

Nutrition and Hydration

Current Awareness Bulletin

July 2026

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1. Exploring the links between nutrition, gut microbiome, and neurodevelopmental disorders

Authors: Chatzinikolaou, Rea; Rouskas, Konstantinos and Argiriou, Anagnostis

Publication Date: 2026

Journal: Nutrition (Burbank, Los Angeles County, Calif.) 148, pp. 113030

Abstract: Neurodevelopmental disorders (NDDs), such as autism spectrum disorder (ASD), emerge during early childhood, affecting cognitive and behavioral health and motor development. While genetic factors contribute to the onset of ASD, recent studies highlight the significant role of environmental factors, particularly nutrition, in influencing the severity and manifestation of symptoms, primarily through the gut microbiome. This review explores how dietary imbalances, such as the consumption of ultra-processed foods, disrupt gastrointestinal health and microbiome composition, which in turn impact neurodevelopmental outcomes. It further explores the gut-brain axis and how early-life exposures, along with dietary and

environmental factors, play a significant role in shaping brain development. The review concludes by underscoring the potential of a deeper understanding of these interactions to pave the way for more effective interventions aimed at improving developmental outcomes in children with ASD and other related NDDs. Key findings reveal that specific gut microbiota imbalances, such as a reduction in Bifidobacterium, are commonly associated with ASD. Additionally, dietary patterns like the Mediterranean and ketogenic diets show promise in supporting cognitive function and promoting neurodevelopment. Maternal nutrition, stress, and epigenetic factors during early life are also shown to influence brain development, contributing to gut dysbiosis, neuroinflammation, and the development of NDDs. To enhance our understanding of NDDs, future research should focus on large-scale longitudinal studies, maternal nutrition, and integrative multi-omics approaches.

2. Assessing the relationship between food-related mental imagery and appetite

Authors: Hames, Maggie;McCormack, Jessica C.;Roberts, Reece;Halberstadt, Jamin;Spence, Charles and Peng, Mei

Publication Date: 2026

Journal: Appetite 224, pp. 108592

Abstract: Mental imagery (MI) engages neural and cognitive mechanisms that closely parallel those involved in actual perceptual processing, but it remains unknown whether food-related MI shows similar appetite-dependent modulation as food perception. Across two experiments, we examined (i) whether metabolic state alters the strength of food-related MI, and (ii) whether generating repeated food-related MI influences hedonic evaluations of food (i.e. chocolate cookies). In Experiment 1, participants were asked to generate flavour and texture MI using visual cues, in either a hunger or satiated state. MI strength, indexed by vividness, ease, and generation speed, was greater when hungry than sated for flavour MI only. In Experiment 2, liking and wanting for food samples were measured prior to and following 30 trials of flavour- or texture-specific consumption MI. Repeated MI did not alter the hedonic value of the food samples, but imagined liking declined across trials. Findings demonstrate that (1) metabolic state modulates the generation of multisensory MI, and (2) MI itself selectively adjusts imagined, but not perceptual, hedonic responses. The results reveal new findings on the interactions between MI and appetite, offering insight into the functional architecture linking simulation, reward processing, and metabolic state.

3. Implementation of a hospital-based quality-improvement program targeting prolonged liquid-diet prescriptions in a tertiary hospital: A before-after study

Authors: M, Valderrama V., Otilda;Ávila, Ruth;Bosquez, Ramcés and Montenegro, Mónica

Publication Date: 2026

Journal: Clinical Nutrition ESPEN 74, pp. 103369

Abstract: Background and Aims Prolonged use of liquid diets in hospitalized patients may contribute to inadequate caloric and protein intake, increasing the risk of hospital-acquired

malnutrition. Evidence suggests that many liquid-diet prescriptions lack clear clinical justification. We evaluated the impact of an institutional quality-improvement program aimed at reducing prolonged liquid-diet exposure in a tertiary public hospital. Methods A quasi-experimental before-and-after study without concurrent control group was conducted using anonymized administrative data from adult patients admitted to medical and surgical areas of a public tertiary-level hospital, excluding intensive care units and postpartum units. The pre-intervention (January-March 2022) and post-intervention (October-December 2023) periods were compared. The program involved the identification of patients on prolonged liquid diets (>48 h) followed by bedside review and direct order modification by a multidisciplinary Nutrition Support Team. Results We reviewed 3989 pre-intervention and 4339 post-intervention admissions. The proportion of admissions receiving liquid diets increased (15.0% vs. 23.7%), but mean liquid-diet duration decreased from 4.02 ± 3.36 to 2.99 ± 2.87 days (mean difference -1.03 days; 95% CI -1.35 to -0.71; $p < 0.001$). The proportion of prolonged liquid diets decreased from 53.9% to 40.6% (absolute difference -13.3 percentage points; 95% CI -18.3 to -8.2; $p < 0.001$). Supplementation among prolonged cases increased from 10.2% to 22.8% (absolute difference +12.6 percentage points; 95% CI +7.4 to +17.8; $p < 0.001$). Exploratory model-based economic analyses projected potential net institutional savings under selected assumptions; however, these estimates were highly sensitive to assumed reductions in hospital length of stay. No patient-level clinical outcomes were measured. Conclusion Implementation of an active surveillance program may reduce the duration of exclusive liquid diets, increase the use of nutritional support, and may be associated with projected cost savings. These findings reflect improvements in institutional process indicators rather than direct evidence of clinical benefit. Although causal inference is limited and economic projections are exploratory, structured monitoring of dietary prescriptions may represent a feasible quality-improvement strategy in resource-limited hospital settings.

4. Evidence-Based Nutritional Management of Menopausal Symptoms: A Pathophysiological Reasoning Approach to Personalized Nutrition Practice

Authors: Reid, E., Barrow, M. and Cutler, B.

Publication Date: 2026

Publication Details: Philadelphia, Pennsylvania: Taylor & Francis Ltd

5. Developing Systems Thinking Competencies in Emerging Nutrition Professionals: A Case Study Across Academic, Community, and Industry Contexts

Authors: Ringling, Keagan M.; Jansma, Melissa; Cibuzar, Kristina; Liffbrig, Therese; Hermann, Mindy and Marquart, Len F.

Publication Date: 2026

Journal: Journal of Human Nutrition and Dietetics : The Official Journal of the British Dietetic Association 39(4), pp. e70313

Abstract: Introduction Preparing nutrition and dietetics professionals for the complexity of modern food, health, and environmental systems requires educational models that move

beyond reductionist training. Systems thinking and transformational learning offer frameworks that support integrative, adaptive, and equity-oriented professional development. This case study describes a systems-based experiential learning pathway designed to cultivate systems literacy, leadership, and cross-sector collaboration among nutrition students. Methods A multi-year experiential learning model was implemented within the University of Minnesota's Department of Food Science & Nutrition]. This case study design included nine sequential activities were co-designed by a student and faculty mentor using systems thinking and transformational learning principles. Activities engaged the student across community, non-profit, regulatory, agricultural, industry, teaching, and leadership contexts. Mentorship meetings, reflective journaling, and iterative feedback loops were used to assess competency development related to systems thinking, ethical decision-making, interdisciplinary collaboration, and adaptive problem-solving. Results Experiential learning produced outcomes at personal, institutional, and systems levels. Personally, the student developed transdisciplinary collaboration skills, systems thinking competency, reflective practice, and adaptive leadership capacity. Institutionally, the case contributed to new systems-oriented curricular components, student-led organizations, and expanded mentoring structures that embedded systems thinking into departmental culture. At the systems level, partnerships across industry, government, and non-profit organizations strengthened knowledge exchange and demonstrated how systems-trained students can facilitate cross-sector alignment, support community-engaged problem-solving, and contribute to food system innovation. Conclusion This systems-based experiential learning model demonstrates how intentional mentorship, reflective practice, and cross-sector engagement can cultivate the competencies required for nutrition and dietetics professionals to navigate 21st-century food system challenges. Embedding systems thinking into both curricular and co-curricular structures fosters a workforce capable of leading collaborative, evidence-informed, and equity-focused change. The case provides a replicable model for integrating systems thinking into nutrition education to prepare graduates to engage effectively within complex, interconnected food, health, and environmental systems.

6. The effect of nutrition education interventions on dialysis patients' outcomes: a systematic review and meta-analysis

Authors: Sarmadi, Sogand;Sanaie, Neda and Zare-Kaseb, Akbar

Publication Date: 2026

Journal: Annals of Medicine 58(1), pp. 2660389

Abstract: Background Non-adherence to dietary and fluid restrictions among dialysis patients is associated with adverse clinical outcomes. Quantifying the effectiveness of nutrition education interventions can inform practice and policy. Methods We searched MEDLINE, EMBASE, CINAHL, CENTRAL, PsycINFO, Web of Science, and Scopus up to 15 July 2025, supplemented by trial registries and Google Scholar, with an updated search through 8 April 2026. Eligible studies included randomized and non-randomized trials evaluating nutritional education interventions in adult dialysis populations. Risk of bias was assessed using RoB-2 and ROBINS-I, certainty graded using GRADE, and random-effects meta-analyses conducted alongside subgroup, sensitivity, and meta-regression analyses. Publication bias was assessed with Egger and Begg tests and trim-and-fill where applicable. Results Forty-four studies

comprising 4,106 participants were included. Nutrition education significantly improved knowledge (SMD = 1.09; 95% CI: 0.67-1.51) and health-related quality of life (SMD = 1.43; 95% CI: 0.86-2.00; $I^2 = 0\%$), and reduced serum potassium (SMD = -0.52; 95% CI: -0.91 to -0.14; $I^2 = 92\%$) and serum phosphate (SMD = -0.35; 95% CI: -0.56 to -0.15; $I^2 = 81\%$). Results for albumin, creatinine, sodium, calcium, and BUN were inconsistent and non-significant. Most outcomes were rated low or very low certainty by GRADE, reflecting inconsistency, indirectness, and imprecision. Potential publication bias was identified for certain outcomes. Conclusions Nutrition education consistently improves knowledge and quality of life and may modestly reduce serum phosphate and potassium in dialysis patients. High-quality registered trials with standardized outcomes and longer follow-up are needed to establish effectiveness and sustainability. Prospero Registration CRD420251119567.

7. When You Feel More at Home, You Want to Take Better Care of That Home: Key Informant Perspectives on Nutrition Priorities, Behaviors, and Health Promotion for Transgender and Gender-Diverse Youth—An Interpretive Descriptive Qualitative Research Study

Authors: Schier, Heather E.;Chetty, Krithika;Induri, Shivakriti and Gunther, Carolyn

Publication Date: 2026

Journal: Journal of the Academy of Nutrition & Dietetics 126(8), pp. N.PAG

Abstract: Transgender and gender diverse (TGD) youth and young adults (YYA) face unique nutrition challenges related to gender affirming hormone therapy, mental health concerns, and gender-based stigma. Limited research exists on their nutrition-related health priorities, behaviors, and pathways for health promotion. Explore the perceived nutrition-related health priorities and behaviors of TGD YYA and identify health promotion strategies from the key informant perspective.

A qualitative study using interpretive description methodology through in-depth, semistructured interviews. Ten key informants, including health care providers, youth-serving professionals, and caregivers from 2 midwestern US cities, were purposively selected for their expertise with TGD YYA. Interviews were conducted between October 2022 and March 2023. Identification of nutrition-related priorities, behaviors, and health promotion strategies for TGD YYA as perceived by key informants. Data were analyzed using reflexive thematic analysis in NVivo 12.

Four themes were identified: Social and Psychological Barriers to Food and Nutrition Security for TGD YYA; Social and Psychological Impacts on Nutrition Attitudes and Behaviors; Gender-Affirming Nutrition Attitudes and Behaviors; and "No, this is wrong, and like, we need to fix it": Health Promotion Strategies for TGD YYA. TGD YYA face persistent food insecurity and navigate eating behaviors shaped by gender norms, health care bias, and the pursuit of gender-congruent appearance.

Although some eating behaviors (eg, restrictive eating) reflect disordered eating, others, like macro loading and supplement use, are adaptive strategies to support gender affirmation and optimize gender-affirming hormone therapy outcomes. These findings underscore the need for gender-affirming, weight-inclusive nutrition care that addresses both structural barriers and the

diverse motivations behind TGD YYA's eating behaviors.

8. Smart feeding: the role of artificial intelligence and integrated nutrition platforms in the ICU

Authors: Singer, Pierre and Raphaeli, Orit

Publication Date: 2026

Journal: Current Opinion in Critical Care 32(4), pp. 359–365

9. Advancing digital nutrition assessment: Development and evaluation of the UK eNutriFFQv2.0

Authors: Weech, Michelle; Fallaize, Rosalind; Franco, Rodrigo Zenun; Sutton, Rachel; Fotiou, Maria; Robertson, Nicole; Hwang, Faustina and Lovegrove, Julie A.

Publication Date: 2026

Journal: Nutrition (Burbank, Los Angeles County, Calif.) 149, pp. 113212

Abstract: Background Digital dietary assessment tools are highly beneficial for nutrition research and personalized interventions. Objective This paper describes the development and evaluation of eNutriFFQv2.0, an updated online food frequency questionnaire designed to reflect current diets in the United Kingdom (UK). Updates included modernized food lists based on recent UK population surveys, food composition tables, and food portion photos to improve accuracy and user experience. Methods To assess reproducibility, UK adults completed the FFQ twice, 14 days apart; validity was evaluated against a 3-d weighed food record in a sub-sample. Multiple statistical methods were used. After excluding participants with unfeasible energy intakes, 87 participants completed the reproducibility and 53 the evaluation. Results The final eNutriFFQv2.0 captured 164 items and estimated intake for 56 nutrients and 6 food groups. Agreement with the WFR was acceptable to good for 25 out of the 29 nutrients analyzed (weighted kappa 0.21-0.77), with $\leq 10\%$ misclassification into opposite quartiles for most nutrients. Bland-Altman plots showed good agreement for energy (176 kcal/d higher in FFQ1) and macronutrient estimates. Reproducibility was good for 24 out of the 29 nutrients analyzed (weighted kappa 0.58-0.85) with $< 5\%$ misclassification. Mean bias for estimates of carbohydrate, fat, and protein was small (0.0-0.7). Energy estimates were 209 kcal/d (10.7%) higher in the first compared with the second completion of the FFQ. Conclusions These findings demonstrate that eNutriFFQv2.0 is a valid and reliable tool for assessing nutrient intake in UK adults, offering a practical, scalable solution for research and public health in the context of digital health and personalized dietary interventions.

10. The future of critical care nutrition: from calorie counting to precision personalized metabolism therapy

Authors: Wischmeyer, Paul E.

Publication Date: 2026

Journal: Current Opinion in Critical Care 32(4), pp. 321–324

Sources Used:

The following databases are used in the creation of this bulletin: Amed, British Nursing Index, Cinahl & Medline.

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