brainbox initiative

Fundamentals & Applications of TMS Workshop

Sample Programme

DAY 1

12:30 Welcome & Introduction

13:00 Lecture: **TMS Physiology & Common Measures**

- Physiology of transcranial motor cortex stimulation
- Basic principles of magnetic and electrical stimulation
- Physiology of transcranial magnetic and electrical motor cortex stimulation
- Common measurements and applications of single-pulse TMS

14:00 Lecture: **TMS Safety - Contraindications & Ethics**

15:00 Break

15:10 Demonstration: **Single Pulse TMS**

16:00 Lecture: **Paired Pulse TMS**

- Insights into intracortical circuitry
- Basic principles of paired-pulse TMS
- Physiology of cortical circuits investigated with paired-pulse TMS
- Research and clinical applications

17:00 Demonstration: **Paired Pulse TMS & TMS Software**

17:30 End Workshop Day One

DAY 2

13:00 Lecture: **Influences on the Excitability of the Brain/ rTMS for the Induction of Plasticity**

- Induction of plasticity-life processes via rTMS (intrinsic and extrinsic plasticity)
- rTMS protocols
- Safety
- Effects on intracortical excitability and cortico-cortical connectivity
- Note of caution: inter- and intra-individual variability

14:00 Demonstration: **rTMS Systems & Applications**

14:30 Break

14:40 Lecture: **Experimental Design for Virtual Lesions**

- Applications of TMS in Research
- Overview of how TMS is applied, looking at and discussing studies that have used TMS as a tool to investigate causal brain-behaviour relations
- Effects on behaviour (online/offline lesions)

16:10 Break

16:20 Group Methods Lab Discussion

- Delegates will be asked to prepare some preliminary thoughts and ideas for a TMS study that they would like to run, to be discussed with other workshop attendees and course leaders.

17:00 End workshop day two

DAY 3

13:00 Lecture: **Latest Advances in TMS**

13:30 Lecture: **Introduction to TMS Neuronavigation & TMS Robotics**

14:30 Practical Demonstration: **Subject Registration & Coil Calibration in Brainsight TMS Navigation**

14:50 Break

15:00 Lecture: **Selecting Targets in Brainsight**

15:30 Practical Demonstration: **Using Brainsight to Select Targets, Including:**

- Importing overlays
- Atlas space registrations
- Optimising trajectories
- Optimising grids

17:00 Wrap Up & Workshop Close