

## NUTRITION

### Dietary nutrient composition affects progression of liver disease

Dietary nutrient composition is a predictor of hospitalization or death caused by cirrhosis and liver cancer, Ioannou and colleagues report. This new finding indicates that diet could be an important and potentially modifiable



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factor involved in the progression of liver disease.

Ioannou *et al.* investigated associations between dietary nutrient intake and subsequent development of liver cancer or liver cirrhosis in participants of the US first National Health and Nutrition Examination Survey (NHANES I).

The investigators analyzed data from 9,221 individuals (aged 25–74 years) who showed no evidence of cirrhosis on enrollment or for the first 5 years of follow-up. Information on dietary nutrient composition was obtained at the study start by means of an interview and a 24 h dietary recall questionnaire.

During follow-up (mean 13.3 years) hospitalization records and death certificates revealed that 118 individuals were diagnosed with cirrhosis and five people were diagnosed with liver cancer. A high protein intake was associated with increased risk of cirrhosis and liver cancer, and with hospitalization or death from these diseases. By contrast, diets high in carbohydrates were associated

with reduced risk of cirrhosis and liver cancer. Although dietary cholesterol intakes were strongly associated with the risk of cirrhosis and liver cancer, serum cholesterol levels were not. Individuals in the top quartile of cholesterol consumption had more than double the risk of developing cirrhosis or liver cancer versus those in the bottom quartile. All these associations were limited to overweight or obese individuals (BMI  $\geq 25$  kg/m<sup>2</sup>).

As ingested dietary cholesterol only was linked to disease progression, the researchers propose that drugs that block intestinal cholesterol absorption could confer a greater benefit to the liver than drugs that block hepatic cholesterol synthesis.

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**Original article** Ioannou, G. N. *et al.* Association between dietary nutrient composition and the incidence of cirrhosis or liver cancer in the United States population. *Hepatology* 50, 175–184 (2009).