

# information

## GLOSSARY OF TERMS

This glossary explains the terms and words often used in association with Parkinson's.

### **Acetylcholine**

A neurotransmitter which sends messages between nerve cells and muscles. These messages affect the way muscles behave and are a major factor in tremor.

### **Action Tremor**

A tremor that occurs upon voluntary movements, actions or tasks – for example, lifting a cup or writing.

### **Agonist**

Medications which have a positive effect on particular cells in the body. In Parkinson's, the medications in this group are dopamine agonists which enhance and mimic the action of dopamine.

### **Akathisia**

Compulsive restlessness.

### **Akinesia**

Complete (or almost complete) lack of movement.

### **Anosmia**

Loss of sense of smell.

### **Antagonist**

Medications which have a negative effect on particular cells in the body. In Parkinson's dopamine antagonists diminish the production of dopamine and block the action of levodopa. These medications should be avoided in Parkinson's.

### **Anticholinergic**

The action of medications which block acetylcholine. They may be helpful with tremor in early Parkinson's. Caution is required with these medications in elderly patients.

### **Aphasia**

Inability to speak.

### **Apomine® (apomorphine hydrochloride)**

A dopamine agonist which is quick acting and has a short duration of effect. It is given by injection or continuous pump.

### **Artane® (benhexol hydrochloride)**

An anticholinergic medication.

### **Ataxia**

Impaired movement coordination.

### **Atypical Parkinsonism**

Conditions which resemble Parkinson's but have some variations in symptoms, response to medications and prognosis.

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## **Autonomic Disturbances**

Parkinson's can affect the autonomic nervous system. This results in the non-motor symptoms of Parkinson's – for example postural hypotension, constipation, urinary symptoms and sexual dysfunction.

## **Autonomic Nervous System**

The nerves that regulate involuntary functions including cardiac muscle, bladder, bowel, sexual activity and temperature regulation.

## **Axon**

A long hair-like extension of a nerve cell that carries messages between nerve cells.

## **Basal Ganglia**

A set of structures deep within the brain, that consists of the striatum, globus pallidus, subthalamic nucleus and substantia nigra. Dopamine is produced in the cells of the substantia nigra. It is this area that provides a definite diagnosis of Parkinson's post mortem. The basal ganglia has important implications in movement, cognitive and emotional functions.

## **Benserazide**

An enzyme (decarboxylase inhibitor) added to levodopa to prevent its destruction before it crosses the blood brain barrier. This combination also reduces the risk of nausea. Levodopa and benserazide are marketed as Madopar®.

## **Blepharospasm**

Muscular spasm in the eyelid muscles, often resulting in an inability to open the eyes.

## **Blood Brain Barrier**

A physiological mechanism that protects the brain by preventing the passage of infections, harmful substances and some medications into the brain.

## **Botox® (botulinum toxin)**

Used in Parkinson's for the short-term management of blepharospasm, dystonia and drooling.

## **Bradykinesia**

Slowness in initiating and executing movement.

## **Bradyphrenia**

Slowness of thought process.

## **Cabaser® (cabergoline)**

A dopamine agonist medication.

## **Carbidopa**

An enzyme (decarboxylase inhibitor) added to levodopa to prevent its destruction before it crosses the blood brain barrier. This combination also reduces the risk of nausea. Levodopa and carbidopa are marketed as Sinemet®.

## **Comtan® (Catecholamine O-methyl Transferase (COMT) Inhibitors)**

An enzyme, entacapone, which prevents further breakdown and extends the duration of the effectiveness of levodopa. It must be taken with each dose of levodopa.

## **Cogwheel Rigidity**

The muscle rigidity felt on passive movements around a joint. Cogwheeling describes 'ratchety' rigidity caused by the underlying tremor. It is specific to Parkinson's.

## **Computerised Tomography (CT)**

A form of X-ray which produces images of the body or brain in cross-section. A CT scan is often carried out to rule out other possible conditions. It does not reveal Parkinson's changes in the brain and cannot confirm a diagnosis of Parkinson's.

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## **Corticobasal Degeneration**

This is a form of atypical Parkinsonism.

## **Decarboxylase Inhibitor**

Additives to levodopa which assist with the conversion of levodopa to dopamine. See Benserazide and Carbidopa.

## **Deep Brain Stimulation**

A reversible surgical procedure used in the management of Parkinson's. It involves placing electrodes into a chosen target site of the brain. This site choice depends on the aspect of Parkinson's to be treated – for example tremor or dyskinesia.

## **Dendrite**

A thread-like extension of a nerve cell that receives messages from the axons of other nerve cells.

## **Dopamine**

A chemical produced by the substantia nigra in the basal ganglia. It is responsible for transmission of signals between nerve cells that control movement. A lack of dopamine is the primary factor in Parkinson's. The reason for this depletion of dopamine remains unknown.

## **Drooling (Sialorrhea)**

Excessive saliva related to a decreased swallow rate.

## **Drug Induced Parkinsonism**

A disorder in which Parkinson's symptoms are caused by a medication. When the medication causing the problem is withdrawn, the symptoms may disappear.

## **Duodopa® (levodopa and carbidopa)**

A gel formulation of Sinemet® which is infused via a permanent tube into the small intestine. This is an alternative mode of treatment in later stage Parkinson's.

## **Dysarthria**

Poorly articulated speech which may appear slurred.

## **Dyskinesia**

Involuntary movements (nodding, jerking, twisting) resulting from medium to long-term use of levodopa.

## **Dysphagia**

Changes and difficulties in swallowing.

## **Dystonia**

Abnormal and sustained posturing which can affect any part of the body, more commonly seen in the feet, toes and neck. Predominantly occurring in the 'off' state.

## **Eldepryl® (selegiline hydrochloride)**

Refer to monoamine oxidase inhibitors.

## **Entacapone**

The active ingredient in COMT inhibitors.

## **Enzyme**

A substance that speeds up a chemical reaction.

## **Excessive Daytime Sleepiness (EDS)**

Severe tiredness and fatigue that results in EDS may be a side effect of medication or related to the condition. It is commonly associated with broken sleep although it may occur in spite of restful nights.

## **Extrapyramidal System**

The basal ganglia, substantia nigra, subthalamic nucleus and the motor neurons of the spine make up the extrapyramidal system which is damaged in Parkinson's. These areas of the brain are responsible for all aspects of movement and balance.

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## **Festination**

A gait pattern with reduced stride height and length resulting in 'shuffling steps'.

## **Freezing**

The temporary inability to move. Freezing may only last a few seconds. It can occur in confined spaces or when changing direction.

## **Globus Pallidus**

Part of the basal ganglia. It is composed of two segments (internal and external). In the past it was often a target for deep brain stimulation (known as pallidotomy).

## **Hallucinations**

Usually related to medications. They are usually visual, non-threatening and recurrent. Less frequently auditory hallucinations may occur.

## **Hoehn and Yahr Scale**

A classification of Parkinson's using five stages.

## **Idiopathic**

A term meaning 'cause unknown'.

## **Juvenile Parkinson's**

Onset younger than 20 years of age.

## **Kinson® (levodopa and carbidopa)**

A dopamine replacement therapy medication.

## **Kripton® (bromocriptine mesylate)**

A dopamine agonist medication.

## **Levodopa (L-dopa)**

A chemical precursor of dopamine which can be taken orally. It is converted to dopamine and crosses the blood brain barrier.

## **Lewy Bodies**

Round microscopic structures found in brain cells at post-mortem. Often regarded as a definitive sign of Idiopathic Parkinson's.

## **Liquid Sinemet® (levodopa and carbidopa)**

A liquid preparation of Sinemet® which is made daily and taken in an hourly to two-hourly regime. Often prescribed in complex cases of Parkinson's.

## **Madopar® (levodopa and benserazide)**

A dopamine replacement therapy medication available in rapid, normal and controlled release preparations.

## **Magnetic Resonance Imaging (MRI)**

A radiological investigation using a magnetic field. It is used to rule out other conditions which may be the cause of symptoms.

## **1-Methyl-4-phenyl-1,2,3,6-tetra/hydropyridine (MPTP)**

A neurotoxin which is selectively toxic to the cells in the substantia nigra resulting in the signs and symptoms similar to Idiopathic Parkinson's.

## **MIBG-SPECT**

Cardiac metaiodobenzylguanidine SPECT imaging of the heart may be useful in differentiating Parkinson's from Multiple System Atrophy (MSA) and Progressive Supranuclear Palsy (PSP). MIBG-SPECT is abnormal in Parkinson's and normal in MSA and PSP.

## **Micrographia**

Small handwriting.

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## **Monoamine Oxidase Inhibitors (MAOIs) (Selegiline®, Eldepryl®)**

Drugs which block the breakdown of dopamine in the brain. Drug interactions are possible with this group of medications.

## **Motor Fluctuations**

A variance in response to levodopa therapy which may develop after a few years of treatment. This can be 'wearing off', or 'on/off' phenomena.

## **Multiple System Atrophy (MSA)**

Presents with early balance, blood pressure and bladder changes. It is usually not responsive to levodopa and progresses more quickly than Parkinson's.

## **Neupro® (rotigotine)**

A dopamine agonist administered via a transdermal patch. It is changed daily and should be refrigerated.

## **Neurotransmitter**

Any chemical which acts on the nervous system. Dopamine is a neurotransmitter which is diminished in Parkinson's.

## **'On-Off' Phenomena**

Motor fluctuations resulting from medium to long term use of levodopa. This can be abrupt and unpredictable.

## **Pallidotomy**

A non-reversible surgical procedure on the globus pallidus of the mid-brain aimed at treating dyskinesia. This procedure was widely used prior to deep brain stimulation.

## **Parkinsonism**

Conditions which resemble Parkinson's by the presence of muscle rigidity, tremor, and bradykinesia. These are also known as atypical Parkinsonism or pseudo-Parkinsonism.

## **Parkinson's Plus**

A group of conditions that make up other forms of progressive Parkinsonism. These include Multiple System Atrophy (MSA) and Progressive Supranuclear Palsy (PSP).

## **Parlodel® (bromocriptine)**

A dopamine agonist medication.

## **PDQ-39**

A self evaluation rating scale of quality of life.

## **Permax® (pergolide mesylate)**

A dopamine agonist medication.

## **Postural hypotension**

A lowering of blood pressure on rising from a lying or sitting position that may cause dizziness or falls. Can be due to Parkinson's or a side effect of medications.

## **Postural Instability**

A late symptom of Parkinson's resulting in impaired balance and a tendency to fall backwards.

## **Progressive Supranuclear Palsy (PSP)**

Presents with impaired downward gaze, rigidity and bradykinesia. It is usually not responsive to levodopa and progresses more quickly than Parkinson's.

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## **Resting Tremor**

A tremor which occurs when the affected limb or body part is at rest. It oscillates at a frequency of four to five Hz per second. Can be exacerbated with stress.

## **Restless Legs Syndrome**

An unrelated sensory disorder which commonly occurs in Parkinson's. It is characterised by the urge to move the legs either during sleep or awake at rest.

## **Rigidity**

Muscle rigidity is felt on passive movement and may present as 'cogwheel' (when tremor is present) or 'lead-pipe' (in the absence of tremor).

## **Selgene® (selegiline hydrochloride)**

Refer to monoamine oxidase inhibitors.

## **Shaking Palsy**

The term used by Dr James Parkinson in 1817 to describe the symptoms of the condition which was later to bear his name.

## **Sifrol® (pramipexole)**

A dopamine agonist medication.

## **Sinemet® (levodopa and carbidopa)**

A dopamine replacement therapy medication available in normal and controlled release. Liquid Sinemet® can be prepared from this medication.

## **Stalevo® (Catecholamine O-methyl Transferase (COMT) Inhibitors)**

Contains an enzyme which prevents further breakdown and extends the duration of the effectiveness of levodopa. It is a combination therapy of levodopa, carbidopa and entacapone.

## **Striatum**

A collective name for the caudate and putamen, which are located within the basal ganglia. The striatum receives input from the outside lobes of the brain in addition to the substantia nigra.

## **Substantia Nigra**

The deepest structure within the basal ganglia is located around the top of the spine in the brain stem. Dopamine is produced in the substantia nigra and sends signals from the substantia nigra up to the striatum. A loss of dopamine producing cells within the substantia nigra is the primary cause of Parkinson's symptoms.

## **Subthalamic Nucleus**

A part of the basal ganglia which is often a target for deep brain stimulation.

## **Symmetrel® (amantadine)**

An anti-viral medication which is thought to increase dopamine release in the brain and therefore may be used in the treatment of Parkinson's.

## **Tasmar® (tolcapone)**

This original COMT inhibitor is no longer widely used due to the risk of hepatic failure.

## **Thalamotomy**

A non-reversible surgical procedure on the thalamus of the mid-brain aimed at treating tremor. This procedure was widely used prior to deep brain stimulation.

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## **Tremor**

An involuntary rhythmic movement which usually occurs when the affected body part is not in use (at rest) and may be described as 'pill-rolling'. It may affect any part of the body but predominantly occurs in the upper or lower limbs or jaw and is initially seen on one side of the body. Internal tremor may be felt but is not visible. Not all cases of Parkinson's will experience tremor.

## **Unified Parkinson's Disease Rating Scale (UPDRS)**

A rating scale assessing 42 items including mental status, activities of daily living, movement and complications of therapy. Each item is scored from 0-4 (4 being most affected).

## **Wearing Off**

A variance in response to levodopa therapy which may develop after a few years of treatment. This can be 'wearing off' or 'on/off' phenomena. Also referred to as motor fluctuations. In addition to motor fluctuations, sensory and autonomic symptoms may fluctuate in response to the levodopa levels and availability. These include sweating, anxiety and pain.

## **Xerostomia**

Dry mouth or a diminished production of saliva. This is due to the condition and may also be a side effect of medication.

## **Young Onset**

Diagnosis between the ages of 21 to 40.

## **Zona compacta**

An area within the substantia nigra.

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