

# 25 kcal/kg/day: Clinical Minimums and a Testable EPK Question

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Narrative evidence synthesis and proposed research. Not peer reviewed.

## Abstract

This working paper examines whether a daily intake of 25 kcal per kilogram can serve as a useful research reference. Its use in clinical guidance is established, but that does not establish a universal biological floor. The paper distinguishes a minimum offered diet, an estimated requirement and measured resting expenditure. It proposes evaluation of intake per body mass as a continuous exposure before any clinical cutoff is inferred.

## Evidence and scope

ESPEN hospital guidance specifies a minimum of 25 kcal/kg actual body weight/day for its standard diet.

[1] Cancer guidance uses 25–30 kcal/kg/day as an estimate when individual expenditure is unavailable.

[2] These are different applications.

This is a targeted narrative synthesis, not a systematic review, meta-analysis or clinical practice guideline. Sources were checked on 11 September 2026 using PubMed-indexed records and official guidance. No participants were recruited and no new results are reported.

## Definitions

EPK = dietary energy intake (kcal/day) / body mass (kg). RMR/kg = measured resting metabolic rate / body mass. Total expenditure includes activity and other components. A matching numerical value does not make intake and resting expenditure the same quantity.

## **The hypothesis**

In adults receiving ordinary nutritional care, lower sustained intake relative to body mass may predict subsequent functional deterioration. This should be tested within disease and body-composition strata. The proposed association may be absent, nonlinear or attributable to illness causing both reduced intake and worse outcomes.

## **A prospective study**

Recruit a consecutive cohort from a defined non-ICU clinical population. Record the diagnosis, illness severity, medication, hydration, usual weight, actual weight and body composition at entry. Measure resting expenditure using a documented indirect-calorimetry protocol where feasible. Record offered and consumed energy separately over repeated days.

Prespecify change in a feasible functional endpoint, such as grip strength, as the primary outcome over a defined follow-up interval. Secondary outcomes could include mobility, treatment interruptions and lean-tissue change. Choose the interval and clinically meaningful effect before recruitment; use pilot variance estimates for a justified sample-size calculation.

Compare intake/body mass with models using intake and mass as separate predictors. Include disease severity, age, baseline function and measured expenditure. Use continuous curves before testing 25 as a prespecified candidate breakpoint. Evaluate out-of-sample prediction, calibration and uncertainty. Do not discover and validate a cutoff in the same participants.

## Interpretation and counterexamples

Early critical illness may call for energy delivery below full expenditure followed by progression. [3] A fixed intake rule detached from treatment phase would misclassify such care. This paper therefore excludes acute ICU feeding from its proposed initial cohort.

For a hypothetical 70 kg adult, 25 kcal/kg/day equals 1,750 kcal/day. That arithmetic alone says nothing about total need. If the same person has an RMR of 1,600 kcal/day, dividing EPK by RMR/kg gives  $1,750/1,600 = 1.09$ . The kilograms cancel: this is an intake-to-RMR ratio, not an independent physiological discovery.

## Links to the original series

EPK–001 supplies the framework; EPK–004 supplies functional outcomes; EPK–005 raises applicability beyond sport. This paper adds a proposed test, not retrospective validation of their claims. The seven existing PDFs are not revised by this supplement.

## Limitations and decision rule

Intake error, fluid-related weight change and reverse causation can dominate a ratio. Observational prediction does not establish that prescribing a higher intake improves outcomes. If the ratio adds no useful prediction beyond conventional variables, it should not be promoted as a new clinical threshold. A later intervention would require a separate protocol and appropriate clinical oversight.

# References and publication record

[1] Thibault et al. (2021). ESPEN guideline on hospital nutrition, Recommendation 15.

[Open source](#)

[2] Muscaritoli et al. (2021). ESPEN practical guideline: Clinical Nutrition in cancer.

[Open source](#)

[3] Singer et al. (2023). ESPEN practical and partially revised guideline: Clinical nutrition in the intensive care unit.

[Open source](#)

## Publication and reuse

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