



Advances In Surgery For Movement Disorders

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- **BEFORE DBS**



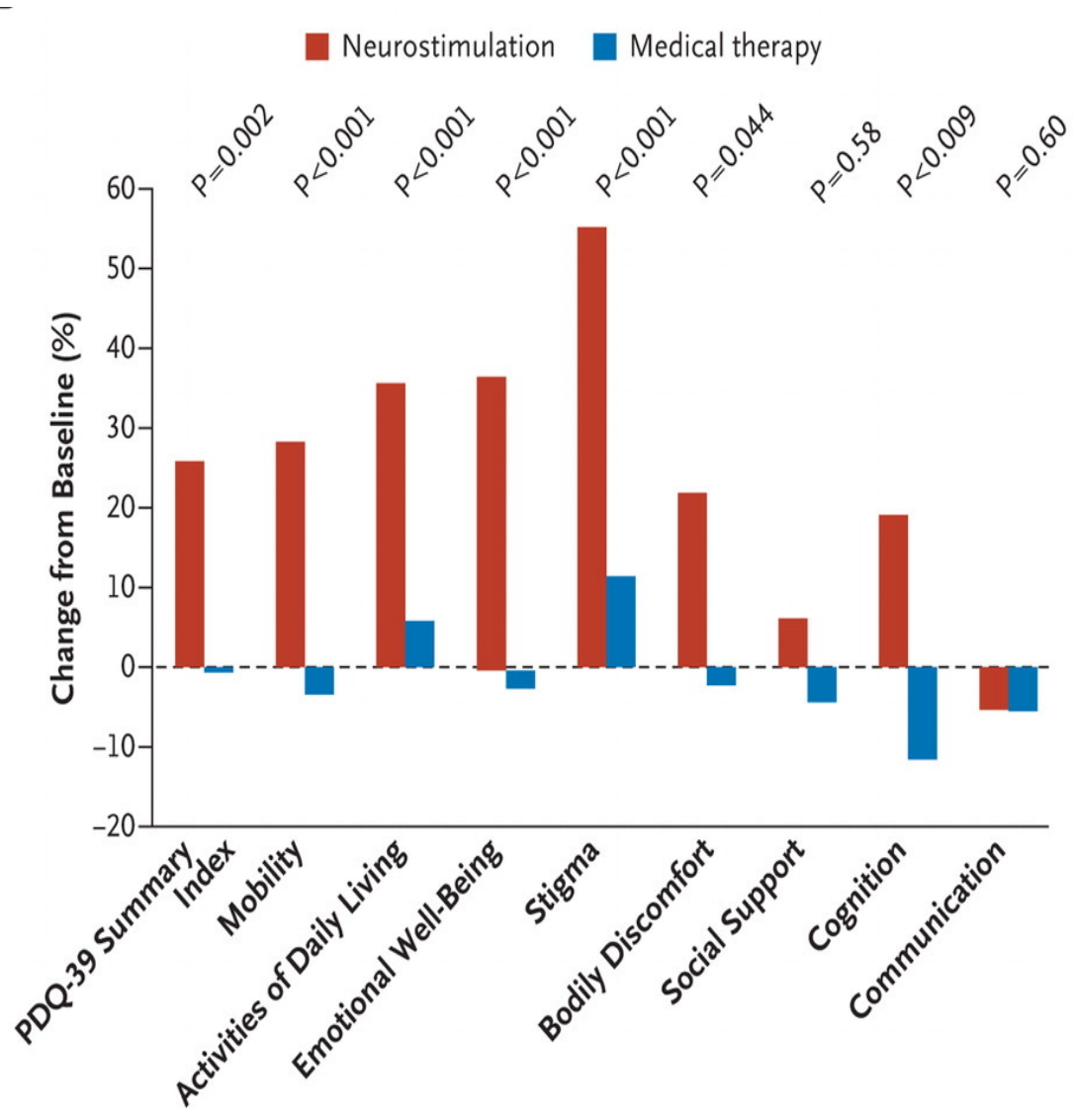
- **AFTER DBS**



DBS CANDIDATES

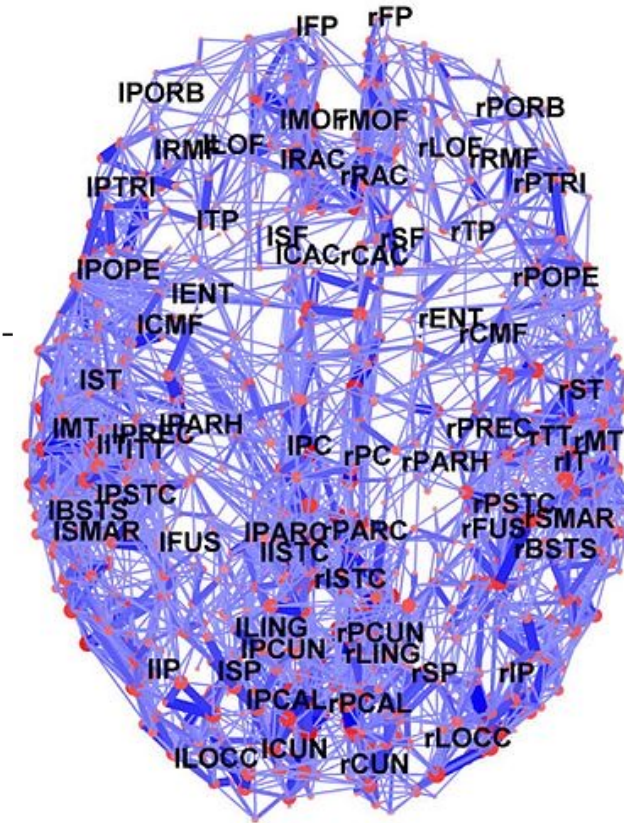
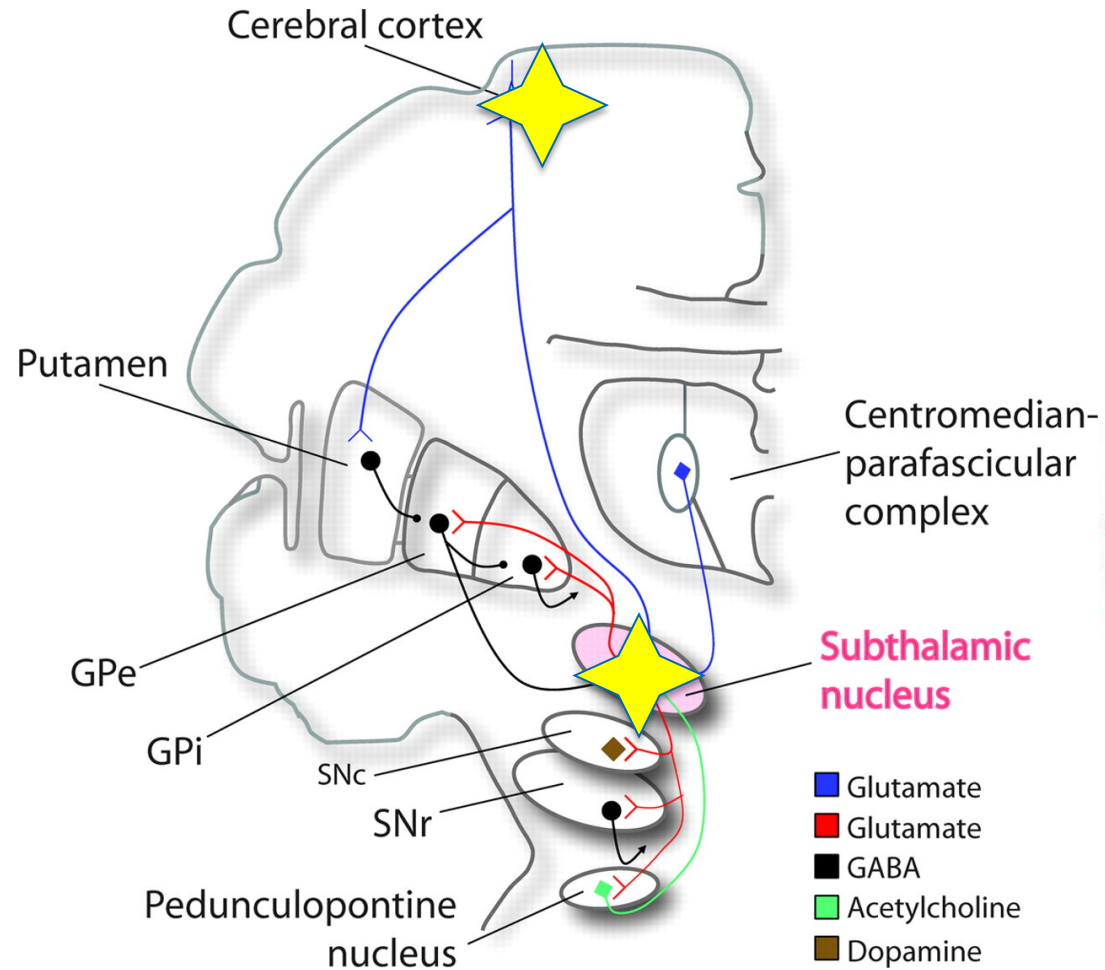
- **Responsive to L-Dopa**
- **PD Meds Getting Complicate**
- **Motor Symptoms**
 - **Tremor, Rigid, Dyskinesia**
- **Realistic Expectations**
- **Not Good For...**
 - **Dementia, Postural Instability**

DBS & MEDICATIONS BETTER



- **26% Improvement**
 - Even in “Mild” PD
- **DBS + MED is Better Than MED Alone**
- **EARLY PD, >4 yrs**
 - NEJM 2/2014

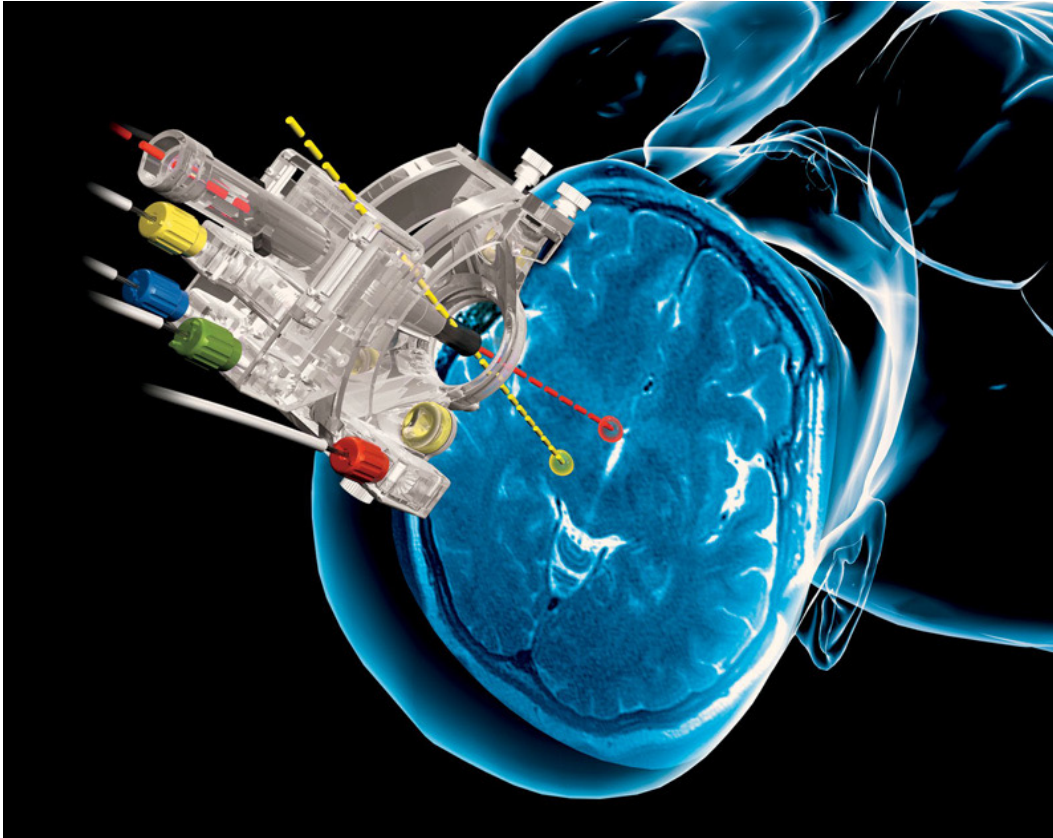
DBS: BRAIN NETWORKS



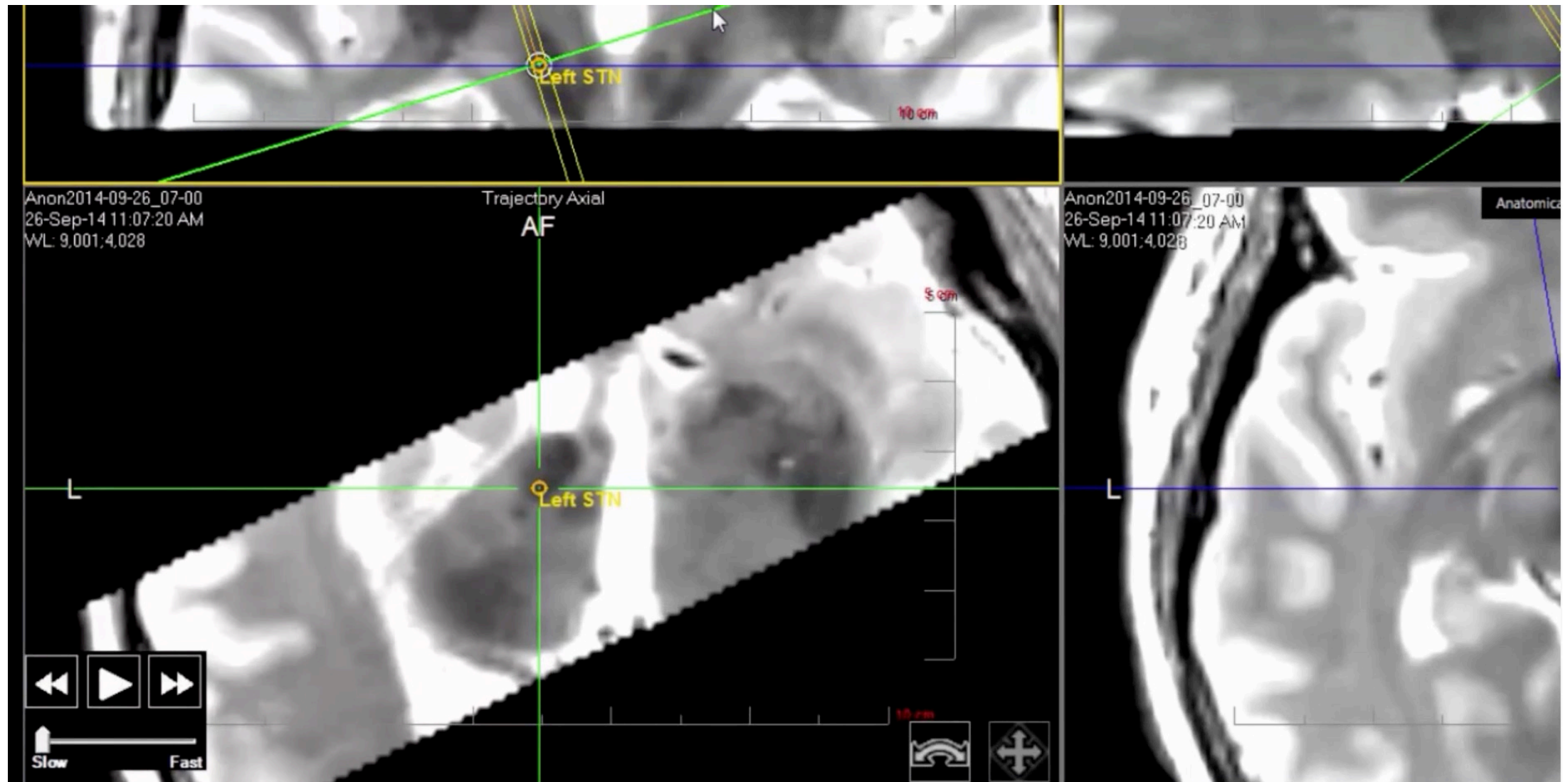
DBS: AWAKE VS ASLEEP

- Meta-Analysis, 145 studies, n>15 pt, F/U > 6 mo.
- Similar for Both
 - UPDRS II OFF Med (ADL)
 - UPDRS III (Motor) OFF/ON Med
 - L- Dopa Equivalents (LEDD)
- ASLEEP: Significantly Better
 - Less DBS Passes/Lead
 - Mean, 1.4 vs 2.1
 - Complications/Lead
 - Less ICH: 0.3% vs 1.1%
 - Less Infections: 0.7% vs 1.1%

ASLEEP DBS- INTRAOPERATIVE MRI

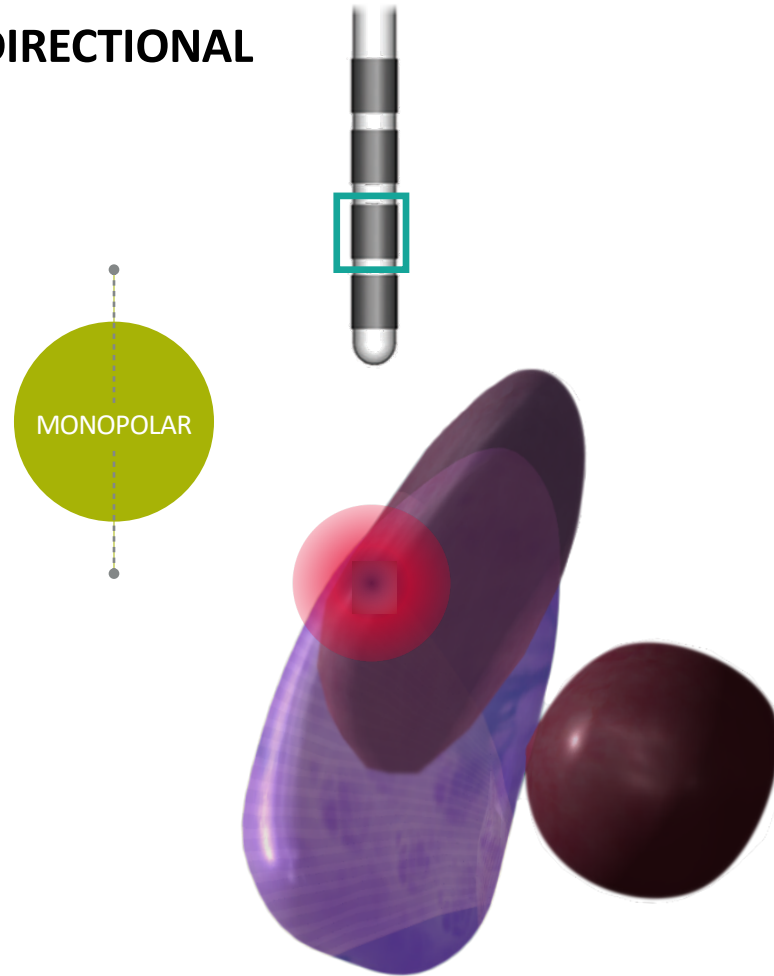


DBS: CLEARPOINT

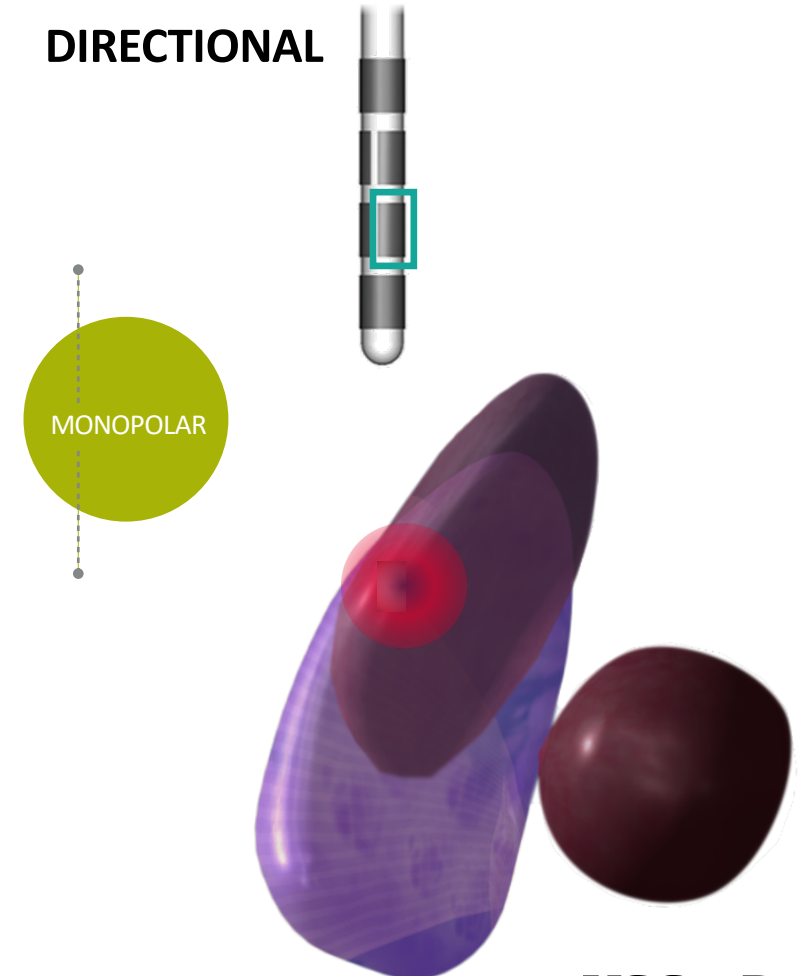


DIRECTIONAL DBS — FIELD SHAPING OPTIONS

OMNIDIRECTIONAL



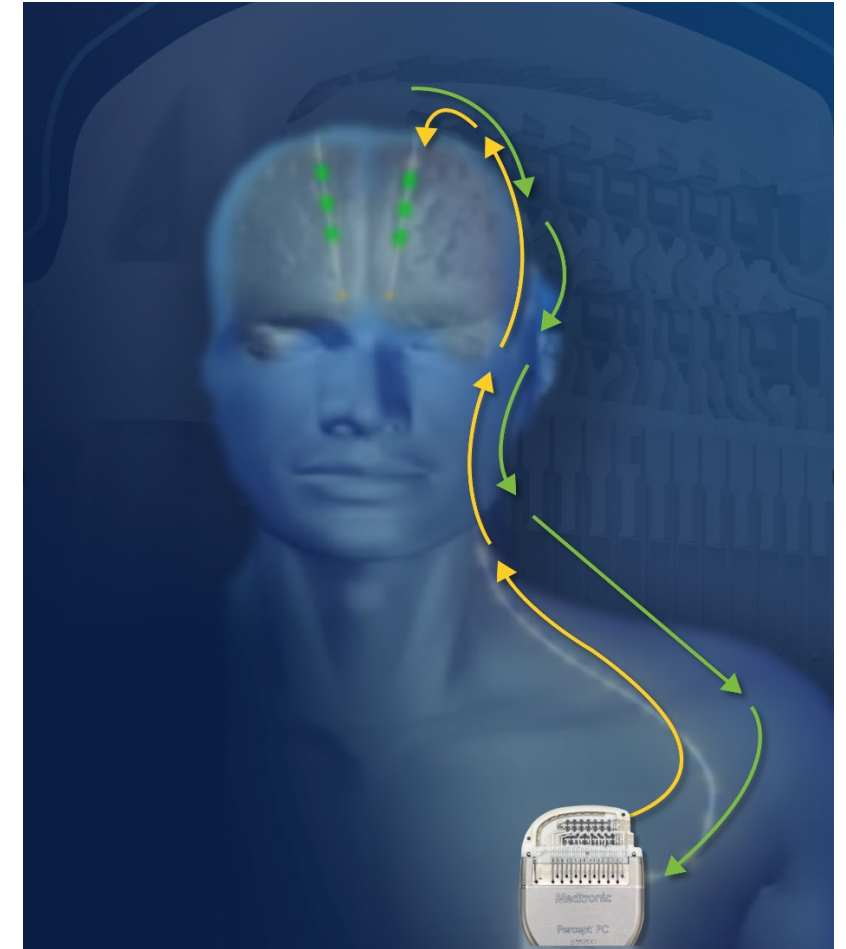
DIRECTIONAL



DBS: BRAIN SENSING BECOMING POSSIBLE

TRACKS BRAIN SIGNALS
OVER TIME

CORROLATE BRAIN SIGNALS
WITH EVENTS



FUTURE: MRI GUIDED CONVECTION GENE THERAPY

AADC DEFICIENCY

GDNF

PARKINSON'S DISEASE

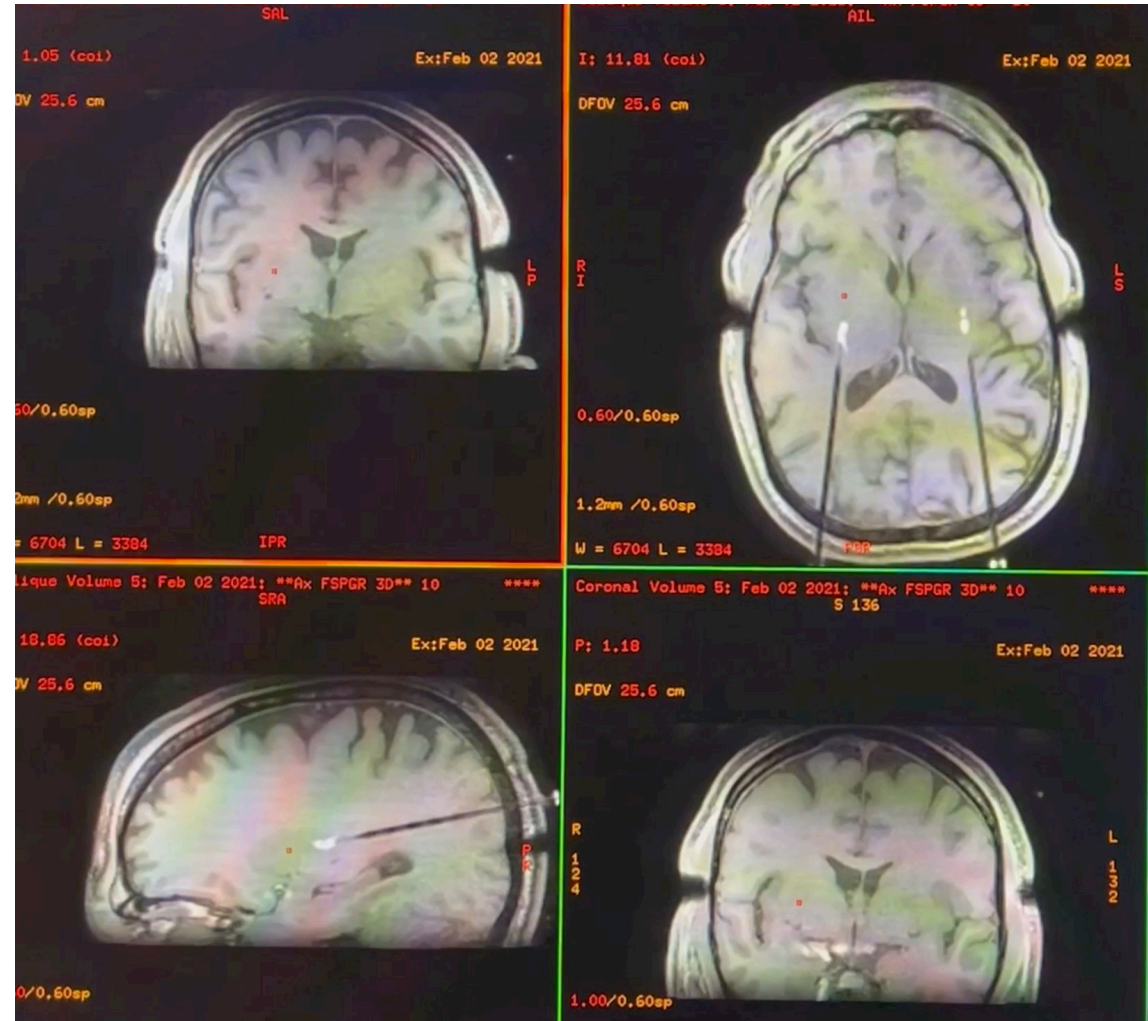
GDNF

MULTIPLE SYSTEMS ATROPHY

GDNF

HUNTINGTON'S DISEASE

Antisense Oligonucleotide



MEET THE DBS DOCTOR

Jacob's Medical Center via Zoom

Tuesday, 12/7/2021, 1:00PM

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