

Calcium intake in cystic fibrosis patients

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Introduction:



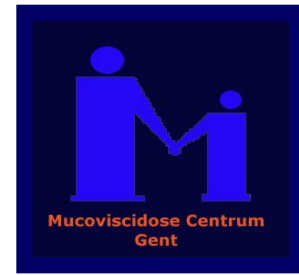
Several **possible etiological factors** in the occurrence of Cystic Fibrosis related bone disease

- vitamin D
- hormones
- medication
- physical activity

■ A sufficiently **high calcium intake is indispensable**

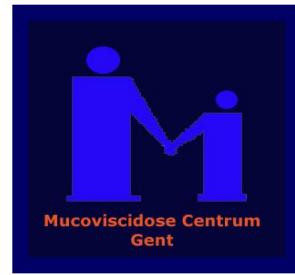
Scientist warn that calcium intake of Belgian children is low.

Aim:



- CF related bone disease increases with prolonged life expectancy and is a complex problem
- **AIM:** verify if current nutritional advice on calcium is achieved
- Daily alimentary current intake of Calcium by CF patients
 - Intake of related nutrients of Calcium by CF patients
 - Comparison of daily calcium intake to recommendations for calcium from the Belgian Population Reference Intake (PRI)

Methods:



Retrospective food intake questionnaires

121 CF patients:

- 65 male / 56 female,
- age 1-41 year (mean age 15.9 year)
- CF centre: Ghent

Daily Calcium and Phosphorus intake was calculated. Calcium supplements and calcium content of water were not included

Methods:



Based on the **Belgian Population Reference Intake (PRI)** of calcium, patients were divided in 3 age groups:

- **A:** 1-10 year: n = 40
- **B:** 11-18 year: n = 38
- **C:** >19 year: n = 43

National daily recommendations:

- **A:** 1-10 yr: 800 mg/d
- **B:** 11-18 yr: 1000 - 1200 mg/d
- **C:** >19 yr: 900 mg

Results:



- **Ca intake expressed as % of PRI**
 - **A:** 39 - 334 (mean 119%); boys: 116%, girls: 121%
 - **B:** 42 - 250 (mean 111%); boys: 126%, girls: 93%
 - **C:** 27 - 242 (mean 110%); boys: 105%, girls: 114%
 - **total group:** 27 - 334 (mean 113%); boys: 116%, girls: 109%
- **Average Ca intake the total group: 113 % of PRI**
- **No correlation between age and % PRI coverage**

Results:



- **Ca content below PRI in 41**

- % of the total group

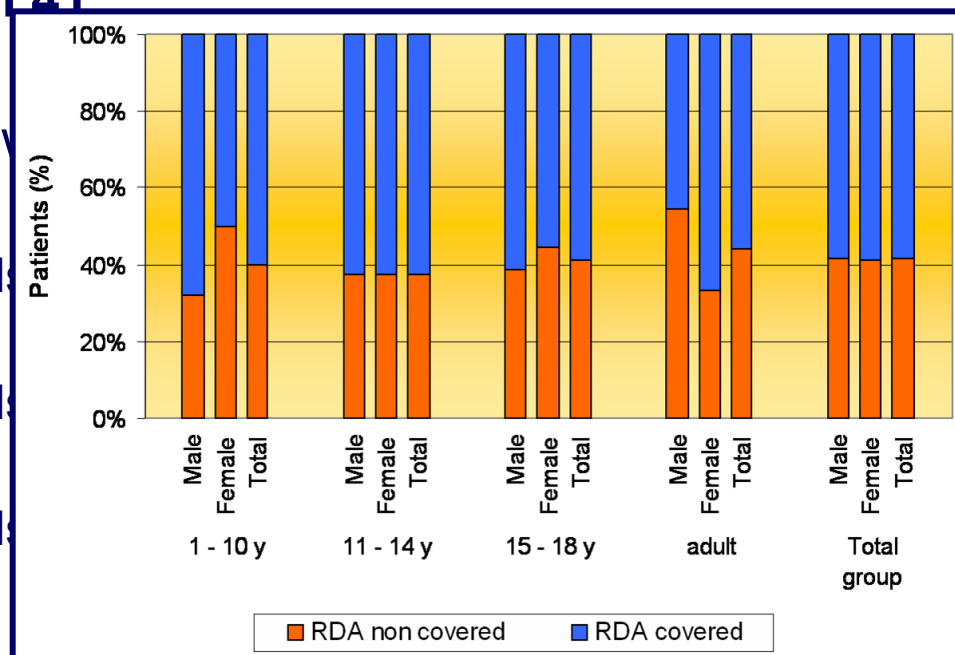
- % of patients taking below PRI:

- **A:** 40%: boys: 32%, girls 50%
 - **B:** 39%: boys: 38%, girls 41%
 - **C:** 42%: boys: 55%, girls 33%

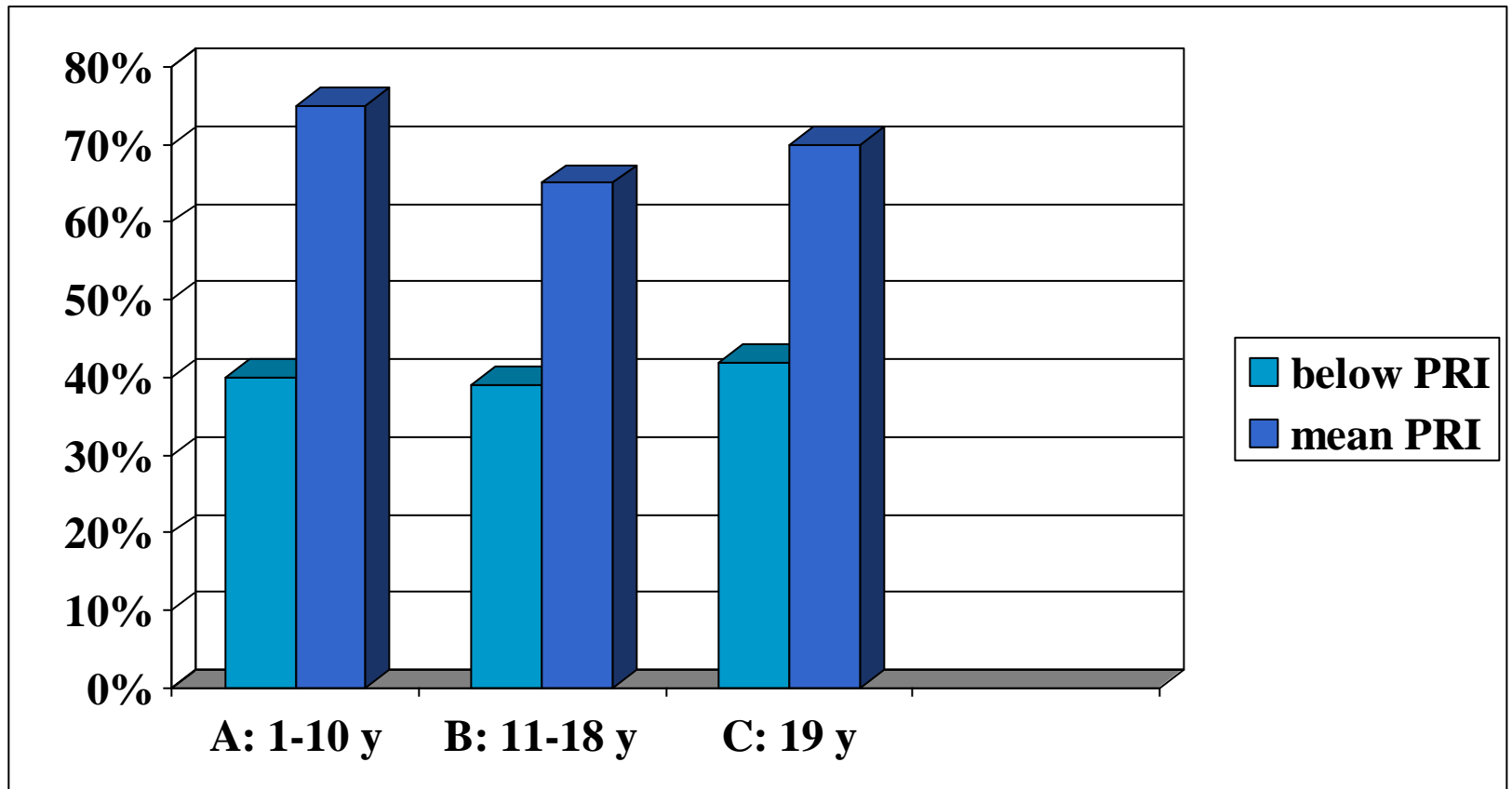
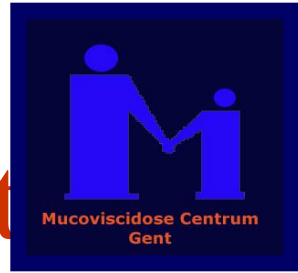
- **mean % intake of PRI**

- **A:** 75%
 - **B:** 65%
 - **C:** 70%

- **7 patients < 400 mg/day**



Calcium intake in CF patient



Results:



- Main **contributory food sources** for Ca:
 - **milk** products: 48%
 - **cheese**: 18%
 - **cereal** products: 6%
 - **vegetables** and **fruit**: 4 and 1%
 - **energy drinks**: 5%

- **Dietary ratio of Ca/P**:
 - < **0.5** in **17%** of patients
 - **0.5-1** in **75%**
 - > **1** only in **7%**

Summary:



- Compared to the Belgian PRI **40% of all CF patients** of all ages have inadequate daily calcium intake
- The **mean intake** of CF patients with inadequate calcium intake compared to the PRI is **70%**
- **Uptake of calcium is complicated** by the **high dietary phosphor** content and **low consumption of vegetables and fruit**

Conclusion:



- Nutrition is one of the pillars in the CF therapy: attention must be paid to the nutritional factors related to bone metabolism
- This study shows that **calcium intake and uptake is deficient** in a large portion of CF patients
- **Inform patients** on the importance and need of calcium
- Appreciation for **milk** as a good source of calories and of calcium. Teach rule: 400 ml delivers 500 mg calcium
- Extra attention for **girls <11 years** and **male adults**