People with Parkinson’s can experience challenges with memory. In this fact sheet some of the areas of memory that can be affected are discussed along with techniques that may help.

**Memory function**

For many people, memory is commonly regarded as a single mental process or cognitive function. However, memory is made up of a number of functions and processes which interact to enable us to make sense of the world we live in. These include the ability to orientate ourselves in time and physical locations, so that we are aware of what year it is and where we live in relation to others. Memory also enables us to comprehend the meaning of speech and to find the words needed to reply. It is also involved in assigning meaning to words and concepts, and allows us to recall remote and recent events and differentiate between these two. Memory enables us to attend to things selectively in order to stay focussed on a task in hand and to recognise objects in the world around us by visual and tactile means and also by sound.

**Causes of Memory Loss**

Memory loss or loss of other cognitive function in people with Parkinson’s is thought to be due to disruption of neural circuits which are selectively depleted of dopamine. This can vary from person to person. The loss of dopamine is thought to affect cognitive processes such as working memory, procedural or rule-based learning and planning for the future. People who experience changes or damage to the basal ganglia part of the brain, as in Parkinson’s, can find that procedural or rule-based learning is particularly affected. Procedural memory enables people to learn skills that then become automatic such as driving or playing sport. However, there is no simple one-to-one relationship between levels of dopamine and memory loss. Dopamine receptors can adapt, becoming more sensitive to available dopamine and wide variations in memory performance between people with Parkinson’s occur. Also, other brain chemicals apart from dopamine that are affected in Parkinson’s may be important in memory. Many people with Parkinson’s do not report any difficulties with memory.

**How Memory is affected in Parkinson’s**

Memory loss can often involve difficulty in recalling information previously presented (procedural memory) and many people with Parkinson’s struggle to learn new material. These difficulties can often surface as a resistance to change and a reliance on “those old familiar things”. In the early stages of Parkinson’s, it is thought that the processes used to retrieve information are affected. Current research indicates that providing cues or “clues” to recall are effective in Parkinson’s which suggests that it is the retrieval processes which are affected. In the later stages of Parkinson’s some evidence suggests difficulty in encoding new information into memory can occur.

Researchers have also found that immediate memory span can be affected in people with Parkinson’s, along with inconsistent recall of items and a higher rate of giving incorrect answers. Finding the right word, temporal ordering of events and judgements of the recency of events, along with performance on visual-spatial tasks, such as those involving judgements of direction and distance may be affected. For example, a person may have difficulty describing how to get from one place to another. It may also take longer to retrieve items from memory and the ability to plan and organise may be reduced.

People with late-onset Parkinson’s have been found to have more severe and more widespread cognitive difficulties than those with early-onset Parkinson’s. In one study the early-onset Parkinson’s group recalled an average of 10.8 items, compared to 8.5 for the late-onset group and 11.96 for the control group. Where depression exists alongside Parkinson’s, memory impairment may be more marked. Therefore early treatment of depression in Parkinson’s is important.

**Dementia in Parkinson’s**

It is increasingly recognised that dementia can occur in Parkinson’s. This dementia is characterised by a slowly progressing cognitive decline with involvement of frontal lobe processes and frequently results in symptoms such as hallucinations, depression, anxiety and marked daytime sleepiness.

“How does the usual pattern of memory loss in Parkinson’s differ from Alzheimer’s disease?”

Both conditions can produce difficulties recalling recent events, particularly in the early stages of the disease. However, the memory difficulties associated with
Parkinson's are generally thought to be less severe and more subtle in nature than those of Alzheimer's. Memory loss associated with Alzheimer's leads to widespread loss of function and includes changes to orientation in time and place. This may result in a person becoming lost in familiar places, forgetting their street address, or having difficulty with time-keeping, such as meeting appointments or social commitments. Difficulty in organising and planning a meal, or forgetting which month or year it is can also occur (it is quite normal to forget the day's date).

Although not common, it is possible for a person to experience both Parkinson's and Alzheimer's and vice versa. However, for the majority of people with Parkinson's, memory loss is confined to the difficulties mentioned above and while these can be debilitating and frustrating, they can be managed to ensure that quality of life is not seriously impaired.

### What Can Help

Relying on well-learned and well practiced routines can make the day run smoother. Most of us don’t forget how to make a cup of tea; we have had a lot of practice at it. Similarly, sticking to a set routine and practicing this will help to avoid memory failure. Car keys or sunglasses are less likely to be lost if they are always in the same place, for example, on top of the fridge. Where a person has difficulty recalling an activity or task, prompts like writing down the steps to carry out a task can be helpful.

Comprehension and recall can be assisted by avoiding long, complex sentences when conversing with people with Parkinson’s. These complex grammatical structures involve effortful processing which may mean having to hold a number of items in memory at once. In such situations, some items may drop out.

The flow of conversation can also be assisted by reference to things in broad-based general terms. Memory is thought to work hierarchically and proceed from general items to more specific ones. For example, the general category of “dogs” is thought to be broken down into sub-categories consisting of breeds of dog, such as Dalmatian, Labrador, Poodle, etc. Sometimes we have to dig deep to access specific information and general items may be accessed more easily. A reference to “the neighbour’s Dalmatian” may be more readily understood if the reference is simply to ‘the neighbour’s dog’.

In a similar vein, activities which allow a direct access to memory are thought to be more easily enjoyed as they do not involve effortful brain processing. These tend to be “sensory” in nature and allow direct access to the senses. Listening to music, viewing a garden, enjoying good food, looking at photographs, or paintings are all likely to be enjoyed. Bird-feeders or a kitten in the home environment have also been found to be worthwhile.

Many people find a whiteboard in the kitchen with memos of things to be done and a schedule for the next 2-3 days is often helpful. For new financial arrangements, or investments, a video or CD presentation is often helpful as this can be viewed more than once, or sections containing detail can be repeated where necessary. For those who are computer savvy, an e-mail system, such as Outlook Express can act as an external memory aid. Items can be flagged for “follow-up” or the “Tasks” function can be used as a reminder of appointments each day. If you use these features however, it is important that you also check your mail system every morning.

Where depression exists alongside Parkinson’s, it is important to treat this as soon as practicable.

As a general rule, it is worth noting that anything that puts pressure on the nervous system will make a memory problem worse. A good quality of life is more likely to be maintained by taking things at a measured pace and allowing adequate time for rest, along with time for the things one enjoys.

Finally it should be mentioned that none of us are perfect when it comes to memory. The best score most of us can hope for on a memory test is in the region of 90 percent. Yet where any disability or loss of function occurs, we measure that loss against a baseline of perfection, i.e. 100 percent memory function. So people shouldn’t be put under a microscope because they burn the toast occasionally. Nor is it necessary to have a fully functioning memory in order to enjoy a good quality of life. We typically do not remember a lot of what is said in social interaction and that is not its main purpose.