

## Overview of Dementia (Progressive Memory Disorders) (Revised 3/1/06)

### Basics of Dementia

#### Session 1: Treatable Memory Disorders

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#### Purpose of Basics of Dementia

The purpose of the series of educational sessions called **Basics of Dementia** is to describe briefly memory and memory disorders. The focus of the series has two parts: first, a focus on some of the symptoms and behaviors associated with progressive memory disorders and, second, a focus on helps for the involved family.

**Basics of Dementia** is divided into three different sessions. The three different sessions cover: 1) **Treatable Memory Disorders**, 2) **Vascular Memory Disorders (Vascular Dementias)**, and 3) **Progressive Memory Disorders**.

This first session discusses *Treatable Memory Disorders*.

#### Purpose of Session 1

Session 1 covers four points, 1) memory changes and aging, 2) importance of medical evaluation, 3) treatable memory disorders, and 4) health helps and resources. These four points are listed in the following Table 1.

**Table 1. Purpose of Session 1**

1. Memory changes and aging
2. Importance of medical evaluation
3. Treatable memory disorders
4. Health helps and resources

## Understanding Memory

Changes occur in the function of human memory ability as a person ages. To understand memory function, it may help to describe memory in two ways. One way we describe memory is to talk of it in terms of time, as either short-term memory or long-term memory. Another way we describe memory is to talk about two different systems of memory, the system of memory for details and meaningful facts or the system for procedures and routines.

**Table 2. Memory**

1. Short-term memory
2. Long-term memory
3. Memory for details
4. Memory for actions and routines

### Memory

Good general memory is critical for learning and to benefit from past experiences. There are different types of memory. Often we talk about memory in terms of time, what happened a few seconds or minutes ago or what happened many hours or years ago. These two time-related ways of describing memory are referred to as *short-term memory* versus *long-term memory*.

**Short-term memory** involves information that needs to be stored for a brief period, maybe a few seconds or a couple of minutes, for example, remembering a telephone number long enough to dial it and then forgetting it. Another example is remembering a person's name for a brief time and forgetting it. We forget the telephone number and the person's name because we no longer need to hold onto that information. More often, we want to remember the person we just met or are talking to now.

People may want to remember the news they just learned from a friend, the television broadcast or their personal physician. Forgetting recent information which you want to remember is a short-term memory loss.

**Long-term memory** refers to the information stored in the "memory banks" of the brain for some time. This time may be the day before or many years ago. For example, the information may relate to a situation that occurred the day before such as watering the bushes during a conversation with a neighbor or paying the monthly bills. The long-term memory may involve something from many years ago, such as the name of the teacher or a friend in the first grade.

Forgetting details of an event from many years ago is called a loss in long-term memory or loss in remote memory.

**Memory for details** may be called the “what memory” or “declarative memory”. It is the memory system for details, facts and events. Memory for details relates to remembering specific pieces of information such as the names of people, the names of objects, or the time and place of an event. For example, remembering the name of a neighbor, the type of tool being used for yard work, and the time and place of an appointment involve memory for details.

**Memory for actions and routines applies to skills.** This memory system may be called the “how to” or the “procedural” memory system. This memory system holds the steps of routine actions such as walking or riding a bike as well as the actual routine (daily, weekly or monthly) schedule. The “how to memory” includes behaviors we do without thinking too much about the steps involved. We do not think about each little step needed to dress ourselves, to prepare the morning coffee or tea, or to sit in a chair. We routinely take in the morning newspaper before we sit down for breakfast, go shopping on Thursday, or clean our teeth and mouth before bedtime. These actions are almost automatic because the steps for these tasks are stored in our memory for routines.

There are differences in brain cells that store memory for details versus those cells that hold memory for routines. This is one reason why a person may not be able to remember the names of articles of clothing but may be able to dress without help.

Change in short-term memory, long-term memory, memory for details, or memory for routine behaviors may be the first warning sign about health changes occurring in brain cells.

### **Memory Changes with Aging**

As a person ages, there are changes in the ways the brain works to remember. Memory is critical for learning and to benefit from past experiences; remembering what happened before helps people deal with daily life.

Generally speaking, young people store and recall information more readily than older people. A typical teen-ager can remember information quickly even if the information is new and totally foreign, for example in learning a new language, the names and words of popular songs, the directions in new computer programs or the names and the new models of cars or trucks.

As we age, some age-related changes occur in memory ability. In middle-age new information must have some meaning and value in order for it to stick in the memory system. Brand new information takes a great deal of effort to store. For example, it is much easier to learn a language that was familiar during childhood than to learn a brand new language.

As people mature over the age of 75 there seems to be a slowing of general body processes. It begins to take longer for people to move and to think things through. They need more time to make decisions and to make new information stick in their brain. Research shows that there is a

slowing in an older person's ability to store and recall the information. It takes more effort to remember someone's name, titles of books, street names and specific details of memories. This point is emphasized in the following Table 3.

<p><b>Table 3. In older people information takes:</b></p> <ul style="list-style-type: none"><li>a. More time to get in.</li><li>b. More time to get out.</li></ul>
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### **Paying Attention to Help Memory**

Older people should help their memory by working hard to pay attention to the speaker and to avoid distracters such as other noise in the room or being busy with tasks. It should help to look at the speaker, listen carefully, and repeat the information, especially the details, back to the speaker. It also helps to think about the meaning of the message, to link the words in the message to other ideas or memories, and to group similar words. Since it may take longer for the older brain to process messages, it is important to allow enough time for the memory to become clear.

### **Brain Cells (Neurons)**

The main cells of the brain that store and use information are called **neurons**. There are about 100 billion neurons in the brain and many other cells including stem cells that support the health of the neurons. As a result of general health changes that affect the health of the brain cells, there may be physical changes in the brain. As a result, the neurons (brain cells) may be unable to function well. Then these neurons may weaken and become unable to send clear, accurate messages to each other. They may not be able to send messages at all from one neuron to the next one.

Thus the person may not be able to store information in the memory or do other thinking activities such as adding numbers or holding a conversation with others. As the neurons continue to weaken, the person may fumble at tasks which they once performed smoothly and quickly on the job or at home. The person may become unable to complete simple tasks such as getting a coat and putting it on or finding a glass and filling it with water. The decline in memory or thinking function is called **dementia**.

### **Dementia**

Dementia is the decline of mental abilities while the person is awake and alert. The decline occurs to the point where it interferes in daily routine functions. The decline may involve memory, knowledge, decision skills, communication or a change in the ability to do daily chores such as driving the car, cooking, spending time with friends over lunch or at a meeting in a place of worship. There may be a change in personality.

**Table 4. Dementia (de...mentia)**

de = decrease or decline

mentia = thinking

Decline in memory and thinking ability while alert and awake.

People with dementia may have difficulty with tasks that were once easy for them to do. They may forget names or if they just had breakfast. They may forget the way home from the grocery store though they have used the same route for many years.

A decline in the ability to remember, to focus on a simple conversation, to count change at the store, to write out a check to pay a bill or to operate household machines such as a washer and dryer are strong signals. These are signals warning about possible health changes that should be addressed as soon as possible.

When there is a change in memory ability or other thinking function, such as shown in the following Table 5, a medical evaluation is critical.

**Table 5. Medical evaluation important when:**

1. ↓ Short-term memory
2. ↓ Routine skills @ home, @ job
3. ↓ Communication skills
4. ↓ Math skills (change, checkbook)
5. ↓ Hand skills
6. May be self-aware or unaware of ↓ abilities
7. Changes in personality

**If memory or thinking ability drops, a full medical evaluation is critical!**

## **Impact of Health Changes on Memory Disorders**

Ten to fifteen percent of memory disorders relate to health changes which may be corrected. Some of these changes involve hormones being off-balance such as high or low thyroid levels. Examples of problems include a vitamin deficiency especially low blood levels of any of the B vitamins, improper use of medicines, depression or some other condition that may be treated medically. A careful medical evaluation with a series of tests must be conducted to find out if the health change is treatable (thus reversible), may be slowed down or is progressive. This point is made in Table 6.

**Table 6. Reversible Memory Disorder may result from:**

1. Medicines
2. Infection
3. Inflammation
4. Heart or circulation problems
5. Thyroid or other hormone imbalance
6. Dehydration
7. Low vitamin levels or poor diet
8. Stress, depression or anxiety

The medical evaluation provides the clues to the possible disorder which is weakening the memory and thinking functions and uncovers the best suggestions for a proper care plan.

### **Health Helps**

The health care path should involve building up deficits, stopping medicines or activities that weaken memory and honoring daily healthy routines such as good nutrition and exercise (see Table 7).

**Table 7. Health Helps**

1. Stop anti-memory medicines, no tobacco
2. Treat infections and inflammations
3. Treat heart and circulation problems
4. Maintain hormone balance
5. Drink 10 - 12 glasses water (or healthy substitute) a day (limited or no alcohol)
6. Good nutrition
7. Daily exercise including brain exercise (crossword puzzles, word & math games)

**Stop anti-memory medicines:** Both prescription medicines and over-the-counter medicines may weaken memory and thinking functions. Some medicines that help sleep, stop a runny nose or help allergies contain an antihistamine. The antihistamine weakens memory function. Any medicine that decreases the function of the central nervous system weakens brain signals. Thus, there are weaker signals to make memory and other thinking functions work properly.

It is important to ask the physician or nurse as well as the pharmacist whether a medicine has an anti-memory effect. Often it is possible to use a different medicine to address the health problem while not weakening memory or other thinking functions.

**Treat infection and inflammations:** Any infection such as an infected cut or an inflammation such as a sore, inflamed knee joint may change the sharpness of memory or thinking skills. It is important to treat such conditions as soon as possible.

**Treat heart and circulation problems:** Memory disorders may result from heart or circulation problems such as an irregular heart rate or high cholesterol, triglycerides, or homocysteine levels in the blood. Other warning signs are an increased tendency of the blood cells to clump, unhealthy levels of blood sugar, blood pressure that is too high or too low, stiffness of the blood vessel walls or a weak spots (aneurysm) in the blood vessels that may leak or split open.

**Maintain hormone balance:** An imbalance in hormones, for example, thyroid levels that are too high or too low may impact the memory system.

**Drink 10 - 12 glasses water (or healthy substitute) a day:** Good health depends on drinking enough water or other liquids every day as well as having a good diet. The body needs 10 to 12 glasses of water or other suitable, healthy liquid a day unless a physician says otherwise. A physician may limit the daily amount of water or other liquids when concerned about congestive heart disease or kidney disease.

**Good nutrition:** A healthy diet especially foods with the B vitamins are critical to the nervous system. The family of B vitamins includes B1, B6, B12, folate and niacin; all the B vitamins are necessary for good health of the brain, the spinal cord and all the nerves throughout the body (the peripheral nervous system).

Research has identified the importance of resveratrol (in grapes especially concentrated in the red grape skins) to health. Flavonoids (especially in blueberries) seem to have a strong anti-inflammatory effect on the body. The brighter the color (anthocyanin) of the fresh vegetables and fruits, the healthier they are as “good brain food”. Their high levels of anti-oxidents protect healthy brain function. Other important foods to include in a good diet include whole grains such as barley and oatmeal, nuts especially walnuts and almonds, flaxseed (which seems to reduce cholesterol), unsaturated oils (safflower, soybean and corn oils) and protein from fish (such as salmon), lentils, beans and chicken.

**Daily exercise:** Daily physical exercise for at least 20 minutes a day (at least 5 days a week) adds to the health of brain cells. The rule is: “Let them see you sweat!” Brain exercise every day is important. A few examples of brain exercise include crossword puzzles, jigsaw puzzles, working with numbers (adding scores of card games or adding up the cost of groceries mentally before the cashier rings up the total), looking at and discussing art; listening to, playing and singing/humming music (with or without words), reading and discussing the story, and listening to the news and debating issues (pleasantly).

### **Role of Stress**

Stress, depression or anxiety may keep a person preoccupied with worry. A person who is overwhelmed with a heavy work schedule or family responsibilities will probably have memory problems. Other reasons for memory problems include sadness because of loss, the loss of a relationship, a pet, a job, your house, your health or a loved one’s health. Stress, depression, or anxiety may result in lower levels of nerve messenger chemicals necessary in the brain to help memory and thinking functions.

Dealing successfully with stress, depression, or anxiety may result from changes in ones lifestyle, such as taking on a hobby or hiring help. Help with the routine on the job or at home may be sufficient. It may help to join a support group, take medicine, or start some individual or group therapy sessions (note Table 8).

### **Table 8. Helps for Stress**

Treat stress, depression, anxiety, or other such disorders with:

- Change in routine
- Change in lifestyle
- Therapy sessions
- Medicine

The following suggestions are also critical to good health:

1. Avoid chemical abuse, tobacco or alcohol
2. Respect and stabilize health conditions especially chronic health conditions such as following the physician's recommendations and taking routine medicines for thyroid conditions, high cholesterol, high blood pressure or diabetes
3. Follow physician recommendations for prevention steps, such as daily aspirin, anti-inflammatory medicines and similar medicines, also taking anti-oxidants or vitamins
4. Regular medical, dental, eye, etc. check-ups

### **Summary of Basics of Dementia, Session 1: Treatable Memory Disorders**

Memory may be described in two ways. Memory in terms of time is describes as short-term memory and long-term memory. Two memory systems, first, the "what memory system", and second, the "how to memory system" point out differences in storing facts and details (what memory system) versus skills (how to memory systems).

As people age, it begins to take more time and effort to get information into the brain and more time and effort to recall information that the brain carries in its storage banks. Paying full attention and repeating what is heard back to the speaker checks the accuracy of communication. Such repeating helps to strengthen the storage process. Decreased memory or thinking ability should be interpreted as a warning for a full medical evaluation so that treatable memory disorders may be treated early and suggestions provided to promote healthy brain function and general lifestyle. Some examples of heath tips include medicine that does not weaken memory, better water intake, healthy diet, daily exercise, no chemical abuse, no tobacco use, healthy level of vitamins especially B vitamins, and a positive schedule, relationships and activities that promote an enjoyable lifestyle. Local resources are available with information, educational programs, support groups and other services to help families learn about and deal with changes in memory health; contact the national resource for local contact information.

#### **Resources with Information, Programs, & Services**

**AlzOnline (866)260-2466 (national)**

**Alzheimer's Association (800)272-3900 (national)**

**ElderLocator (800)677-1116 (national)**

**Florida Elder Helpline (800)963-5337 (state)**