NUTRISIZE HEALTH HANDBOOK, RESEARCH EDITION

Nutrition, activity and health: a sourced evidence digest

Quantified findings and guideline positions from NIH, CDC, FDA, CMS, HRSA, NASEM, EPA, OSHA, SAMHSA, WHO, PAHO, UNICEF, EMA, ICMRA, UNAIDS, the Global Fund, Gavi and MSF, alongside Lancet, BMJ, JAMA, NEJM, Nature Medicine and Cochrane evidence. Effect sizes, confidence intervals, study types and limits are shown; gaps are stated.

PHYSICAL ACTIVITY

Physical activity and sedentary behaviour

Guidelines and prevalence

WHO 2020 (adults 18 to 64): 150 to 300 min/week moderate or 75 to 150 min/week vigorous aerobic activity, with additional benefit above those ranges; muscle strengthening at moderate or greater intensity on 2 or more days/week (strong recommendation, moderate certainty); limit sedentary time, with evidence insufficient for a numeric threshold. Prevalence: in US adults in 2020, aerobic guideline 46.9%, muscle-strengthening 31.0%, both 24.2% (NHIS). A pooled analysis of 21 studies (3,390,001 people, 32 countries) put adherence to both at 17.12% (95% CI 15.42 to 18.88) in adults and 19.74% (14.72 to 25.31) in adolescents 12 to 17. WHO estimates 31% of adults and 80% of adolescents are insufficiently active, against targets of a 10% relative reduction by 2025 and 15% by 2030 (2010 baseline).

24.2%
US adults meeting both guidelines, 2020

17.1%
pooled adults meeting both, 32 countries

31% / 80%
adults / adolescents insufficiently active (WHO)

Source: Bull FC, Al-Ansari SS, Biddle S, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. Br J Sports Med 2020;54:1451-1462. doi.org/10.1136/bjsports-2020-102955; Elgaddal N, Kramarow EA, Reuben C. Physical Activity Among Adults Aged 18 and Over: United States, 2020. NCHS Data Brief No. 443, CDC, 2022. https://www.cdc.gov/nchs/products/databriefs/db443.htm; Garcia-Hermoso A, Lopez-Gil JF, Ramirez-Velez R, et al. Adherence to aerobic and muscle-strengthening activities guidelines. Br J Sports Med 2023;57(4):225-229. doi.org/10.1136/bjsports-2022-106189; Physical activity fact sheet, WHO, 26 June 2024. https://www.who.int/news-room/fact-sheets/detail/physical-activity

What this does not show: Self-reported activity in surveys; the pooled estimate combines different survey methods and years, and has no studies of children 5 to 11. WHO's targets are policy goals, not forecasts.

A free reference: The Nutrisize Health mobile apps hold 4,995 foods and 5,404 exercises as a free reference, and nutrisize.health has free food, nutrient and exercise pages that need no account.

Trajectory and policy: the Americas and the global report

A pooled analysis of 507 population surveys (Strain et al., Lancet Global Health 2024) estimated that the global age-standardised prevalence of insufficient physical activity was 31.3% (95% uncertainty interval 28.6 to 34.0) in 2022, up from 26.4% in 2010 and 23.4% in 2000. It was rising in 103 of 197 countries and territories and was 5 percentage points higher in women (33.8%) than in men (28.7%); the authors found the 2030 target of a 15% relative reduction would not be met if 2010-22 trends continue. PAHO, summarising the same work, reports 36% in the Americas, with women 41% versus men 30% there. WHO's 2022 global status report found that fewer than 50% of countries have a national physical activity policy, of which fewer than 40% are operational, and estimated that almost 500 million people will develop noncommunicable diseases attributable to inactivity between 2020 and 2030 if nothing changes, at about US$ 27 billion a year.

Source: Strain T, Flaxman S, Guthold R, Semenova E, Cowan M, Riley LM, Bull FC, Stevens GA, et al. National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: a pooled analysis of 507 population-based surveys with 5.7 million participants. Lancet Glob Health 2024:e1232-e1243. doi.org/10.1016/S2214-109X(24)00150-5; Nearly 1.8 billion adults at risk of disease from not doing enough physical activity, PAHO news release, 26 June 2024. https://www.paho.org/en/news/26-6-2024-nearly-18-billion-adults-risk-disease-not-doing-enough-physical-activity; Global status report on physical activity 2022, WHO, 19 October 2022. https://www.who.int/publications/i/item/9789240059153

> **What this does not show:** Age-standardised model-based estimates from self-reported survey data. The Americas and sex-specific figures within PAHO's release were not separately verified in the paper's abstract. The 2022 global status report figures were taken from WHO's news release, not its full PDF.

Steps, accelerometry and short bursts: the dose-response literature

Four large cohort syntheses agree on direction. Ekelund 2019 (8 cohorts, 36,383 adults): vs the least-active quartile, total activity HR 0.27 (0.23 to 0.32) in the top quartile; light activity 0.38 (0.28 to 0.51); moderate-to-vigorous 0.52 (0.43 to 0.61). Paluch 2022 (15 cohorts, 47,471 adults, 3,013 deaths): HR 0.47 (0.39 to 0.57) in the top step quartile, with a plateau at 6,000 to 8,000 steps/day at age 60 and over and 8,000 to 10,000 below 60. Saint-Maurice 2020 (NHANES, n=4,840): 8,000 vs 4,000 steps HR 0.49 (0.44 to 0.55); 12,000 steps HR 0.35 (0.28 to 0.45); cadence added nothing once steps were adjusted (HR 0.90, 0.65 to 1.27). Ding 2025 (meta-analysis, 31 studies): 7,000 vs 2,000 steps HR 0.53 (0.46 to 0.60) for all-cause mortality, with an inflection around 5,000 to 7,000 steps. In UK Biobank non-exercisers (n=25,241), about 3 vigorous bouts of 1 to 2 minutes a day were linked to 38 to 40% lower all-cause and cancer mortality and 48 to 49% lower cardiovascular mortality.

Study	Design	Key estimate
Ekelund, BMJ 2019	Harmonised individual-level meta-analysis, 8 cohorts	Total PA top quartile HR 0.27 (0.23 to 0.32)
Paluch, Lancet Public Health 2022	Pooled cohorts, 15 cohorts	Top step quartile HR 0.47 (0.39 to 0.57)
Saint-Maurice, JAMA 2020	NHANES cohort, 10.1 y follow-up	8,000 vs 4,000 steps HR 0.49 (0.44 to 0.55)
Ding, Lancet Public Health 2025	Dose-response meta-analysis	7,000 vs 2,000 steps HR 0.53 (0.46 to 0.60)
Stamatakis, Nat Med 2022	UK Biobank, wrist accelerometry	3 bouts/day: 38 to 40% lower all-cause mortality

Source: Ekelund U et al. BMJ 2019;366:l4570. doi.org/10.1136/bmj.l4570; Paluch AE et al. Lancet Public Health 2022;7(3):e219-e228. doi.org/10.1016/S2468-2667(21)00302-9; Saint-Maurice PF et al. JAMA 2020;323(12):1151-1160. doi.org/10.1001/jama.2020.1382; Ding D, Nguyen B, Nau T, et al. Daily steps and health outcomes in adults. Lancet Public Health 2025;10:e668-e681. doi.org/10.1016/S2468-2667(25)00164-1; Stamatakis E et al. Nat Med 2022;28(12):2521-2529. doi.org/10.1038/s41591-022-02100-x

What this does not show: All observational, with residual confounding (healthier people move more). The abstracts reviewed give no GRADE rating except Ding 2025, which reports moderate certainty for most outcomes and low or very low for some (including cardiovascular mortality, cancer incidence and falls). Confidence intervals for the UK Biobank estimates were not in the abstract.

Muscle-strengthening and outcomes

A meta-analysis of 16 prospective cohorts linked muscle-strengthening activity to 10 to 17% lower risk of all-cause mortality, cardiovascular disease, total cancer, diabetes and lung cancer, with J-shaped curves (maximum reduction about 10 to 20% at roughly 30 to 60 minutes/week for all-cause mortality, cardiovascular disease and total cancer) and an L-shaped curve for diabetes. Combining muscle-strengthening and aerobic activity was linked to lower mortality than neither. No association was found for colon, kidney, bladder or pancreatic cancers.

Source: Momma H, Kawakami R, Honda T, Sawada SS. Muscle-strengthening activities are associated with lower risk and mortality in major non-communicable diseases. Br J Sports Med 2022;56(13):755-763. doi.org/10.1136/bjsports-2021-105061

> **What this does not show:** Self-reported lifting; association not causation. A J-shaped curve means more is not shown to be better. 30 to 60 minutes should not be read as an optimum.

DIET AND NUTRIENTS

Diet, nutrients and cardiometabolic outcomes

Fibre and carbohydrate quality (WHO-commissioned)

Reynolds et al. synthesised 185 prospective studies (about 135 million person-years) and 58 trials (4,635 adults). Highest versus lowest fibre intake was linked to 15 to 30% lower all-cause and cardiovascular mortality, coronary heart disease, stroke, type 2 diabetes and colorectal cancer, with the greatest risk reduction at 25 to 29 g/day. GRADE certainty for fibre was moderate; for whole grains low to moderate.

Source: Reynolds A et al. Carbohydrate quality and human health. Lancet 2019;393(10170):434-445. doi.org/10.1016/S0140-6736(18)31809-9

> **What this does not show:** Cohort associations plus short trials; certainty for glycaemic index and load was low to very low.

Diet comparisons and trials: the null results matter

DIETFITS (n=609, ages 18 to 50, BMI 28 to 40): 12-month weight change -5.3 kg (healthy low-fat) vs -6.0 kg (healthy low-carbohydrate), difference 0.7 kg (95% CI -0.2 to 1.6); diet-genotype interaction P=0.20 and diet-insulin secretion P=0.47. Time-restricted eating (8:00 to 16:00) added to calorie restriction, n=139: -8.0 kg (-9.6 to -6.4) vs -6.3 kg (-7.8 to -4.7), net difference 1.8 kg (95% CI -4.0 to 0.4; P=0.11). Cochrane review of Mediterranean-style diets (30 RCTs, 12,461 participants): in primary prevention (PREDIMED, 4.8 years), stroke HR 0.60 (0.45 to 0.80), CVD mortality HR 0.81 (0.50 to 1.32), total mortality HR 1.0 (0.81 to 1.24); systolic BP -2.99 mmHg (-3.45 to -2.53).

Source: Gardner CD et al. JAMA 2018;319(7):667-679 (DIETFITS). doi.org/10.1001/jama.2018.0245; Liu D et al. N Engl J Med 2022;386(16):1495-1504. doi.org/10.1056/NEJMoa2114833; Mediterranean-style diet review. Cochrane Database Syst Rev 2019;3:CD009825. doi.org/10.1002/14651858.CD009825.pub3

What this does not show: Both RCTs involved counselling and 12-month weight outcomes; certainty was not graded in the abstracts. The Cochrane authors judged the evidence on clinical endpoints limited and of low to moderate certainty.

Sodium: three authoritative thresholds and a trial of substitution

WHO recommends under 2,000 mg/day sodium (under 5 g salt) and reports a 2021 global mean intake of 4,278 mg/day, with an estimated 1.7 million deaths a year associated with excess sodium in 2023. The National Academies (2019) set an adequate intake of 1,500 mg/day and a chronic disease risk reduction intake (CDRR) of 2,300 mg/day for ages 14 and over, with no potassium CDRR or upper level. The FDA cites US intake at about 3,400 mg/day against a 2,300 mg Dietary Guidelines limit, with more than 70% of sodium from processed and prepared foods, and voluntary targets (Phase II draft: about 2,750 mg/day). NHLBI's DASH plan uses 2,300 mg, noting 1,500 mg lowers blood pressure further. In a cluster-randomised trial (20,995 people, 600 villages, 4.74 years, China), replacing salt with 75% NaCl/25% KCl lowered stroke (rate ratio 0.86, 0.77 to 0.96), major cardiovascular events (0.87, 0.80 to 0.94) and death (0.88, 0.82 to 0.95).

Body	Sodium benchmark (adults)
WHO	Under 2,000 mg/day
NASEM 2019	AI 1,500 mg; CDRR 2,300 mg (ages 14+)
FDA	Daily Value 2,300 mg; US mean about 3,400 mg
NHLBI (DASH)	2,300 mg; 1,500 mg lowers blood pressure further

Source: Sodium reduction fact sheet, WHO, 11 May 2026. https://www.who.int/news-room/fact-sheets/detail/sodium-reduction; Dietary Reference Intakes for Sodium and Potassium, National Academies of Sciences, Engineering, and Medicine, 2019. https://nationalacademies.org/news/2019/03/sodium-and-potassium-dietary-reference-intake-values-updated-in-new-report; Sodium Reduction in the Food Supply, FDA, 2024. https://www.fda.gov/food/nutrition-food-labeling-and-critical-foods/sodium-reduction-food-supply; DASH Eating Plan, NHLBI, updated 25 February 2026. https://www.nhlbi.nih.gov/education/dash-eating-plan; Salt substitute trial (SSaSS). N Engl J Med 2021;385(12):1067-1077. doi.org/10.1056/NEJMoa2105675

What this does not show: The benchmarks answer different questions (population goal, risk-reduction intake, label reference). The substitution trial was open-label, in a rural population with high stroke risk, and its authors' names are not cited here because the record text we read did not show them.

A free reference: Sodium, potassium and 73 other nutrients are listed per 100 g for 4,995 foods in the free Nutrisize Health food library, with sources, so a figure like the ones above can be traced to a food. The app can also export your own logged data as JSON.

Ultra-processed food and trans fat

In NHANES August 2021 to August 2023, ultra-processed foods supplied 55.0% of energy for ages 1 and over (youth 61.9%, adults 53.0%); in adults the share fell from 55.8% (2013-14) to 53.0%. PAHO/WHO reported that per-capita sales of ultra-processed products rose 26.7% in 13 Latin American countries in 2000 to 2013 while falling 9.8% in North America, and that all 250 products analysed in seven countries exceeded recommended levels of at least one critical nutrient (free sugars, total fat, saturated fat or sodium). WHO attributes more than 278,000 deaths a year to industrially produced trans fat and recommends under 1% of energy (under 2.2 g/day on 2,000 kcal).

Source: Williams AM, Couch CA, Emmerich SD, Ogburn DF. Ultra-processed Food Consumption in Youth and Adults: United States, August 2021-August 2023. NCHS Data Brief No. 536, 2025. https://cdc.gov/nchs/products/databriefs/db536.htm; Ultra-processed foods are driving the obesity epidemic in Latin America, PAHO/WHO news release, 1 September 2015. https://www.paho.org/en/news/1-9-2015-ultra-processed-foods-are-driving-obesity-epidemic-latin-america-says-new-pahowho; Ultra-processed foods gain ground among Latin American and Caribbean families, PAHO news release, 23 October 2019. https://www.paho.org/en/news/23-10-2019-ultra-processed-foods-gain-ground-among-latin-american-and-caribbean-families; Trans fat fact sheet, WHO, 24 January 2024. https://www.who.int/news-room/fact-sheets/detail/trans-fat

> **What this does not show:** NOVA classification applied to a single 24-hour recall; a share of energy is not a measure of harm. PAHO's sales data are market data, not intake.

Energy requirements: the 2023 DRI revision

The National Academies' 2023 energy DRI revised estimated energy requirements, largely because overweight and obesity prevalence kept rising, and broadened the reference population. Adult PAL categories: inactive 1.0 to under 1.53, low active 1.53 to under 1.68, active 1.68 to under 1.85, very active 1.85 to 2.50; the equations do not predict requirements above 2.5. Estimates are generally higher for the least active and lower for the most active than the 2002/2005 values.

Source: Dietary Reference Intakes for Energy, National Academies Press, 2023. https://www.nationalacademies.org/read/26818/chapter/3

> **What this does not show:** Population estimating equations; individual expenditure varies.

BURDEN AND PREVENTION

Burden of disease and prevention at scale

Obesity, diabetes and prediabetes: the burden

CDC (NCHS Data Brief 508): 40.3% of US adults had obesity and 9.4% severe obesity in August 2021 to August 2023. NIDDK (NHANES 2017-2018): 42.4% obesity and 9.2% severe obesity, up from 30.5% and 4.7% in 1999-2000. NIDDK diabetes statistics (2021): 38.4 million Americans (11.6%) had diabetes, 8.7 million of them undiagnosed (22.8% of adults with diabetes), and 97.6 million adults had prediabetes. WHO (2024): 2.6 billion adults (45%) overweight, of whom 940 million (16% of adults) lived with obesity; obesity prevalence more than doubled and adolescent obesity quadrupled between 1990 and 2024.

40.3%
US adults with obesity, 2021-2023 (CDC)

38.4 M
Americans with diabetes, 2021 (NIDDK)

97.6 M
US adults with prediabetes (NIDDK)

940 M
adults with obesity worldwide, 2024 (WHO)

Source: Obesity and Severe Obesity Prevalence in Adults: United States, August 2021-August 2023. NCHS Data Brief No. 508, 2024. https://www.cdc.gov/nchs/products/databriefs/db508.htm; Overweight and Obesity Statistics, NIDDK. https://www.niddk.nih.gov/health-information/health-statistics/overweight-obesity; Diabetes Statistics, NIDDK, reviewed January 2024. https://www.niddk.nih.gov/health-information/health-statistics/diabetes-statistics; Obesity and overweight fact sheet, WHO, 7 October 2026. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

What this does not show: The two US obesity figures use different survey periods (2021-2023 vs 2017-2018), so they are not directly comparable. BMI-based definitions.

Prevention at scale: trial, programme and practice

NIH's Diabetes Prevention Program (3,234 participants, 27 centres): lifestyle intervention (7% weight loss plus 150 min/week) lowered diabetes risk 58% vs placebo (71% in ages 60 and over); metformin 31%. DPPOS follow-up: onset delayed 34% at 10 years and 27% at 15 years (lifestyle), 18% and 18% (metformin). Medicare's version (MDPP, 9,015 beneficiaries, April 2018 to March 2024, 414 suppliers): average weight loss 4.9%, 53% reached the 5% goal, and 80% of those who lost 5% and stayed kept it; the evaluation judged reach to be limited. At HRSA health centers (about 32.7 million patients in 2025), hypertension control rose from 60.15% (2021) to 69.08% (2025) and diabetes poor-control (HbA1c over 9% or untested) fell from 32.29% to 26.28%.

58%
DPP lifestyle arm vs placebo

4.9%
mean weight loss, Medicare MDPP

69.08%
hypertension controlled, HRSA health centers, 2025

Source: Diabetes Prevention Program (DPP), NIDDK, reviewed August 2021. https://www.niddk.nih.gov/about-niddk/research-areas/diabetes/diabetes-prevention-program-dpp; What Is the National DPP? CDC, 2024. https://www.cdc.gov/diabetes-prevention/programs/what-is-the-national-dpp.html; Medicare Diabetes Prevention Program Expanded Model: Findings at a Glance (April 2018 to March 2024), CMS Innovation Center, 2025. https://www.cms.gov/priorities/innovation/data-and-reports/2025/mdpp-finalevalrpt-fg; National Health Center Program Uniform Data System (UDS) Awardee Data, HRSA. https://data.hrsa.gov/tools/data-reporting/program-data/national

> **What this does not show:** A trial, an administrative evaluation and descriptive programme data answer different questions and should not be compared as efficacy figures.

Composite cardiovascular health

The American Heart Association's Life's Essential 8 defines cardiovascular health with 8 metrics (diet, physical activity, nicotine exposure, sleep, BMI, lipids, glucose, blood pressure), each scored 0 to 100 and averaged. In an NHANES 2013-2018 companion analysis (n=23,409), the adult mean score was 64.7 (95% CI 63.9 to 65.6); diet, physical activity and BMI scored lowest, and child diet averaged 40.6, falling from 61.1 at ages 2 to 5 to 28.5 at 12 to 19.

Source: Life's Essential 8, American Heart Association presidential advisory. Circulation 2022;146(5):e18-e43. doi.org/10.1161/CIR.0000000000001078

> **What this does not show:** A consensus advisory plus a cross-sectional prevalence analysis; authors are not named here because they were not confirmed from the records we read.

REGULATION

Labelling, medicines and digital tools

Labelling and claims: FDA and PAHO

The FDA's Daily Values include sodium 2,300 mg, added sugars 50 g (10% of 2,000 kcal), saturated fat 20 g, fibre 28 g, potassium 4,700 mg and vitamin D 20 mcg; 5% DV or less is low and 20% or more is high. A final rule of 19 December 2024 restricts the voluntary 'healthy' claim to foods with a minimum amount of a recommended food group that stay within limits for added sugars, saturated fat and sodium. In January 2025 the FDA proposed a front-of-package box rating saturated fat, sodium and added sugars as Low, Med or High; its February 2026 priorities page had not finalised it. PAHO's Nutrient Profile Model defines 'high in' products (for example free sugars 10% or more of energy, saturated fat 10% or more, trans fat 1% or more, sodium 300 mg or more per 100 g) and states that octagonal 'HIGH IN' warnings perform best among front-of-package systems.

Source: Daily Value on the Nutrition and Supplement Facts Labels, FDA. https://www.fda.gov/food/nutrition-facts-label/daily-value-nutrition-and-supplement-facts-labels; Added Sugars on the Nutrition Facts Label, FDA (content current March 2026). https://www.fda.gov/food/nutrition-facts-label/added-sugars-nutrition-facts-label; Use of the 'Healthy' Claim on Food Labeling, FDA. https://www.fda.gov/food/nutrition-food-labeling-and-critical-foods/use-healthy-claim-food-labeling; FDA Proposes Requiring At-a-Glance Nutrition Information on the Front of Packaged Foods, FDA news release, 14 January 2025. https://www.fda.gov/news-events/press-announcements/fda-proposes-requiring-glance-nutrition-information-front-packaged-foods; Nutrient Profile Model, PAHO. https://www.paho.org/en/nutrient-profile-model

> **What this does not show:** The front-of-package rule is a proposal. PAHO's statement about warning labels is PAHO's own assessment of the evidence.

Weight-management medicines and AI: EMA, CMS and ICMRA

In the EU, tirzepatide is authorised as an adjunct to a reduced-calorie diet and increased physical activity in adults with BMI 30 or more, or 27 to under 30 with at least one weight-related comorbidity. EMA recommended an oral form of semaglutide 'together with diet and physical activity' (phase 3, 64 weeks: mean weight loss 13.61% vs 2.18% with placebo; 76.3% vs 30.5% lost at least 5%) and says GLP-1 receptor agonists should not be used for cosmetic weight loss, which worsens shortages. Medicare's 2011 national coverage determination for intensive behavioural therapy for obesity covers beneficiaries with BMI of 30 or more (weekly visits in month 1, every other week in months 2 to 6, monthly thereafter only if at least 3 kg was lost in six months); a 2011 version was the only one we could open, so current terms are not stated. ICMRA's 2021 horizon scanning report on AI recommends a risk-based regulatory approach and notes an AI app linked to a medicine could be regulated as a medical device in a higher risk class by many regulators.

Source: Mounjaro EPAR page, EMA (page updated 8 October 2026). https://www.ema.europa.eu/en/medicines/human/EPAR/mounjaro; First oral GLP-1 treatment for weight management, EMA, 22 May 2026. https://www.ema.europa.eu/en/news/first-oral-glp-1-treatment-weight-management; EU actions to tackle shortages of GLP-1 receptor agonists, EMA, 26 June 2024. https://www.ema.europa.eu/en/news/eu-actions-tackle-shortages-glp-1-receptor-agonists; Intensive Behavioral Therapy for Obesity (NCD 210.12), CMS, decision memo of 29 November 2011. https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?NCDId=353; Horizon Scanning Assessment Report: Artificial Intelligence, ICMRA, 6 August 2021. https://www.icmra.info/drupal/sites/default/files/2021-08/horizon_scanning_report_artificial_intelligence.pdf

> **What this does not show:** Regulatory wording, not treatment advice. The ICMRA report concerns medicines regulation, not consumer wellness apps. Trial figures are as stated by EMA on its page.

GLOBAL NUTRITION

Global nutrition, infection and humanitarian context

Child malnutrition and the 2030 targets

The 2025 UNICEF/WHO/World Bank joint estimates (for 2024): 150.2 million children under 5 stunted (23.2%), 42.8 million wasted (6.6%; 12.2 million severely), and 35.5 million overweight. UNICEF reports that obesity (9.4%, 188 million) now exceeds underweight (9.2%) among 5-to-19-year-olds globally, and that 181 million children under 5 (1 in 4) live in severe child food poverty, eating at most two of eight food groups. The 78th World Health Assembly (2025) extended the global nutrition targets to 2030 against a 2012 baseline: 40% fewer stunted children, 50% fewer women of reproductive age with anaemia, childhood overweight under 5%, exclusive breastfeeding at least 60%, wasting under 5%.

150.2 M
children under 5 stunted, 2024

42.8 M
wasted

35.5 M
overweight

181 M
in severe child food poverty

Source: Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates, 2025 edition, 21 July 2025. https://www.who.int/publications/i/item/9789240112308; Obesity exceeds underweight for the first time among school-age children and adolescents globally, UNICEF press release, 10 September 2025. https://www.unicef.org/press-releases/obesity-exceeds-underweight-first-time-among-school-age-children-and-adolescents; Child Food Poverty: Nutrition Deprivation in Early Childhood, UNICEF, June 2024. https://www.unicef.org/press-releases/1-4-children-globally-live-severe-child-food-poverty-due-inequity-conflict-and; Global Targets 2030, WHO Nutrition and Food Safety. https://www.who.int/teams/nutrition-and-food-safety/global-targets-2025

What this does not show: A WHO World Health Assembly update quotes 148 million stunted children for 2024, against 150.2 million in the joint estimates; we cite the joint estimates. The overweight target is under 5% in WHO's 2030 targets and 3% in the joint-estimates framework.

Nutrition, infection and vaccines: Global Fund, UNAIDS and Gavi

The Global Fund states that malnutrition weakens immunity and is a leading risk factor for tuberculosis, that malnourished TB patients are twice as likely to die as non-malnourished patients (no year or source given on the page), and that acute malnutrition in children under 5 can nearly double the risk of malaria treatment failure. UNAIDS's 2014 guidance note reports that people with HIV who were malnourished when starting antiretroviral therapy were two to six times more likely to die in the first six months, and that food provision was linked to better treatment outcomes in 8 of 10 reviewed studies. Gavi reports a pooled analysis of 25 studies in 19 countries in which, in the 12 highest-child-mortality countries, rotavirus vaccination cut the odds of hospitalisation or emergency care by 59% in non-stunted children and 42% in moderately or severely stunted children, and notes a joint review with the Eleanor Crook Foundation finding limited information on what works in integrating nutrition and immunisation.

Source: The Role of Nutrition in the Fight Against HIV, TB and Malaria, The Global Fund, March 2025. https://www.theglobalfund.org/media/vynny3r4/publication_nutrition_overview_en.pdf; Food and nutrition: Resource kit for high-impact programming (Guidance Note), UNAIDS, 2014. https://www.unaids.org/sites/default/files/media_asset/food-nutrition_en.pdf; Does malnutrition make vaccines less effective? Gavi VaccinesWork, 22 October 2026. https://www.gavi.org/vaccineswork/does-malnutrition-make-vaccines-less-effective; Why integrating nutrition and immunisation can be a game-changer, Gavi VaccinesWork, 21 November 2023. https://www.gavi.org/vaccineswork/why-integrating-nutrition-and-immunisation-can-be-game-changer

> **What this does not show:** The Global Fund figure is quoted without year or source on its page, and its PDF was not independently re-checked. The UNAIDS note is from 2014. Gavi's rotavirus finding is an association; its own editorial says nutrition's causal role is not shown, and it is an editorial report whose underlying pooled analysis we could not locate. CEPI: no honest nutrition-related item was found (see methods).

Frontline treatment of severe acute malnutrition: MSF

MSF's clinical guideline defines severe acute malnutrition in children 6 to 59 months as mid-upper arm circumference under 115 mm, weight-for-height z-score under -3 (WHO standards), or bilateral pitting oedema, with phased treatment using F-75, then F-100 and/or ready-to-use therapeutic food. In northern Nigeria in April 2024, MSF's Maiduguri inpatient feeding centre admitted 1,250 severely malnourished children with complications, double April 2023; by the end of May it held 350 patients against 200 beds designated for the July to August peak.

Source: Severe acute malnutrition, MSF Medical Guidelines (clinical guidelines), updated February 2024. https://medicalguidelines.msf.org/en/viewport/CG/english/severe-acute-malnutrition-16689141.html; Significant spikes in numbers of malnourished children require urgent action, MSF press release, 5 June 2024. https://www.msf.org/significant-spikes-numbers-malnourished-children-northern-nigeria-require-urgent-action

> **What this does not show:** MSF material is clinical and frontline, not population surveillance; admissions reflect service capacity and access as well as need.

CONTEXT

Environment, work and population health

Environment, work and mental health: context from EPA, OSHA and SAMHSA

EPA's 2024 drinking-water rule limits PFOA and PFOS to 4.0 parts per trillion each; the original compliance date is April 2029 and EPA has proposed an optional extension to April 2031. EPA reported that food was the largest single component of US municipal solid waste in 2018 (63.1 million tons generated, 21.6% of the total; 35.28 million tons landfilled). On workplace heat, the Bureau of Labor Statistics recorded 1,042 worker deaths from environmental heat exposure from 1992 to 2022 and an estimated 33,890 heat injuries and illnesses with days away from work from 2011 to 2020 (as stated in OSHA's 2024 proposed rule, 89 FR 70698); the rule remains at the proposed stage, with a supplemental proposal projected for December 2026. SAMHSA's 2024 National Survey on Drug Use and Health estimated that 23.4% of US adults (61.5 million) had any mental illness in the past year.

Source: Proposed PFOA and PFOS Compliance Extension Rule, EPA, updated 8 October 2026. https://www.epa.gov/sdwa/proposed-pfoa-and-pfos-compliance-extension-rule; National Overview: Facts and Figures on Materials, Wastes and Recycling, EPA, updated 19 December 2025 (data year 2018). https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials; Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings, proposed rule, 89 FR 70698, 30 August 2024. https://www.federalregister.gov/documents/2024/08/30/2024-14824/heat-injury-and-illness-prevention-in-outdoor-and-indoor-work-settings; Key Substance Use and Mental Health Indicators in the United States: Results from the 2024 National Survey on Drug Use and Health (Pub. PEP25-07-007), SAMHSA, 2025. https://www.samhsa.gov/data/

> **What this does not show:** These items give context, not nutrition findings: the EPA waste data are from 2018; the OSHA values are preamble statistics and the rule's own water and rest provisions were not read; the NSDUH report has no nutrition or exercise data.

METHODS AND COVERAGE

How this handbook was built, and where it is thin

Every figure above was read by our research team on the cited page or paper during compilation (October 2026), with the exceptions flagged in each note. Journal papers were read at abstract level through Europe PMC because the journal sites block automated reading; CDC, WHO and several other agency pages were read in full. Where a source gave a number without a year or origin, we say so. Where an agency press release summarised a peer-reviewed paper, we cite the paper whenever we could open its record (for example Strain et al., 2024).

Body	Items used above	Coverage note
NIH, CDC, FDA	DPP, statistics, DASH; five NCHS/CDC briefs; Daily Values, sodium, claims	NIH Office of Dietary Supplements pages could not be opened.
CMS, HRSA	MDPP evaluation, 2011 obesity NCD; UDS quality data	Current obesity-counselling terms unconfirmed.
NASEM, WHO, PAHO, UNICEF	DRIs (sodium, potassium, energy, water); WHO fact sheets and targets; PAHO UPF and nutrient model; JME	UNICEF data portal blocked; JME read through WHO pages.

EMA, ICMRA, MSF	Weight-management medicines; AI report; SAM guideline and Nigeria admissions	ICMRA and MSF material is not population nutrition science.
Global Fund, Gavi, UNAIDS	Nutrition and TB, malaria, HIV and vaccines	UNAIDS note is 2014; Global Fund figure unsourced on its page.
EPA, OSHA, SAMHSA	Water, food waste, heat, mental health context	OSHA and SAMHSA pages largely blocked; items are contextual.
CEPI	None	No honest nutrition-related item found after repeated searches; we did not force one.

Where sources disagree: sodium (WHO under 2,000 mg vs US 2,300 mg limits); US obesity prevalence (NIDDK 42.4% for 2017-2018, CDC 40.3% for 2021-2023); stunting in 2024 (148 million in one WHO update, 150.2 million in the joint estimates); childhood overweight targets (under 5% vs 3%). We state the source with each number.

If you find an error or a better source, write to contact@nutrisize.health and we will correct the handbook.

A free reference that cites its sources

Nutrisize Health is a free nutrition, exercise and health-numbers reference for iPhone and Android, built so that each number can be traced. It is not a medical device and does not give medical advice.

- 4,995 foods, 75 nutrients (207 citations on nutrient pages) and 201 physiological parameters across 16 body systems, each with sources
- 5,404 exercises with equipment, difficulty and contraindication detail
- A 10-KPI daily dashboard, with optional Apple Health or Health Connect sync, and JSON export of your own logged data

Free to use, with optional Remove Ads and premium packs. Your health data stays on your device.

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This handbook is a compilation, paraphrased from the cited public sources, with each figure traceable to its source; it is not a peer-reviewed publication. It provides health and wellness information for educational purposes and is not medical advice. Consult your clinician before changing your diet or exercise. Published by Nutrisize Health, a product of EqualInformation, LLC, Sunnyvale, CA, USA. October 2026.

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