

FOOD AID QUALITY REVIEW

BEYOND Z-SCORES: TAKEAWAYS FROM A 2017 SYMPOSIUM AT THE INTERNATIONAL CONGRESS OF NUTRITION (ICN)

The Symposium discussed efforts to treat or prevent child malnutrition which need to move beyond measurement of Z-scores (e.g. LAZ, WHZ) **alone** to determine treatment methods and understand the effects of food-based interventions, **focusing on examples of body composition, environmental enteric dysfunction and protein quality**. Further efforts are needed toward accessible technology, accepting the use of these new measures, and understanding how they should be interpreted. In the meantime, we should be taking what is already known about these three key areas into urgent consideration in research, policy and programming:

BODY COMPOSITION METHODS



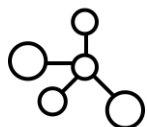
- Lean mass and fat mass, rather than weight alone, are more useful for nutritional evaluation.
- Newer technologies are able to determine body composition in the field. They will make measures more affordable and accessible, but they need to be validated against reference methods.
- Existing data on “normal” body composition is limited (e.g. for different ethnic groups). This should be a future research priority.

ENVIRONMENTAL ENTERIC DYSFUNCTION ASSESSMENT CHALLENGES



- Environmental enteric dysfunction (EED) is an inflammatory disorder of the gut resulting in reduced absorption of nutrients, increasingly linked with child stunting.
- Non-invasive technologies to determine and quantify EED are still in development.
- The relationship between EED and supplemental foods is not fully understood, but future food-based interventions will need to take factors related to EED into account in order to be more effective.

PROTEIN QUALITY ASSESSMENT NEEDS



- Inadequate dietary protein quality is associated with stunting.
- Current methods of assessing dietary protein quality are complex, have questionable accuracy, and may vary across individuals and contexts.
- There is a need for simpler assessment of dietary protein quality to target effective strategies and address malnutrition and stunting.

For more, find the full report here: <https://goo.gl/TMCeU2>

Suri DJ and Rosenberg IH. 2018. Beyond Z-scores: Measures to Advance Prevention and Treatment Outcomes in Child Malnutrition. Summary of Proceedings from a Symposium at the International Congress of Nutrition, Buenos Aires, Argentina on October 16, 2017. Report to USAID. Boston, MA: Tufts University

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BEYOND Z-SCORES: FURTHER READINGS

Presenters, read more [here](#):

Cornelia Loechl, International Atomic Energy Agency, Vienna, Austria

Irwin Rosenberg, Tufts University, Boston, U.S.A.

Tahmeed Ahmed, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh

Anura Kurpad, St. John's College, Bangalore, India

Ricardo Uauy, London School of Hygiene and Tropical Medicine, London, U.K.

BODY COMPOSITION RESOURCES

- Assessment of Body Composition and Total Energy Expenditure in Humans Using Stable Isotope Techniques, International Atomic Energy Agency, Vienna, 2009.
<https://www-pub.iaea.org/books/iaeabooks/7982/Assessment-of-Body-Composition-and-Total-Energy-Expenditure-in-Humans-Using-Stable-Isotope-Techniques>
- Wells JCK. Toward Body Composition Reference Data for Infants, Children, and Adolescents. *Advances in Nutrition* 2014; 5(3): 320S–329S. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4013189/>

ENVIRONMENTAL ENTERIC DYSFUNCTION RESOURCES

- Kosek et al. Assessment of Environmental Enteropathy in the MAL-ED Cohort Study: Theoretical and Analytic Framework. *Clinical Infectious Diseases* 2014; 59(Suppl 4): S239–S247.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4204611/>
- Prendergast et al. Assessment of Environmental Enteric Dysfunction in the SHINE Trial: Methods and Challenges. *Clinical Infectious Diseases* 2015; 61(Suppl 7): S726–S732.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4657593/>
- Syed S, Ali A and Duggan C. Environmental Enteric Dysfunction in Children: A Review. *Journal of Pediatric Gastroenterology and Nutrition* 2016; 63(1): 6–14. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4920693/>

PROTEIN QUALITY RESOURCES

- Dietary protein quality evaluation in human nutrition. Report of an FAO Expert Consultation. Food and Agriculture Organization of the United Nations. Rome, 2013.
<http://www.fao.org/ag/humannutrition/35978-2317b979a686a57aa4593304ffc17f06.pdf>