Evidence Analysis Library: Pediatric Nutrition Screening
Validity and Reliability of Nutrition Screening Tools

ALL TOOLS: What nutrition screening tools have been found to be valid and reliable for identifying risk of malnutrition related to under- or over-nutrition in the pediatric population?

The evidence for validity, reliability and agreement of pediatric nutrition screening tools for identifying risk of malnutrition

TOOL[4]	VALIDITY[1]					RELIABILITY[2]	AGREEMENT[2]	GRADE, EVIDENCE STRENGTH[3]
	Sensitivity	Specificity	PPV	NPV	OVERALL VALIDITY[5]			
E-KINDEX						LOW[6]	NR	III, LIMITED
Obesity/overweight vs. normal weight	Low	Low	Low	Moderate	**LOW**	-	-	-
Obesity vs. normal weight/overweight	Low	Low	Low	High	**LOW**	-	-	-
IMCI Algorithm						NR	NR	III, LIMITED
Severe wasting	Low	High	Low	High	**LOW**	-	-	-
Very low weight-for-age	Low	High	Moderate	High	**MODERATE**	-	-	-
Bipedal edema	Low	High	Low	High	**LOW**	-	-	-
Severe wasting and/or bipedal edema	Low	High	Low	High	**LOW**	-	-	-
Stunted growth	Low	Low	Low	High	**LOW**	-	-	-
NRST for CF	Moderate	Low	Moderate	Moderate	**MODERATE**	HIGH	NR	II, FAIR
NutriSTEP						HIGH[7]	HIGH	III, LIMITED
Moderate risk cut point	Low	Low	Low	Low	**LOW**	-	-	-
High risk cut point	Moderate	Low	Low	Low	**LOW**	-	-	-
NutriSTEP (Toddler)						HIGH[7]	NR	III, LIMITED
Moderate risk cut point	Moderate	Low	Low	Moderate	**MODERATE**	-	-	-
High risk cut point	High	Low	Low	High	**MODERATE**	-	-	-
PMST	High	Low	Low	High	**MODERATE**	NR	LOW	II, FAIR
PNRS	High	Low	Low	Moderate	**MODERATE**	NR	LOW	III, LIMITED
PNST						NR	NR	II, FAIR
Weight-for-age z-score (≤-2)	Moderate	Low	Low	High	**MODERATE**	-	-	-
Weight-for-age z-score (≤-3)	High	Low	Low	High	**MODERATE**	-	-	-
Height-for-age z-score (≤-2)	Low	Low	Low	High	**LOW**	-	-	-
Height-for-age z-score (≤-3)	Low	Low	Low	High	**LOW**	-	-	-
Body mass index (BMI) z-score (≤-2)	Moderate	Low	Low	High	**MODERATE**	-	-	-
BMI z-score (≤-3)	High	Low	Low	High	**MODERATE**	-	-	-
BMI ≥85th percentile	Low	Low	Low	Low	**LOW**	-	-	-
Dietitian assessment	Low	Moderate	Low	Moderate	**LOW**	-	-	-
PYMS	Moderate	Low	Low	High	**MODERATE**	MODERATE	LOW	II, FAIR
SCAN	High	Low	Low	High	**MODERATE**	NR	NR	III, LIMITED

	VALIDITY[1]					RELIABILITY[2]	AGREEMENT[2]	GRADE, EVIDENCE STRENGTH[3]
TOOL[4]	Sensitivity	Specificity	PPV	NPV	OVERALL VALIDITY[5]			
STAMP	Moderate	Low	Low	High	MODERATE	HIGH	LOW	I, GOOD/STRONG
STAMP (Modified)	Low	Moderate	Low	Moderate	LOW	NR	LOW	II, FAIR
STRONGkids	Moderate	Low	Low	High	MODERATE	MODERATE	LOW	II, FAIR

[1]Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) cut offs: High: 90 to 100%, moderate: 80 to ≤89%, low: ≤79%.

[2]Reliability (inter-rater) and agreement kappa cut-offs: High: 0.8 to 1; moderate: 0.6 to ≤7.9; low: ≤5.9. Inter-rater reliability is reported, unless otherwise specified. NR=not reported.

[3]Elements considered in the overall conclusion statement grade include: Quality of the evidence, consistency of results across studies, quantity of studies and number of subjects, clinical impact of outcomes, and generalizability to population of interest.

[4]E-KINDEX=Electronic Kids Dietary Index; IMCI Algorithm=Integrated Management of Childhood Illness Nutrition Algorithm; NR=not reported; NRST for CF=Nutrition Risk Screening Tool for Cystic Fibrosis; NutriSTEP=Nutrition Screening Tool for Every Preschooler; NutriSTEP (Toddler)=Toddler Nutrition Screening Tool for Every Preschooler; PeDiSMART=Pediatric Digital Scaled Malnutrition Risk screening Tool; PMST=Paediatric Malnutrition Screening Tool; PNRS=Pediatric Nutrition Risk Score; PNST=Pediatric Nutrition Screening Tool; PYMS=Paediatric Yorkhill Malnutrition Score; SCAN=Nutrition Screening tool for Childhood Cancer; STAMP=Screening Tool for the Assessment of Malnutrition in Pediatrics; STAMP (Modified)=Modified Screening Tool for the Assessment of Malnutrition in Pediatrics; STRONGkids=Screening Tool for Risk on Nutritional status and Growth. NOTE: PeDiSMART was not included in the table, because no evidence meeting inclusion criteria was found to determine validity and reliability of the tool.

[5]Based on the algorithm to determine the overall validity found in the *NSP: Validity and Reliability Criteria* section (www.andeal.org/nsp).

[6]Reliability (internal reliability) Cronbach's alpha cut offs: High: $\alpha \geq 0.8$, moderate: $0.8 > \alpha \geq 0.7$, low: $0.6 > \alpha$.

[7]Reliability (test-retest reliability) Intraclass correlation coefficient (ICC) cut offs: High: 0.75 to 1.0, moderate: 0.5 to 0.75, low: <0.5.