

## Dietary patterns and their association with cardio-metabolic outcomes in US firefighters

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### Background:

Cardiovascular disease is prevalent among US firefighters. Obesity is known to be associated with an increased risk of CVD and it can be prevented by following a more Mediterranean style diet. The aim of this study was to identify the dietary patterns of US firefighters and assess how these patterns are associated with cardio-metabolic outcomes in the specific population.

### Methods:

Individuals were recruited from within a FEMA sponsored study from the Indiana Fire Department. IFD members with permanent station assigned were included. All participants underwent the Public Safety Medical examination, which includes occupational and medical history; a physical examination; routine laboratory tests; resting electrocardiograms; and maximal treadmill exercise testing. Participants self-reported their dietary habits.

### Results:

The mean BMI of the participants was  $30.0 \pm 4.5$  kg/m<sup>2</sup> and the percentage of body fat was  $28.1 \pm 6.1\%$ . Using principal component analysis, two dietary patterns were identified, namely a Mediterranean style diet and an American Standard style diet. The Mediterranean style diet is positively associated with HDL cholesterol ( $\beta = 2.08$ ,  $p = 0.001$ ) even after adjusting for gender, BMI, VO<sub>2</sub> max, max METS, age, and body fat percent. Triglycerides ( $\beta = -3.195$ ,  $p = 0.585$ ) and glucose ( $\beta = -0.079$ ,  $p = 0.219$ ) decreased with the Mediterranean style diet. The Standard American diet was also significantly associated with HDL cholesterol ( $\beta = -4.82$ ,  $p = 0.002$ ) and LDL cholesterol ( $\beta = 0.455$ ,  $p = 0.014$ ). In addition, body fat percentage increases significantly in the Standard American style diet ( $\beta = 1.778$ ,  $p = 0.029$ ), even after the adjustments.

### Discussion:

Two dietary patterns were identified in US firefighters - a Mediterranean style diet and an American Standard diet. Mediterranean diet was protective whereas the American Standard diet had the opposite effect. This could help provide suitable recommendations that could improve the lives of US firefighters.

### Key messages:

- Two diet patterns have been identified in US firefighters. The Mediterranean style diet seems to have a protective effect.
- The American Standard diet has a negative impact on cardio-metabolic outcomes as expected.