



**Introduction to Fitness & Mobility Exercise (FAME)  
Program for Stroke: An Educational Workshop for  
Fitness Professionals**

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12-12:45 Stroke and rehabilitation  
 12:45-1:15 Evidence for exercise  
 1:15-1:50 Exercise considerations  
 1:45-2:00 Break  
 2:00-3:30 Demonstrations  
 3:30-4:00 Review and questions

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**Objectives:**



The aim of this one day workshop is to provide exercise professionals with an introduction to exercise considerations for people after stroke, including an overview of the evidence-based Fitness and Mobility Exercise (FAME) Group Program for Stroke

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**Learning Outcomes**

1. Understand the goals of exercise after a stroke
2. Describe health breakdown after stroke
3. Describe exercise considerations for people after stroke
4. Understand appropriate exercise for people after stroke
5. Describe the principles of repetition and progression
6. Describe safe provision of exercise for people after stroke

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**Stroke Statistics**

**Deaths**

- 4<sup>th</sup> leading cause of death in Canada
- Each year, about 16,000 Canadians die from stroke

**Prevalence**

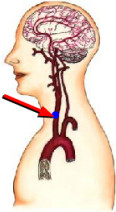
- 50,000 strokes in Canada each year
- 300,000 Canadians are living with the effects of stroke
- After age 55, there is a 1 in 5 chance of having a stroke
- Average age is 70 at time of stroke
- A stroke survivor has a 20% chance of having another stroke within 2 years
- 60% who have a stroke are women






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**What is a stroke?**

- Sudden loss of brain function
- Caused by:
  - Interruption of blood flow to the brain  
(**Ischemic stroke**), or
  - Rupture of blood vessels in the brain  
(**Hemorrhagic stroke**)
- Leads to death of brain cells (neurons) in the affected area



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## Causes of stroke

- High BP leads to arteriosclerosis and damages blood vessels in the brain
- Cholesterol build-up and plaque formation in carotid or vertebral arteries
- Irregular heart rhythm (atrial fibrillation) can cause blood clot in heart chamber

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## Secondary factors

- Obesity
- Inactivity
- Diabetes
- Cigarette smoking
- Heart disease
- Low fruit and vegetable intake

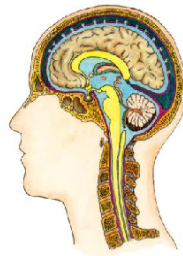
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## Neuroanatomy Background

The brain controls most of the movement and sensation in the body

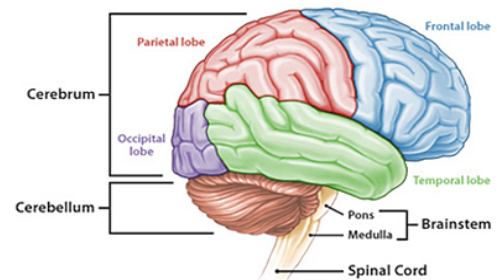


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## Neuroanatomy



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## Neuroanatomy



The largest part of the brain is called the **cerebrum**

2 sections:  
Right hemisphere  
Left hemisphere

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## Nervous System Health

The nervous system includes the brain and spinal cord and nerves

The nerves carry information to the brain (sensation) and from the brain to control muscle tone and movement

The brain responds to this information and co-ordinates responses

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## Hemisphere controls the opposite side of the body

- R hemisphere controls the movement and sensation of the L side of the body
- L hemisphere controls the movement and sensation of the R side of the body



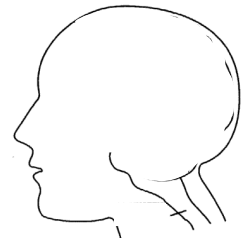
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## How does stroke impact the body?

- Dependent on location and extent of damage
- Potential impact?
  - Motor
  - Sensory
  - Memory
  - Speech and Language
  - ...



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## The most common effects of a stroke

- Muscle weakness (**hemiparesis**) on one side
- Poor balance or incoordination
- Difficulty speaking (**aphasia**)
- Changes in cognitive function, e.g. memory, attention, reasoning
- Numbness or change in sensory function
- Bladder or bowel control (**incontinence**)
- Less aware of one side of the body (**neglect**)
- Difficulty swallowing (**dysphagia**)
- Poor vision and/or changes in vision

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## Other effects of stroke

- Spasticity/Hypertonicity (increased tone)
  - Many people may have an increased resistance in the muscles to stretch after an injury to the central nervous system
- Shoulder pain
  - Due to subluxation
  - Common if arm/hand is more severely affected
  - Support on "good side", do not pull on affected arm

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## Other effects of stroke

- Fatigue or Tiredness
  - Extremely common
  - May be due to the extra energy expended for every day activities, or for coping with physical and emotional changes
- Depressive symptoms
  - Feelings of fear, anxiety, frustration, anger, sadness and a sense of grief for their physical and mental losses
  - Natural response to the psychological trauma of stroke

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## Stroke treatment and rehabilitation

- 2-3 weeks in acute care
- Up to 1/2 go directly home
- 1/3 go to inpatient rehabilitation for 4-6 weeks
- Up to 1/4 go to nursing home or other LTC facility

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## Stroke treatment and rehabilitation

- Medical management, e.g. hypertensive medications, anti-depressants, cholesterol-reducing agents
- Nursing care
- Occupational therapy
- Physical therapy
- Speech therapy
- Recreation therapy
- **After 6 weeks, most are not getting treatment**

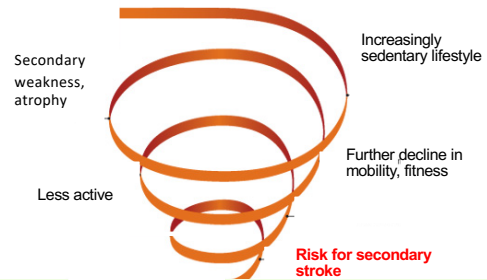
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## Effects of no treatment?

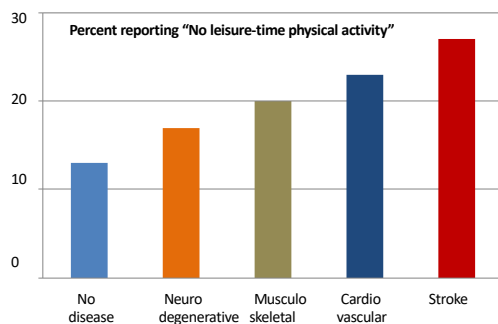


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Percent reporting "No leisure-time physical activity"



Older adults, chronic disease and leisure time physical activity. Ashe, Eng et al. Gerontology 2009

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## Stroke and physical inactivity increase cardiovascular risk

- Cardiovascular disease is the leading prospective cause of death in chronic stroke
- 75% with heart disease
- 85% with hypertension
- 80% with impaired glucose tolerance or diabetes
- 1/3 go on to have another stroke within 5 years

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## Canadian Stroke Best Practice Recommendations

- Patients should be counselled to achieve an accumulation of at least 150 mins of moderate to vigorous activity per week, in episodes of 10 mins or more

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## REFLECTION/DISCUSSION

- Given the effects of stroke, how do you think this will impact your role as an instructor?



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