

IMPERIAL

Neurology and Neuroscience

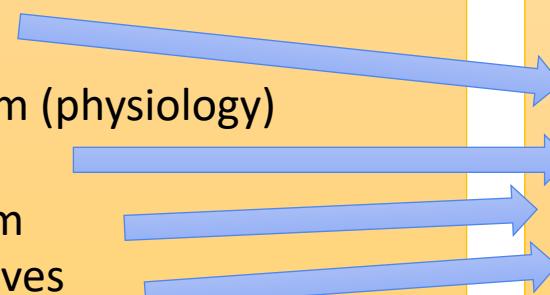
Dr Paul Strutton - p.strutton@imperial.ac.uk



Course structure

Face to face

1. Introduction to the course (online – brief!)
2. Cells of the Nervous System and the Neuromuscular Junction
3. Membrane potentials and action potentials
4. Introduction to pharmacology of the nervous system
5. Neurotransmission
6. Autonomic nervous system (physiology)
7. Central Nervous System
8. Peripheral Nervous System
9. Brainstem and cranial nerves



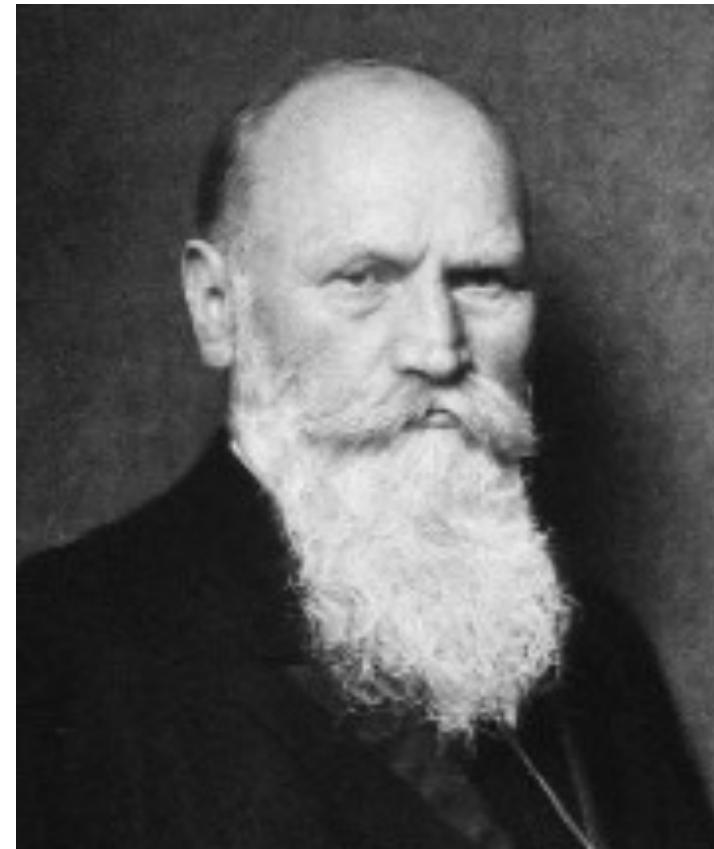
Tutorials – face to face

1. Neuroanatomy
2. Epilepsy
3. Disorders of the Central Nervous System
4. Disorders of the Peripheral Nervous System
5. Neurological disorders



Who's who of neuroscience

1891 – term **neuron** introduced

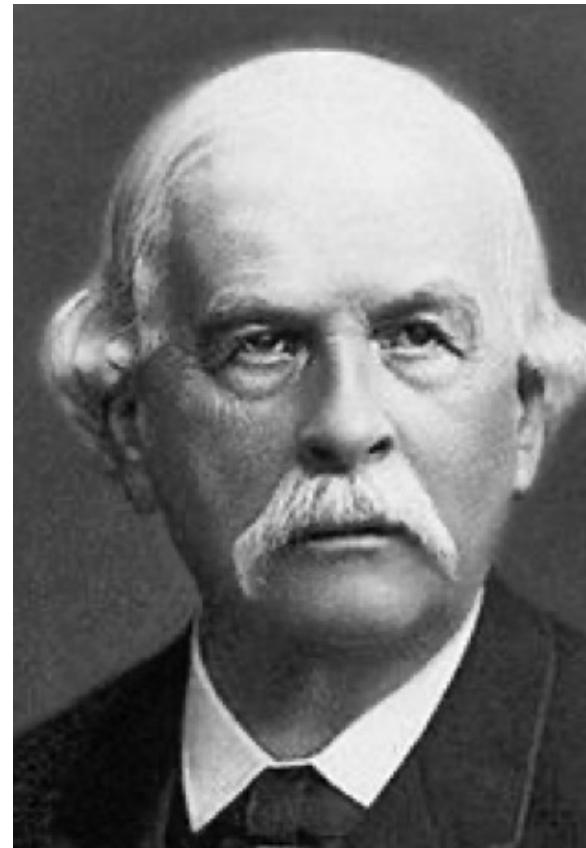


Wilhelm Waldeyer (1836-1921)



Who's who of neuroscience

term **axon** introduced



Rudolph Albert von Kolliker (1817-1905)



Who's who of neuroscience

term **dendrite** introduced



Wilhelm His, Sr (1831-1904)



Who's who of neuroscience

1897 - term **synapse** introduced



Charles Sherrington (1857-1952)

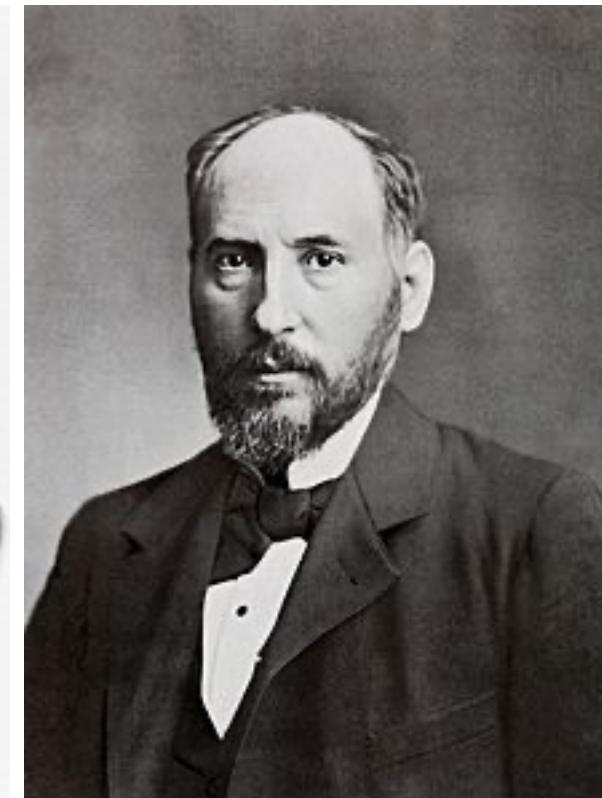


Who's who of neuroscience

Nobel Prize in Physiology or Medicine 1906
for work on structure of the nervous system



Camillo Golgi (1843-1926)





Do you need to know this?

To pass your exams - **no**



If you're interested in neuroscience – also **no**, but it is very interesting



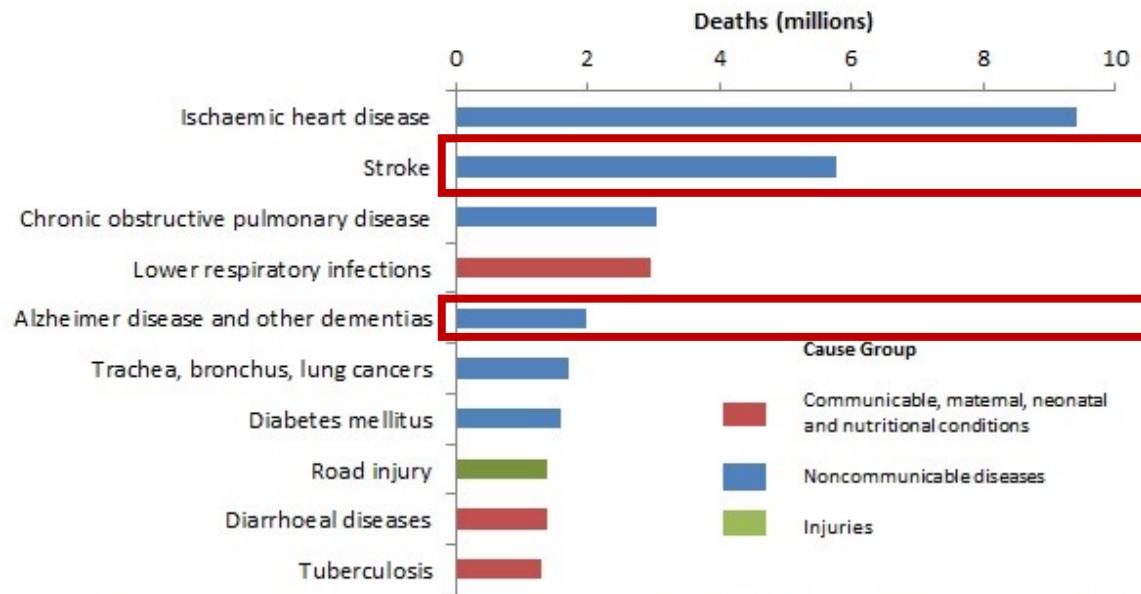


So why learn neurology and neuroscience?

Stroke is one of the world's biggest killers.
Stroke and ischaemic heart disease have remained the **leading causes of death** globally in the last 15 years.

Dementias are the **5th** leading cause of death

Top 10 global causes of deaths, 2016



Source: Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization; 2018.



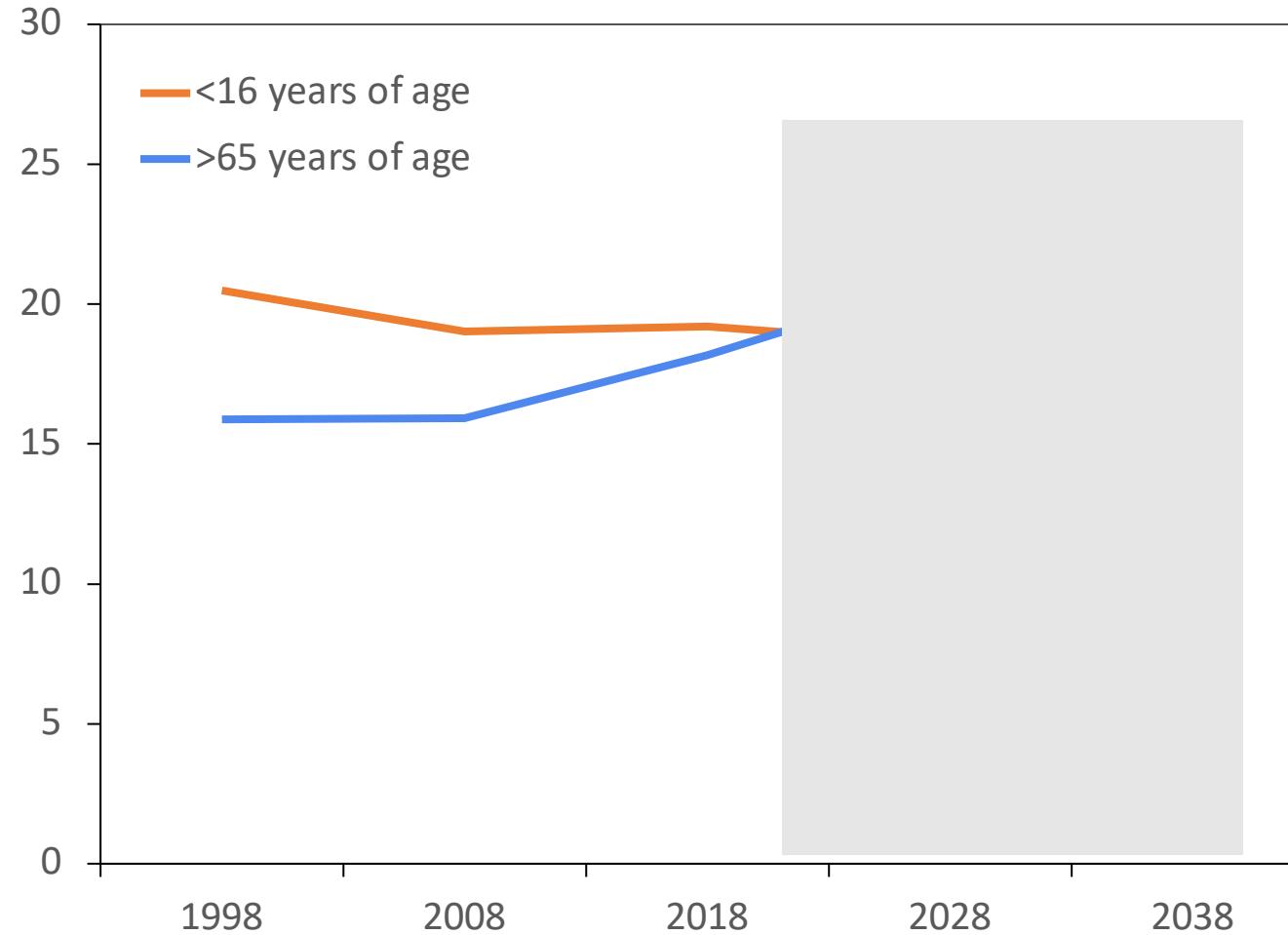
Neurological disorders



neurological disorders are one of the greatest threats to public health



Percentage of population of England

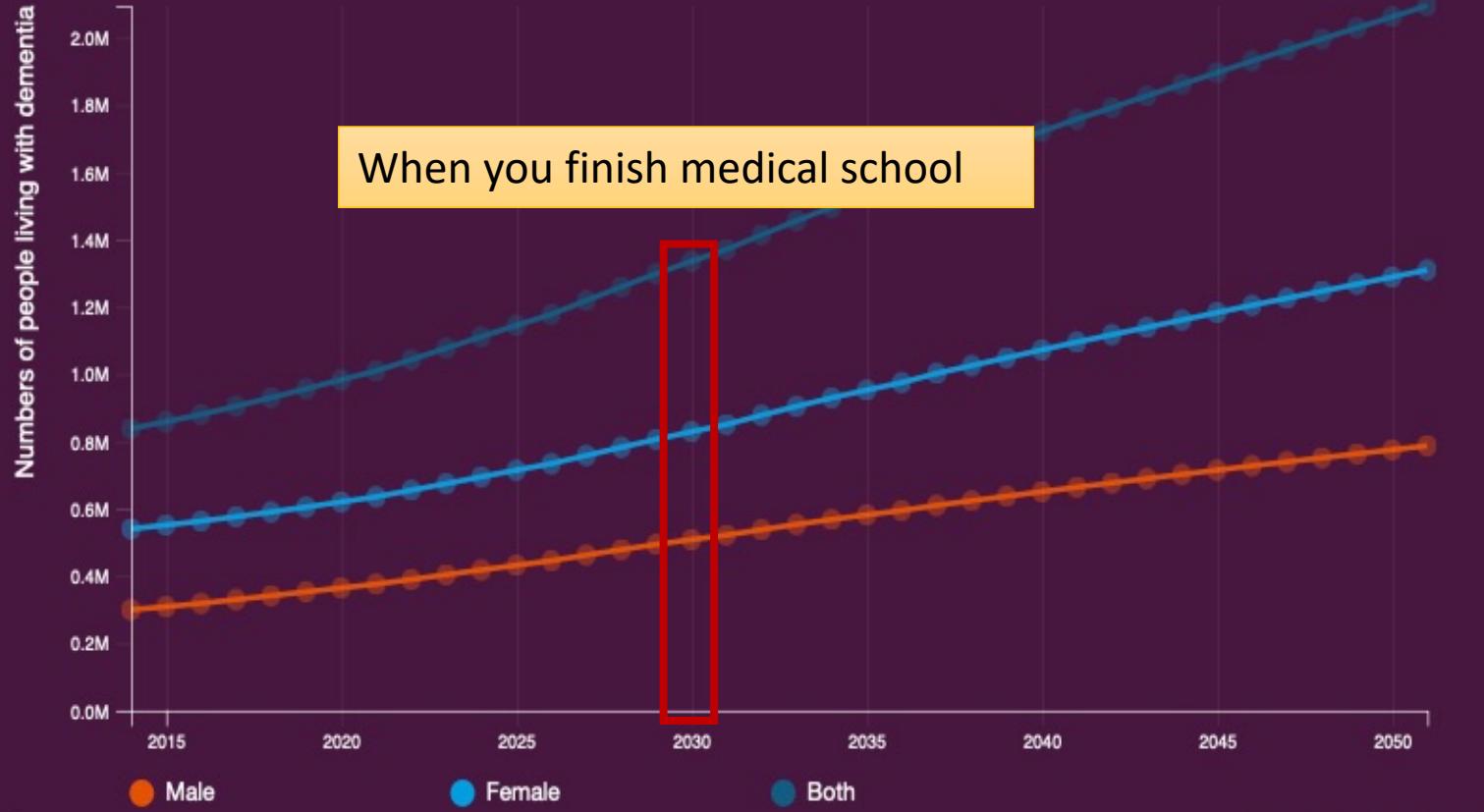


In the UK in 2018 there were **12 million people over 65** years of age of which:
5.4 million people are aged 75+,
1.6 million are aged 85+,
Over 500,000 people are 90+
14,430 are centenarians

By 2068 – expected to be **additional 8.6 million** people over 65 years of age



Projections of dementia prevalence in UK



Dementia is a key cause of disability in later life; a **more common** cause than cancer, cardiovascular disease and stroke (Alzheimer's Society, 2019).





NHS England states.....

“People with neurological conditions have the lowest health-related quality of life of any long-term condition”

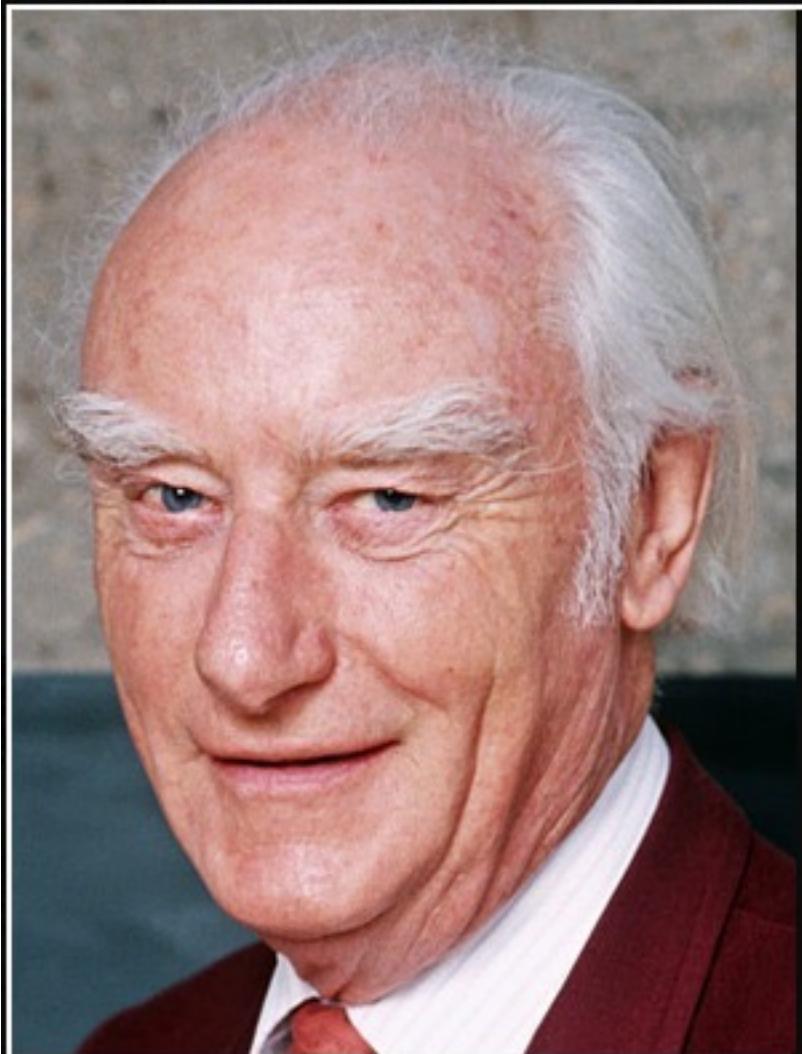


Leading cause of disability worldwide?

Depression



Importance of studying the brain...



There is no scientific study more vital to man than the study of his own brain. Our entire view of the universe depends on it.

— Francis Crick —



Neurology and neuroscience

Enjoy the course!

Dr Paul Strutton - p.strutton@imperial.ac.uk