**CT-defined low skeletal muscle index and density in cancer patients- Observations from a systematic review.**

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**Abstract (n=230)**

**Background**

Computed tomography (CT) analysis of muscle status has garnered interest as a potential prognostic tool in those with cancer. The aim of the present systematic review was to assess the prevalence of low skeletal muscle index (SMI) and density (SMD) within the literature, across a range of common solid tumours.

**Methods**

A systematic search of PubMed was carried out to identify studies reporting CT analysis of SMI and SMD in patients with colorectal, oesophageal, gastric, hepatobiliary, pancreatic, breast, and lung cancer. The type of cancer, whether curative or non-curative disease, the anthropomorphic parameter studied, threshold used to define low SMI and SMD, and the prevalence of these anthropomorphic measurements within the population were recorded.

**Results**

Of the 160 studies included, 156 reported an assessment of SMI and 35 reported assessment of SMD. The median prevalence of low SMI was 43% (30.1–57.1) and low SMD 49.4% (31.7–58.5) across the entire cohort. There was little variation in the prevalence of low SMI and SMD when studies were divided into curative and non-curative cohorts—40.7% (27.5–51.3) vs. 48.4% (30.9–60.1) and 37.8% (32.2–52.2) vs. 55.3% (38.5–64.7) respectively. This was maintained when studies were stratified into cohorts of cancer subtype and by threshold used.

**Conclusions**

Low SMI and SMD are endemic across a range of cancer types and disease stage, challenging pre-existing dogma of the determinants of prevalence.