

# Risk for non-alcoholic fatty liver disease (NAFLD) in young adults born preterm

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## Conclusion

**Accelerated weight gain in the first three months after term age in subjects born preterm is associated with a higher risk to develop non-alcoholic fatty liver disease**

### Background

8-10% of all newborns in developed countries are born preterm. Adults born preterm are at increased risk for developing cardiovascular diseases.

Non-alcoholic fatty liver disease (NAFLD) is considered the hepatic manifestation of metabolic syndrome. Fatty liver index (FLI) is a validated index for identifying the risk for NAFLD.

Accelerated weight gain during infancy in subjects born term has been associated with increased risk for NAFLD in adulthood, but this association has not been studied in subjects born preterm.

### Hypothesis

Adults born preterm with accelerated weight gain after term age are at increased risk for NAFLD compared to those without accelerated weight gain during infancy.

### Methods

- 162 young adults
- Gestational age < 36 weeks
- FLI:  $(e^{0.953 \cdot \ln(\text{triglycerides}) + 0.139 \cdot \text{BMI} + 0.718 \cdot \ln(\gamma\text{-GT}) + 0.053 \cdot \text{waist circumference} - 15.745}) / (1 / e^{0.953 \cdot \ln(\text{triglycerides}) + 0.139 \cdot \text{BMI} + 0.718 \cdot \ln(\gamma\text{-GT}) + 0.053 \cdot \text{waist circumference} - 15.745}) \times 100$
- Accelerated weight gain is defined as catch-up in weight  $\geq 0.5$  SDS in the first 3 months of life
- Associations between fatty liver index (FLI, 0-100) and birth weight SDS, first year weight gain after term age
- Comparisons between subjects with and without accelerated gain in weight in the first year after term age

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### Results

Accelerated weight gain in the first three months after term age was associated with FLI at 21 years of age as a continuous variable, whereas gestational age and low birth weight were not.

Of the subjects with accelerated weight gain for length after term age, 7.3 % had a high FLI at the age of 21 years, whereas none of the subjects without accelerated weight gain had a high FLI.

Fatty liver index was significantly different between adults with accelerated weight gain and those without accelerated weight gain ( $p=0.003$ ).

	Fatty liver index	
	Beta(%)	p-value
Birthweight SDS <sup>1</sup>	- 6.32	0.446
Gain in weight SDS during 3 months after term age <sup>2</sup>	29.1	<b>0.034</b>

<sup>1</sup> Adjusted for gender, age, SES, gestational age and birth length SDS

<sup>2</sup> Adjusted for gender, age, SES, gestational age and gain in length during 3 months after term age

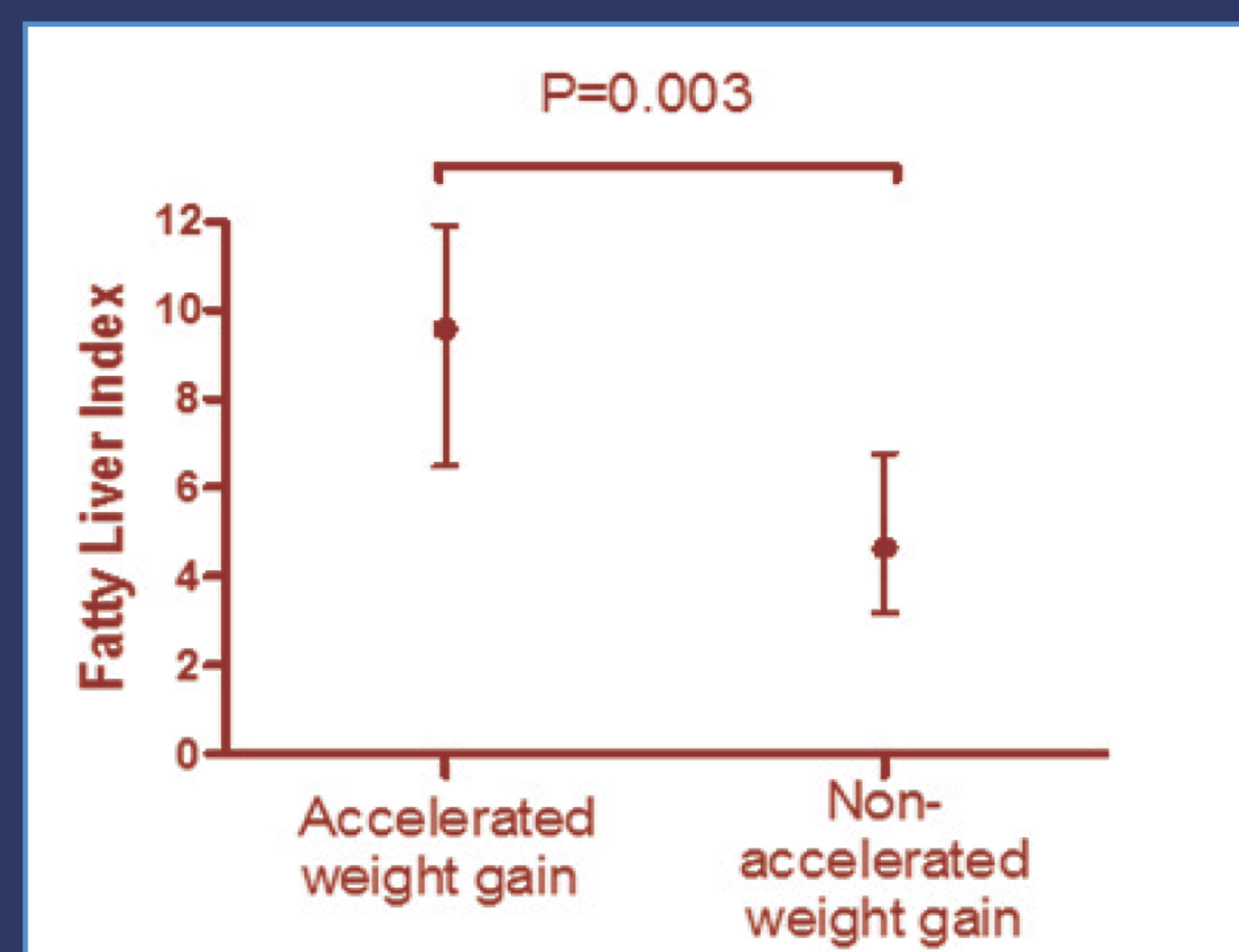


Figure 1: Adjusted Fatty Liver Index of subjects with accelerated compared to non-accelerated catch-up after term age. Adjusted for gender, SES, gestational age and gain in length

