**Exercise for Long-term Neurological Conditions**

**CASE STUDY 1**

Barry is a 49-year male with a family history of cardiovascular disease, hypertension and hypercholesterolaemia. For these issues, Barry has been prescribed a **beta blocker**, **simvastatin** and **aspirin** (all taken daily).

Barry has been referred to you by the local stroke unit as he experienced a tans-ischaemic attack (TIA), for which he attended hospital and was given his medication.

Barry has a poor diet, mainly as a result of his occupation, which is a long-distance truck driver and being ‘on the road’ most of the week and ‘in the pub’ most of the weekend! He was a keen footballer, having played at semi-professional level when in his 20’s. He was forced to retire from football due to a cruciate ligament injury in his knee, which made him depressed at the time.

Barry is anxious that he will have a stroke, although he has no disability from his TIA. He is worried he will become disabled through an ischaemic stroke and miss-out on fully bringing-up his 2 young children. It appears the TIA has been a ‘teachable’ moment for Barry, but you are concerned he may overdo it to immediately reduce his risk.

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| Physiological test | Result |
| Body mass index (BMI) | 40kg/m  makes this client L4 O&D. Change to 39 BMI |
| Resting heart rate (RHR | 72bpm (unmedicated);  44bpm (medicated) |
| Resting blood pressure | 190/110mmHg (unmedicated)  150/94mmHg (medicated) |

*End.*

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**CASE STUDY 2**

Geoff is a 65-year old male, who is married with 2 grown children. 2 years ago, he experienced a stroke and has been undergoing physiotherapy to regain some independence and improve his condition.

Geoff has right sided Hemiparesis, slurred speech and Broca’s aphasia. He has been prescribed **irbesartan** and **aspirin**.

He can now get himself around the house quite well, but would like to improve his strength and try to get out and about more. His wife is very encouraging and is willing to help him with his goals.

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| Physiological test | Result |
| Body mass index (BMI) | 32kg/m2 |
| Resting heart rate (RHR | 78bpm |
| Resting blood pressure | 135/92mmHg |

*End.*

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**CASE STUDY 3**

David is a 61-year-old male, who is divorced with 3 children. David is a business executive and has a long history of high blood pressure, and collapsed while running one day, during the lunch hour. His ‘running-mate’ quickly contacted a police officer who helped carry David to a hospital just down the road. At the hospital, a blockage of a major cerebral artery was found, and ischaemic changes to the portion of the brain supplied by that artery was identified. With quick medical attention, David was stabilised, and he slowly improved over the next three weeks. The following signs and symptoms did persist, however:

* Paralysis of the right leg and foot;
* Loss of sensation on the skin of the right leg and foot;
* When blindfolded, an inability to identify a tennis ball placed in the left hand, but ability to name it if placed in the right hand;
* Inability to throw the tennis ball with his left hand, but ability to throw it with his right hand.

David was discharged with **angiotensin-II receptor inhibitor** and **aspirin** medication, with advice to lose weight and change his lifestyle (which has been very busy and stressful for some time)**.**

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| Physiological test | Result |
| Body mass index (BMI) | 36kg/m2 |
| Resting heart rate (RHR | 58bpm |
| Resting blood pressure | 132/80mmHg (medicated) |

*End.*

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**CASE STUDY 4**

Mary is a 68-year old female, who is married with 3 children and 6 grandchildren. She was diagnosed with type 2 diabetes mellitus 5 years ago, for which she takes **metformin** to stabilise her levels of blood glucose. She has a BMI of 32kg/m2 and has led a relatively sedentary life, apart from general housework chores and other ADLs. One day, Mary collapsed and was taken to hospital by ambulance. She eventually fully regained consciousness, later to discover that she had experienced an occlusion of the superior division of the left middle cerebral artery.

The effects of the stroke were:

* paralysis of the right face and arm;
* loss of sensation to touch on the skin of the right face and arm;
* inability to answer questions, but ability to understand what was said to her;
* ability to write-down her thoughts more easily than to speak them.

She was discharged from hospital into community care, where she has completed a course of physiotherapy and regained some ROM in her arm, whilst her expressive aphasia has improved considerably. She is still some way short of full movement and communication skills, though. She was discharged with a combination of medication: **aspirin**, an **angiotensin II receptor inhibitor** and a **statin**.

On speaking with Mary, you discover that she is generally ‘fine’ in her mood and does **not** have clinical depression, as she says her large family keeps her going. She does, however, get very frustrated at not being able to effectively communicate and play with her grandchildren.

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| Physiological test | Result |
| Body mass index (BMI) | 26kg/m2  This should be 32 BMI as in the text above |
| Resting heart rate (RHR | 62bpm |
| Resting blood pressure | 128/72mmHg (medicated) |

*End.*

**Exercise for Long-term Neurological Conditions**

**CASE STUDY 5**

John is a 45-years of age male, married with 1 child. He works as a college tutor. John was involved in an accident 10 years ago where he sustained a thoracic spinal cord injury resulting in incomplete T7 paraplegia.

Strength is normal in his arms and upper thorax, but his abdominal muscles and legs were paralysed. He has spasticity in the hip and knee flexors, and in the ankle plantar flexors. He has gained a significant amount of body-fat recently.

He lives independently in the community, uses a wheelchair and drives an adapted car. He has difficulty transitioning, but can do so with the aid of a sliding board. He has been prescribed an **ACE inhibitor** and **baclofen**.

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| Physiological test | Result |
| Body mass index (BMI) | N/A |
| Resting heart rate (RHR | 76bpm |
| Resting blood pressure | 135/86mmHg |

*End.*

**Exercise for Long-term Neurological Conditions**

**CASE STUDY 6**

Ananya is a 57-year old female, who is married with 2 children and 1 grandchild. She was diagnosed with relapsing-remitting multiple sclerosis 10 years ago. She takes **beta interferon** to manage her condition and **baclofen** to help with spasticity.

She is generally well, apart from her MS symptoms. She has end-range tightness in left hip extension, ankle dorsi flexion and shoulder external rotation. This has led to her feeling un-balanced and she worries about falling.

Her lifestyle is generally healthy, and she endeavours to remain active on most days.

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| Physiological test | Result |
| Body mass index (BMI) | 29kg/m2 |
| Resting heart rate (RHR | 70bpm |
| Resting blood pressure | 115/68mmHg |

*End.*

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**CASE STUDY 7**

Lyn is a 62-year old female, who has been referred for help with Parkinson’s. **Carbidopa-levodopa** has been prescribed, and she is in no mental distress. She does have difficulty performing activities of daily living and gets tired easily.

She also experiences from a painful lower back. She has ‘masked’ faces and neck flexion, with stooped shoulders. She has slurred speech, poor finger-to-nose and heel-to-shin co-ordination, and slight flexion of the knees when standing.

Lyn is generally high in spirits on most days, but does at times become frustrated and has low mood on some days.

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| Physiological test | Result |
| Body mass index (BMI) | 25kg/m2 |
| Resting heart rate (RHR | 65bpm |
| Resting blood pressure | 118/78mmHg |

*End.*

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**CASE STUDY 8**

Edith is a 61-year-old female, who is divorced with 3 children. She has a long history of high blood pressure and collapsed while on her way to work. She was quickly taken to hospital by ambulance. At hospital, a blockage of a major cerebral artery and ischaemic changes to the portion of the brain supplied by that artery was revealed. With quick medical attention, Edith was stabilised, and she slowly improved over the next few weeks. The following signs and symptoms did persist, however:

* Moderate hemiparesis of the right side of the body;
* Loss of sensation on the skin of the right leg and foot;
* Slurred speech and confusion.

Edith was discharged with an **angiotensin-II receptor inhibitor**, **aspirin** and **non-opioid** **analgesics** (pain killers), and advised to slow-down at work (head of an accountancy firm), but become more socially active. She was shaken-up by the incident, but has had a series of hospital-based physiotherapy sessions, and is now more confident and stronger mentally, although she does worry about having another stroke.

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| Physiological test | Result |
| Body mass index (BMI) | 28kg/m2 |
| Resting heart rate (RHR | 70bpm |
| Resting blood pressure | 115/70mmHg |

*End.*