

# Accepted Manuscript

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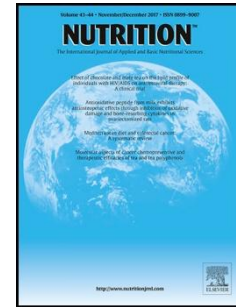
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1 *Systematic Review*

## 2 **Cystic fibrosis, body composition and health** 3 **outcomes: a systematic review**

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### 16 **Highlights**

- 17 • Different body composition in people with Cystic fibrosis.
- 18 • Strong association between low fat free mass and impaired respiratory  
19 function.
- 20 • Cystic Fibrosis people appear to have a decrease in bone mineral density.

21 **Abstract:** Patients with Cystic Fibrosis (CF) are characterized by an increased risk of nutrient  
22 malabsorption and inflammation which may influence body composition. We examined the  
23 differences in body composition between people with CF and healthy controls and how body  
24 composition differences may impact disease risk and mortality.

25 Three different electronic databases (PubMed, Web of Science, Embase) were used to find articles  
26 from inception until March 2017. The search strategy excluded articles reporting data on  
27 anthropometric measures only such as body weight, height or waist circumference. Information on  
28 characteristics of study population (age, gender, BMI), type of study design, body composition  
29 methods, body compartments and health outcomes was extracted.

30 Thirty-nine articles were included in the systematic review. The total number of people with CF  
31 and controls included in these studies was 1839 and 2178, respectively. A large heterogeneity was  
32 observed for the methods used to assess body composition. The most frequently applied method  
33 was dual X-ray absorptiometry (41%). Only one study explored the association between body  
34 composition and risk of mortality whereas the majority of the studies examined the association  
35 between body composition with respiratory function (33%). People with CF had a lower fat free  
36 mass (FFM) and bone mineral density compared to controls; FFM was associated with decreased  
37 inspiratory muscle strength.

38 Patients with CF may be at increased risk of sarcopenia and osteopenia. Measurement of body  
39 composition could improve the assessment of nutritional status and reduce the risk for respiratory  
40 and metabolic complications in people with CF.

41 **Keywords:** Cystic fibrosis; pulmonary function; lean body mass; fat mass; disease risk

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### 43 **1. Introduction**

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