Parkinson’s Disease
Information for People Living with Parkinson’s
Publication of this FREE information booklet was made possible by the generous support of the following two pharmaceutical companies:

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# Table of Contents

1. World Parkinson’s Charter ................................................................. 4  
2. A Brief Introduction ........................................................................ 5  
3. Message from the Malaysian Parkinson’s Disease Association (MPDA) ............................................. 6  
4. Ten Important Facts about Parkinson's Disease ...................... 7  
5. Starting Medication ......................................................................... 9  
6. “Wearing-Off” & Dyskinesia ........................................................... 11  
7. Posture & Gait (Walking) ................................................................. 14  
8. Living Well with Parkinson’s Disease .......................................... 17  

## Appendices

- Appendix 1: More about the Malaysian Parkinson’s Disease Association (MPDA) ............................................. 18  
- Appendix 2: How Parkinson’s Disease Affects the Nervous System ...................................................................... 19  
- Appendix 3: The Non-Motor Symptoms of Parkinson’s Disease ............................................................................. 21  
- Appendix 4: Tremor, Dyskinesia and Dystonia: A Visual Aid ...................................................................................... 22  
- Appendix 5: Parkinson’s Disease Drug Identification Chart ......................................................................................... 23  
- Appendix 6: “Wearing-Off” Questionnaire ........................................ 27  
- Appendix 7: Suggested Exercises ..................................................... 28
1. World Parkinson’s Charter

The Charter was created by the Working Group on Parkinson's disease, formed by the World Health Organization, in Geneva in May 1997.

Malaysia, represented by Minister of Health Dato' Sri Liow Tiong Lai, signed the Charter in April 2010.

2. A Brief Introduction

Being told that you have Parkinson’s disease can be overwhelming. You may feel disbelief and denial or fear and sadness. You may also find it a relief that your doctor has finally found a reason for the problems you have been experiencing.

It is important, however, to remember that Parkinson’s disease affects everyone differently. Do not assume that you will experience the same symptoms as someone else with this disease. Parkinson’s disease progresses slowly and there are a number of treatments that can effectively relieve Parkinson’s disease symptoms. A tremendous amount of ongoing research provides much hope for the future.

One of the best ways to deal with anxiety or fear is to be informed. In this booklet, we aim to provide accurate and up-to-date information about Parkinson’s disease. You will read about some of the common symptoms, treatment options and lifestyle changes that can help you to better manage the disease. It is important to discuss questions or concerns you may have with a doctor or other healthcare professional who is knowledgeable about Parkinson’s disease and its treatments.

With the right treatment and a positive attitude, people living with Parkinson’s disease can continue to maintain a fairly rewarding lifestyle for many more years following the diagnosis.

Best wishes,

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3. Message from the Malaysian Parkinson’s Disease Association (MPDA)

Often, the MPDA receives enquiries from people with Parkinson’s (PwP), their family members, caregivers, and members of the general public regarding all aspects of Parkinson’s disease (PD). While we try to provide as many answers as we can, we are often constrained by the fact that we are not medical specialists or healthcare professionals in PD. Therefore, this PD Information Booklet written by medical specialists (neurologists) with a special interest in PD, will definitely be greeted with enthusiasm by many grateful readers who want to equip themselves with as much information as possible as they travel down their journey in life with PD.

To optimise the quality of life of PwP and their caregivers, understanding the disease is important. This booklet is beneficial because it helps unveil some of the misconceptions about PD, while at the same time educates PwP and their caregivers about the different treatment options in the management of the condition. The booklet also serves to illustrate the fact that PD is not just about “tremoring hands”, but it is also about non-motor symptoms that can have a very significant impact on the well-being and quality of life of both PwP and caregivers.

On behalf of all members of the MPDA, I would like to congratulate the authors for their effort in writing this booklet, and the sponsors for supporting its publication.

I am very confident that this booklet will serve the Parkinson’s Community well.

Thank you.

*Sara Lew*

President, MPDA

Please refer to Appendix 1 for more information about the MPDA.
4. Ten Important Facts about Parkinson's Disease

1. Parkinson’s disease is a **degenerative disease** of the nervous system, affecting the brain, as well as other “peripheral” nervous system structures (see Appendix 2). It is the second most common neurodegenerative disorder after Alzheimer’s disease, and affects people of all races.

2. Although Parkinson’s disease is more common in older people (affecting \( \approx 1\% \) of people over the age of 60), younger adults may also be affected (onset can even be as early as in the teenage years). It is slightly more common in men than women.

3. The common **motor (movement-related)** problems of Parkinson’s disease are “shakes” (tremor) (although this is not present in all patients), muscle **stiffness** (rigidity) and **slowness** of movements (bradykinesia). The diagnosis of Parkinson’s disease is based on the presence of these motor problems. Imbalance (postural instability) with falls occurs only in the later stages of the disease. Some patients with early-stage Parkinson’s disease experience motor symptoms on only one side of the body.

4. Other symptoms unrelated to movement (**non-motor symptoms**) can also occur (see Appendix 3). Some examples include fatigue, depression, anxiety, slowness of thinking, difficulty concentrating, visual hallucinations, pain (or other sensations such as tingling or feeling cold), constipation, lightheadedness on standing, urinary difficulties, excessive sweating, and sleep disturbances (e.g. dream-enacting behaviours with shouting or kicking during sleep, or excessive sleepiness during the day). In some patients, non-motor symptoms can even predate the onset of motor symptoms. Non-motor symptoms can have a large impact on quality of life and any troublesome symptoms should be discussed with your doctor.

5. A lack of a chemical substance in the brain called **dopamine** is the cause of the motor (and possibly some non-motor) problems in Parkinson’s disease (see Appendix 2). Dopamine is one of several chemicals (neurotransmitters) used by brain cells to communicate with one another. However, the exact reason why people develop Parkinson’s disease is still not fully understood, hence the term “idiopathic” Parkinson’s disease (“idiopathic” means “cause unknown”).
6. Both genetic factors as well as environmental factors contribute to the risk of developing Parkinson’s disease. However, only 5-10% of patients have other family members also affected by the disease, which is why Parkinson’s disease is usually regarded as a sporadic (rather than a familial) condition. Parkinson’s disease does not result from something you have done (or not done) in the past. It is not caused by overwork or over-indulgence.

7. There is no test (during life) currently that can definitely identify Parkinson’s disease. Instead, doctors diagnose Parkinson’s disease based on the patient’s history and a careful neurologic examination. There are other less common disorders that can mimic Parkinson’s disease and tests such as a brain scan and blood or urine tests are recommended in some patients (e.g., those with onset of symptoms below the age of 50 years, or if atypical features are present) to exclude some of these conditions.

8. There is currently no cure (or prevention) for Parkinson’s disease, and the disease usually worsens gradually over time (over years, rather than months). Nevertheless, motor symptoms can often be well-controlled with treatment, especially in the earlier stages of the disease. At present, these treatments are mainly based on restoring dopamine in the brain. For example, levodopa (L-dopa for short) is a precursor of dopamine (converted into dopamine in the body). There are also effective treatments for some of the non-motor symptoms of Parkinson’s disease. Therefore, troublesome non-motor symptoms should also be discussed with your doctor.

9. Parkinson’s disease affects everyone differently and treatments need to be tailored to the individual. Some of these treatment decisions can be complex and ideally your condition should be managed in conjunction with a physician with a special interest in Parkinson’s disease. Often, the benefits of treatments need to be balanced against their potential side effects.

10. Through research and development, the range of available treatments for Parkinson’s disease continues to expand. For example, selected patients can experience marked improvement in their Parkinson’s symptoms after undergoing deep brain stimulation (DBS) surgery.
5. Starting Medication

When to start treatment. The medications currently used to treat Parkinson’s disease provide symptomatic benefit. This means that they reduce Parkinson’s disease symptoms such as shakes (tremor), muscle stiffness (rigidity) and slowness of movements (bradykinesia). Traditionally, patients start taking medicines when symptoms become troublesome (e.g., at the point where symptoms start to impact negatively on the performance of daily activities). This is still a popular approach. However, there is some suggestion that earlier initiation of treatment can be associated with better clinical outcomes in the longer term, and some Parkinson’s disease specialists are now recommending that treatment be started as soon as, or very soon after, a diagnosis of Parkinson’s disease is made. Usually, medication will need to be taken every day for the rest of the patient’s life, as symptoms will return if the medication is stopped (however, the dose and type of medication will usually need to be adjusted during the course of the disease).

What treatment(s) to start. Younger patients are at increased risk of developing drug-induced dyskinesia (involuntary “wriggling” movements - see Appendix 4). Multiple studies have shown that this risk is higher with levodopa-containing medications (such as Madopar® or Sinemet®), especially when used at higher doses. Therefore, as a general guideline, it is better to delay the use of levodopa in people under the age of 65-70 years. Medications such as anticholinergics (e.g., trihexyphenidyl / Artane®), selegiline, amantadine (Pk-Merz®) and/or dopamine agonists (e.g., piribedil / Trivastal®, ropinirole / Requip®, pramipexole / Sifrol® or rotigotine / Neupro® patch) can be used initially instead. Please refer to Appendix 5 for a full listing of medications currently available in Malaysia to treat the motor symptoms of Parkinson’s disease.

However, the medications listed above are generally not as potent in terms of effect against Parkinson’s motor symptoms compared to levodopa. Therefore, if symptoms are not adequately controlled with these less potent medications, the use of levodopa should not be inappropriately delayed. It should also be kept in perspective that the risk of developing severe dyskinesia with levodopa is relatively low (perhaps \( \approx 10\% \)). Furthermore, almost every patient with Parkinson’s disease will eventually require treatment with levodopa, as this is still the most effective medication available.

A common misconception is that levodopa should be “saved for later”, to avoid becoming “immune” to its beneficial effects. Although it is true that in many patients symptoms become less responsive to medication treatment after having Parkinson’s disease for many years, this is primarily due to a change in the nature of the disease (with the development of non-dopaminergic lesions – see Appendix 2, Figure B), rather than being due to long-term usage of levodopa. Problems such as slowness of limb movements in the earlier stages of Parkinson’s disease are due primarily to a deficiency of brain dopamine, which can be addressed by restoring dopamine levels with medications.
However, symptoms such as imbalance and falls, speech or swallowing difficulties, and dementia that typically occur in the later stages of Parkinson’s disease are usually not related to dopamine. Therefore, “merely” replacing dopamine with the currently-available medications has limited effectiveness in treating these problems.

**Potential Side Effects of Dopamine-Based Medications.** As with all treatments, medications used to treat Parkinson’s disease can cause adverse effects in a small minority of patients. These include stomach upset / nausea, lightheadedness upon standing and daytime sleepiness. In certain predisposed patients, development or worsening of confusion, hallucinations or impulsive-compulsive behaviours (such as an urge to gamble or eat excessively, or excessive sexual urges) can occur. The occurrence of any of these side effects should be discussed with your doctor. In many cases, medication changes (e.g., addition of domperidone for nausea or lightheadedness) can alleviate these side effects.

A “start low, go slow” approach can help to minimise the occurrence of some side effects. As an example, the Neupro® patch or Requip PD® can be started at a dose of 2 mg daily, increasing **every week** by 2 mg daily (i.e., 2 mg daily for the first week, 4 mg daily for the second week, 6 mg daily for the third week, etc.) until the desired dose is reached.

**Should Medications be Taken on an Empty Stomach or With Food?** Initially (at least during the first several months after initiating treatment), dopamine-based medications should generally be taken with food to reduce nausea / vomiting. However, once these medications can be tolerated without food, taking them on an empty stomach (½ hour prior to, or 2 hours after, meals) allows more rapid and reliable absorption.

Rarely, a patient (usually one with more long-standing Parkinson’s disease) can be very sensitive to concurrent intake of dietary **protein**, which may delay L-dopa from reaching the brain. This is because proteins are broken down into smaller molecules called amino acids and these can compete with L-dopa for transport from the gut into the bloodstream, and from the bloodstream into the brain. Red meat, poultry, fish, milk, cheese and eggs are examples of high-protein foods. However, this is not an issue for the vast majority of patients with Parkinson’s disease. It should also be borne in mind that many patients experience unintended weight loss, so maintaining a well-balanced diet (including foods with high protein, e.g., milk shakes or Ensure®) is important.
6. “Wearing-Off” & Dyskinesia

Many patients, after they have been taking Parkinson’s medication for some time (usually years) will develop “wearing-off” and/or dyskinesia (involuntary “wriggling” movements). Please refer to Appendix 4 for a visual aid to help you recognise the different types of involuntary movements associated with different phases of the dopa-cycle.

“Wearing-off”. Patients experiencing “wearing-off” improve after taking a dose of Parkinson’s medication (the “ON”-medication state) (typically ½ or 1 hour after medication intake), but start to feel a recurrence or worsening of their Parkinson’s disease symptoms before it is time to take the next dose of medication (the “OFF”-medication state). For example, a patient may feel that each medication dose provides benefit for only 3 or 4 hours. Some patients experiencing motor fluctuations may also experience non-motor fluctuations (e.g., pain or mood symptoms that worsen during “OFF” periods). Figure 1 depicts these fluctuations. Researchers have developed a questionnaire that has been shown to be very effective in identifying people with “wearing-off” symptoms. You may like to fill this out and show it to your doctor at your next follow-up.

Dyskinesia. Dyskinesia are involuntary “wriggling” movements that usually occur when patients are “ON” (so called “peak-dose” dyskinesia) (see Figure 1). This type of dyskinesia is very common, occurring in ≈ 50% of patients after 5 years of treatment with L-dopa. In many patients, it is of little consequence (in fact, patients may not even be aware of the movements in mild cases of dyskinesia). Much less commonly, dyskinesia can also occur before a dose of medication takes full effect and/or during the “wearing-off” phase (so called “biphasic” dyskinesia).

Figure 1. Fluctuations (“ON” and “OFF” periods) in relation to Parkinson’s medication doses, and dyskinesia. Adapted from Stacy M, Bowron A, Guttman M, et al. Movement Disorders 2005;20:726-733.
Treatment of “wearing-off” and dyskinesia. There are several approaches to reduce “OFF” periods. These include: increasing the dose / frequency of Parkinson’s medications (e.g., taking Madopar 4 or 5x daily, instead of 3x daily; however, this comes at the cost of inconvenience of frequent dosing); addition of entacapone (either by adding Comtan® or by switching Madopar® or Sinemet® to Stalevo®); addition of a dopamine agonist (e.g., once-daily Neupro® patch or one of the other dopamine agonists shown in Appendix 5), etc. These options should be discussed with your doctor.

Troublesome dyskinesia can be reduced by reducing the doses of dopamine-based medications, but this has to be balanced against worsening control of “OFF” periods. Amantadine (Pk-Merz®) can suppress dyskinesia in many patients, whilst providing a mild effect against other Parkinson’s motor symptoms.

Severe motor fluctuations and dyskinesia, and the role of DBS surgery. Patients who continue to experience severe and prolonged “OFF” periods and/or dyskinesia despite optimisation of their Parkinson’s medications can be considered for deep brain stimulation (DBS) surgery or continuous apomorphine pump infusion.

Well-selected patients can experience marked improvement with these treatments, with on average a 50% reduction of “OFF” time and dyskinesia. However, it should be noted that these treatments are not a cure for Parkinson’s disease.

Furthermore, these treatments are costly and are often complicated, so patients need to be evaluated and managed at expert centres seeing a large volume of patients with Parkinson’s disease.

In general, patients undergoing DBS should be under the age of 70 and otherwise medically fit, without significant impairment of cognitive (mental) functions.

A “L-dopa challenge” is almost always required for a proper evaluation of the degree of benefit you are likely to gain from DBS. This involves overnight withdrawal of Parkinson’s medications so that your neurologist can assess what you are like “OFF” medication. Following this, a dose of L-dopa (typically 50% more than your usual morning dose of Parkinson’s medications) is administered so that your best “ON” condition can be evaluated.
Wire tunneled under the skin

Battery (needs to be replaced on average every 5 years)

Tiny electrodes stimulate a deep part of the brain (subthalamic nucleus / STN or globus pallidus internus / GPi)

Figure 2. Typical DBS setup.

Apomorphine delivered via very fine plastic tubing, & butterfly needle sited under the skin

Cloth pouch containing apomorphine reservoir & small infusion pump

Figure 3. Typical Apomorphine infusion setup
7. Posture & Gait (Walking)

- Sit and stand tall (erect), with shoulders back and body straight (without leaning forwards).

- Avoid standing with hips or knees bent.
Walking is a great way to exercise. It helps you to maintain your mobility and independence, and keeps you fit and feeling good.

The following tips may be helpful to overcome some of the problems associated with walking that commonly occur with Parkinson’s disease.

- Widen the space between your two feet (broadening your “base”) a little, for better balance.
- Try to make your first step a long one. If short, shuffling steps occur, stop and start over with one long step. Similarly, if you experience a freezing episode, try and relax. Imagine stepping over something (mentally rehearse the next move thoroughly and picture yourself accomplishing it). It may help to gently rock side to side to get started. Concentrate on taking long steps (strides), allowing the heel to strike the floor with each step.
- Use strategies such as counting or visual cues (e.g., taping lines to the floor in the house) to assist in movements.
- Pay extra attention when walking over uneven surfaces.
- Avoid doing two things at the same time (e.g., talking while walking), especially in unfamiliar places or where the ground is uneven.
- Avoid crossing one foot over the other (in some patients, this tends to occur in the “ON”-medication state, when some patients can become “careless” or impulsive - so be mindful of this).
- Swing your arms (avoid putting hands in your pockets).
- Turn corners in a wide arc and keep using long steps (avoiding sharp turns) (see Figure 5). This can help to reduce gait freezing.”
- Use appropriate footwear, e.g., shoes with low heels, and non-slip soles.
- Environmental modifications in the home may also be necessary. Some examples: Remove loose carpets. Try and reduce the number of items in a room, so that a room is less cluttered, reducing the risk of tripping over something. Don’t leave things around that might trip you up. Bright lighting can also help. Don’t rush to answer the telephone (install an answering machine instead, or use a mobile phone). Use non-slip / rubber mats in the bath or shower. Consider installing handrails, e.g., in the bathroom.
- If appropriate (you may wish to consult a doctor or physiotherapist about this), use a walking aid (walking stick / cane or walker). This is not the same as "giving in" to the disease. Walking safely with an aid is better than breaking one's hip or skull in a fall.
Figure 6. Turn corners in a wide arc and keep using long steps (avoiding sharp turns). This can help to reduce gait freezing.
8. Living Well with Parkinson’s Disease

It is beyond the scope of this introductory booklet to provide comprehensive coverage of all of the common issues confronting people living with Parkinson’s disease. For example, the management of non-motor symptoms (Appendix 3) is not covered in detail.

Please see Appendix 7 on “Suggested Exercises”.

Further recommended reading. There are several books related to Parkinson’s disease that are well worth a read. These include (but are not limited to):


Useful websites. These include the following:

• Malaysian Parkinson’s Disease Association website:
  http://www.mpda.org.my/

• (North American) National Parkinson Foundation website:
  http://www.parkinson.org/

• WE MOVE (Worldwide Education and Awareness for Movement Disorders) website:
  http://www.wemove.org/

• The Michael J. Fox Foundation for Parkinson’s Research:
  http://www.michaeljfox.org/
Appendix 1: About the Malaysian Parkinson’s Disease Association (MPDA)

PERSATUAN PARKINSON MALAYSIA / MALAYSIAN PARKINSON’S DISEASE ASSOCIATION
Registration number 5642/94

Address : 35, Jalan Nyaman 10, Happy Garden, Jalan Old Klang Road, 58200 Kuala Lumpur.
Telephone : 03-7980 6685
E-mail : mpda1@streamyx.com
Website : www.mpda.org.my

What is the MPDA? The MPDA, which was incorporated on 12 September 1994, is the first Malaysian national support group for people with Parkinson’s (PwP) and their caregivers.

The main objectives of the MPDA are to:
• Provide educational and emotional support to PwP and their caregivers;
• Promote self-management of Parkinson’s disease (PD), consistent with the best medical advice; and
• To facilitate the provision of suitable professional help and advice to PwP and their caregivers.

How does the MPDA help its members? The Association keeps members connected with one another. It helps them manage their condition, listens to their needs, and carries out activities based on these needs. Consistent with its objectives, the MPDA provides the following services:

• Health education for PwP and their caregivers. Generally, the Malaysian public know very little about PD. Thus, PwP are often anxious and scared when doctors tell them that they have PD. Some of them think that they become paralysed very soon. We educate PwP and their caregivers about PD so that they can understand and cope better with the various aspects of the illness.

• Moral support for PwP and their caregivers. Having PD can result in significant mental distress to both PwP and their caregivers. The MPDA is a place where members can share their experience and knowledge with each other, and give moral support to each other which helps to cope with the illness. Experienced patients / caregivers are particularly good counsellors. By becoming members of MPDA, PwP and caregivers will know that they are not alone in facing this disease.

• Group activities. The MPDA coordinates various social, recreational and physical therapy activities at the Parkinson’s Centre, as well as outings.

• Publication of a quarterly newsletter (“Berita Parkinson”), which aims to inform members on the various aspects of PD management as well as the latest developments in PD-related medical research, and disseminate information on activities of the Association.
The 1° neuropathologic / neurochemical feature of PD

Good correlation between this & the severity of motor features, esp. bradykinesia & rigidity

Striatal dopaminergic deficiency

Nigral degeneration

[Dauer & Przedborski, Neuron 2003]

Figure A. Degeneration of the substantia nigra of the brain causes dopamine deficiency, which underlies the motor symptoms (particularly bradykinesia and rigidity) of Parkinson’s disease. Originally published in: Dauer W, Przedborski S. Parkinson’s Disease: Mechanisms and Models. Neuron 2003;39:889-909. Modified and reproduced with kind permission from the publisher (Cell Press).
Appendix 2: How Parkinson’s Disease Affects the Nervous System

Putative anatomical substrates for the non-motor features of Parkinson’s disease
ANS = autonomic nervous system; DMNV = dorsal motor nucleus of the vagal nerve; LC = locus ceruleus; PPN = pedunculopontine nucleus; RBD = REM behavioral disorder; RpN = raphe nuclei

Figure B. Structures of the central and peripheral nervous system commonly affected in Parkinson’s disease. Parkinson’s disease causes both dopaminergic, as well as non-dopaminergic, lesions. Originally published in: Lim SY, Fox SH, Lang AE. Overview of the extra-nigral aspects of Parkinson disease. Archives of Neurology 2009;66(2):167-172. Reproduced with kind permission from the publisher (American Medical Association).
Appendix 3: The Non-Motor Symptoms of Parkinson’s Disease

**Neuropsychiatric symptoms**
- Depression, apathy, anxiety
- Anhedonia
- Attention deficit
- Hallucinations, illusion, delusions
- Dementia
- Obsessional behaviour (usually drug induced), repetitive behaviour
- Confusion
- Delirium (could be drug induced)
- Panic attacks

**Sleep disorders**
- Restless legs and periodic limb movements
- Rapid eye movement (REM) sleep behaviour disorder and REM loss of atonia
- Non-REM-sleep related movement disorders
- Excessive daytime somnolence
- Vivid dreaming
- Insomnia
- Sleep disordered breathing

**Autonomic symptoms**
- Bladder disturbances
  - Urgency
  - Nocturia
  - Frequency
- Sweating
- Orthostatic hypotension
  - Falls related to orthostatic hypotension
- Coat-hanger pain
- Sexual dysfunction
  - Hypersexuality (likely to be drug induced)
  - Erectile impotence
- Dry eyes (xerostomia)

**Gastrointestinal symptoms (overlaps with autonomic symptoms)**
- Dribbling of saliva
- Ageusia
- Dysphagia and choking
- Reflux, vomiting
- Nausea
- Constipation
- Unsatisfactory voiding of bowel
- Faecal incontinence

**Sensory symptoms**
- Pain
- Paraesthesia
- Olfactory disturbance

**Other symptoms**
- Fatigue
- Diplopia
- Blurred vision
- Seborrhoea
- Weight loss
- Weight gain (possibly drug induced)

Most patients with Parkinson’s disease will experience several non-motor symptoms.

There are effective treatments for some of these, but these are beyond the scope of this booklet.

Please discuss troublesome symptoms with your doctor.

Distinguishing between these different movement disorders is important because the presence of one (e.g., tremor or dystonia) might mean that Parkinson’s medication should be increased, while the presence of another (e.g., peak-dose dyskinesia) might mean that the dose should either be decreased (e.g., taking smaller doses, but at more frequent intervals), or other measures taken (e.g., treating with amantadine, if the dyskinesia is troublesome).

**Figure A. Tremor (“shakes”).**
These are oscillatory movements. In PD, tremor most commonly affects the hand / arm, but sometimes can also affect the leg or head. It is usually most prominent at rest, but sometimes can also be present when performing actions (e.g., whilst holding a cup or writing).

**Figure B. Dyskinesia (“wriggling”).**
These are involuntary movements that usually occur when a dose of PD medication has taken effect (“ON”-medication condition). In the example shown here, the dyskinesia is more severe and generalised, but in most patients the wriggling is milder.

**Figure C. Dystonia (“twisting”).**
This most commonly affects the foot (with the ankle twisting in, or the toes curling up or down). In most patients, it occurs in the “OFF”-medication condition, e.g., in the early morning prior to taking the 1st dose of PD medication.
# Appendix 5: Parkinson’s Disease Drug Identification Chart

## Levodopa-Based Medications

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levodopa/Benserazide</td>
<td>Madopar 100/25mg cap®</td>
</tr>
<tr>
<td></td>
<td>Madopar 200/50mg tab®</td>
</tr>
<tr>
<td></td>
<td>Madopar HBS 100/25mg cap®</td>
</tr>
<tr>
<td>Levodopa/Carbidopa</td>
<td>Sinemet 25/100mg tab®</td>
</tr>
<tr>
<td></td>
<td>Sinemet 25/250mg tab®</td>
</tr>
<tr>
<td></td>
<td>Sinemet CR 50/200mg tab®</td>
</tr>
<tr>
<td>Entacapone</td>
<td>Comtan 200mg tab®</td>
</tr>
<tr>
<td>Levodopa/Carbidopa/Entacapone</td>
<td>Stalevo 50(50/12.5/200mg) tab®</td>
</tr>
<tr>
<td></td>
<td>Stalevo 100(100/25/200mg) tab®</td>
</tr>
<tr>
<td></td>
<td>Stalevo 150(150/37.5/200mg) tab®</td>
</tr>
<tr>
<td></td>
<td>Stalevo 200(200/50/200mg) tab®</td>
</tr>
</tbody>
</table>

## Direct Dopamine Agonists (Ergot)

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromocriptine</td>
<td>Parlodel 2.5mg tab®</td>
</tr>
<tr>
<td>Cabergoline</td>
<td>Dostinex 0.5mg tab®</td>
</tr>
<tr>
<td>Pergolide</td>
<td>Celance 0.05mg tab®</td>
</tr>
<tr>
<td></td>
<td>Celance 0.25mg tab®</td>
</tr>
<tr>
<td></td>
<td>Celance 1mg tab®</td>
</tr>
</tbody>
</table>

*Parkinson’s disease affects everyone differently and treatments need to be tailored to the individual.*
### Appendix 5: Parkinson’s Disease Drug Identification Chart

#### Direct Dopamine Agonists (Non-Ergot)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piribedil</td>
<td>Trivastal Retard 50mg SR tab®</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>Sifrol 0.125mg tab®</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>Sifrol 1mg tab®</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>Requip 0.25mg tab®</td>
</tr>
<tr>
<td>Pramipexole</td>
<td>Requip 1mg tab®</td>
</tr>
<tr>
<td>Ropinirole</td>
<td>Requip 2mg tab®</td>
</tr>
<tr>
<td>Ropinirole</td>
<td>Requip PD 2mg tab®</td>
</tr>
<tr>
<td>Ropinirole</td>
<td>Requip PD 4mg tab®</td>
</tr>
<tr>
<td>Rotigotine Patch</td>
<td>Neupro® patch</td>
</tr>
</tbody>
</table>

#### Others

<table>
<thead>
<tr>
<th>Drug</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selegiline</td>
<td>Jumex 5mg tab®</td>
</tr>
<tr>
<td>Selegine</td>
<td>Selegos 5mg®</td>
</tr>
<tr>
<td>Trihexyphenidyl hydrochloride</td>
<td>Benhexol 2mg tab®</td>
</tr>
<tr>
<td>Orphenadrine</td>
<td>Norflex 100mg tab®</td>
</tr>
<tr>
<td>Amantadine</td>
<td>PK-Merz 100mg tab®</td>
</tr>
</tbody>
</table>

*Parkinson’s disease affects everyone differently and treatments need to be tailored to the individual.*
## Appendix 5: Parkinson’s Disease Drug Identification Chart

### Medications Commonly Used to Treat The Non-Motor Symptoms of Parkinson’s Disease

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand and Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seroquel XR</td>
<td>200mg tab®</td>
</tr>
<tr>
<td>Seroquel XR</td>
<td>300mg tab®</td>
</tr>
<tr>
<td>Seroquel XR</td>
<td>400mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>25mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>100mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>200mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>300mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>XR 50mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>XR 200mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>XR 300mg tab®</td>
</tr>
<tr>
<td>Seroquel</td>
<td>XR 400mg tab®</td>
</tr>
<tr>
<td>Domperidone</td>
<td>Motilium 10mg tab®</td>
</tr>
<tr>
<td>Fludrocortisone</td>
<td>Florinef 100mcg tab®</td>
</tr>
<tr>
<td>Domperidone</td>
<td>Motilium 20mg tab®</td>
</tr>
<tr>
<td>Fludrocortisone</td>
<td>Florinef 200mcg tab®</td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>Dulcolax 5mg tab®</td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>Dulcolax Adult Supp 10mg tab®</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Rivotril 0.5mg tab®</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Rivotril 2mg tab®</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Rivotril 5mg tab®</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Rivotril 10mg tab®</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Rivotril 20mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel 25mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel 100mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel 200mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel 300mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel XR 50mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel XR 200mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel XR 300mg tab®</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel XR 400mg tab®</td>
</tr>
<tr>
<td>Donepezil</td>
<td>Aricept 5mg tab®</td>
</tr>
<tr>
<td>Donepezil</td>
<td>Aricept 10mg tab®</td>
</tr>
</tbody>
</table>

*Parkinson’s disease affects everyone differently and treatments need to be tailored to the individual.
### Appendix 5: Parkinson’s Disease Drug Identification Chart

Medications Commonly Used to Treat The Non-Motor Symptoms of Parkinson's Disease

<table>
<thead>
<tr>
<th>Medication</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rivastigmine</strong></td>
<td>Exelon 1.5mg cap®</td>
</tr>
<tr>
<td></td>
<td>Exelon 3mg cap®</td>
</tr>
<tr>
<td></td>
<td>Exelon 4.5mg cap®</td>
</tr>
<tr>
<td></td>
<td>Exelon 6mg cap®</td>
</tr>
<tr>
<td></td>
<td>Exelon Patch 5®</td>
</tr>
<tr>
<td></td>
<td>Exelon Patch 10®</td>
</tr>
<tr>
<td><strong>Memantine</strong></td>
<td>Ebixa 10mg tab®</td>
</tr>
<tr>
<td><strong>Amitriptyline</strong></td>
<td>Apo-Amitriptyline 10mg tab®</td>
</tr>
<tr>
<td></td>
<td>Apo-Amitriptyline 25mg tab®</td>
</tr>
<tr>
<td><strong>Gabapentin</strong></td>
<td>Neurontin 100mg cap®</td>
</tr>
<tr>
<td></td>
<td>Neurontin 300mg cap®</td>
</tr>
<tr>
<td></td>
<td>Neurontin 400mg cap®</td>
</tr>
<tr>
<td></td>
<td>Neurontin 600mg tab®</td>
</tr>
</tbody>
</table>

*Parkinson’s disease affects everyone differently and treatments need to be tailored to the individual.*
## Appendix 6: “Wearing-Off” Questionnaire

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Experience symptoms</th>
<th>Usually improves after my next dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tremor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any slowness in movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any stiffness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain/aching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced dexterity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloudy mind/slow thinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety/panic attacks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscle cramping</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Now you can bring these results to discuss with your doctor.**
Appendix 7: Suggested Exercises

(Please see also Section 7 above on “Posture & Gait (Walking)”).

Regular exercise can help maintain flexibility, keep muscles strong, improve posture and balance, and increase energy levels. It can also help to reduce sleep difficulties, bone wasting (osteoporosis) and constipation.

Some examples of useful stretching and strengthening exercises are given below.

Each exercise can be repeated 8-10x and can be done twice a day.

Movements should be performed slowly (in a controlled manner), without causing pain (except for a feeling of stretching in the muscles).

If balance is a problem, it is advisable to perform some exercises (e.g., the trunk exercises shown below) sitting, to avoid falls.

While exercising, patients should take slow, deep breaths through the nose, and slowly blow out through the mouth.

A physiotherapist experienced in managing patients with Parkinson’s disease can be very helpful in developing an individualised exercise program.

This section was produced with the help of Ms. Tamilchelvi A/P Muniandy (Neurology Physiotherapy, Gleneagles Hospital, Kuala Lumpur).
1. **Head rotation**
   - Turn head slowly from side to side, looking over each shoulder, feeling a gentle stretch in the neck muscles. Hold each turn for 10 seconds.

2. **Shoulder stretch**
   - Place your forearms behind your head. Stretch your shoulders by pushing the elbows upwards.

3. **Head flexion & extension**
   - Extend the head backwards slowly, feeling a gentle stretch in the neck muscles. Hold for 10 seconds. Then bend the head forwards. Hold for 10 seconds.

4. **Shoulder shrug & rotation**
   - Shrug shoulders up and down.
   - Rotate shoulders up, back and down.
Appendix 7: Suggested Exercises

**Trunk exercises**

1. **Trunk rotation**
   - Feet apart. Rotate head, shoulders and hips together slowly, side to side, feeling a gentle stretch in the trunk muscles.

2. **Trunk (latero-)flexion**
   - Feet apart. Stretch sideways, first to the right, then to the left.

3. **Trunk extension**
Appendix 7: Suggested Exercises

**Leg exercises (i)**

1. **Marching on the spot**
   - March on the spot for 2 minutes. Lift knees as high as possible. Swing arms.

2. **Side lift**
   - Slowly take the leg out to the side and return.

3. **Getting off chair**
   - Push to stand using the legs, if possible without using the armrest (e.g., with arms crossed).
4. Leg extension
- Pull leg straight back (lifting foot off the ground), and return.

5. Calf stretch
- Stretch calf keeping heel on the floor. Back leg straight and front knee bent. Hold for 10 seconds.

6. Hamstring stretch
- Place one leg on a small stool, with the other foot flat on the floor. Lean forwards, reaching down the shin until a stretch is felt in the back of the thigh (hamstring). Hold for 10 seconds.
Appendix 7: Suggested Exercises

Facial exercises

- Smiling
- Frowning
- Blowing & Sucking through a straw
- Protruding tongue
Appendix 7: Suggested Exercises

Upper limb exercises

- Stretch the wrist into extension
- Stretch the wrist into flexion
- Pronation and supination of the forearm. Rotate the forearm (like twisting a lightbulb)
- Wrist extension exercise (holding a weight in the hand)
- Wrist flexion exercise (holding a weight in the hand)