

# Cystic Fibrosis Research News

## Title:

Visceral Adipose Tissue is Associated with Poor Diet Quality and Higher Fasting Glucose in Adults with Cystic Fibrosis

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## What was your research question?

We conducted a study to describe and compare dietary intake, diet quality, and body composition (including fat, muscle, and fat location) between individuals with cystic fibrosis (CF) and individuals without CF. We then determined if these measures were associated with fasting blood glucose levels and lung function.

## Why is this important?

For most individuals with CF, a high calorie, high fat diet is recommended to avoid malnutrition. However, it is unclear if diet quality, represented by the types of carbohydrates and fats eaten, affects health outcomes. In addition, it is not known if the location of body fat influences outcomes in CF. In individuals without CF, fat stored within the abdomen (visceral adipose tissue, VAT), is linked to poor health. Body mass index (BMI, a ratio of weight to height), which is typically used to assess nutrition status in CF, does not tell us information about the location of fat.

## What did you do?



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We assessed 24 adults with CF and matched them by age to 25 adults without known illness. Before their study visit, each person completed a food record, logging everything they ate and drank for three days. From the food record, we calculated how much individuals ate each day and the healthfulness of a person's diet based on the types of foods eaten. During the study visit, body composition was measured by dual energy x-ray absorptiometry, including measurement of VAT, and blood was drawn to measure fasting glucose levels. Medical records were reviewed to obtain CF clinic lung function measurements.

## **What did you find?**

Food records suggested that participants with CF ate more added sugar and trans fat and less dietary fiber than non-CF controls. Overall diet quality was lower in participants with CF. There were no differences between groups in BMI or the total amounts of fat and muscle, but individuals with CF had higher amounts of VAT. Consuming more added sugar was associated with more VAT. Also, higher amounts of VAT were related to higher levels of fasting blood glucose. Finally, more muscle mass was associated with improved lung function.

## **What does this mean and reasons for caution?**

It is possible that, in an effort to meet high calorie and fat needs, individuals with CF may eat lower quality foods, such as those with excess added sugars and trans fats. In turn, poor diet quality may increase the amount of VAT and worsen health outcomes. Current CF nutrition recommendations do not address diet quality, and our findings suggest this may be an important factor in nutrition education. This study was in a relatively small group of adults at one time point, so findings may not be generalizable to all individuals with CF.

## **What's next?**

Future studies investigating diet quality and body composition should be completed in larger groups of individuals with CF followed over time. Such studies should address why individuals with CF may choose poor quality food options and study ways to change food choices to increase diet quality and decrease VAT.

## **Original manuscript citation in PubMed**

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