

### Clinical Approach to Neurologic Disorders

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- GENERAL SYMPTOMS AND SIGNS
  - Anatomic
  - Pathophysiologic
  - Phenomenologic
  
- TREATMENT
  - Symptomatic
  - Protective
  - Curative
  - Surgical

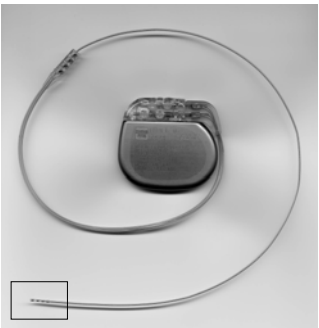
### Surgical Approaches

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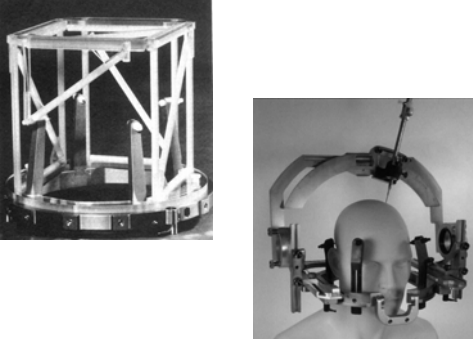
- **Ablative**
  - thalamotomy
  - Pallidotomy
  
- **Electrical stimulation (DBS)**
  - VIM thalamus, globus pallidus internus, sub-thalamic nucleus
  
- **Transplant**
  - autologous adrenal, human fetal, xenotransplants, genetically engineered transplants

### Medtronic DBS system

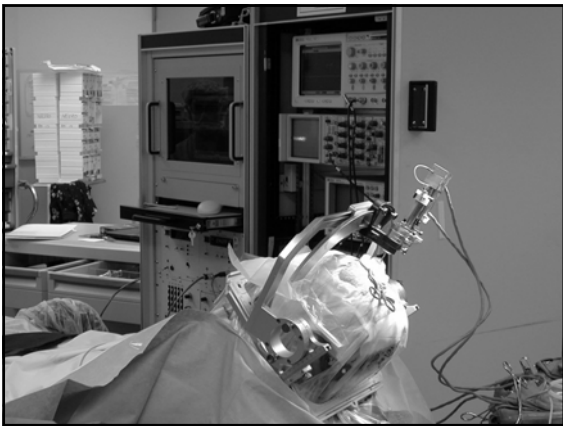
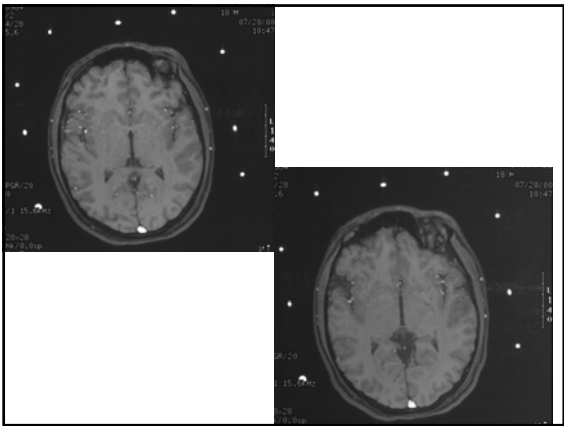
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The image shows the Medtronic DBS system components, including a circular pulse generator with a coiled lead wire and a small rectangular extension.



The image displays two types of surgical frames used in neurosurgery. On the left is a cylindrical frame with a complex internal structure. On the right is a frame mounted on a head model, showing its application in a clinical setting.



## Disease Classification

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## Physical Exam

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**In neurology, asymmetric or focal findings are typically most important**

\* *General medical*      *Brief* comments on relevant pulmonary, cardiovascular (murmurs, bruits), musculo-skeletal (deformities, asymmetries) and skin (rashes, other markings).

## Physical Exam

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Neurologic

I

II

III, IV    VI

V sensory:

motor:

VII

VIII

IX - XII

## Physical Exam

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**Motor exam**

Strength	e.g. MRC 5/5 point scale
Muscle mass	
Tone	
Reflexes	deep tendon (can be elicited in the jaw) cutaneous (Babinski, abdominals)
Rapid alternating movements	speed, decrement rhythm
Involuntary movements	tremor myoclonus chorea athetosis tics dystonia ballismus dyskinesia
Motor apraxias	dressing, combing hair, brushing teeth

## Physical Exam

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**Sensory exam**

Cranial divisions of V	
Other head and neck	Angle of jaw Spinal levels Nerve or root
Primary modalities	Light touch Two point discrimination Pain Vibration Position sense
Higher cortical modalities	Graphesthesia Stereognosis

## Physical Exam

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**Coördination**

Usually, but not always, tests for cerebellar dysfunction

Targeted voluntary movements  
finger-to-nose  
heel-shin

Rapid alternating movements  
fine hand, finger control

**Gait and posture**

Stride, stance  
truncal sway, arm swing

Posture  
stooped, falling forward, backward

Freezing  
in doors  
on or off medication  
at start of walking

## Disorders of muscle tone

I. HYPERTONICITY

## Disorders of muscle tone

II. HYPOTONICITY

III. GEGENHALTEN

## Basal ganglia disease

NEGATIVE symptoms

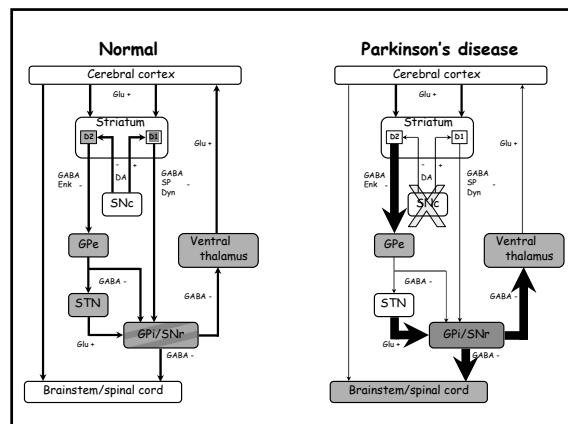
POSITIVE symptoms

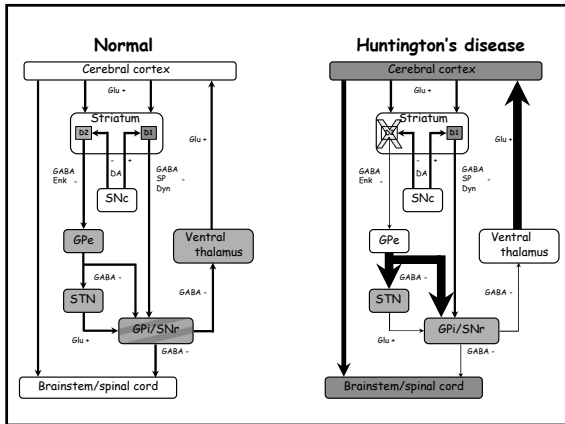
## Basal Ganglia

- Subcortical forebrain structures connected to sensorimotor and limbic systems
- Crucial part of the "control circuitry" that allows for the smooth execution of voluntary movement

## Basal Ganglia

- Multiple cortico-basal ganglia-thalamo-cortical circuits
- Help program and carry out motor plans
- Scale the amplitude and effort of the execution of tasks with relation to requirements
- Incorporate motivation and emotional drives





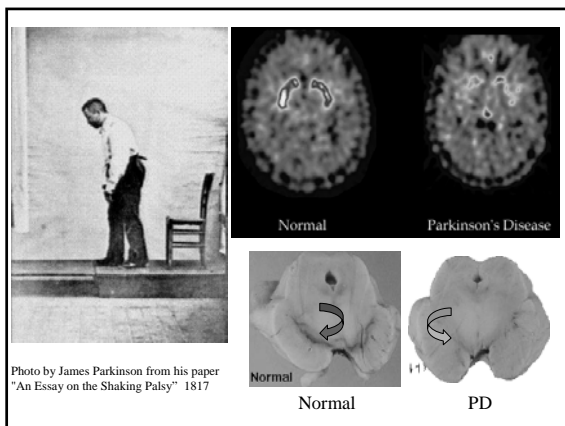
### Basal ganglia disease

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Tremor

Dystonia



### Basal ganglia disease

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Chorea

At het o sis

Ballism

### Basal ganglia disease

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Myoclonus

Tics

Akath isia

### Neurologic Issues Relevant to Dentistry

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Bell's palsy

## Bell's palsy



Initial presentation



After 6 months

## Neurologic Issues Relevant to Dentistry

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### Disorders affecting the face, jaw, mouth and neck

- Trigeminal neuralgia
- Temporo-mandibular joint disorders
- Other facial pains
- Jaw tremors
- Bruxism
- Tardive dyskinesia
- Meige's syndrome
- Other oro-buccal facial dystonias
- Torticollis

## Other Neurologic Issues Relevant to Dentistry

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Complications of anesthesia

## Malignant Hyperthermia

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high fever

## Malignant Hyperthermia

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