MICROGATE

COGNITIVE–MOTOR TRAINING

INTEGRATING COGNITIVE DEMANDS INTO MOVEMENT FOR PERFORMANCE AND INJURY PREVENTION

REACTIVE LIGHT SYSTEM + COGNITIVE TRAINING PLATFORM

MICRO PILLS

ATHLETIC PERFORMANCE IS NOT JUST MUSCLES.

Every action starts with perception, decision, and execution under time pressure.

THE TRADITIONAL APPROACH

Traditional training **separates cognitive tests and physical drills,** unlike real sport.

THE PARADIGM SHIFT

DUAL-TASK TRAINING CHANGES THE GAME:
train brain and body together to improve decisions, reactions, and movement.

COGNITIVE PROCESSES: WHAT'S BEHIND EVERY ACTION

PERCEPTION
→ detecting and interpreting stimuli instantly

ATTENTION
→ focusing on what matters, filtering the rest

WORKING MEMORY
→ holding and processing information in real time

DECISION-MAKING
→ choosing the right action under pressure

When these fail, performance drops and injury risk rises.

TWO SYSTEMS, ONE INTEGRATED APPROACH

COGNITIVE TRAINING PLATFORM

Pure cognitive training based on Brain HQ exercises.
Visual processing speed, attention, memory.

REACTIVE LIGHT SYSTEM

True cognitive-motor dual-task integration. Dynamic, field-based scenarios embedding cognitive demands into movement.

brainHQ *from* Posit Science

PERSONALIZATION + REAL-TIME FEEDBACK

Adaptive and fully customizable protocols.
Results tracked live with immediate feedback.

TRAINING PROTOCOLS: COGNITIVE EXERCISES WITH WITTY SEM

LEVEL 1

Simple reaction (stimulus → response) Detect the green light. Others are off. No decision needed, just react.

LEVEL 2

Moderate cognitive demand (stimulus → discriminate between colors → decide → respond) Detect the green light among different colors. Other colors act as distractors. Now you must filter the stimulus before acting.

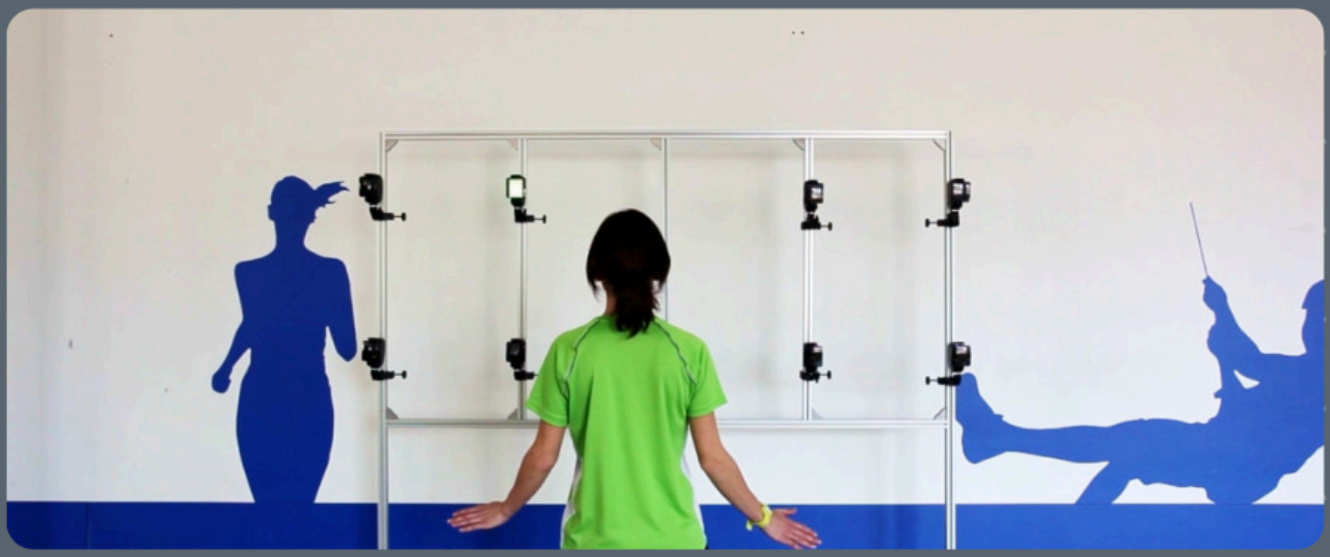
LEVEL 3

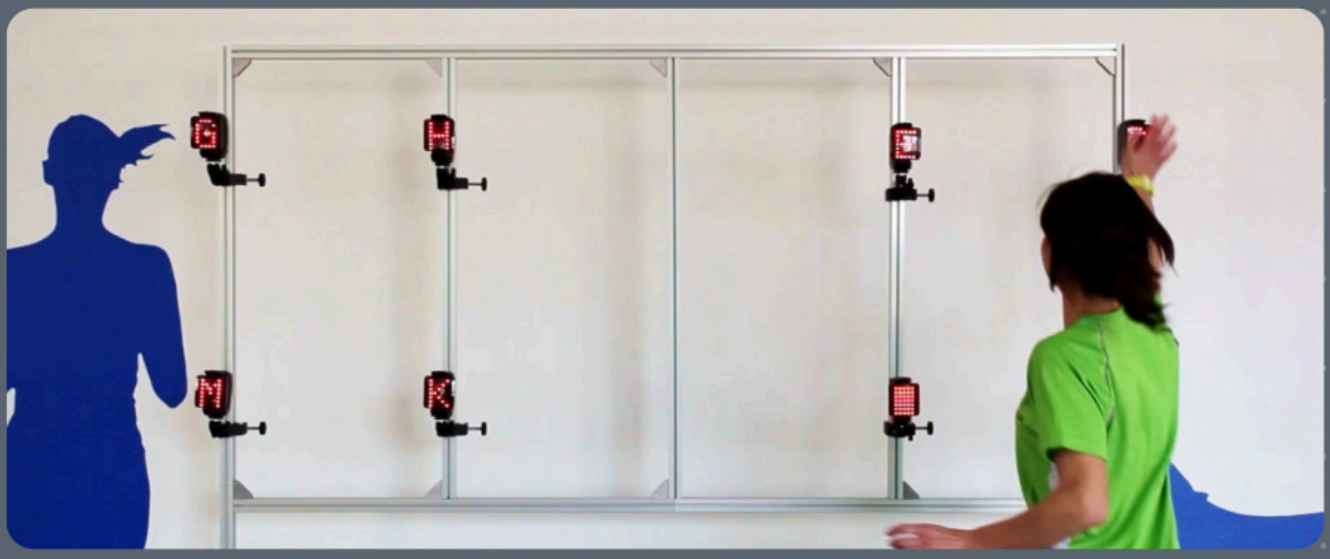
Complex cognitive demand (stimulus → discriminate between symbols of the same color → decide → respond) Find a red "f" among symbols and letters: all the same color. Color no longer helps: discrimination relies on shape recognition. Filter, select, and decide before acting.

KEY METRIC

Not absolute speed, but the time difference between levels. A **smaller gap indicates faster cognitive processing** under load.

PROTOCOL EXAMPLES





DOUBLE DECISION

SPLIT ATTENTION TRAINING

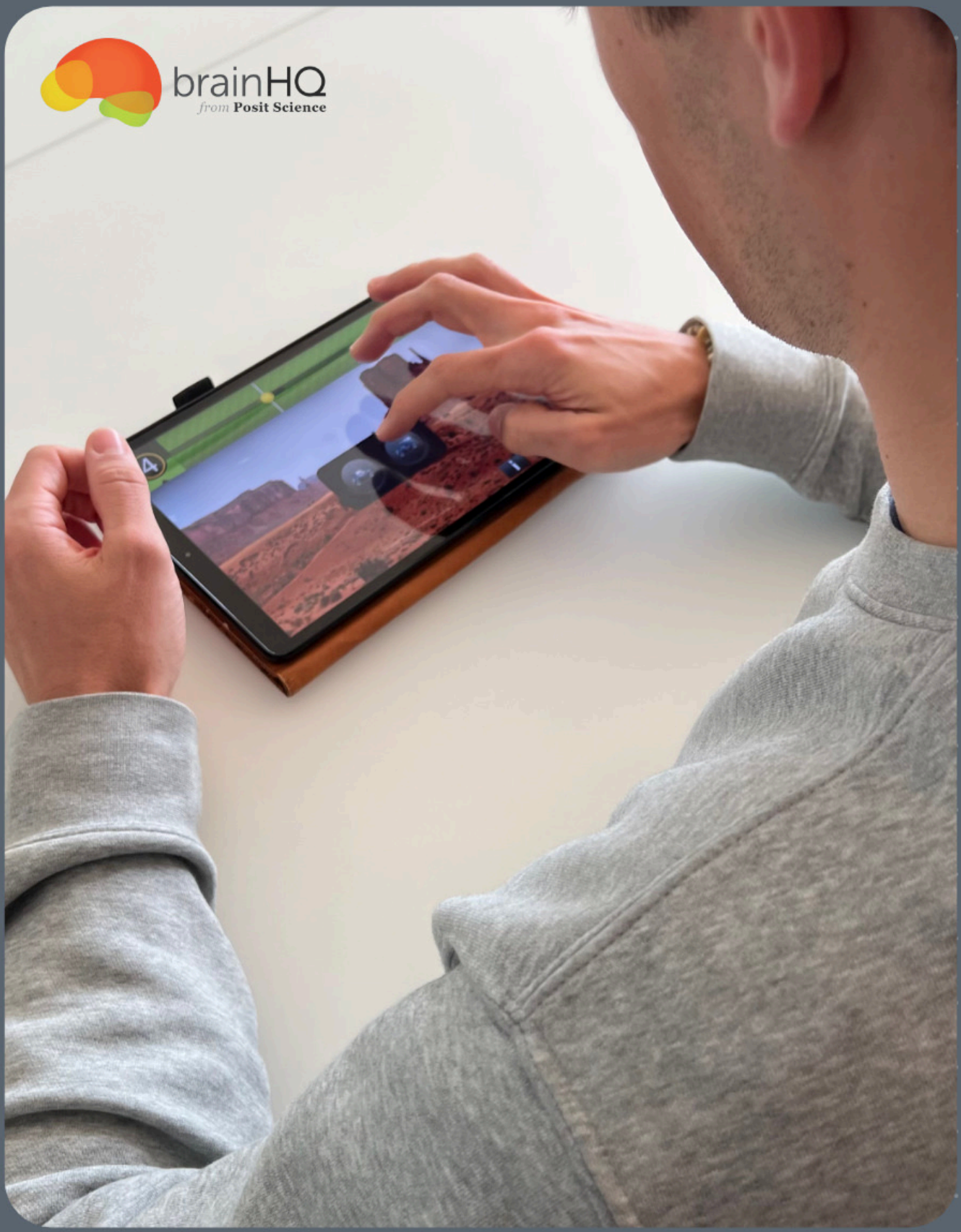
Two tasks performed simultaneously: identify the correct central target and a secondary peripheral cue.

This protocol trains the ability to distribute attention across competing stimuli, mirroring the perceptual and decisional demands of real sport.

OUTCOME

Improved decision speed and accuracy without compromising motor execution.

brainHQ *from* Posit Science


brainHQ
from Posit Science

COGNITIVE-MOTOR DUAL TASK: WHERE BRAIN MEETS BODY

The athlete performs a motor task (sprint, shuffle, balance) while responding to cognitive stimuli.

KEY INSIGHT

Dual-task format doesn't just speed up reactions. It builds anticipation and decision-making, the skills that separate good from great.

IT'S NOT JUST REACTING TO A LIGHT. IT'S THINKING.

DATA DRIVEN

VISUAL & COGNITIVE RESULTS

WHAT GETS MEASURED

- Reaction time
- Stimulus time
- Errors
- Position of the errors

PROMOVE

All captured in real time. Personalized feedback, cognitive and motor, delivered immediately.

MICRO PILLS

TWO WORLDS, ONE APPROACH

SPORT

- **Return-to-play decisions** beyond physical metrics
- Injury rehab: **train the brain when the body can't**
- Post-recovery: **added cognitive load** to push performance limits

CLINICAL

- Fall prevention in **elderly populations**
- **Neurological rehab:** stroke, Parkinson's, TBI
- **Pediatrics** (ADHD, ASD): improved focus, impulse control, coordination

SUMMARY

COGNITIVE-MOTOR TRAINING PROVIDES:

+ **INTEGRATED APPROACH:**
brain and body in one session

+ **MEASURABLE OUTCOMES:**
reaction time and accuracy in real time

+ **PERSONALIZED PROTOCOLS:**
adaptive for athletes and patients

+ **SPORT + CLINICAL:**
from elite performance to rehabilitation

Training brain and body together bridges the gap between testing and real-world performance.

REACTING IS FAST. DECIDING IS WHAT MAKES THE DIFFERENCE.

MICRO PILLS