of the tongue. The term umami originates from the Japanese language; the closest English word is “tasty” – We can perceive many different tastes, but it is difficult to distinguish these from each other. The sense of taste depends a lot on the sense of smell. Up to 80 percent of a taste is a smell.



### The sense of smell = the ability to perceive smells

Smells pass directly from nose to deep in the brain. The sense of smell gives us essential information about our surroundings. Smell warns about a new situation, for example about spoiled fish, which we shouldn't eat. Dust or unpleasant smells, such as the smell of mold, may inform about the possible hazards of the environment.

Pleasant smells are usually called fragrances or scents, and they may, for example, revive and refresh memories. Smells and breathing are closely connected. We can regulate our breath, but not the functioning of the sense of smell.

The ability to distinguish various smells is not congenital, but a learned skill. We can thus enjoy new scents throughout our life. Scents do not have their names, they are called after things and objects. We know, for example, how roses smell, but there is no other name for that.

Different scents activate different parts of the brain. Simultaneously perceived good and bad smell activate different areas of the brain. When we eat, the sense of taste is mixed up with the sense of smell. It is not possible to distinguish simultaneously more than four smells, usually only two.

It is difficult to name smells, we say, for exam-

ple, that “the smell is very familiar, but I can't recall the name,” or “the name is just on the tip of the tongue.

## The sense of smell and memory

We do not usually pay any attention to smell, before it disturbs, irritates, feels good, warns or evokes memories. We all have some memory of a scent, which may suddenly come back to us. Childhood memories of smells may be powerful. Everyone may close their eyes and drift back in time to recall past scent experiences.

The signal mediated by the sense of smell passes vast networks in the brain, including areas responsible for emotions. If we try and want to, we can remember or at least distinguish thousands of different smells. Aging, however, limits the functioning of the sense of smell. With aging, the sense of smell deteriorates and eventually, we may entirely lose the ability to smell.

## Scents and sentiments

Smells are influencing our behaviour and feeling of wellbeing. It is proven, for example, that the scent of lemon has the most potent positive effect on our emotions. It gives energy and makes us feel better.

Smells are related to the threat, food or physical contact. All of these are very emotional – either in a positive or negative sense. The sense of smell may get exhausted by long-lasting and strong scents.

## The Scents of Memories

Memory and smells are related to emotions. A strong emotion experienced for the first time combined with scent makes a permanent memory trace in the brain. If it is pleasant, the memory is good, and if the smell is repulsive, the memory trace in the brain is unpleasant. This feeling is difficult to change afterward. Memory traces created by scents are stronger than those brought along by senses of sight and hearing. Memories of smell are very personal and unique.

*Example: The intense scent of the cinnamon bun may trigger memories of a situation when you were eating buns and the things that happened at that time, like of mother baking buns.*

Smells are related to culture, and for that reason, smell memories should include nationally familiar smells.

Different senses can be easily trained, for example by sniffing spices or other sources of smell or by sensing and identifying objects with eyes closed.

Sensory exercises may be easily arranged in groups, for example, by gathering strong fragrances (such as pine, tar, orange) in little jars or by tasting and identifying different nuances of familiar food (such as ginger chocolate or raisins in chocolate).

Exercises for the sense of touch include sensing objects collected in a bag with closed eyes and trying to picture, for example, whether these are cold, sharp or hairy. The other participant might try to guess on the base of the description, what the object is.

## 6. Physical activity

Daily physical activity is the lifeblood of elderly people. Physical activity does not prevent aging but helps to maintain and improve muscle power, balance, mobility, and walking ability, which are vital for the elderly. Immobility and spending long hours in an armchair are very harmful to health.

Physical activity helps to keep going and this, in turn, give a good feeling and strengthen memory. Engaging in physical activity together with others is nice and offers the possibility to meet people.

Even a small increase in physical activity has a positive effect on health and improves the performance and quality of life decisively.

### **Recommended ways of physical activity are:**

- walking and Nordic walking
- swimming, water running, and water aerobics
- bicycling
- training in gym
- skiing
- berry and mushroom picking

### Positive effects of physical activity on health

The brain controls the movement of muscles, physical performance, and processing of information. During physical activity, different areas of the brain work together in many ways. Therefore, regular physical activity improves brain functions, which is essential for rehabilitation from many diseases.

Muscle tissue is sensitive to changes in physical activity. With age and due to limited physical activity the muscle mass changes: for example, a bed-rest quickly leads to a decrease of muscle mass and strength. Physical activity should be regular and considering one's abilities. This is the key to enjoy it.

Versatile and regular physical activity improves performance, walking ability, and confidence, as well as improves balance and suppleness. This results in the decrease of the risk of falling, which may cause breaking of bones, the most dangerous



of which is a hip fracture. Physical activity helps to avoid osteoarthritis and osteoporosis, slows down muscle and bone loss, improves mood and quality of life, and helps to sleep better. Physical activity enables to prevent many diseases, such as type 2 diabetes and cardiovascular diseases. It may also reduce the risk of dementing illnesses such as Alzheimer's disease. Physical activity also has a positive impact on the ability to pay attention, and on the speed of processing information for both those with good health and for elderly people suffering from the impairment of brain functions.

Sitting even just for 20 minutes sends your brain a message that it is a time for rest. Therefore, it is advisable every once in a while to get up and move around often enough to keep your brain and body awake and active.

**Different physical activities affect health differently. The best results are achieved when they are versatile:**

- The oxygen supply to the brain and lungs will improve.
- The bones' get stronger
- Muscles get stronger, and the sense of balance improves
- Physical activity improves the sugar balance, thus reducing the risk of diabetes.
- The blood pressure decreases.
- Immunity improves
- The mind is recharged and refreshed.

For most elderly people, the common diseases should usually not be a reason to stop physical activity. On the contrary, physical activity may prevent many diseases from getting worse and facilitates coping with daily chores.

## Aging changes the body

Aging is accompanied by various changes in the body. All physiological changes, however, do not start at the same time. Changes in the body reduce performance ability.

Changes in our body caused by aging:

- Impairment of physical performance.
- A decrease of cardiac function, reduction of heart-pumping power and the size of internal organs.



- Deterioration of muscle power, reduction of muscle tissue and an increase in the proportion of adipose tissue.
- Restriction of the mobility of joints.
- A decrease in basic metabolism.
- A decrease of body fluids and bone mass, and a decrease of the mineral content of the bones.
- Deterioration of the sense of balance.

## Benefit from everyday chores

Incidental physical activity related to everyday tasks is often left unnoticed and just done alongside other activities. This means homework, running various errands, and other daily activities. Cleaning, cooking, yard raking, snow work, shopping, berry picking, and fishing are all beneficial everyday activities and conveniently within everyone's reach.

Regarding daily activities as a form of physical activity could well be a way of thinking – a decision to improve health with little daily choices. You may take stairs instead of the elevator, even just for a couple of floors; you may get off the bus some stops earlier or park your car a little further to walk part of the way. This kind of physical activity by doing small daily deeds does not, however, as such usually improve your health condition or help to lose weight.

The safety of physical activity should always be ensured: you should listen to your body and, if necessary, use aids such as walking sticks or poles. The primary reasons for regular physical activity are health-related factors, feeling of well-being caused by it and the possibility to spend time with other people. Physical activity improves the quality of life – increases intellectual ability, boosts self-confidence and improves sleep quality.

## Recommendations

Exercising your body and mind is good. All kind of exercise is good for the brain; however, there is no need to break a sweat. Even walking daily for half an hour helps to maintain good health.

You shouldn't take physical activity as a row of random acts but rather as a way of life. If you haven't had any physical activity earlier, you should start carefully. Add intensity and time spent on it only later on.

If you are on a medication such as cardiac or antihypertensive medicines, contact your doctor before increasing the intensity of physical activity.

### Physical activity should be

- regular, continuous and repetitive.
- daily, if possible
- lasting long enough: 15 minutes to 1 hour at a time. Daily physical activity may also be done by 15-minute cycles.
- Mild gasping and sweating are good for health.

The fact that you are aware of the benefits of physical activity does not necessarily motivate to start or continue with it. The most decisive factor for starting and going on is your own will and faith in your abilities. Once you are on the way, you are rewarded by feeling good.

Easy exercises may be found on the website [www.voimaavanhuteen.fi](http://www.voimaavanhuteen.fi).

It is never  
too late  
to start with  
physical activity!



	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SARURDAY	SUNDAY

Icons: Ingimage



## 7. Outdoors

Nature is a safe, calming environment that gives strength. The green environment has provenly many positive effects on physical fitness and especially on mental health. Spending time outdoors maintains the ability of elderly people to function and connect with the environment. Connection with nature improves the quality of life in many ways.

The forest environment activates memory functions and increases physical and mental resources. Forests provide many opportunities to enjoy nature. Nature can be experienced through different senses: by watching, listening, touching, smelling and tasting.

### Up, out and about into nature

There are many ways to spend time outdoors and enjoy nature. Nature meets you right on the other side of your front door. For sure, the countryside provides more possibilities to explore nature; however, you can enjoy trees, plants, and animals also in the courtyards and parks of a city.

We are a part of nature, and for us, nature with its birds, butterflies, plants, trees, bushes, and flowers is an important source of energy. Enjoying nature does not require much – just stop for a moment and look around you. Everyone can choose according to his/her physical condition and health whether to go to the park, nature trail or for a hike in the woods. Just a walk on a forest path alone will help to train and maintain your sense of balance.

Picturesque landscapes, walks at a sea or lake shore, climbing a hill, wandering in woods, meadows or fields are all such wonderful experiences. One of the riches of Finland is its four seasons, each with its specific charm.

### In the woods together

In nature, time may be spent alone or together with someone else. It is nice to listen to the sounds of nature in a good company, share your nature experiences and tell stories and legends related to nature. Finnish nature is diverse and exploring it can be rewarding for everyone.



The field days of the ETNIMU project in 2015–2017 were arranged in these surroundings.

In nature, it is good to listen to your inner self. Here you may relax and forget or, vice versa, recall past events and experiences. Nature provides nourishment for all senses:

- Through eyes, you can enjoy the beauty of nature, the sunrise, and sunset.
- Ears convey the singing of birds, a whisper of trees and the burble of water.
- Nose smells the scents of nature.
- With tongue, you taste the flavours of berries.
- Hands touch various objects and materials.

## Everyman's rights

Everyman's right determines what you may do in the wilderness. It regulates everyone's right to roam, hike, exercise, spend time in nature, and to pick and collect natural products on land and waters belonging to somebody else. People exercising the everyman's right are responsible for not causing harm to owner's property and interfere with the landowner's use of land.

### You have the right to

- walk, ski or bike in nature except in the immediate vicinity of people's homes and at the areas of special use (such as cultivated fields and plantations)

- camp out temporarily (for example bivouac at a reasonable distance from other people's homes)
- pick wild berries, mushrooms, and flowers
- angle and ice fish
- use inland waters and the sea, spend time on frozen waters.

### You are not entitled to

- disturb people and damage property or environment
- disturb wild animals and the nesting of birds
- cut down or damage trees
- collect moss, lichen, soil or fallen trees
- disturb the privacy of other people
- litter
- drive motor vehicles off the road without the landowner's permission
- fish or hunt without appropriate permits

In comparison with many other countries, the everyman's rights in Finland are rather extensive. You may quite freely enjoy nature and countryside with its riches – pick berries, flowers, and mushrooms. Thus, spending time outdoors in the wild is beneficial in many ways: it is good for your senses, health condition and moreover – a nice addition to your diet.



## 8. Nutrition

Nutrition is an important pillar of health. Versatile nutrition supports health and performance and helps among other things to prevent cardiovascular diseases, type 2 diabetes, and high blood pressure. Healthy eating habits are also one of the best ways to improve brain health.

Food is so much more than just nutrients: it makes us feel good and, moreover: it's just nice to gather together around the table. Eating is also an important part of any culture and associated with strong memories. People are often accustomed and learned to certain specific cultural traditions concerning when they eat, what they eat and how they fast.

### Food affects health in many ways:

- For physical wellbeing, it is important to get enough energy and nutrients.
- Mental wellbeing is enhanced by tasty food and nice environment.
- Social wellbeing includes hospitality, having a meal together, passing on traditions, and arranging festivities.

### Nutrition and aging

With aging the importance of nutrition increases. Among elderly many diseases become more common and may affect eating. The senses of taste and smell deteriorate, which may reduce appetite. Dementing illnesses are often associated with a decrease of thirst and appetite. In senescence, it is important to take care of oral and dental health because this too has an impact on the versatility of food.

### Senses of taste and smell

The ability to detect salty and sweet fades away with aging and may reduce appetite.

### Teeth

The condition of mouth and teeth affects the intake of food and nutrients. It becomes more difficult to eat fresh fruit and vegetables and other foods that require chewing.

### Secretion of saliva

The secretion of saliva is encouraged by proper chewing of the food and by eating fiber-rich food such as bread, nuts, vegetables or fruits, as well as by lukewarm lemon juice.

With aging, we need less of energy as the amount of active, and energy-consuming tissue in the body decreases and the metabolism slows down, and we tend to move considerably less. This means that we may not get enough important vitamins and minerals and the risk of malnutrition increases. People who are overweight may also suffer from malnutrition if the quality of their diet is poor. Inadequate nutrition may be one of the factors affecting the course of various diseases, such as dementing illnesses, depression, impaired cerebral circulation, falls, and getting hip fractures.

### The symptoms of malnutrition may be manifested as

- weight loss
- weakness
- fatigue
- depression
- susceptibility to infections
- slow wound healing
- muscle loss
- muscle frailty and deterioration of muscle power.

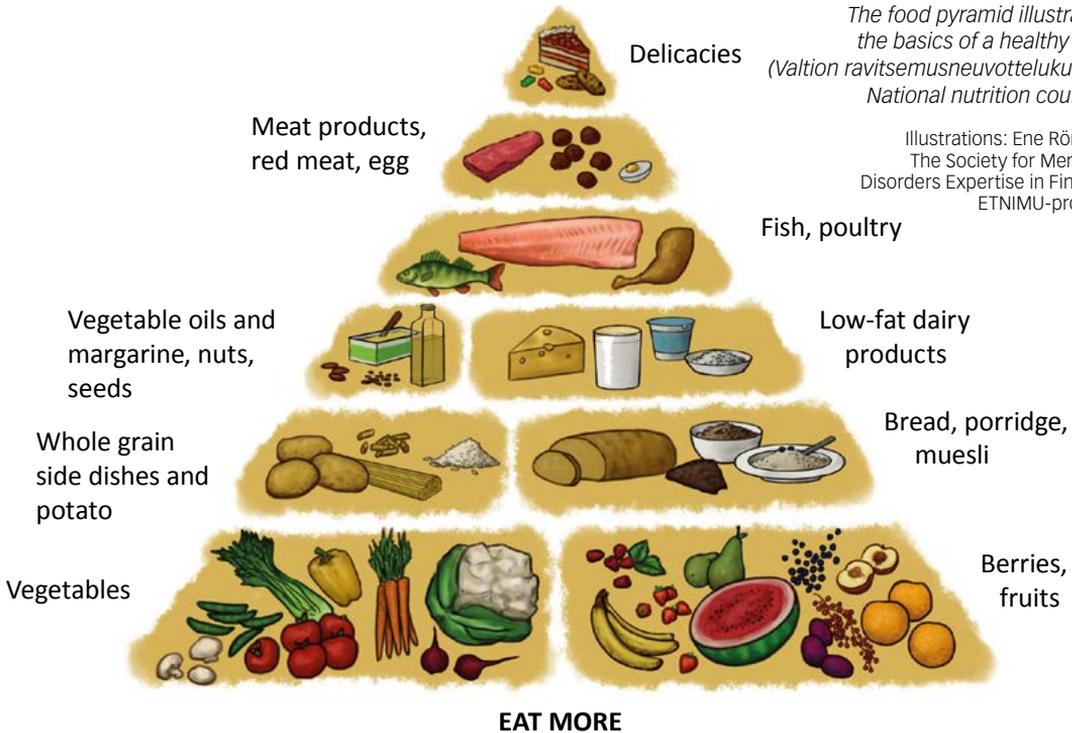
With aging, it is important to keep a steady weight. Losing weight is in general not recommended because it brings along the loss of muscle tissue, which is so important for maintaining performance ability.

### Varied diet supports health and performance ability

A healthy diet is diverse and contains plenty of vegetables, berries, fruits, and whole grain products. The food pyramid built out of recommended foods depicts the size of different food groups in a healthy diet. You should consume more of the food groups at the base

It is never too late to change your eating habits.

## EAT LESS



*The food pyramid illustrates the basics of a healthy diet. (Valtion ravitsemusneuvottelukunta/ National nutrition council)*

Illustrations: Ene Rönkkö  
The Society for Memory Disorders Expertise in Finland, ETNIMU-project

of the triangle and less of the ones at the top. A healthy diet may be developed in many ways taking into consideration your own preferences.

### It is important to eat at regular times

It is important to eat at regular times. In addition to the three main meals of the day – breakfast, lunch and dinner –, snacks should be enjoyed when needed. As age increases, the importance of snacks also increases, especially when the appetite is poor. Nutrient-rich snacks help to improve the intake of nutrients. Also, eating an evening snack is important to keep the blood sugar level falling too much during the night.

The plate model helps you to put together a balanced meal. Half of a plate should be filled with fresh or cooked vegetables, about one quarter with proteins, i.e., fish, meat or egg dish and one quarter is left for carbohydrates, for example, potatoes, whole grain rice or pasta.

### With aging the need for proteins increases

Protein is required to keep up muscle functions and resistance to diseases. Elderly people need

more protein than young ones.

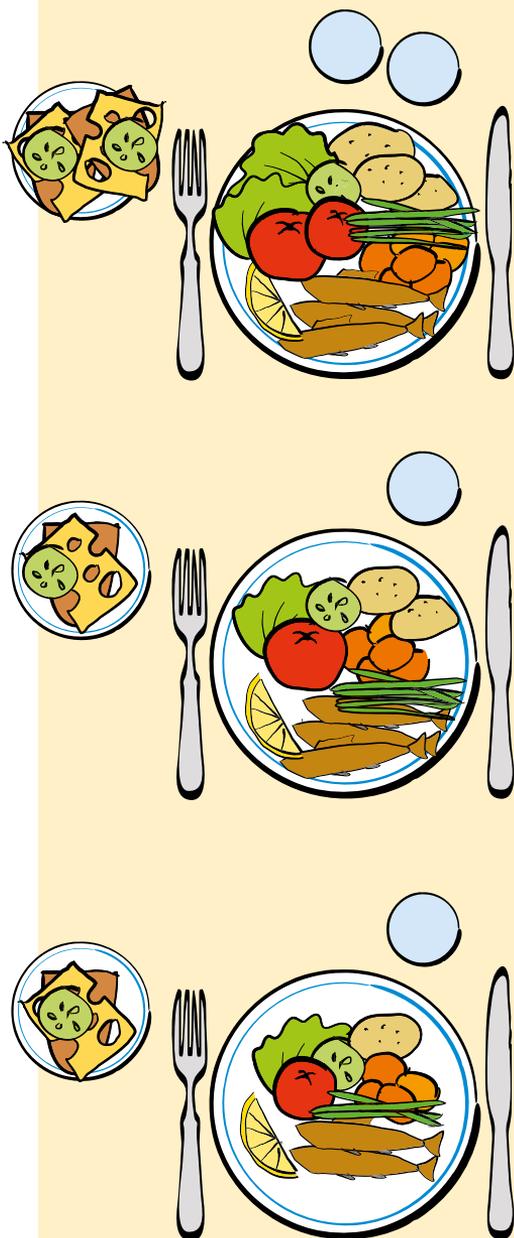
Insufficient supply of protein may cause powerlessness and diseases. Healing of wounds also slows down. Short supply of proteins together with little physical activities accelerate muscle loss, making moving around more difficult, impairing performance ability, and increasing risk of falling.

Adequate protein supply may be ensured by having protein containing food at every meal. Good protein sources are fish, chicken, meat, milk products, and eggs. Good plant-based sources of protein are legumes and nuts.

### Wide selection of vegetables

Vegetables, fruits, and berries should be included in every meal since they are containing plenty of vitamins and minerals needed for the body. In summer and autumn, you may enjoy fresh domestic produce. In winter, frozen vegetables are a good alternative as their nutritional values are proven to be equal to fresh.

Fruits and berries are a good source of vitamin C. Vitamin C strengthens immunity, prevents inflammation and improves iron absorption. Mild vitamin C deficiency may cause fatigue, muscle pain, weakness, loss of appetite and shortness



*The plate model helps to put together a balanced meal.  
(Valtion ravitsemusneuvottelukunta/  
National Nutrition Council)*

of breath. The content of vitamin C in vegetables, fruits, and berries varies a lot, so these should be used in as big a variety as possible. Plants contain in addition to vitamin C also other nutrients beneficial to health.

## Good fats promote health

The body needs for the functioning of blood vessels, joints and the brain the essential fatty acids from soft fats. Excellent sources of good fats are fish, vegetable oils, nuts, seeds, and avocado.

It is recommended to eat fish 2–3 times a week varying the fish type. The omega-3 fatty acids in fish affect the brain in many ways; they are part of the brain structure, have an anti-inflammatory effect and are also good for blood vessels. Nuts contain in addition to good fats also fiber and a variety of micronutrients important for the body. 1–2 tablespoons of nuts and seeds should be eaten daily, being a perfect option for snacks. It is good to add oil-based salad dressings to salads, and it is recommended to use margarine on bread.

## An adequate amount of fiber

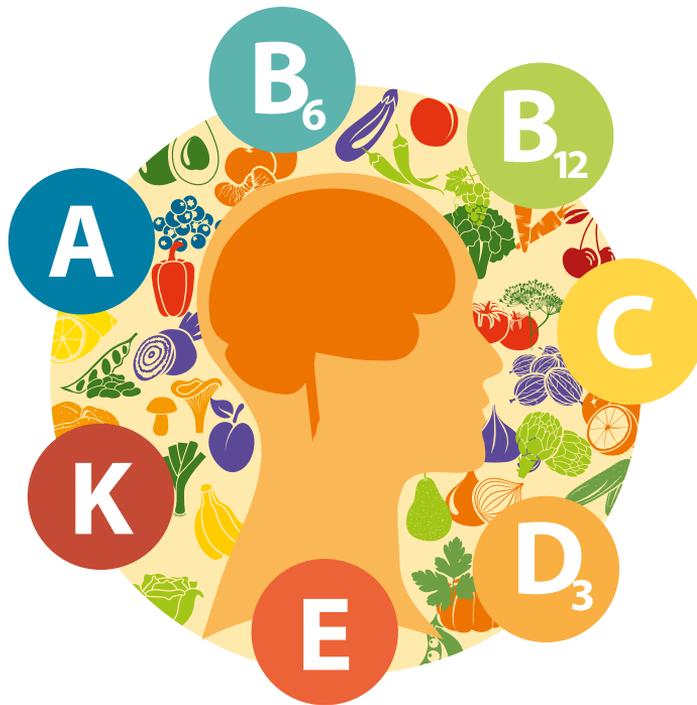
Dietary fiber is important for digestion, reduces blood cholesterol levels and balances blood sugar. Dietary fiber refers to the dietary carbohydrates that are not absorbed by the intestines. Fiber-rich foods contain a lot of vitamins and minerals. Good sources of fiber are whole grain bread, porridge, whole grain rice and pasta, and vegetables, such as peas, beans, lentils, nuts, seeds and bran, and berries, fruits and vegetables. The recommended amount of fiber is at least 25 grams a day.

## It is important to get enough fluids

Regular drinking is important because the amount of water in your body decreases with age. Elderly people are thus more prone to dehydration. You should drink daily 1–1.5 litres of fluids. Insufficient supply of fluids may cause fatigue, headache and muscle cramps.

## Bone health

Calcium and Vitamin D are needed to maintain the good condition of bones. A good source of calcium are milk products. The daily calcium requirement is 800 mg and this, which may be gained with four



milk portions. One milk portion is for example 2 dl of milk, soured milk or yogurt, or 3–4 slices of cheese. Vitamin D is needed for calcium absorption and is also important for the immune system. Vitamin D is mainly derived from fish and has also been added to liquid dairy products and margarine. Vitamin D is synthesized in the skin upon exposure to the sunlight. With aging, this synthesis slows down and therefore it is recommended that elderly take daily additional 20 micrograms of vitamin D round the year.

### Aging and alcohol

With aging, the effects of alcohol are stronger as the body's fluid content decreases and metabolism slows down. Alcoholic beverages contain a lot of energy and sugar and no nutrients. Excess alcohol consumption increases the risk of dementing illnesses. Elderly are not recommended to drink more than one alcohol unit at a time and more than seven units a week.

### Everything in moderation

When the basis of your diet is right, you may also enjoy delicacies in reasonable amounts. Coffee and dark chocolate contain many healthy compounds. You may freely, without a second thought, enjoy 3-4 cups of coffee a day. Dark chocolate (70 %

contains many health promoting compounds, so this too may be enjoyed reasonably.

## Nutrition and medication

With aging, it is common to take more medicines. In your diet, you should pay attention to the medicines you take.

### Medicines may have various effects on nutritional status. Medicines may:

- Stimulate or suppress appetite.
- Cause irritation of the gastric and intestinal mucosa and impair absorption of nutrients.
- Cause changes in senses of taste and smell.
- Decrease saliva secretion and complicate chewing and swallowing.

Consult  
your doctor  
and pharmacist for  
advice on  
taking medicines.

## 9. Sleep and sleep disorders

Sleep is essential for our body. When we stay up for a prolonged time, our performance drops dramatically. If we don't have enough sleep, we are grumpy and tired for the whole day and have a feeling that we can't cope with anything.

A good night's sleep is a basis for a healthy and full life, which should be supported by a balanced diet and adequate levels of physical activity.

**DEEP SLEEP** is the time for physical recovery when the body's energy reserves are recharged. During deep sleep, the breathing, heartbeat and blood pressure are calm and steady. In the deep sleep stage, the body rests, and the brain is asleep.

**Sleep's role:**

### 1. PHYSICAL REST

During sleep the body rests and recovers, the heart rate slows down, and blood pressure drops. Breathing slows down, and body temperature drops as the cerebral circulation decreases.

### 2. RETENTION OF MEMORY

During sleep, the brain processes information about what has happened and what has been learned transferring it from the short-term memory to the long-term one.

### 3. MENTAL REST AND RECOVERY

Sleep is essential for both physical and mental recovery. Mind and brain require sleep to recover from fatigue, restore vitality and perception and have good feelings.

### 4. FIGHTING INFECTIOUS DISEASES

Sleep affects hormones and the immune system, protecting thus the body from inflammations.

### 5. MAINTAINING A HEALTHY WEIGHT

Sleep affects our metabolism.

## Stages of sleep and the sleep-wake rhythm

Stages of sleep consist of light sleep, deep sleep, and REM or rapid eye movement sleep.

**LIGHT SLEEP** is a drowsy sleep stage between being awake and asleep, it is generally not considered a sleep.

**REM-SLEEP** is characterized by brain activity, whilst breathing, heart rate, and hormone balance are irregular. The experiences and emotions of the day are organized and may be repeated. REM-sleep is very important for learning and memorizing – this may be called the rest stage of the mind. It is also the stage when most of the dreaming happens. If the sleeper is awakened during REM sleep, s/he remembers the last dream crystal clearly. Deep sleep and REM-sleep alternate through the night. During deep sleep, we acquire knowledge and during REM-sleep various skills.

Sleep is controlled by internal circadian rhythm, which is synchronized, among other things, by light, work, and various daily routines. People are by their nature either morning or evening persons, which should be considered when planning circadian rhythm and arranging daily work and hobbies. The darkness hormone melatonin regulates circadian rhythm and hormone secretion. It signals the body when it is dark and time to go to sleep.

## Need for sleep, lack of sleep and sleep debt

The need for sleep is very individual and differs from person to person. Sleep needs changes with age, and it also depends on hereditary factors and activity levels. With aging, the need for sleep declines, especially when one takes a nap during the day.

When assessing the need for sleep, you should take into consideration your current life stage and



situation. It is generally defined that we need to sleep 7–8 hours per day. It is important to wake up feeling well-rested and alert.

Sleep deprivation or lack of sleep refers to a situation when you sleep less than you need. Constant lack of sleep causes sleep debt. Common reasons for lack of sleep include depression or delayed sleep phase syndrome, which causes to wake up too early in the morning and lack of refreshing sleep. Lack of sleep and sleep debt affect the functioning of the body and metabolism in many ways, causing, for example, the overactivity of thyroid function and increased heart rate

## Sleep and aging

Sleep affects the health and performance ability of an aging person in many ways. Aging comes with many changes, which are not symptoms of diseases but just a part of the natural process of getting old. With age, the quality and structure of sleep and sleeping also change.

The time of deep sleep decreases. When the amount of deep sleep out of an eight-hour sleep of a young adult takes up to 1.5 hours, it is for elderly people only 20-30 minutes. Sleep becomes shal-

low and disrupted. Sleep is lighter and is easily disturbed by external stimuli. Elderly people wake up frequently during the night, especially in the early hours and have trouble falling back asleep.

Light exposure causes early awakening, which interferes with the circadian rhythm. In the worst case, it messes up the functioning of your internal clock. For a good night's sleep, it is advisable to take care of the internal clock by getting enough light during the day, preferably by outdoor activities. Napping during daytime refreshes both physically and mentally, maintains a positive mood and promotes the remembering and learning abilities. However, sleeping several hours during the day should be avoided, because this interferes with night's sleep.

## Insomnia

Insomnia is the most common sleep disorder and almost everyone suffers from it at one time or another. Insomnia is a state in which people regardless of how much they try are not able to fall asleep when they want to, can't stay asleep or wake up too early. Insomnia may be caused by many factors, which are either physical, mental or environmental.

Lifestyle also affects the quality of sleep and may thus cause sleeplessness. Heavy physical activity activates the secretion of stress hormone and may make falling asleep more difficult. Therefore, heavy physical activity is not recommended close to bedtime.

Temporary insomnia is common. It is important to distinguish between a temporary insomnia symptom and insomnia disorder, which is developed into disease and requires treatment.

### **Insomnia may be divided into four groups:**

1. Difficulties falling asleep at night
2. Disrupted sleep and staying awake at night.
3. Waking up too early in the mornings.
4. Waking up and being still tired.

Insomnia is not a disease; it is a symptom of some condition. For treatment, it is critical to find out the underlying cause of insomnia.

### **Common causes of insomnia are:**

- tension
- anxiety
- poor sleeping habits.

Insomnia is developed in the crossroad of many different factors. It may begin from a change in life situation to which sleeplessness is a natural response.

### **The underlying reasons for insomnia may include:**

- poor sleeping habits and conditions
- personality traits (for example, if a person is stressed easily)
- diseases and the symptoms of diseases
- medicines
- alcohol
- caffeine-containing beverages such as coffee and cola drinks
- hypervigilance

If insomnia persists, it increases the risk of many diseases and injuries and impairs the performance ability and quality of life.

Diseases associated with insomnia are, among others, rheumatism, degenerative brain diseases, dementing illnesses such as Alzheimer's disease and Parkinson's disease, and lung diseases such as chronic obstructive pulmonary disease. Thirst and increased need for urination induced by diabe-

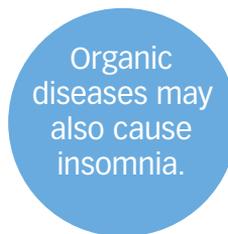
tes or hyperthyroidism may also cause insomnia. Sleep apnea, restless legs -syndrome or chest pain may interfere with sleep. Chronic heart failure may also affect sleep.

### **As a disease, insomnia may be classified according to its duration:**

**TEMPORARY INSOMNIA** (less than a month) is often associated with stress or changes in regular sleep order such as time difference. Temporary insomnia is common, and it passes quickly after the stressful factor is over or eliminated. It may be caused by transient stress, sleep-wake rhythm disorders or other life-burdening factors.

**SHORT-TERM INSOMNIA** (1–3 months) may be related to changes in life, a disease or mourning. It lasts longer than temporary insomnia but is still healed when the life stabilizes.

**LONG-TERM CHRONIC INSOMNIA** (more than 3 months) may be caused by different factors, which often occur at the same time. Chronic insomnia is associated with several memory disorders. Persistent or chronic insomnia is caused by a constantly stressful situation of life or depression. It is critical to treat chronic insomnia, as it impairs the ability to function, exposes to many physical and mental illnesses and may even increase the risk of mortality.



## **Recommendations for a good night's sleep**

Sleeping disorders are very individual and therefore should also be taken care of individually. There are, however, some general recommendations, which might help to ensure a good night's sleep and get sleep.

If you want to take care of your insomnia by yourself, it is important not to be afraid of it. The more you fear insomnia, the harder it is to get sleep or fall asleep again after waking up at night.



Recommen-  
dations  
for a good  
night's sleep

**In the morning and during the day**

- Wake up every day about at the same time.
- After waking up, don't stay lying in it but get right up.
- Regular daily rhythm is good for sleep.
- Physical activity is important
- Short daytime naps (15–20 minutes) in the early afternoon do not affect night's sleep.
- Avoid or limit the use of alcohol and nicotine.
- Take breaks during the day and relax.
- Deal with your problems during the day, do not delay them till bedtime.

**In the evening and at night**

- It is good to relax and calm down for about two hours before going to bed.
- It is good to have a light meal in the evening, however, don't drink too much before going to bed.
- Sleep is better in a dark, quiet bedroom that is not too cold or too warm.
- The bed is a haven, where you do only things that enhance sleep.
- Go to bed only when you feel sleepy.
- Sleep cannot be forced: if it doesn't come, get out of the bed.

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Tuominen, Jari, Doctor of Chemistry, Kenzen Oy

Urberg, Karl, general practitioner, Terveystalo Lahti

# Engagement with persons suffering from dementing illnesses

## 1. Treat in a respectful manner

Be calm and consistent. Don't get upset, persons with memory disorders are not mean on purpose.

## 2. Talk like an adult to an adult

Speak to the person with memory problems, even if s/he doesn't always respond. This activates the functioning of the brain.

## 3. Bring back to the present moment

Go together through everyday issues, even if they will be forgotten. Repeat the days, years, the day of the week, time of day, upcoming events, etc.

## 4. Do favourite things

When the patient suffering from dementia is kept busy s/he may be able to grab the moment. Do things that s/he used to like. Organize surroundings, browse photos or go outdoors for a walk.

## 5. Remove mirrors

As the disease progresses, some diseased may take fright when they see their mirror image, because they don't recognize their own face. So, remove the mirrors to avoid this.

## 6. Direct the conversation down a different path

When the elderly tell memories, ask questions or share your own experiences. This enables you to direct the conversation and get forward.

## 7. Try kindness and affection

Does the elderly at times consider the war-time a current reality? You may comfort the panic-stricken person by taking his/her hand and reassuring that everything is going to be OK.

## 8. Don't forget that s/he is also frightened

The personality changes of a loved one suffering from dementia may be very confusing for the family. Don't forget that the situation is as frightening to him/her. People with dementing illnesses try to preserve their quality of life, to succeed, they do not understand why they feel the way they feel.

Home Instead Seniorhoiva (Home Instead Senior Care) together with the Society of Memory Disorders Expertise in Finland compiled a guidebook about engagement with people suffering from dementing illnesses including practical tips for everyday challenges, which you will hopefully find helpful. You will find more tips from the guidebook. **Download the guidebook from [www.homeinstead.fi](http://www.homeinstead.fi).**

# Behavioural changes in people suffering from dementia

Repeating things is one signal of behavioural changes, which are characteristic for people with dementia. Refusal, delusions, aggression, false accusations, wandering around and anxiety are also common. Behavioural changes may be very challenging for the people close to the diseased.

How to deal with these changes? In challenging situations, you may try for example the following techniques:

## 1. Direct attention elsewhere

When speaking for the first time about something that makes your loved one with dementia worry, answer the questions calmly and comprehensively, reassuring that everything is in order. If this doesn't work, direct the conversation elsewhere, by asking for example: "What is your favourite Christmas memory?" or "What would you like for a present?" or "What is your favourite Christmas dish?" Sometimes it is soothing when the topic is discussed more widely from a different perspective. This takes attention away from the repetitive question and relieves anxiety.

## 2. Use as help the life story of the person with dementia

For example, if we know that the person with dementia loves pop music or knitting, we may direct in a respectful manner the conversation to the topics that s/he likes.

## 3. Remove of place elsewhere the disturbing objects

If some factor or object causes anxiety in the person with dementia, the removal of the object may ease the situation.

## 4. Give simple options

People suffering from memory disorders need a sense of control in complicated situations. This is easier by giving simple options. You may, for example, ask: "Speaking about Christmas, would you like to offer ham or turkey this year?"

## 5. Apologize or take the blame for what has happened

Apologizing or taking the blame (even if you are not guilty) helps to alleviate a tense situation. When the diseased realizes that s/he was not to blame, it may help him or her to calm down. In that case, you may apologize that you didn't regard his/her Christmas plans with proper consideration. After you have apologized, the conversation may be directed to another topic.

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# Early signs of dementing illnesses

Dementing illnesses are often connected with changes in personality and behavioural changes deviating from the normal patterns. Sometimes it may be difficult to distinguish common age-related troubles from the symptoms of a dementing illness. Here are ten symptoms that are normal when occurring occasionally but may be a sign of an onset of a dementing illness when they become more common.

## 1. Memory problems that interfere with everyday life

One of the clearest symptoms is memory loss, especially the forgetting of newly acquired information.

*Normal: Occasional forgetting of names and events, which will be usually recalled later.*

## 2. Difficulties in planning and problem solving

As the memory disease progresses, the planning and implementing of plans, as well as working with numbers may become challenging.

*Normal: Occasional errors in paying bills.*

## 3. Difficulties in performing familiar chores

People suffering from a dementing illness may find it difficult to remember driving directions, perform job-related tasks or even understand the rules of a card game.

*Normal: A temporary need for help with microwave instructions or using remote control.*

## 4. Confusion about time and place

People suffering from dementing illnesses may lose understanding of dates, seasons and time.

*Normal: Mixing up the days of the week when telling a story, and correcting the mistake afterward.*

## 5. Problems in understanding visual images and spatial perception

A dementing illness may for some people cause eye disorders, in which case they don't, for example, recognize their reflection in the mirror.

*Normal: Visual disorders caused by cataract*

## **6. Problems with speaking and writing**

People suffering from dementing illnesses may find it difficult to join a conversation or follow it.

*Normal: Occasional difficulty to find suitable words.*

## **7. Losing things and difficulties finding them**

People with dementia may leave their belongings to unusual places and even accuse others of stealing.

*Normal: Leaving objects such as eyeglasses occasionally in the wrong place.*

## **8. Impaired or poor judgment**

With the progression of dementia, the decision-making and judgment abilities may deteriorate.

*Normal: Making a bad decision at times.*

## **9. Withdrawal from work or social activities**

The people suffering from a dementing illness may unconsciously withdraw from their favourite hobbies or start to avoid social events or refuse work projects.

*Normal: Temporary unwillingness and weariness to take care for work, family and other duties.*

## **10. Changes in mood or character**

Dementia may make a person confused, suspicious, depressed, frightened or anxious. S/he may easily get upset both at home and work, in the company of friends and in new places, where he or she feels uncomfortable.

*Normal: Being used to one's own habits, which makes a deviation from familiar routines irritating.*

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*The groups participating in ETNIMU-project improving brain health. Our deepest gratitude to all group members and leaders: without you, this project would not have been possible!*

## Final words

The memory may be protected in the same way as the heart and blood vessels: by physical activity, healthy eating habits and an active lifestyle.

Everyone should consider which risks related to brain health and memory they face and how they can protect themselves from these risks.

It is advisable to target permanent changes by making small steps at a time.



This guidebook is developed by the Society for Memory Disorders Expertise in Finland in the framework of ETNIMU-project.

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SUOMEN MUISTI-  
ASIAANTUNTIJAT

