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Pioneering Perspectives:

Innovation and Technology in Early-Stage Clinical Drug Research

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The ON-OFF problem: measuring acute medication effects in Parkinson's disease

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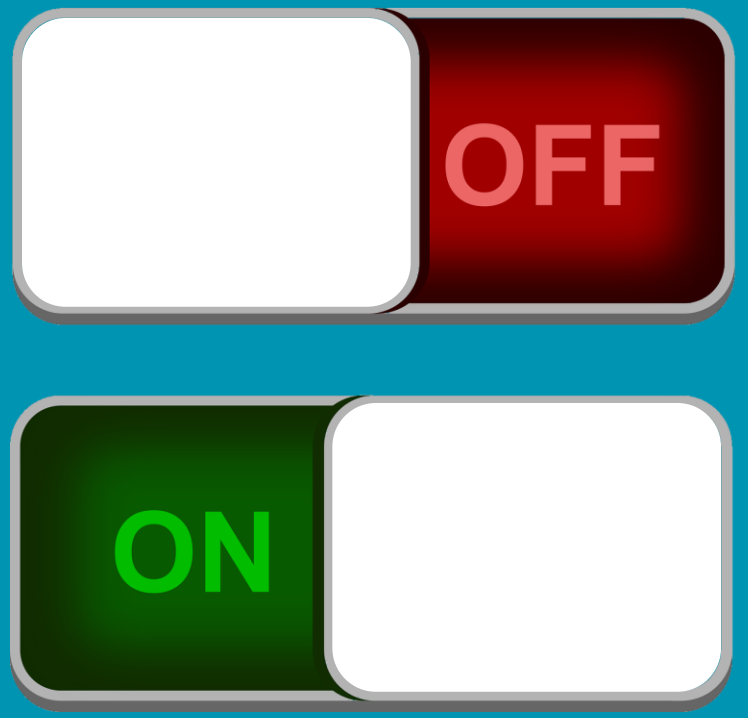
DISCLOSURE SLIDE

None

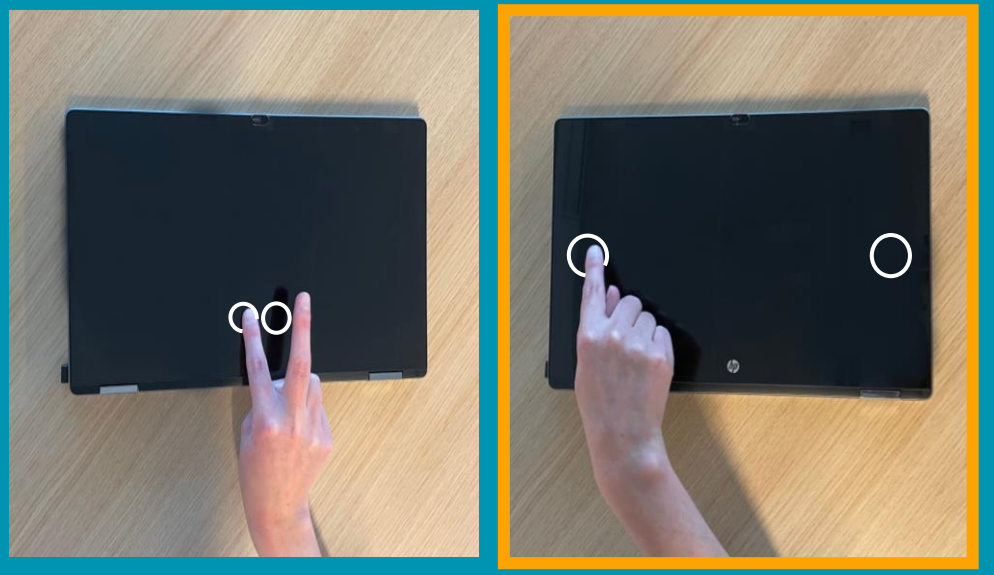
ON-OFF fluctuations

- Parkinson's disease is a progressive neurodegenerative disorder
- Symptomatic treatment available
- Fluctuations in therapy response: ON/OFF fluctuations
- Predictable vs unpredictable
- Limited treatment options available for sudden OFF episodes
- Need for more user-friendly and fast-acting drugs



How to measure medication effects?

- Clinical rating scale (MDS-UPDRS part 3) is often used
  - Trained rater, subjective, lenghty
- Finger tapping: fast, quantitative, can be repeated often
- Placebo-controlled study in patients during OFF to assess which was best in measuring medication effects
- Speed, rhythm, accuracy, fatigue

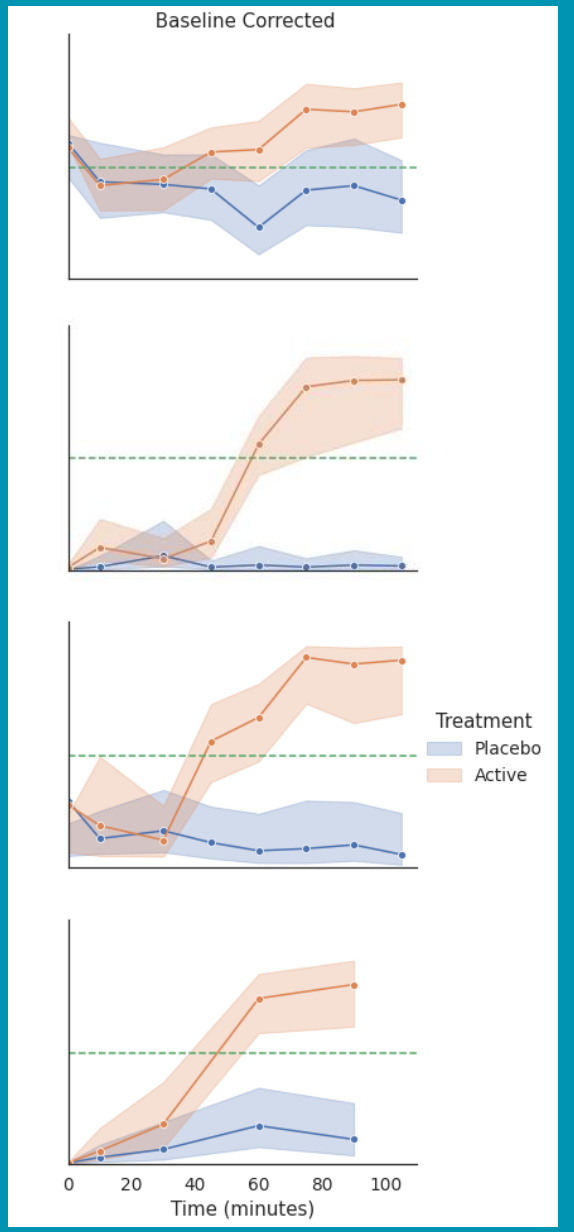


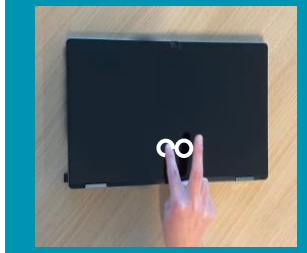
Touchscreen-based tasks

Electrical goniometer

Composite biomarkers using ML

- Clinical data used to train ML algorithms
- To select the optimal combination of parameters (composite biomarker) that can best predict treatment effect
- The composite biomarker of the index finger tapping task performed best at predicting treatment effect
- Future trials should include finger tapping to demonstrate acute medication effects





Clinical rating scale