Dessintey

Moving Minds
Empowering Bodies

SUMMER SCHOOL · PEDIATRIC REHABILITATION

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What we will explore together…

01 **Foundations**

Neuroplasticity & child vs adult differences

02 **Guidelines**

HAS 2021 · AAP/AACPDM 2022 · key recommendations

03 **Motor Approaches**

Balance · AOT · MI · Mirror · CIMT/HABIT

04 **Cognition**

Perception–Cognition–Action

05 **Family & Group**

Family-Centred Care · Caregivers · Group rehab

06 **Tomorrow**

AI · Tele-rehab · Neuromodulation/BCI · structural challenges

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What are the main challenges, what is the main frustration in your current practice?

What is the main challenge, what is the main frustration in your current practice ?

Insufficient intensity

Lack of intensity
Lack of long-term follow-up

Heterogeneous practices

No clear guidelines
Lot of variability

Innovation–clinical gap

Specific tools for kids in rehab

Cognition under-addressed

Cognitive dimension often absent from pediatric motor rehabilitation protocols

The invisible family burden

Difficulty to include parents, family into the rehab process

Insufficient paediatric research

Difficulty in conducting large research in pediatric rehab

Neuroplasticity and cortical activity in youth

A different substrate — not simply a better one

Differences with adult rehab

Received idea: the young brain always recovers better.

Plasticity in children is ***different*** — with specific strengths AND vulnerabilities.

Different age for different motor and cognitive skill acquisitions
Important cognitive components.

Intensity + early start + Multidisciplinary approaches = superior outcomes

Usually,
Kids from 2 to 12
Teenagers from 12 to 18

What changes in our practice

- No specific time window for cortical plasticity. Continous evolution for 18 years
- The child should LEARNS a function — does not recover one
- Motor engrams must be built from scratch
- Motivation and participation

- Family & environment = key neuroplastic levers

Leroy-Malherbe & al. 2002

International guidelines

Inputs from science and clinical practice

HAS
HAUTE AUTORITÉ DE SANTÉ

- Functional, goal-oriented approach
- HABIT + intensive gait training: Grade A
- Physical activity: 2-3 × 45 min/week moderate intensity
- Therapeutic Education including family

Cochrane

- BoNT-A + Occupational therapy
- CIMT
- Task oriented therapy, walking program with participation

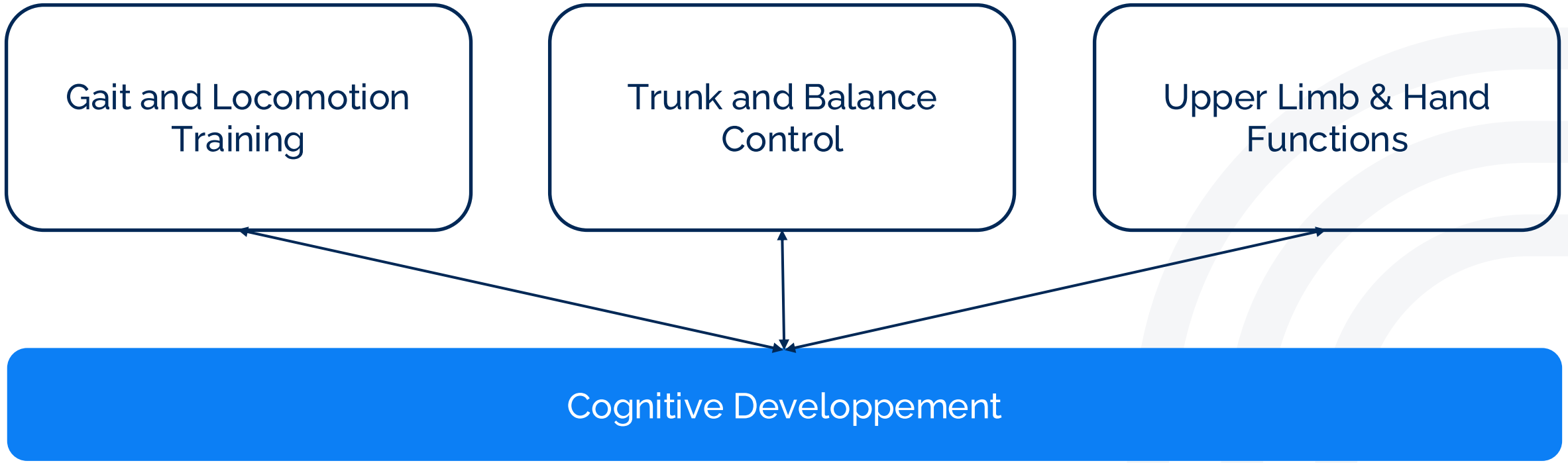
American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

- Intervention should focus on active practice of the patient's goals
- HABIT-ILE, CIMT
- Overground training (with or without a walker)

PubMed

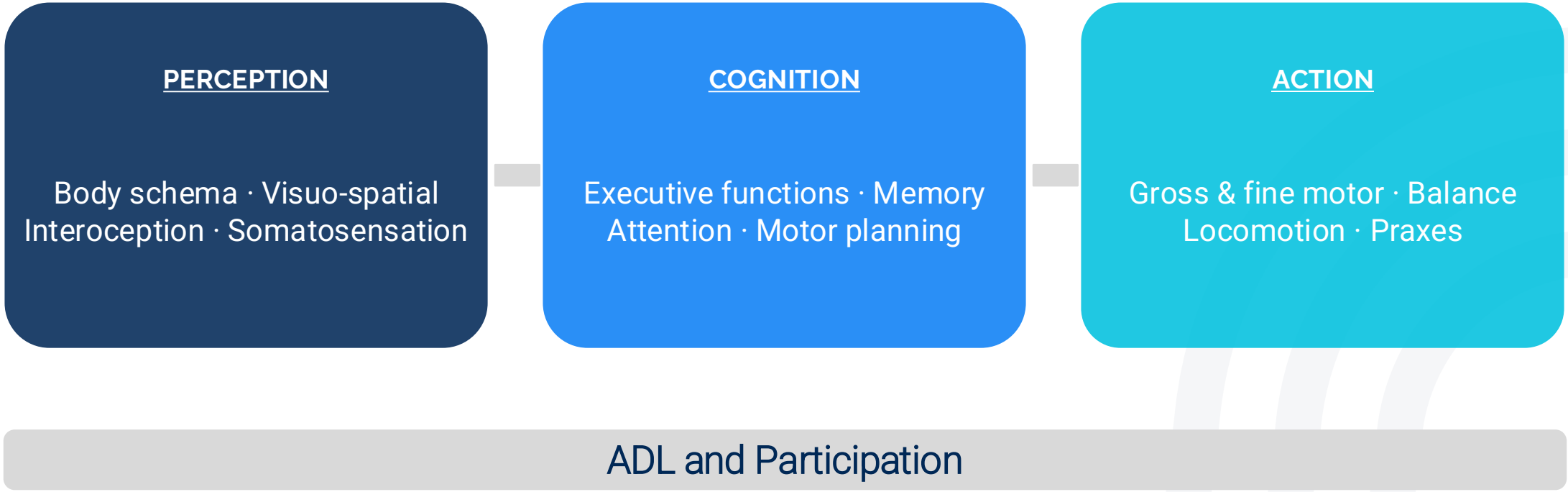
- HABIT
- CIMT
- AOT
- Enriched environment

Cognitive development should be integrated in each approach



A patient-centered model

A Holistic model for movement control



Rehabilitating motor function without rehabilitating cognition is rebuilding a vehicle without working on the GPS or the driver.

7 Priority cognitive domains in Pediatric neurology

1. **Executive Functions (Flexibility, Inhibition, Planning)**
2. **Memory (Working, Perceptive, Episodic,…)**
3. **Visual Perception & Visuo-spatial**
4. **Body Awarness, Body Schema**
5. **Attention (Selective, Divided, Sustained)**
6. **Motor Planning (Praxis)**
7. **Social Cognition**

A therapy supported by caregivers, families and group therapies

Family-Centered Care

- Therapeutic alliance = efficient program and multiple stimulation
- Dose and Frequency
- Activity of Daily living (stimulation, improvements)
- Transition to home rehabilitation and Home rehab adherence
- Better perception on parents' side and skill acquisition (prevent also burnout)
- BUT, child's own experience not yet documented

Group Rehabilitation

- Peer emulation → intrinsic motivation and sustained engagement
- Explicit and Implicit AOT: watching other kids activate mirror neuron networks — free & continuous
- HABIT and CIMT camps: social benefits documented
- Cost-effectiveness: optimised with groups of 3–5
- Normalization: 'I am not alone'
- Development of social skills

Orientations for tomorrow

Keys pillars

Let us build this summer school together

1. The child BUILDS — they do not recover
2. Cognition & Motor functions form an inseparable circuit
3. Enriched environment, Variability of stimulation, Personalization
4. Family and group are full therapeutic tools, not add-ons

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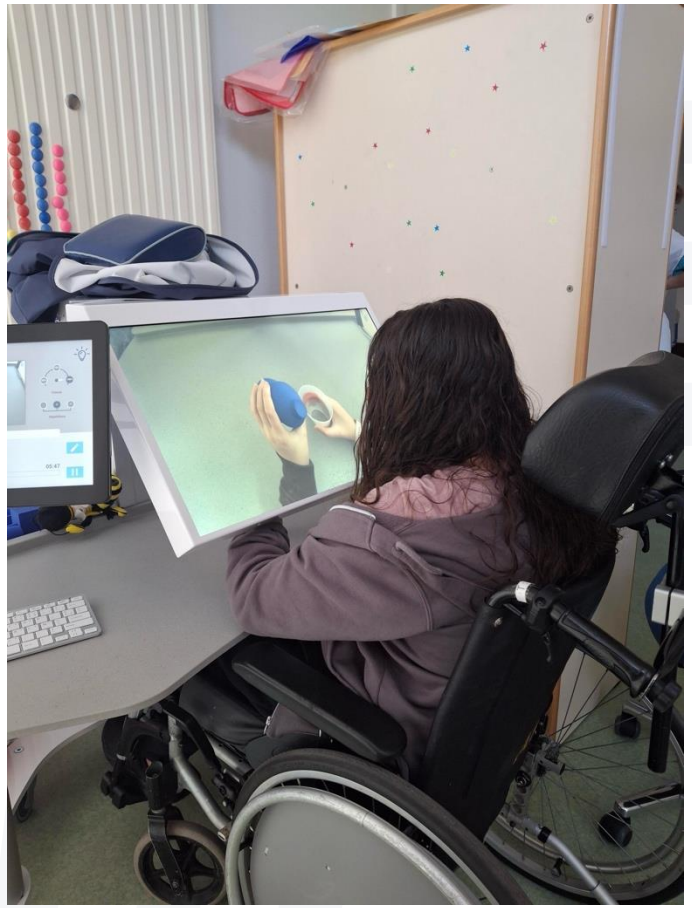
Now, we are eager to see and hear your experiences and feedbacks



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