Assessing the role of vitamin D in cardiometabolic health: A longitudinal analysis of inflammatory markers in a children cohort

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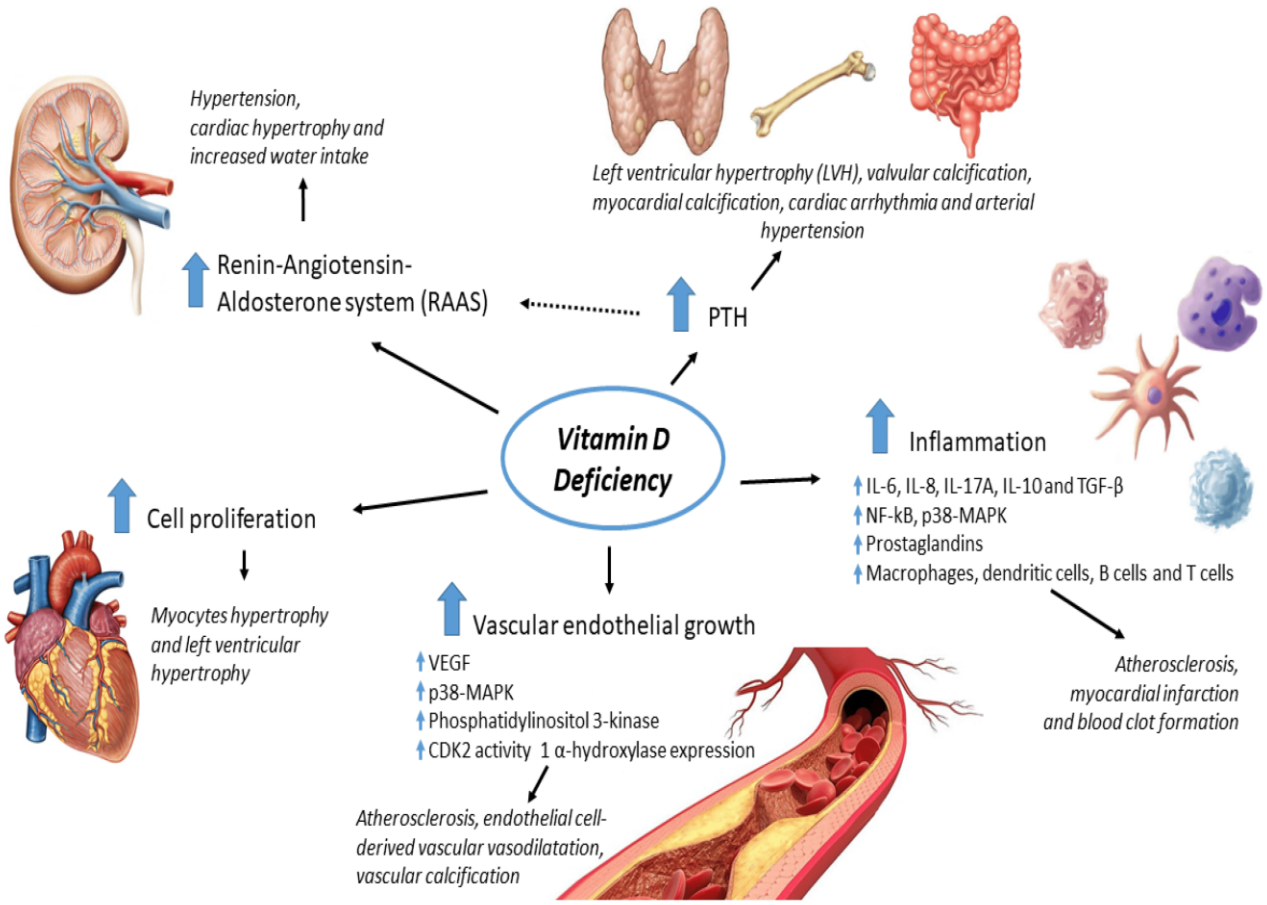
Thankful to all study participants

No disclosures

WCE

WORLD CONGRESS OF EPIDEMIOLOGY 2024

Background



Rationale

Leptin levels

Nagrani et. al, 2022

Vitamin D levels → HOMA-IR

Wolters et. al, 2023

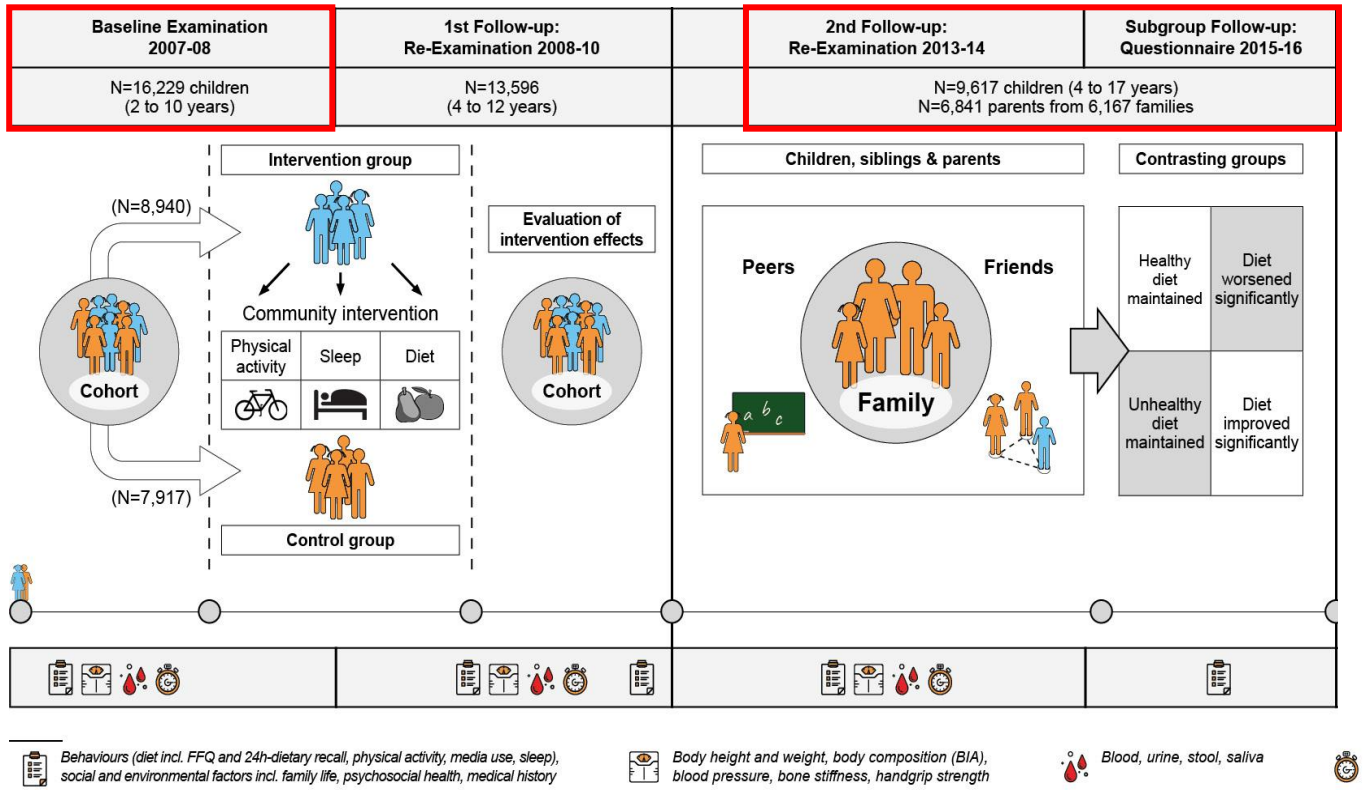
Impact of vitamin D levels on cardiometabolic health

Savastio et. al, 2020

Study population

Longitudinal study

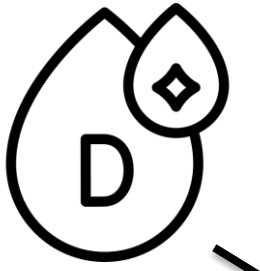
= 1582

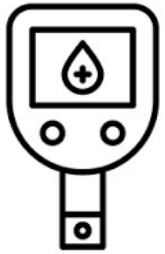


Ahrens et. al, 2017

Exposure, Mediator & Outcome assesment

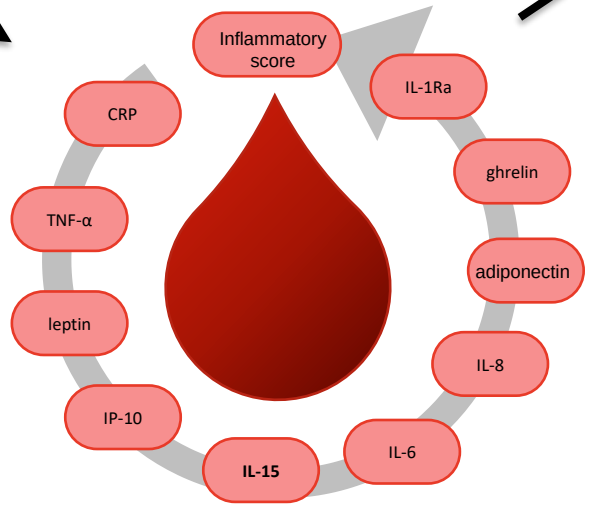
Exposure
Serum 25(OH)D





Outcome
HOMA-IR

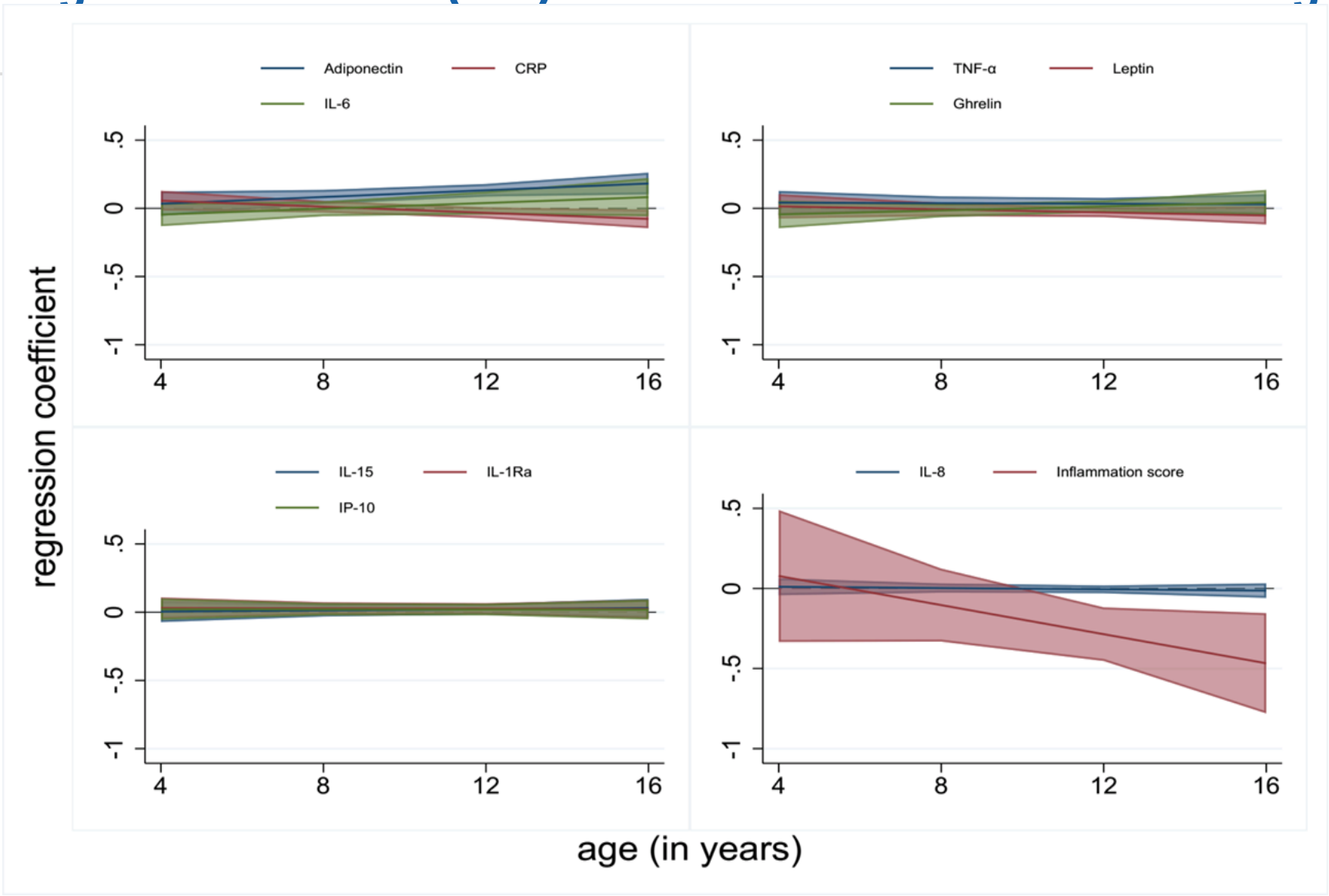
Outcome
Inflammation



Mediator
Inflammation

Results

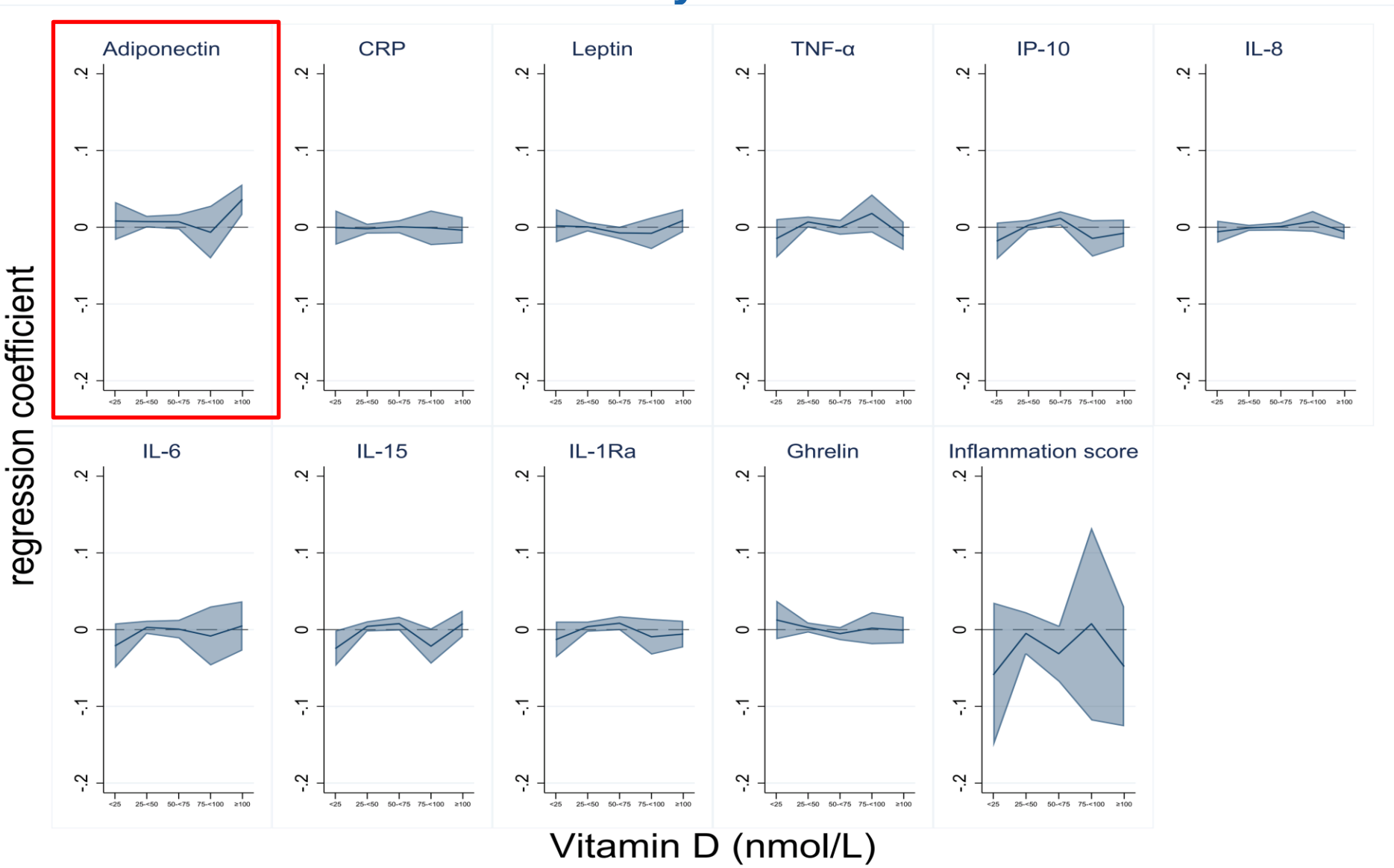
Marginal effect of 25(OH)D on inflammation at different ages



Adjusted for age, sex, study region, lifetime smoking and alcohol status, physical activity, screen time/week, BMI, month of blood sample collection and parental education status

Wolters et. al, 2024

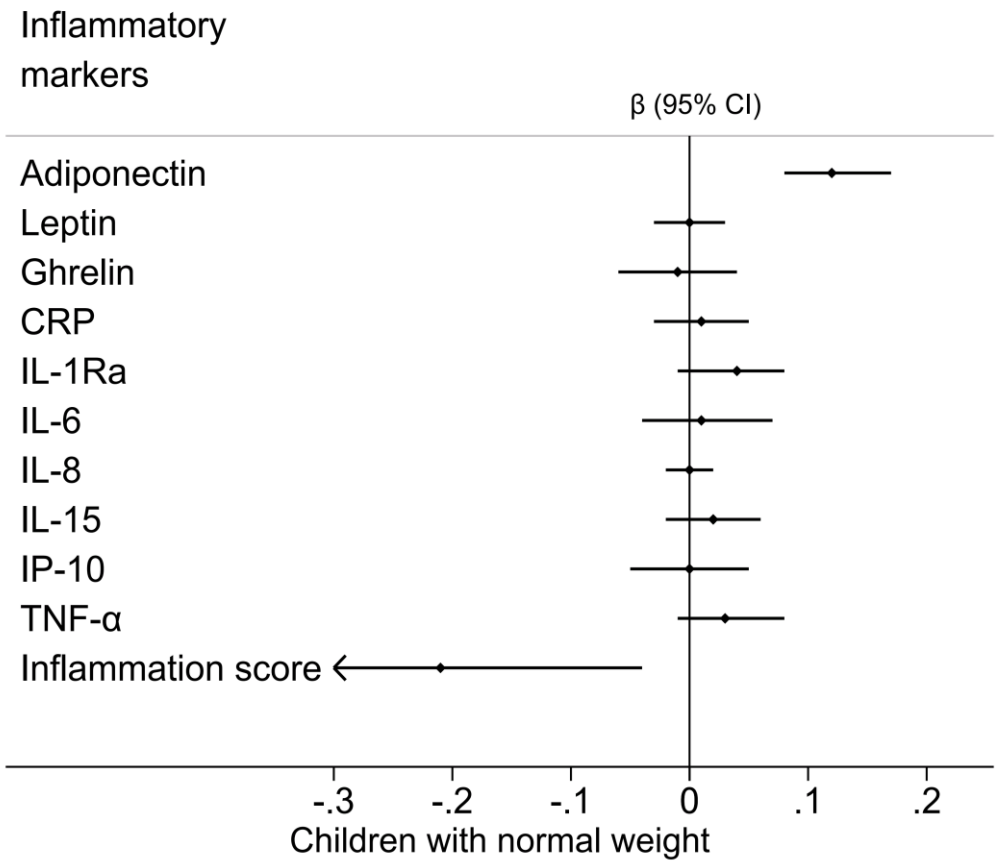
Assessing non-linear association between 25(OH)D levels and inflammatory markers

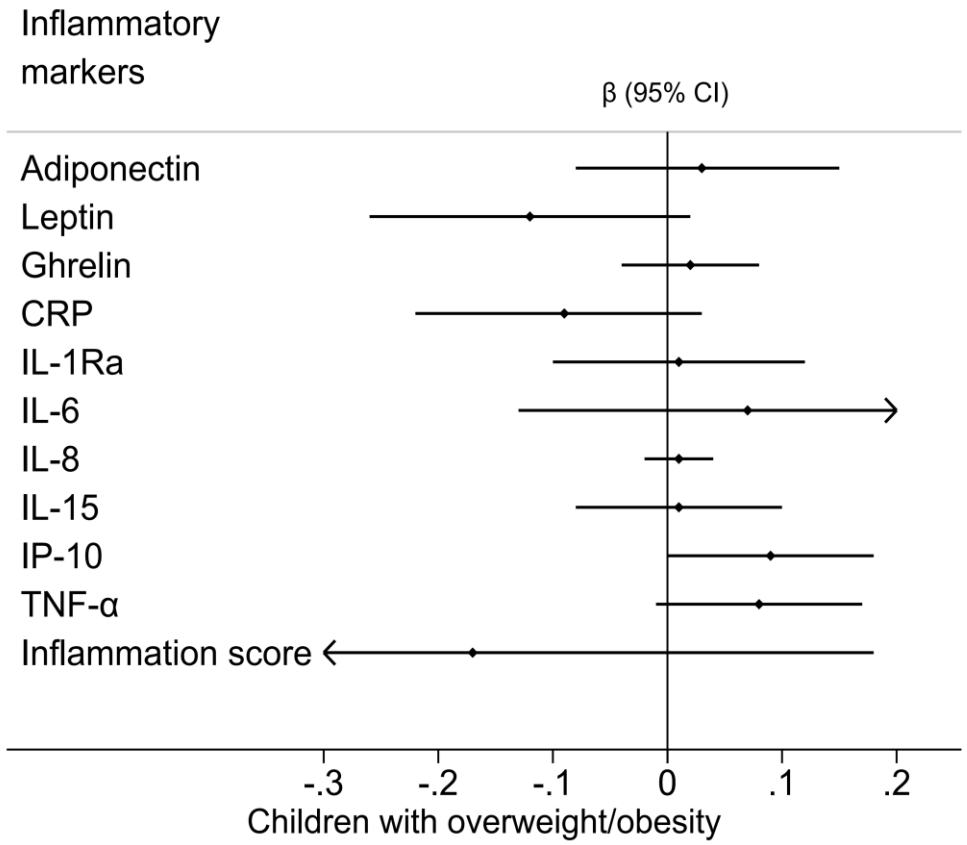


Adjusted for age, sex, study region, lifetime smoking and alcohol status, physical activity, screen time/week, BMI, month of blood sample collection and parental education status

Wolters et. al, 2024

Association between serum 25(OH)D and markers of inflammation





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Wolters et. al, 2024

Association between vitamin D and HOMA-IR to examine the role of inflammation

Mediator		β (95% CI)	p-value
Adiponectin	Total effect	**0.12 (0.002; 0.23)**	0.046
	Direct effect	0.10 (-0.01; 0.22)	0.068
	Indirect effect	0.01 (-0.01; 0.04)	0.345
Leptin	Total effect	0.08 (-0.02; 0.18)	0.127
	Direct effect	0.05 (-0.04; 0.14)	0.294
	Indirect effect	**0.03 (0.001; 0.05)**	0.039
Interleukin 8	Total effect	0.08 (-0.02; 0.19)	0.137
	Direct effect	0.08 (-0.02; 0.19)	0.106
	Indirect effect	**-0.01 (-0.01; -0.002)**	0.009
Interleukin 15	Total effect	0.10 (0.00; 0.20)	0.051
	Direct effect	0.10 (0.00; 0.20)	0.054
	Indirect effect	0.00 (-0.01; 0.01)	0.787
Inflammation Score	Total effect	**0.16 (0.03; 0.28)**	0.017
	Direct effect	**0.13 (0.01; 0.26)**	0.037
	Indirect effect	**0.02 (0.00; 0.05)**	0.053

Adjusted for age, sex, study region, lifetime smoking and alcohol status, physical activity, screen time/week, month of blood sample collection and parental education status

Under preparation

Take home message

- Vitamin D levels may regulate inflammation in children
- Anti-inflammatory effects of vitamin D apparent in normal weight children
- Mediation via inflammation may only be small

Future research considerations

- Mendelian randomization
- Assess the influence of gut microbiota
- Assess inflammation as mediation factor for other external determinants of health

Poster Session

Friday, 27 September 2024 (Time: 15:15hrs)

Immunization and the risk of childhood cancer

Poster Number: P3-D2

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