Neurology:
The study of nervous system anatomy, physiology, and pathology, as well as the treatment of its disorders

http://www.uni.edu/walsh/neuro99.html

Stroke

This stroke survivor is going through rehab. Each year about 183 out of every 100,000 will suffer a stroke.

There are over 4,000,000 U.S. stroke survivors living with varying degrees of disability due to some disruption of normal blood supply to regions of brain.

All of us will face the effects of nervous system problems (or already have) – in ourselves, our friends and family, and/or in our professional lives.

Former President Reagan

- His personality, intellect and behavior was lost to Alzheimer’s disease – a plight faced by ~2,500,000 Americans.
- Among the elderly, yearly 1300/100,000 will develop it.

Traumatic Brain Injury (TBI)

- Each year, about 100 out of every 100,000 will suffer TBI.
- ~3,200,000 surviving cases

Evaluation of an Infant’s Seizures

- ~2,100,000 Americans live with epilepsy.
- Each year about 48 new cases/100,000 pop.
Michael J. Fox - just 1 of the at least 900,000 Americans with Parkinson’s Disease

Among older individuals each year about 160 out of every 100,000 will develop PD.

Richard Pryor

- Two of the ~300,000 Americans with multiple sclerosis (MS).
- Each year, 4-5 new cases per 100,000 pop.

Montel Williams

- Laura Downey (left) has just been diagnosed with Huntington’s Disease. Like 16,000 others she faces a gradual deterioration of motor control, cognitive functioning, personality and emotional control. There is a 50/50 chance that her daughter has also inherited the disease-producing gene.

Christopher Reeves

- Loss of body movement, sensation, and even normal breathing due to damage to a region of the spinal cord no bigger than your little finger. There are about 200,000 survivors of spinal cord injury in the US & each year 4-5 new cases/100,000 pop.

Stephen Hawking

- The mind of a great physicist trapped in an almost unmoving body due to amyotrophic lateral sclerosis (ALS). There are ~36,000 cases of this tragic condition also known as “Lou Gehrig’s disease). About 1.6 new cases each year per 100,000 pop.

- It is now clear that alterations in nervous system functioning are not limited to “neurological” disorders:
• Ongoing longitudinal study of the gradual loss of functioning cortex in childhood schizophrenia.

• The cingulum is one brain region which appears to malfunction in obsessive-compulsive disorder. Some desperate patients have received a cingulotomy to try to treat their disorder.

• More and more “mental disorders” are being recognized as disorders associated with distinctive nervous system changes.

• Recent studies show that therapies, both medical and psychological, bring about changes in brain function.

• More & more Clinical Psych programs are requiring students to take Neuroanatomy.

Brain Less Active in Depression

Decreased Cortical Activity in ADHD

In a community of ~100,000 (like Cedar Falls/Waterloo), you’ll find, on average:

Over 2000 will suffer from migraines.

Over 250 will have cerebral palsy.

There will be over 500 with back pain.

• About 33 will live with an autism spectrum disorder.

Over 350 will have experienced a herniated disc.

• And about 6 out of every 1000 children will suffer from Tourette’s syndrome.
Over 130 will be experiencing serious aftereffects of a concussion (post-concussive syndrome)

Over 80 will have brain tumors.

Over 80 will suffer from shingles (herpes zoster)

Over 70 will have been born with a congenital malformation of their nervous system (like spina bifida)

Over 80 will have problems with their peripheral nerves (peripheral neuropathy)

Over 15 will experience an infection of the brain (encephalitis) or meninges (meningitis)
Over 250 will be born with Down Syndrome.

- We also learn about the nervous system to better understand NORMAL or even exemplary nervous system functioning.

Over 300 will suffer from Meniere’s Disease.

An Olympic gymnast is just one example of the precision, timing, & coordination provided by the nervous system

Whoever your favorite composers or performers, they owe their music to the nervous system.

ALL will be making continuous use of their nervous system for all aspects of mental activity and behavior, as well as to regulate bodily functioning.
Feats of mind - creative or scientific – are also products of the brain.

Your personality is a product of your brain, and a slight change in brain functioning can totally change who you are as a person! It is a wonderous, but fragile, control system!

• More on incidence & prevalence of disorders:
  • http://members.sirweb.org/members/misc/hi rtz.pdf
  • http://www.plosone.org/article/info%3Adoi% 2F10.1371%2Fjournal.pone.0078490;jsessioni d=2B52B861999020F0B04E00CF98E7E12D