

DIETARY FIBRE INTAKE IS ASSOCIATED WITH SERUM LEVELS OF URAEMIC TOXINS IN CHILDREN WITH CKD

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- ✓ Current dietary instructions inadvertently limit fibre intake, which may in turn lead to increased uraemic toxin levels.
- ✓ Present findings should inform and guide adaptations of dietary prescriptions in children with CKD.

Background

- Gut dysbiosis plays a pivotal role in generating protein-bound uraemic toxins (PBUTs), accumulating with deteriorating kidney function and contributing to the uraemic burden of children with chronic kidney disease (CKD).
- Dietary choices impact gut microbiome and metabolic activity.



Our aim was to investigate the relation between dietary fibre intake and gut-derived PBUTs in children with CKD.

CKD (n = 61) CKD 1-2 (n=20) CKD 3 (n=19) CKD 4 (n=17) CKD 5 (n=5) Transplant (n = 8)	Longitudinal, multicentric (UZ Gent, UZ Leuven, UZA, UCL) data from a 2-year study (UTopaed)	Diet history - 3-day journal - 24-recall	PBUT: IxS, pCS, pCG, IAA, by HPLC quantification	Linear mixed models Adjusted for eGFR and age



72 % boys

9 + 5 years

47 ± 28 mL/min/1.73 m²

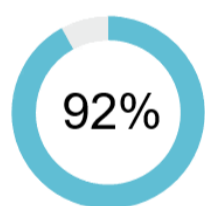
44% CAKUT

Protein intake

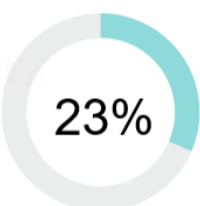
54 ± 28 g/day/m²

Fibre intake

13 ± 7 g/day/m²



% children reaching 100% Dietary Reference Intake



→ **High baseline protein/fibre ratio**

Inverse association between fibre consumption (g/day) and PBUT serum concentration levels. **For every g/day increase in fibre intake:**

PHENOLIC COMPOUNDS

P-CRESYL SULFATE

Free pCS ▼ - 3% [- 5;- 0.3] p = 0.034

Total pCS ◀▶

P-CRESYL GLUCURONIDE

Free pCG ▼ - 3% [- 6;- 0.8] p = 0.010

Total pCG ▼ - 3% [- 6;- 0.5] p = 0.021

INDOLIC COMPOUNDS

INDOXYL SULFATE

Free IxS ▼ - 3% [- 6;- 0.3] p = 0.035

Total IxS ◀▶

INDOLE ACETIC ACID

Free IAA ▼ - 7% [- 9;- 4] p < 0.001

Total IAA ▼ - 2% [- 3;- 0.3] p = 0.020