

SP 22: Mini-MACS; Development of the Manual Ability Classification System for Children with CP Below 4 Years



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WHAT SHOULD BE CLASSIFIED IN MINI-MACS
The children's ability to handle objects in daily life

BACKGROUND
The Manual Ability Classification System has been used for children with CP, 4-18 years of age. Being able to classify children at younger age has been requested

OBJECTIVES
To develop the Mini-MACS and to investigate validity and reliability of the outcomes by evaluating parent's and occupational therapist's classifications of manual ability of children below four years of age.

METHOD - Development of the Mini-MACS in three steps

- ✓ Minimal adjustment of MACS, tested in a pilot project.
- ✓ Parent interviews, adjustments and consensus discussions within an expert group
- ✓ Evaluation of Mini-MACS for validity and interrater reliability

64 children, 11-51 months old
Each classified by one parent and two occupational therapists.
Intraclass correlation coefficient (ICC) and percentage of absolute agreement were calculated.

RESULT
Adjustments of MACS concerned
The child's ability in relation to age was reinforced
The wordings "independence", and "preparation and modification of activities" were omitted. The wordings "task performance" and "activity" was replaced by actions

Experiences
Parents and occupational therapists recognized the children's ability in the description in the Mini-MACS. The descriptions were found to be good and easy to understand

Mini-MACS

What do you need to know to use Mini-MACS?
Mini-MACS users need to find out what objects the child usually handles and how with ease or difficulty, quickly or slowly, with precision or randomly? For example, you can ask about and/or observe how the child uses his or her hands when playing and during meals, or when participating in usual activities of daily living.

Ask questions about the child's self-initiated ability and how much adult help and support the child needs to handle everyday objects.

Below is a description of the five Mini-MACS levels of children's self-initiated ability and their need for assistance or adaptation when handling objects.

Have you read the other pages?

Distinctions between Levels I and II
Children in level I may have slightly more difficulty handling items that require good fine motor skills compared to children without disabilities of the same age.
Level II children handle essentially the same objects as level I children, but may encounter problems in performing activities and/or take longer for these, so they often ask for help. Functional differences between hands may cause performance to be less effective. Level II children may need more guidance and practice to learn how to handle objects compared with level I children.

Distinctions between Levels II and III
Children in Level II can handle most objects, though they may take longer and do so with somewhat less quality compared to children without disabilities of the same age.
Level III children manage to use easily handled objects but often need help placing objects in an easy position in front of them. They perform actions with few subcomponents. Performance is slow.

Distinctions between Levels III and IV
Level III children manage to use handle easily handled objects independently for short periods. They perform actions with few subcomponents, though it takes a long time.
At best, level IV children can perform simple actions such as grasping and releasing easily handled objects that are offered in an adapted position. They need constant help.

Distinctions between Levels IV and V
Level IV children perform individual actions with a very limited selection of objects and need constant help.
At best, level V children perform simple movements in spatial situations. For example, they can press a contact or hold single, simple objects.

- I. Handles objects easily and successfully.** The child may have a slight limitation in performing actions that require precision and coordination between the hands but they can do them. The child may need somewhat more adult assistance when handling objects compared to other children of the same age.
- II. Handles most objects, but with somewhat reduced quality and/or speed of achievement.** Some actions can only be performed and accomplished with some difficulty and after practice. The child may try an alternative approach, such as using only one hand. The child need adult assistance to handle objects/toys more frequently compared to same-age children.
- III. Handles objects with difficulty.** Performance is slow, with limited variation and quality. Easily managed objects are handled independently for short periods. The child often needs adult help and support to handle objects.
- IV. Handles a limited selection of easily managed objects in simple actions.** The actions are performed slowly, with exertion and/or random precision. The child needs constant adult help and support to handle objects/toys.
- V. Does not handle objects and has severely limited ability to perform even simple actions.** At best, the child can push, touch, press, or hold on to a few items, in constant interaction with an adult.

CONCLUSIONS

- ✓ The Mini-MACS appears to be applicable and easy to understand
- ✓ The interrater reliability was high for both parents and therapists ratings
- ✓ Involving parents to classify their child's manual ability provides essential information in describing their manual ability
- ✓ The leaflet will later be available and free to use from the www.macs.nu

RESULT – Intraclass Correlation Coefficient

	ICC (95% CI)	Agreement (%)
Parent & OT 1	0.9 (0.84-0.94)	65%
Parent & OT 2	0.9 (0.84-0.94)	69%
OT 1 & 2	0.97 (0.95-0.98)	89%



RESULT - Absolute agreement

Mini-MACS parents	Mini-MACS OT 1					Total
	I	II	III	IV	V	
I	13	1	0	0	0	14
II	4	16	5	0	0	25
III	0	6	5	1	0	12
IV	0	0	1	0	4	5
V	0	0	0	0	7	7
Total	17	23	11	1	11	63

Mini-MACS OT 2	Mini-MACS OT 1					Total
	I	II	III	IV	V	
I	17	0	0	0	0	17
II	1	20	2	0	0	23
III	0	2	7	2	0	11
IV	0	0	1	0	0	1
V	0	0	0	0	11	11
Total	18	22	9	3	11	63

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