

Motor Function Assessments (MFAs) in SMA



	HINE-2	CHOP-INTEND	HFMSE	RULM	MFM20	MFM32	GMFM	6MWT	BSID-III
What does it measure?	<ul style="list-style-type: none"> • Head control • Sitting • Voluntary grasp • Ability to kick • Rolling • Crawling • Standing • Walking 	<ul style="list-style-type: none"> • Spontaneous movement • Hand grip • Head movement • Hip adductor • Rolling • Shoulder, elbow, hip and neck flexation • Spinal incurvation 	<ul style="list-style-type: none"> • Lifting head (prone/ supine) • Sit to and from lying • Lying and rolling • Propping on arms • Crawling and kneeling • Sitting • Standing • Taking steps • Walking, running and jumping 	<ul style="list-style-type: none"> • Strength of upper limbs • Precise proximal/ distal movements <p><i>Often used together with the HFMSE</i></p>	<ul style="list-style-type: none"> • Different patterns of weakness involving head, trunk, arms, legs • Different functional levels • Axial, distal and proximal function 	<ul style="list-style-type: none"> • Different patterns of weakness involving head, trunk, arms, legs • Different functional levels • Axial, distal and proximal function 	<ul style="list-style-type: none"> • A detailed assessment of muscle strength during motor development 	<ul style="list-style-type: none"> • Gait • Fatigue 	<ul style="list-style-type: none"> • Fine motor function • Gross motor function
Validated in SMA?	No, but widely used in infants with type 1 SMA	Yes	Yes	No	Yes (validate in neuromuscular disorders in general)	Yes (validate in neuromuscular disorders in general)	Yes	Yes	Yes
In whom?	<p>Non-sitters and sitters aged 2-24 months</p> <p><i>Best suited for those who are expected to make modest, or no improvements</i></p>	Non-sitters	Type 2 & 3, sitters and walkers, aged >2 years	>30 months, non-sitters, sitters and walkers	Children 2-7 years, sitters, standers, and walkers	>2 years – 60 years, sitters, standers, walkers	>5 years, non-sitters, sitters, walkers	>4 years, walkers	Infants/ Children 1-42 months

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By whom?	Experienced physiotherapist or other experienced healthcare professional, preferably the same evaluator each time.								
How often?	Varies by treatment and provincial requirements. Guidelines recommend assessments be performed every 6 months.								
How many items are measured?	8	16	33	20	20 (modified from 32 to suit younger children)	32	88	5	138 Separate scores can be given for fine motor skills (66 items) and gross motor skills (72 items)
What do the scores mean?	Score of 0 – 4 (0 = absence of activity) Maximum score allowed varies by motor milestone.	Score of 0 – 4 (0 = unable to perform) Maximum score: 64	Score of 0 – 2 (0 =unable to perform) Maximum score: 66	Score of 0 – 2 (0 =unable to perform) Maximum score: 37	Score of 0 – 3 (0= not able to initiate movement) Maximum score: 60	Score of 0 – 3 (0= not able to initiate movement) Maximum score: 96	Score of 0 – 3 Low scores correlate with ventilation support.	Results are compared to those achieved by healthy participants matched according to gender, age, weight, and height.	Score of 0 – 1 (0 = unable to perform)