

FACT SHEET



PEDIATRICS

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List of Pediatric Assessment Tools Categorized by ICF Model

The purpose of this document is to organize tests and measures by the domains of the ICF Model. Tests included were published or revised after 1990. Tools on this list are commonly used but inclusion of a tool does not equate with an endorsement or statement of reliability and validity. Users must access manuals and research reports for more details. The reference list at the end of the document is a select list of key resources. Additional tools can be found in the companion document, *List of Pediatric PT Assessment Tools* (<http://pediatricapta.org>). If you have additional tools or measures that you believe should be added to this list, please e-mail suggestions to the Section on Pediatrics at cindysliwa@apta.org.

A. BODY STRUCTURE/FUNCTION

Anthropometrics:

- Body Composition (BMI)⁷
- Height/Weight^{8,19,20,35}
- Leg Length

Cardiopulmonary:

- Blood Pressure, ^{37,51} Heart Rate³⁷
- Oxygen Saturation, Respiratory Pattern and Rate, ³⁷ Skin Color, Skin Turgor

Coordination:

- Clinical Observation of Motor and Postural Skills (COMPS)
- Florida Apraxia Screening Test
- Gross Motor Performance Measure (GMPM)⁶
- Selective Control Assessment of the Lower Extremity
- Test of Ideational Praxis

Endurance/Energy Expenditure:

- Early Activity Scale for Endurance (EASE)⁵³
- Energy Expenditure Index⁴⁵
- 6-Minute Walk Test²⁶
- 30-Second Walk Test²²

Fitness Measures:

- Fitness Gram²⁷
- Presidential Physical Fitness Test

Multi:

- Quick Neurological Screening Test-II (QNST-II)

Pain:

- Children's Hospital of Eastern Ontario Pain Scale (CHEOPS)³¹
- CRIES Scale (Cries, Require Oxygen, Increased Vital Signs, Expression, Sleep)
- Faces Pain Scale³
- FLACC (Faces, Legs, Activity, Crying, Consolability Behavioral Pain Scale)³²
- Individualized Numeric Pain Scale (INRS)⁴⁹
- Numeric Scale
- Oucher Scale
- Visual Analogue Scale⁴⁸

Posture/Balance:

- Early Clinical Assessment of Balance (ECAB)
- Movement Assessment of Infants (MAI)
- Pediatric Balance Scale (PBS)^{14,15}
- Pediatric Clinical Test of Sensory Interaction for Balance (P-CTSIB)⁴⁴
- Pediatric Reach Test (Pediatric Functional Reach Test)^{1,11,15,39,52}
- Timed Up and Down Stairs Test

A. BODY STRUCTURE/ FUNCTION (*continued*)

Posture/Structural Integrity:

- Adam Forward Bend Test
- Anterior/Posterior Drawer Test
- Apley's Test
- Arch Index³³
- Beighton Scale of Hypermobility⁴⁷
- Craig's Test
- Galleazi Sign
- Heel Bisector Angle
- Lachman's Test
- Navicular Drop Test^{33,42}
- McMurray's Test
- Ryder's Test
- Talar Tilt
- Transmaleolar Axis

ROM:

- Ely's Test
- Hamstring Length Test¹⁰
- Modified Ober Test
- Popliteal Angle
- Prone Hip Extension Test⁴
- Spinal Alignment and Range of Motion Measure (SAROMM)
- Straight Leg Test
- Thomas Test

Reflexes:

- Movement Assessment of Infants (MAI)

Sensory Processing:

- Infant/Toddler Sensory Profile
- Sensory Integration and Praxis Test
- Sensory Profile

Spasticity:

- Modified Ashworth Scale (MAS)⁵
- Modified Tardieu Test

Strength/Muscle Power:

- Manual Muscle Testing
- Dynamometer Measurement²⁹
- Muscle Power¹²
- Selective Control Assessment of the Lower Extremity (SCALE)¹³

Visual Motor/Perception:

- Developmental Test of Visual Motor Integration
- Test of Visual Motor Skills-3 (TVMS-3)

B. ACTIVITY

Gait/Walking:

- Dynamic Gait Index^{28,30}
- Functional Mobility Assessment⁴³
- Observational Gait Scale (OGS)
- Standardized Walking Obstacle Course^{18,23}
- Timed Obstacle Ambulation Test
- Timed Up and Down Stairs test⁵⁶
- Timed "Up & Go" (TUG)⁵⁴

Gross Motor:

- Alberta Infant Motor Scales (AIMS)
- Bruininks-Oseretsky Test of Motor Proficiency (BOTP-2)
- Gross Motor Function Measure (GMFM)^{40,41,46}
- Gross Motor Performance Measure⁶
- High Level Mobility Assessment Tool (HIMAT)⁵⁵
- Motor Function Measure²
- Peabody Developmental Motor

- Scales Second Edition (PDMS-2)
- Test of Gross Motor Development, 2nd Edition (TGMD-2)⁵⁰
- Test of Infant Motor Performance (TIMP)

Fine Motor:

- Bruininks-Oseretsky Test of Motor Proficiency (BOTP-2)
- Jebsen Taylor Test of Hand Function
- Nine-Hole Peg Test
- Peabody Developmental Motor Scales Second Edition (PDMS-2)
- Assisting Hand Assessment
- Shriner's Upper Extremity Assessment
- Melbourne Unilateral Upper Limb Function (MUUL)

Play:

- Preschool Play Scale
- Test of Playfulness (ToP)¹⁷

Developmental Screening Tools:

- Ages & Stages Questionnaires (ASQ-3)
- Assessment, Evaluation, and Programming System for Infants and Children (AEPS)–Second Edition
- Bayley Infant Neurodevelopmental Screener (BINS)
- Carolina Curriculum for Infants and Toddlers with Special Needs, Third Edition
- Carolina Curriculum for Preschoolers with Special Needs
- FirstSTeP: Screening Test for Evaluating Preschoolers
- Motor Skills Acquisition in the First Year and Checklist

B. ACTIVITY *(continued)*

Multidomain:

- Activities Scale for Kids (ASK)
- Battelle Developmental Inventory, Second Edition
- Bayley Scales of Infant Development-III
- Brigance Inventory of Early Development, Revised Edition
- Canadian Occupational Performance Measure (COPM)
- Functional Independence Measure for Children (WeeFIM)
- Harris Infant Motor Test (HINT)
- Hawaii Early Learning Profile (HELP-Strands)
- Merrill-Palmer Scale, Revised
- Miller Assessment of Preschoolers
- Miller Function and Participation Scales
- Movement Assessment Battery for Children (Movement ABC-2)
- Pediatric Evaluation of Disability Inventory (PEDI)
- Pediatric Evaluation of Disability Inventory (PEDI-CAT)¹⁶

- POSNA Pediatric Musculoskeletal Functional Health Questionnaire
- School Function Assessment (SFA)
- Toddler and Infant Motor Evaluation (TIME)
- Transdisciplinary Play-Based Assessment, Second Edition (TPBA2)
- Vineland Adaptive Behavior Scales, Second Edition

C. PARTICIPATION

Multidomain:

- Assessment of Life Habits (LIFE-H)³⁸
- Canadian Occupational Performance Measure (COPM)²⁵
- Children's Assessment of Participation and Enjoyment (CAPE)²¹
- Participation and Environment Measure-Children and Youth (PEM-CY)⁹
- Preferences for Activities of Children (PAC)²¹
- School Function Assessment (SFA)
- Vineland Adaptive

Quality of Life:

- Child Health Index of Life with Disabilities³⁶
- Kidscreen
- Pediatric Quality of Life Inventory (Peds QL)
- Pediatric Outcomes Data Collection Instrument (PODCI)
- Quality of Well Being Scale (QWB)

Health Status:

- Child Health and Illness Profile-Adolescent Edition (CHIP-E)
- Child Health Questionnaire (CHQ)
- Child Health Assessment Questionnaire (CHAQ)
- Health Utilities Index-Mark 3

D. PERSONAL/CONTEXTUAL

- Child Occupational Self Assessment²⁴
- Early Coping Inventory
- Devereux Early Childhood Assessment (DECA)

REFERENCES

1. Bartlett D, Birmingham T. Validity and reliability of a pediatric reach test. *Pediatr Phys Ther.* 2003;15:84-92.
2. Berard C, Payan C, Hodgkinson I, Fermanian J. A motor function measure scale for neuromuscular diseases: construction and validation study. *Neuromuscular Disord.* 2005;15:463-470.
3. Bieri D, Reeve R, Addicoat L, Ziegler J. The faces pain scale for the self-assessment of the severity of pain experienced by children. *Pain.* 1990;41:139-150.
4. Bleck EE. *Orthopaedic Management in Cerebral Palsy.* London, England: MacKeith; 1987.
5. Bohannon R, Smith M. Interrater reliability of a modified Ashworth scale of muscle spasticity. *Phys Ther.* 1987;67(2):206.
6. Boyce W, Gowland C, Rosenbaum P, et al. *Gross Motor Performance Measure Manual.* Kingston, ON: Queen's University, School of Rehabilitation Therapy; 1998.
7. Centers for Disease Control. About BMI for children and teens. http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html. Accessed July 12, 2012.
8. Centers for Disease Control. CDC Growth Charts. www.cdc.gov/growthcharts/cdc_charts.htm. Accessed July 12, 2012.
9. Coster WJ, Bedell G, Law M, et al. Psychometric evaluation of the Participation and Environment Measure for Children and Youth (PEM-CY). *Dev Med Child Neurol.* 2011;53(11):1030-1037.
10. Cusick BD, Stuberger WA. Assessment of lower-extremity alignment in the transverse plane: implications for management of children with neuromotor dysfunction. *Phys Ther.* 1992;72:3-15.
11. Donahoe B, Turner D, Worrell T. The use of functional reach as a measurement of balance in boys and girls without disabilities ages 5 to 15 years. *Pediatr Phys Ther.* 1994;6:189-193.
12. Douma-van Riet D, Verschuren O, Jelsma D, Kruitwagen C, Smits-Engelsman B, Takken T. Reference values for the muscle sprint test in 6-12-year-old children. *Pediatr Phys Ther.* 2012;24(4):327-332.
13. Fowler EG, Staudt LA, Greenberg MB, Oppenheim WL. Selective Control Assessment of the Lower Extremity (SCALE): development, validation, and interrater reliability of a clinical tool for patients with cerebral palsy. *Dev Med Child Neurol.* 2009;51:607-614.
14. Franjoine MR, Darr N, Held SL, Kott K, Young BL. The performance of children developing typically on the pediatric balance scale. *Pediatr Phys Ther.* 2010;22(4):350-359.
15. Gan SM, Tung LC, Tang YH, Wang CH. Psychometric properties of functional balance assessment in children with cerebral palsy. *Neurorehabil Neural Repair.* 2008;22(6):745-753.
16. Haley SM, Coster WJ, Dumas HM, et al. Accuracy and precision of the Pediatric Evaluation of Disability Inventory Computer Adaptive Tests (PEDI-CAT). *Dev Med Child Neurol.* 2011;53(12):1100-1106.
17. Harkness L, Bundy AC. The Test of Playfulness and children with physical disabilities. *Occup Ther J Res.* 2001;21(2):73-89.
18. Held SL, Kott KM, Young BL. Standardized Walking Obstacle Course (SWOC): reliability and validity of a new functional measurement tool for children. *Pediatr Phys Ther.* 2006;18(1):23-30.
19. Hoover-Fong JE, McGready J, Schulze KJ, Barnes H, Scott CI. Weight age for age charts for children with achondroplasia. *Am J Med Genetics.* 2007;143A:2227-2235.
20. Kennedy Krieger Institute. Growth references for children with quadriplegic cerebral palsy. <http://www.kennedykrieger.org/patient-care/patient-care-centers/cerebral-palsy-neurodevelopmental-medicine-phelps-center/cp-growth-references>. Accessed October 16, 2012.
21. King G, Law M, King S, et al. *Children's Assessment of Participation and Enjoyment (CAPE) and Preferences for Activities of Children (PAC).* San Antonio, TX: Harcourt Assessment Inc; 2004.
22. Knutson LM, Bushman B, Young JC, Ward, G. Age expansion of the thirty-second walk test norms for children. *Pediatr Phys Ther.* 2009;21(3):235-243.
23. Kott KM, Held SL, Giles EF, Franjoine MR, Rose M. Predictors of Standardized Walking Obstacle Course outcome measures in children with and without developmental disabilities. *Pediatr Phys Ther.* 2011;23(4):365-373.
24. Kramer J, Kielhofner G, Smith EV. Validity evidence for the Child Occupational Self Assessment. *Am J Occup Ther.* 2010;64(4):621-32.
25. Law M, Baptiste S, Carswell A, McCall MA, Polatajko H, Pollock N. *Canadian Occupational Performance Measure.* Ottawa, Ontario: Central Texas Technology Center; 2005.
26. Li A, Yin J, Yu C, et al. Standard reference for the six-minute-walk test in healthy children aged 7 to 16 Years. *Am J Respir Crit Care Med.* 2007;176:174-180.
27. Looney MA, Plowman SA. Passing rates for American children and youth on the fitnessgram criterion referenced physical fitness standards. *Res Q Exercise Sport.* 1990;61(3):215-223.
28. Lubetzky-Vilnai A, Jirikowic T, McCoy SW. Investigation of the Dynamic Gait Index in children: a pilot study. *Pediatr Phys Ther.* 2011;23(3):268-273.
29. Macfarlane TS, Larson CA, Stiller C. Lower extremity muscle strength in 6- to 8-year-old children using hand-held dynamometry. *Pediatr Phys Ther.* 2008;20:128-136.
30. Marchetti GF, Whitney SL. Construction and validation of the 4-item dynamic gait index. *Phys Ther.* 2006 Dec;86(12):1651-1660.
31. McGrath PJ, Johnson G, Goodman JT, Schillinger J, Dunn J. Children's Hospital of Eastern Ontario Pain Scale (CHEOPS). *Adv Pain Res Ther.* 1985;9:395-402.
32. Merkel SI, Voepel-Lewis T, Shayevitz JR, Malviya S. Face, Legs, Cry, and Consolability Behavioral Pain Scale (FLACC). *Ped Nurs.* 1997;23(3):293-7.
33. Mickle KJ, Steel JR, Monro BJ. The feet of overweight and obese young children: are they flat or fat? *Obesity.* 2006;14:1949-1953.
34. Mueller MJ, Host JV, Norton BJ. Navicular drop as a composite measure of excessive pronation. *J Am Podiatr Med Assoc.* 1993;83:198-202.
35. Myrelid A, Gustafsson J, Ollars B, Anneren G. Growth charts for Down's syndrome from birth to 18 years of age. *Arch Dis Child.* 2002;87(2):97-103.
36. Narayanan UG, Fehlings DL, Weir S, Knights S, Kiran S, Campbell K. Caregiver Priorities and Child Health Index of Life with Disabilities: initial development and validation of an outcome measure of health status and well-being in children with severe cerebral palsy. *Dev Med Child Neurol.* 2006;48:804-812.
37. National Institutes of Health. Age-appropriate vital signs. <http://www.cc.nih.gov/ccc/pedweb/pedsstaff/age.html>. Accessed July 19, 2012.
38. Noreau L, Lepage C, Boissiere L, et al. Measuring participation in children with disabilities using the Assessment of Life Habits. *Dev Med Child Neurol.* 2007;49:666-671.

39. Norris RA, Wilder E, Norton J. The functional reach test in 3- to 5-year-old children without disabilities. *Pediatr Phys Ther.* 2008;20(1):47-52.
40. Palisano R, Rosenbaum P, Bartlett D, Livingston M. Gross Motor Function Classification System—Expanded and Revised. CanChild Centre for Childhood Disability Research, McMaster University. <http://www.canchild.ca/en/measures/gmfcs.asp>. Accessed July 18, 2012.
41. Palisano RJ, Walter SD, Russell DJ, et al. Gross motor function of children with Down syndrome: creation of motor growth curves. *Arch Phys Med Rehabil.* 2001;82:494-500.
42. Picciano AM, Rowlands MS, Worrell T. Reliability of open and closed kinetic chain subtalar joint neutral positions and navicular drop test. *J Orthop Sports Phys Ther.* 1993;18:553-558.
43. Pierce S, Fergus A, Brady B, Wolff-Burke M. Examination of the functional mobility assessment tool for children and adolescents with lower extremity amputations. *Pediatr Phys Ther.* 2011;23:171-177.
44. Richardson P, Atwater S, Crowe T, Deitz J. Performance of preschoolers on the Pediatric Clinical Test of Sensory Interaction for Balance. *Am J Occup Ther.* 1992;46(9):793-800.
45. Rose J, Gamble JG, Lee J, Lee R, Haskell WL. The energy expenditure index: a method to quantitate and compare walking energy expenditure for children and adolescents. *J Pediatr Orthop.* 1991;11(5):571-578.
46. Rosenbaum PL, Walter SD, Hanna SE, et al. Prognosis for gross motor function in cerebral palsy: creation of motor development curves. *JAMA.* 2002;288(11):1357-1363.
47. Russek LN. Hypermobility syndrome. *Phys Ther.* 1999;79:591-599.
48. Shields B, Cohen D, Harbeck-Weber C, Powers J, Smith G. Pediatric pain measurement using a visual analogue scale. *Clin Pediatrics.* 2003;42(3):227-234.
49. Solodiuk JC, Scott-Sutherland J, Meyers M, et al. Validation of the Individualized Numeric Rating Scale (INRS): a pain assessment tool for nonverbal children with intellectual disability. *Pain.* 2010;150(2):231-236.
50. Ulrich DA. *Test of Gross Motor Development.* 2nd ed. Austin, TX: Pro-Ed; 2000.
51. US Department of Health and Human Services. Pocket guide to blood pressure Measurement. http://www.nhlbi.nih.gov/health/public/heart/hbp/bp_child_pocket/bp_child_pocket.pdf. Accessed July 12, 2012.
52. Volkman KG, Stergiou N, Stuber W, Blanke D, Stoner J. Factors affecting functional reach scores in youth with typical development. *Pediatr Phys Ther.* 2009;21(1):38-44.
53. Westcott McCoy S, Yocum A, Bartlett DJ, et al. Development of the Early Activity Scale for Endurance for children with cerebral palsy. *Pediatr Phys Ther.* 2012;24(3):232-40.
54. Williams EN, Carroll SG, Reddihough DS, Phillips BA, Galea MP. Investigation of the timed “up & go” test in children. *Dev Med Child Neurol.* 2005;47(8):518-524.
55. Williams GP, Greenwood KM, Robertson VJ, Goldie PA, Morris ME. High-Level Mobility Assessment Tool (HiMAT): interrater reliability, retest reliability, and internal consistency. *Phys Ther.* 2006;86(3):395-400.
56. Zaino CA, Marchese VG, Westcott SL. Timed up and down stairs test: preliminary reliability and validity of a new measure of functional mobility. *Pediatr Phys Ther.* 2004;16(2):90-8.

FOR MORE INFORMATION

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