

## **Overcoming the movement problem– The use of "cues" for People with Parkinson's disease**

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Parkinson's disease (PD) is a progressive neurodegenerative disease, and its incidence in recent years in the normal population is about 1% in the elderly aged above 65 (Van Den Eeden et al., 2003). People with PD are found to have significant depletion of dopamine, a neurotransmitter found in the basal ganglia (Dauer & Przedborski, 2003). They therefore experience problems in the execution of internally-initiated and repetitive movements. These movement problems greatly affect their daily functioning. When they perform a daily task, such movement problems hinder the task performance. The movement problems include tremors, rigidity, and difficulty to start a movement. In the difficulty to start a movement, many people with the disease are likely to have experienced in their daily life sudden "freezing" of movement.

When this kind of "freezing" movement problem occurs, how can they deal with it? Apart from the pharmacological management, we can use some simple external cues, a rehabilitation strategy, to help them form the rhythm of an activity and thus help to start-up the activity.

"Cues" can be classified into three types: visual, auditory and sensory. We can use a flash light (visual), a "beep" sound machine (auditory) or wearing a small machine that can emit a slight vibration (sensory) to produce those cues. These cues act to provide rhythm during an activity. When the cue is given, people with the disease can complete the appropriate action according to the frequency or rhythm of the cues. For example, in cutting up food, an auditory beeping cue can be given before each cut so that they are able to complete the task under the rhythmic cues (Figure 1). Another example is to return clothes to the wardrobe, colored markers stuck on the corresponding shelves in the wardrobe can act as a visual guide to guide their upper arm movement and hence help them in putting up the clothes into the appropriate shelves (Figure 2).

Multiple external cues are used in clinical settings. External cues provide temporal or spatial stimuli associated with the initiation and facilitation of a motor activity. With practice, the sequence of movement can be formed in accordance with the rhythm of the cues.

With the help of "cues" and frequent practice, the effect of "freezing" of movement in the daily life activities of people with Parkinson's disease can be minimized. External cues are therefore useful tools for the treatment of patients with Parkinson's disease, and an important adjunct to pharmacological management.



Figure 1: Photo showing the use of auditory cue in cutting up food



Figure 2. Photo showing different colours are stick onto the shelves to act a visual cue and help to put up clothes into the wardrobe