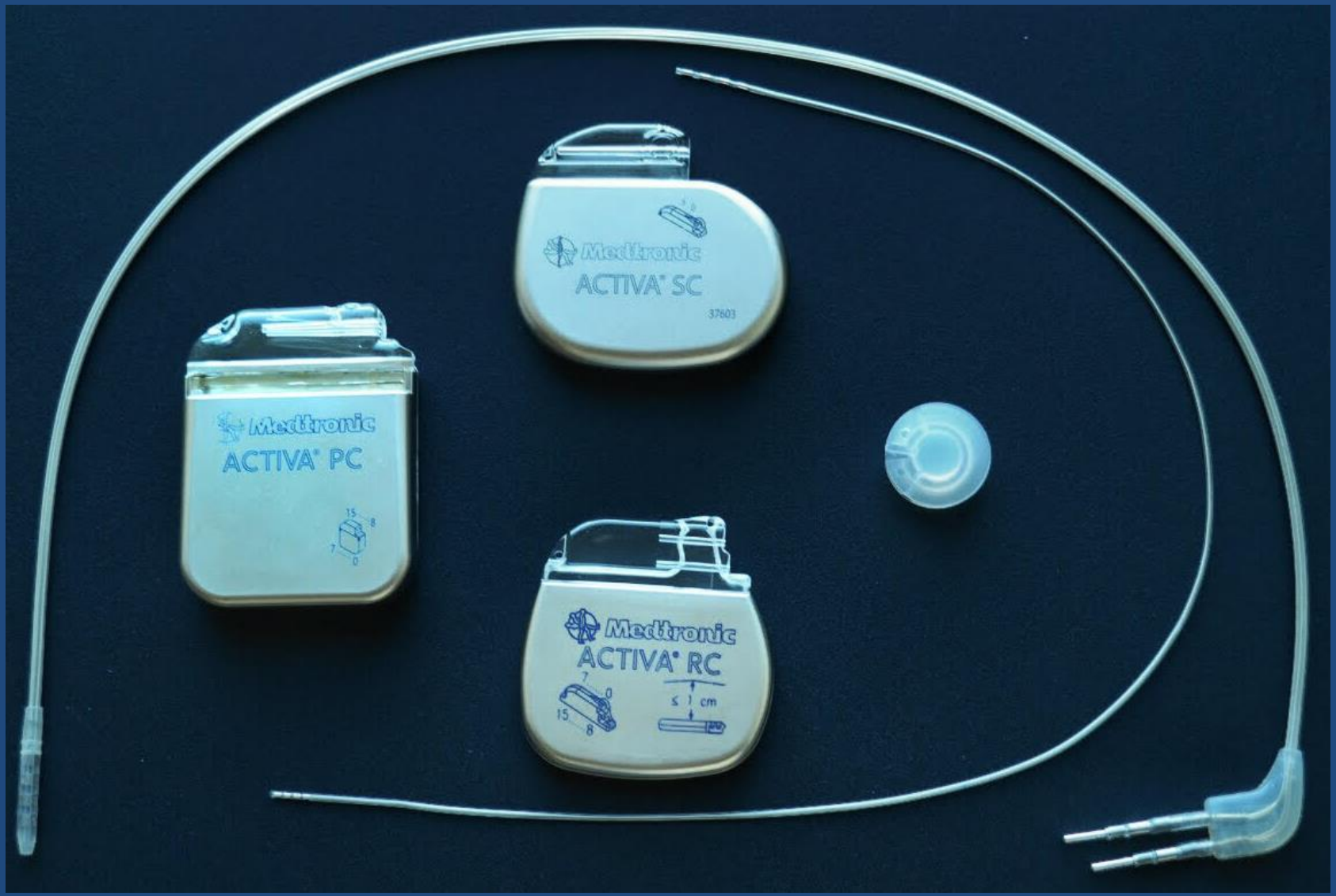
Deep Brain Stimulation (DBS) for Parkinson's Disease

Objectives

1. What is DBS?
2. How does DBS work?
3. Benefits of DBS.
4. Who is a good candidate for DBS.
5. How do you get DBS?
6. What is involved?
7. Outcomes of DBS surgery.

What is Deep Brain Stimulation?

Components of DBS



Components of DBS


BRIO

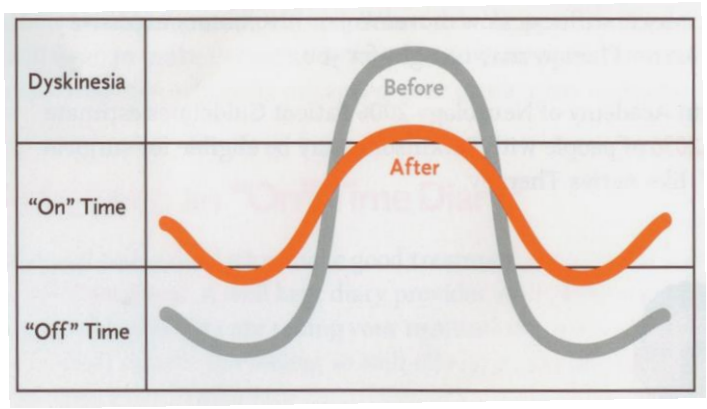
What does DBS help with?

What symptoms does DBS Help?

- Motor Fluctuations that do not respond to optimal medication

DBS in PD

- Even up movement pattern over day



What symptoms does DBS help?

- Motor symptoms that do not respond to optimal medications:

Motor fluctuations

Dyskinesias

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Motor fluctuations

Dyskinesias

Tremor

What DBS wont help with

- Balance
- Swallowing
- Speech
- Memory and Thinking
- Depression
- Anxiety
- Constipation
- Progression of PD

Treatment Options for PD

- Preventative
  - Not available
- Symptomatic
  - Pharmacological
  - Non motor symptom management
  - Allied Health-PT/OT/Speech

- Focused Ultrasound
- Surgical
  - Lesioning
  - Deep brain Stimulation
- Experimental
  - Stem cells/ Gene Therapy

Benefits of DBS

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  - No destruction of brain tissue
  - Reversible
  - Can be performed on both sides of the brain

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- Unable to tolerate or increase PD medication due to side effects.

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- PD for at least 5 years
- “ON/OFF” fluctuations, with or without dyskinesias
- Disabling tremor
- Unable to tolerate medication due to side effects
- PD symptoms that interfere with daily activities

Contraindications to DBS

- Parkinson's Plus symptoms

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Contraindications to DBS

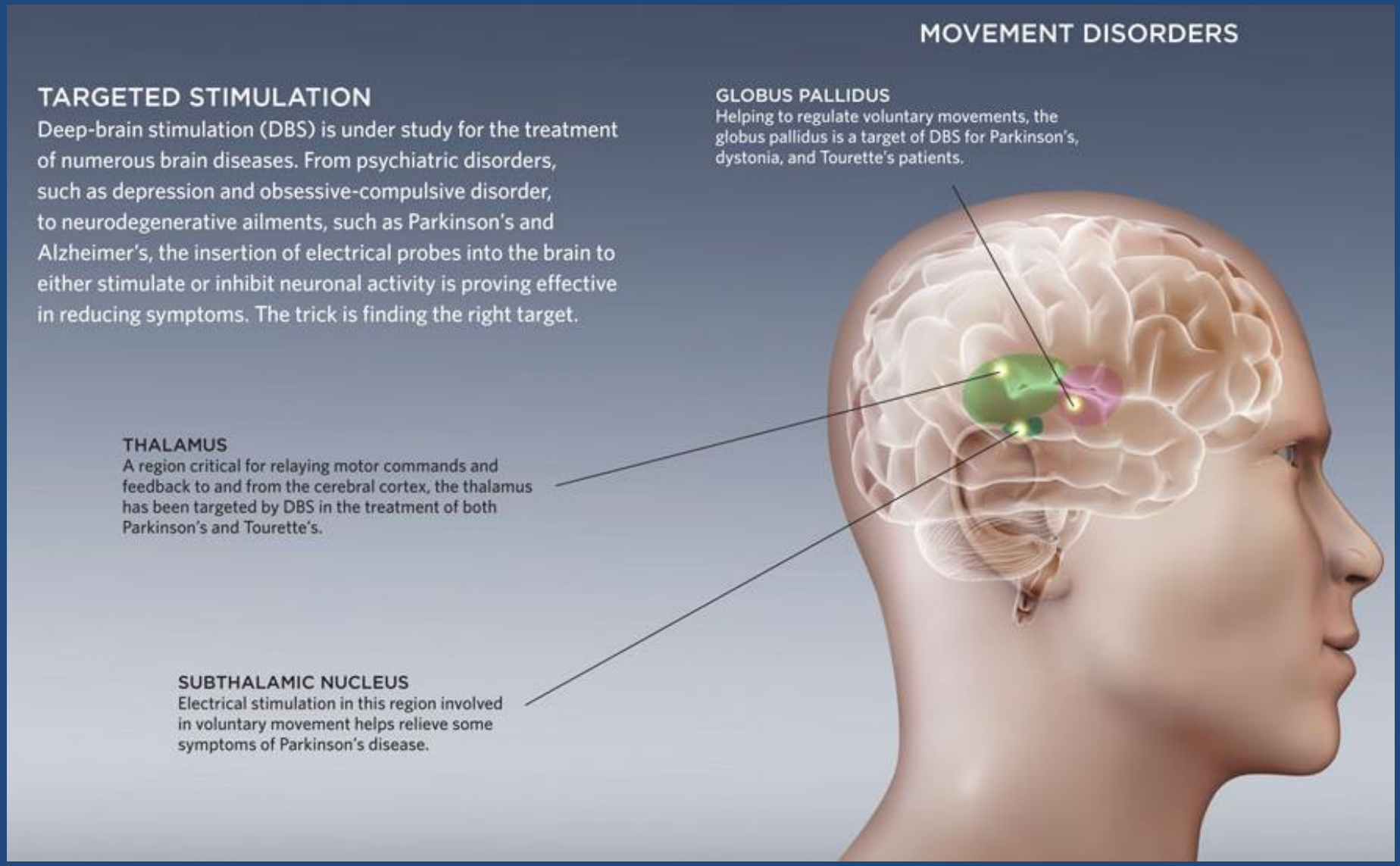
- Parkinson's Plus symptoms
- Dementia or poor cognition
- Poor functional state while "ON" (PD patients)
- Other health concerns

What about age?

Am I a Good Candidate for DBS?

Pre Operative Assessment

Brain Targets

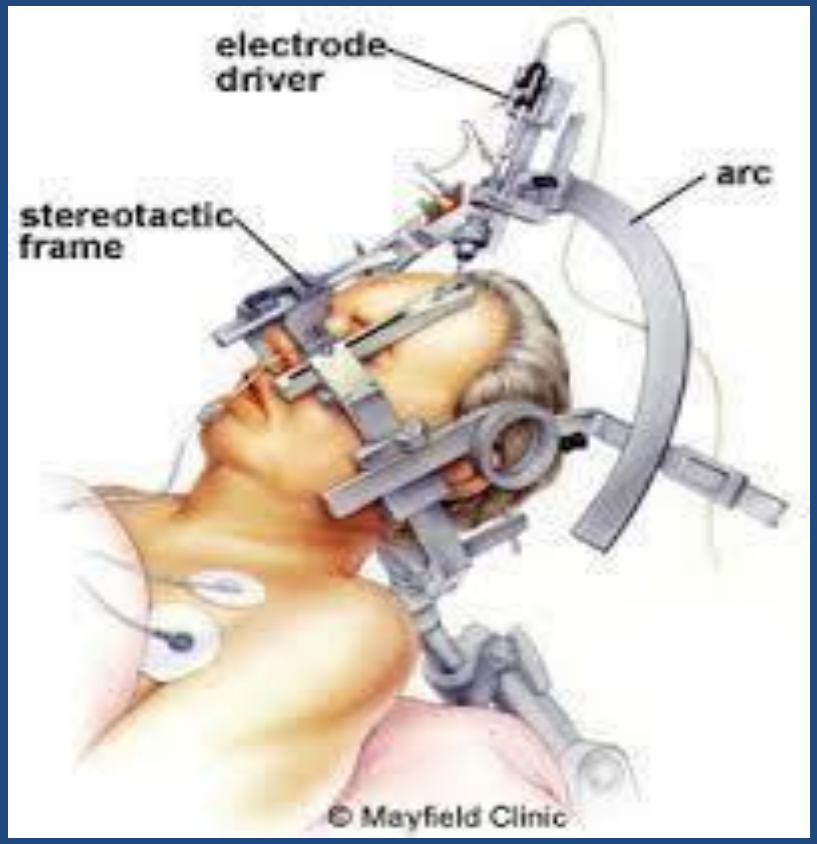


Surgery

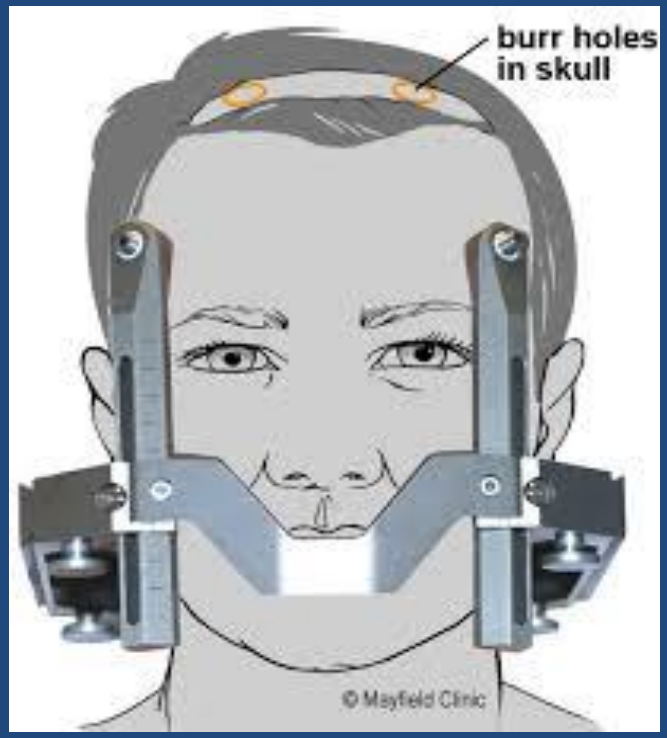
Attaching the head frame and MRI

Planning the Trajectory

Placing the Electrode



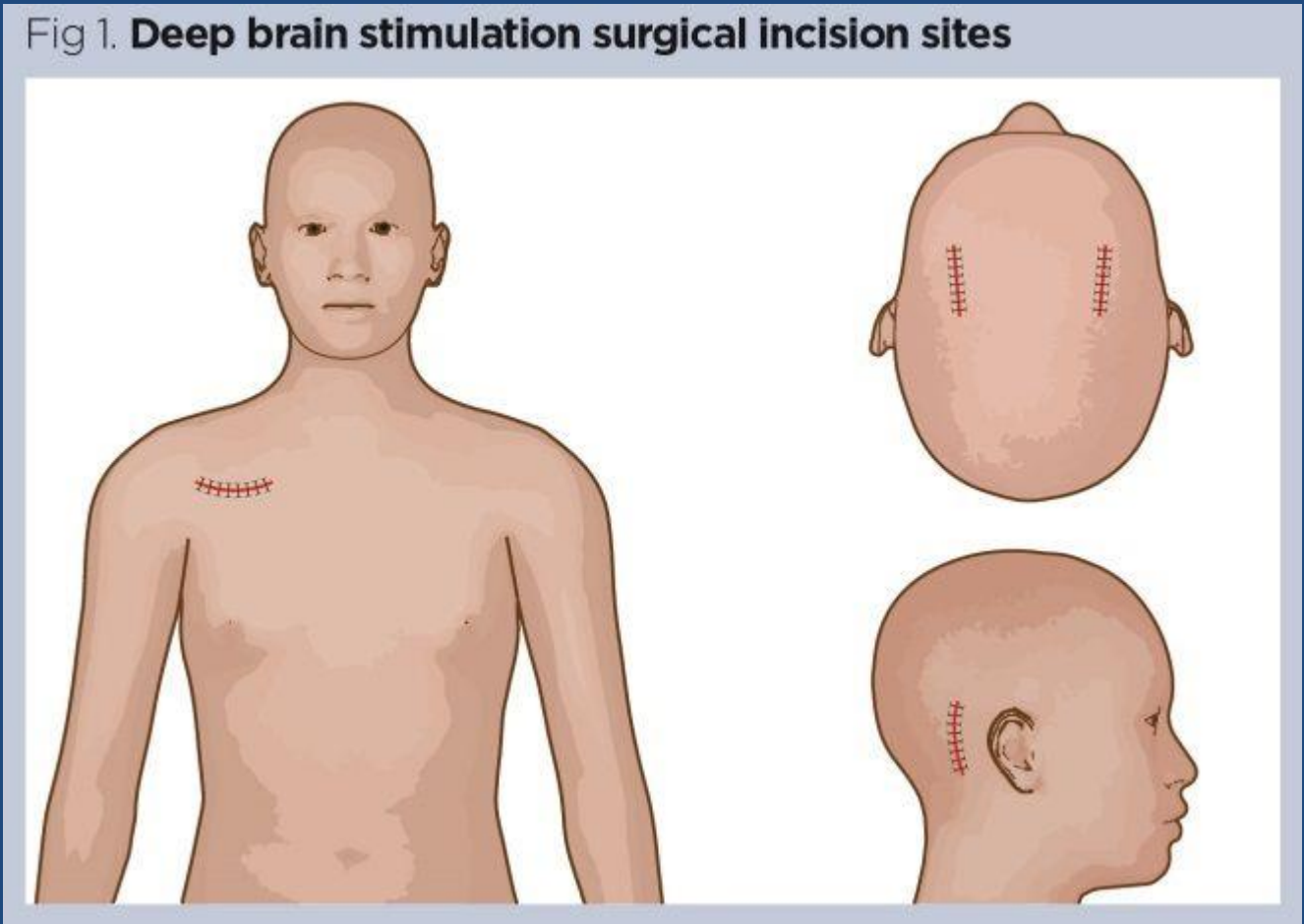
Skin and skull incision



Stimulate the brain cells

Placing the extension wires and neurostimulator

Incisions



video

What happens after surgery

DBS Clinic






Programming the stimulator

Pic of programmer

Will my medications change afterwards?

Medication

STN

- Decrease in medications up to 40% possible.

GPI

- No reduction, may be able to increase medication to manage PD symptoms.

VIM

- Possible reduction in medication if other PD symptoms are controlled on lower doses.

Meds do more than help movement

Realistic Expectations after DBS?

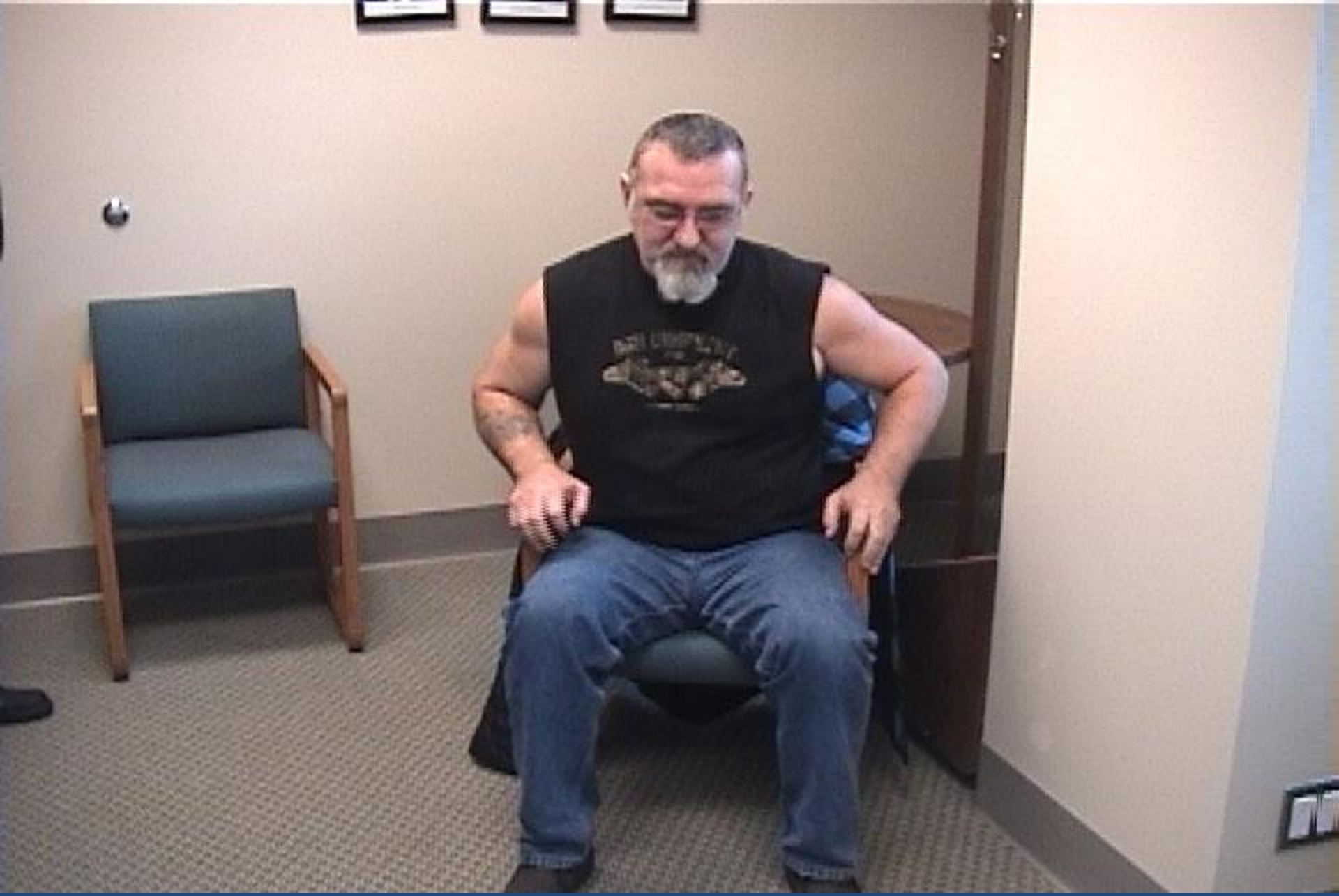
Restrictions after DBS Surgery

What are the risks of DBS?

- Intracranial hemorrhage/CVA (<3%)
- Paralysis, coma, death (< 1%)
- Infection (5%)
- Allergic response to implants (<1%)

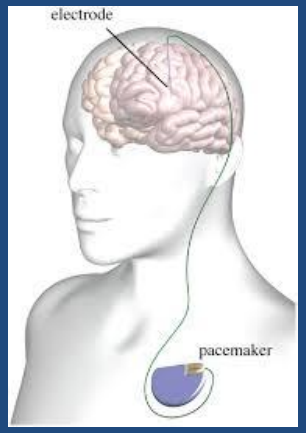
Advances in DBS

- Directional Leads
- 8 contact leads
- Blue Tooth connectivity
- Adaptive DBS



Questions?

How does DBS Work?



Implant system

Frame

MRI Scan

Pre Op Target

Insert Electrode

Listen to the Neurons

PROCEDURE