



## The Coping With and Caring for Infants with Special Needs intervention was associated with improved motor development in preterm infants<sup>1</sup>

Schirin Akhbari Ziegler<sup>1</sup>, Michael von Rhein<sup>2,3</sup>, André Meichtry<sup>1</sup>, Markus Wirz<sup>1</sup>, Tjitske Hielkema<sup>4</sup>, Mijna Hadders-Algra<sup>5</sup>, and the Swiss Neonatal Network & Follow-Up Group

<sup>1</sup> Zurich University of Applied Sciences ZHAW, School of Health Professions, Institute of Physiotherapy, Winterthur, Switzerland; <sup>2</sup> Department of Paediatrics, Kantonsspital Winterthur, Winterthur, Switzerland; <sup>3</sup> University Children's Hospital Zurich, Zurich, Switzerland; <sup>4</sup> University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine, Center for Rehabilitation, Groningen, The Netherlands; <sup>5</sup> University of Groningen, University Medical Center Groningen, Department of Paediatrics, Division of Developmental Neurology, Groningen, The Netherlands

### Introduction

- Early intervention in **preterm infants** is associated with improved outcome
- It is not clear whether **family centred** programmes improve infant outcome more than **child-oriented** programmes

### Aim of the Study

Compare the impact of **child-oriented** typical infant physiotherapy (TIP) and the **family-centred** programme "Coping with and caring for infants with special needs" (COPCA) in preterm infants without significant brain lesions

### Methods

- **Randomised control trial & process evaluation** based on quantified videos
- Preterm infants born before 32 weeks of gestation
  - TIP group: n=8, mean gestational age 29.5 wk
  - COPCA group: n=8, mean gestational age 27 wk
- Included between term and four months corrected age
- **Six months** TIP or COPCA
- Primary outcome: **Infant Motor Profile<sup>2</sup>**
- Secondary outcome: Family Empowerment scale (FES), Pediatric Evaluation of Disability Inventory, German version (PEDI-D), Measurement of Processes of Care (MPOC), Bayley Scales of Infant and Toddler Development (BSID-III)
- Statistics: linear mixed model, regression analyses

### Primary and secondary outcome measures at the various time points

Measurements measures	Intervention period			Follow-up PPT	Follow-up DPC
	Baseline T0	After 3 months T1	After 6 months T2	At 18 months CA T3	At 24 months CA T4
Primary outcome					
<b>IMP</b>	+*	+	+	+	
Secondary outcomes					
<b>FES</b>	+	+	+	+	
<b>PEDI-D</b>			+	+	
<b>MPOC</b>		+	+		
<b>BSID-III</b>					+
<b>Neurological examination</b>					+

#### References

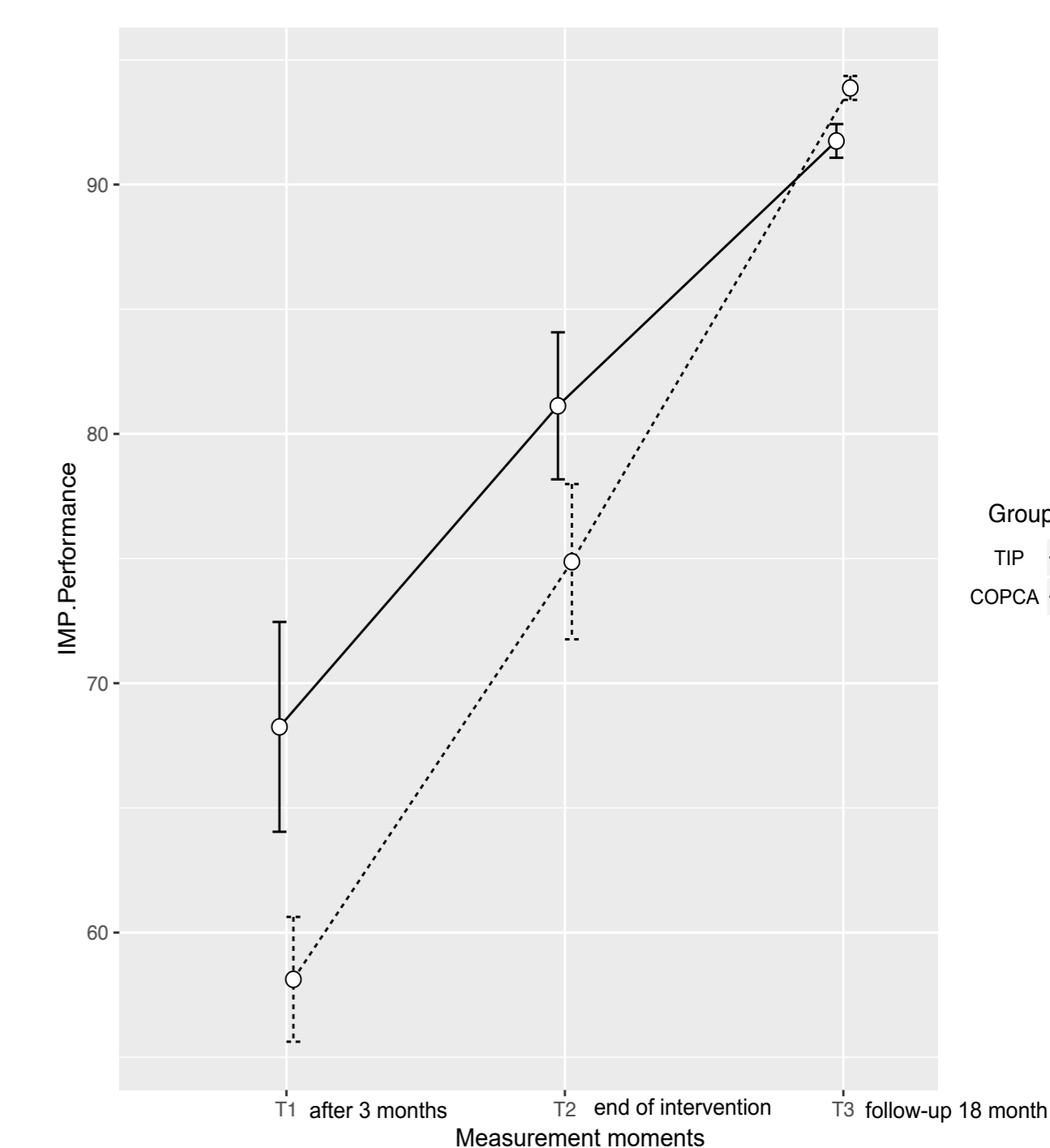
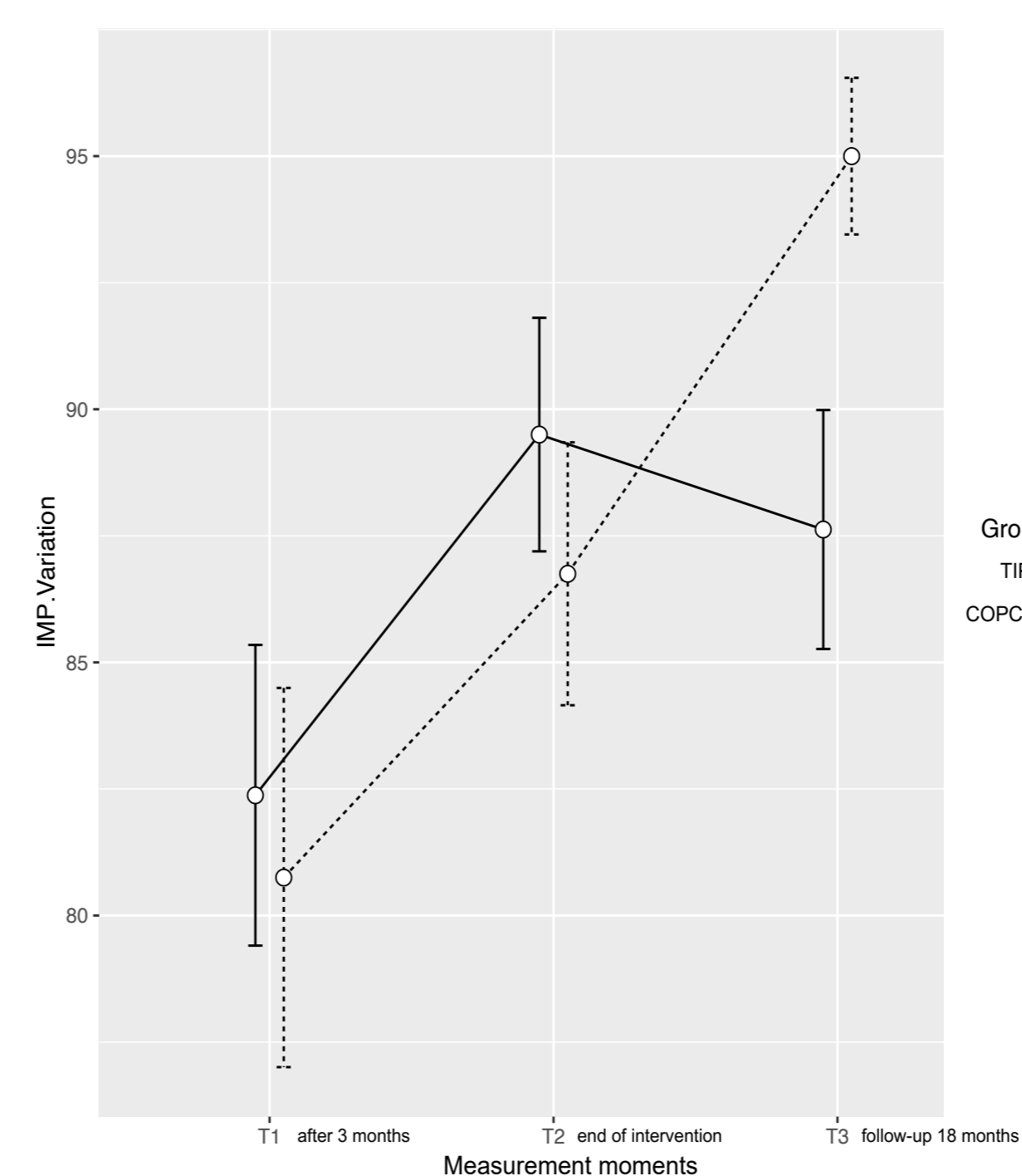
1. Akhbari Ziegler S, von Rhein M, Meichtry A, Wirz M, Hielkema T, Hadders-Algra M; the Swiss Neonatal Network & Follow-Up Group. The Coping With and Caring for Infants with Special Needs intervention was associated with improved motor development in preterm infants. Acta Paediatr. 2020;00:1-12. DOI: 10.1111/apa.15619.
2. Hadders-Algra M, Heineman KR. The Infant Motor Profile. New York, NY: Routledge, 2021.

### Discussion & Conclusion

- In preterm infants without significant brain lesions the family-centred program **COPCA** was associated with **better motor outcome** at 18 months corrected age than child-oriented TIP
- Key elements for improvement: **caregiver coaching** and **absence** of interference with the child's motor activities with **hands-on techniques**
- Caregiver coaching, **encouraged the family's own capacities** to stimulate the infant's motor development during daily care, also after the intervention period

### Results

- None of the children diagnosed with cerebral palsy: study group → preterm infants without significant brain lesions
- **COPCA** group **improved** significantly **more** until 18 months CA in the **IMP domain variation** - an expression of the size of the infant's motor repertoire- and in the **IMP domain performance** than the TIP group. The improvement in variation was **+ 9** percent points, the one in performance **+ 12**
- **Process evaluation**  
 IMP performance at 18 months CA **pos.** associated with **caregiver coaching**  
 IMP variation at 18 months CA **neg.** associated with **caregiver training + hands-on techniques**



#### Acknowledgements

- This study was supported by the Schweizerische Stiftung für das cerebral gelähmte Kind, the Anna Mueller Grocholski Foundation, the Jubiläumstiftung der Schweizerischen Mobiliar Genossenschaft and the Swiss Association of Physiotherapy.
- The authors would like to thank all the therapists, infants and parents who participated in the study.

