Anthropometric measures

Anthropometric measures are standardized physical measurements of the human body used to assess size, shape, composition, and growth. These are widely used in clinical, nutritional, ergonomic, and athletic contexts.

Measure	Description / Use
Height (Stature)	Total body length in upright position.
Weight (Body Mass)	Total body weight; used in indices like BMI.
Body Mass Index (BMI)	Weight (kg) / Height² (m²); classifies underweight, normal weight, overweight, etc.
Waist Circumference	Estimates abdominal fat; predictor of cardiometabolic risk.
Hip Circumference	Used with waist to calculate waist-to-hip ratio.
Waist-to-Hip Ratio (WHR)	Waist circumference / Hip circumference.
Waist-to-Height Ratio	Waist circumference / Height; alternative to BMI for cardiovascular risk.
Skinfold Thickness	Measures subcutaneous fat with calipers at specific body sites.
Mid-Upper Arm Circumference (MUAC)	Nutritional status indicator, especially in children and elderly.
Body Fat Percentage	Estimated via skinfolds, bioimpedance, DEXA, etc.
Limb Lengths	Measurements like arm span or leg length; used in orthopedics and ergonomics.
Head Circumference	Important in pediatrics for brain growth monitoring.

Anthropometrics, cancer risks, and survival outcomes in adult patients with glioma - a systematic review and meta-analysis

In a systematic review and meta-analysis Ahn et al. from St. Mary’s Hospital, Seoul; The Catholic University of Korea, Seoul published in Acta Neurochirurgica to evaluate associations between height, body mass index (BMI), and both the risk and prognosis of glioma andglioblastoma through aggregated epidemiological data Taller stature increases risk of glioma/glioblastoma (HR per +10 cm ~1.19–1.25). Higher BMI modestly elevates incidence risk (RR ~1.08; HR per +5 kg/m² ~1.01–1.02) and correlates with improved survival in glioblastoma (HR ~0.75).

Critical Review

* **Study design & scope:**

1. Solid use of PRISMA flow, Newcastle–Ottawa scoring. 23 studies from large databases until Jan 31, 2024.

1. Random-effects model appropriate given heterogeneity.

* **Strengths:**

1. Broad dataset; consistency in directionality of height risk.

1. Quantitative measures (HR/RR) allow clinical interpretation.

* **Weaknesses:**

1. Residual confounding: socioeconomic status, comorbidities, treatment variations not fully accounted.

1. Survival benefit with higher BMI might reflect reverse causation (cachexia at diagnosis), stage bias, or selection bias.

1. Study-level meta-analysis; no patient-level adjustment.

1. Heterogeneity between studies (cohort vs case–control) not dissected thoroughly.

* **Interpretation concerns:**

1. Association ≠ causation: taller height likely serves as proxy for insulin-like growth factor (IGF) axis or early-life exposures.

1. Reported protective BMI effect on survival may mislead; the notion of "obesity paradox" remains controversial and likely influenced by disease severity and nutritional reserve, not therapeutic targets.

Verdict & Takeaway

Rating: 5.5 / 10 — competent analysis but limited by observational biases, heterogeneity, and lack of mechanistic insight

Practicing Neurosurgeon Takeaway:

- Be aware that taller adults appear at slightly higher risk for glioma/glioblastoma—useful for population studies but not individual risk stratification.

- Beware simplistic interpretations of BMI-related survival benefits; weight preservation at diagnosis is meaningful, but no indication to promote higher BMI.

Bottom Line:

Height and BMI show modest, statistically significant associations with glioma incidence and glioblastoma survival. However, causality is unproven and survival results likely reflect confounding and selection effects rather than actionable therapeutic insights.

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Category: Systematic Reviews, Neuro-Oncology **Tags:** anthropometrics, glioma, glioblastoma, BMI, height, epidemiology, prognosis, incidence