

Beyond Standard Measures: What You Should Know About Implementing Growth Scale Values

Growth scale values (GSV) are the transformation of raw scores that puts them onto an equal-interval scale.¹

4 Things You Need to Know About GSVs

GSVs:

- 1 | are an estimate of underlying ability (the Rasch ability scale).
- 2 | have equal intervals.¹
- 3 | can be compared over time to show whether performance or skill level has changed compared to previous performance.¹
- 4 | and GSV-type scales have been in use for almost 50 years.²

Benefits of GSVs



Can be used with patients of any age for whom the test content is appropriate, including impaired patients whose chronological age is above the normative age range.



More accurate than age-equivalent scores.



Useful for comparing changes in performance over time.



Have score-specific standard errors of measurement (SEM).

How GSVs Measure Up

Tool	Advantages	Disadvantages
GSV	<ul style="list-style-type: none"> • Reflect absolute, not relative, performance. • Useful for comparing current performance to past performance because of equal-interval scaling. • Usable at any age. • Have score-specific Standard Error of Measurement (SEM). 	<ul style="list-style-type: none"> • Not comparable among tests or subtests. • Do not indicate how performance compares with that in a same age normative group.
Raw Scores	<ul style="list-style-type: none"> • Reflect absolute, not relative, performance. • Usable at any age. • Raw scores are sensitive to change, but are not as precise as GSVs due to lack of equal-interval comparability across ages. 	<ul style="list-style-type: none"> • Not comparable among tests or subtests or across age groups. • Do not indicate how performance compares with that in a same age normative group.
Norm-referenced scores	<ul style="list-style-type: none"> • Compare performance to a reference population. • Comparable across tests or subtests. 	<ul style="list-style-type: none"> • Change scores are complex to interpret because they compare change in an individual with changes in a reference population. • Limited to patients in the normative age range. • Are not compatible with measuring absolute change in ability level.
Age-equivalent scores	<ul style="list-style-type: none"> • Reflect absolute, not relative, performance. • Universally interpretable. • Comparable across tests or subtests. 	<ul style="list-style-type: none"> • Can take on extreme values at upper ages. • Lack standard deviations, standard errors of measurement, and equal intervals between scores. • Limited to patients with developmental ages in the normative age range.

GSV Guidelines

- Do not average or compare GSVs obtained on different tests.
- Note that very large score-specific SEMs indicate scores that are less precise.
- As with all scores, consider whether the change in GSVs indicates a true (statistically-significant) change in performance over time.

For more information on Growth Scale Values, visit Pearson's website to access [this pamphlet](#) or watch the webinar, [Navigating Pediatric Neurogenetic Clinical Trials: Understanding the Essential Psychometrics](#), to see how they are actively used in clinical settings.



¹ Pearson. "Growth Scale Values." <https://www.pearsonassessments.com/content/dam/school/global/clinical/us/assets/campaign/growth-scale-values-gsv.pdf>. March 2022.

² Eisengart, J.B., Daniel, M.H., Adams, H.R., et al. "Increasing precision in the measurement of change in pediatric neurodegenerative disease." *Molecular Genetics and Metabolism*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9879307/>. September 8, 2022.

³ Psimas, L. "Precision Matters: An analysis of how various scores behave when measuring change over time; factors that inform score selection for the best results." ISCTM Poster. https://isctm.org/public_access/20th_Annual/Abstract/Psimas_Abstract.pdf.

⁴ Pearson. "Standard Clinical Assessment for Practitioners: A Primer." <https://www.pearsonclinical.ca/content/dam/school/global/clinical/ca/assets/featured-topics/assessment-primer-whitepaper-can.pdf>. 2023.