Dietary intake profile among Tunisians school children having iodine deficiency or excess

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1 st Mediterranean Forum for PhD Students and Young Researchers. 18- 19 July 2016 - Montpellier – France

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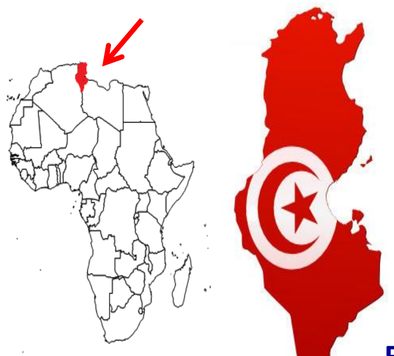
CURRENT STATUS of iodine nutrition



Population[1]: 10997 (Tds)
Population <15y: 23%
Population >60y: 11%
Total fertility rate: 2.0
Urbanization: 67%

Fig1: HHIS Coverage[2]

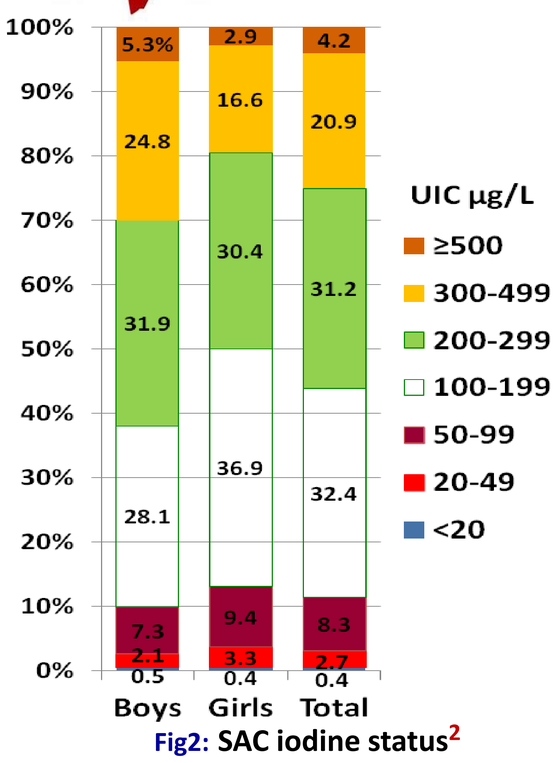


Fig2: SAC iodine status[2]

INTRODUCTION: Landmarks of the Tunisian USI programme

- Iodine deficiency disorders (IDD) have been recognized as a public health problem in the world since the 1920s.
- In Tunisia, the NW region has been recognized as an IDD area since the 70s.
- Mandatory legislation on salt iodization was launched in 1984 in IDD area (15-25 ppm of iodine at production) [3].
- The National IDD programme was legislated in 1995 and implemented in 1996 as recommended by the WHO/UNICEF/ICCIDD in 1993.
- The salt iodization for food use is obligatory and generalized.
- Iodization range is 35 - 45 ppm of potassium iodate (KIO3) at production with a tolerance decrease of 10 ppm at distribution levels [4].
- A national survey conducted in 2012 among Tunisian school children (SAC) showed that 11.4% had iodine deficiency and 4.2%.
- Our objective was to assess the relation between dietary intake patterns and iodine status of SAC with deficiency or excess urinary iodine concentration.

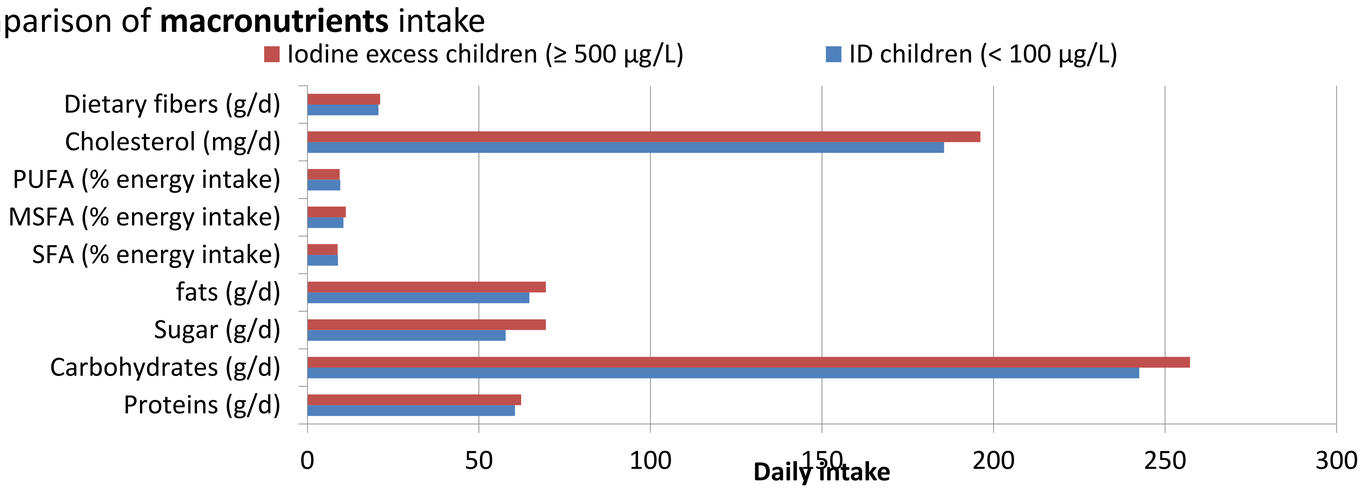
References: **1.** National institute of statistics. 2013. **2.** IDD prevalence in Tunisian school-age children: national survey. INNTA/DSSB/UNICEF. Tunis. Ed 2015. 84p. **3.** Decree No. 84/674 of June 1984. **4.** Decree No. 95-1633 of September 1995. **5.** Martin A et al. besoins nutritionnels et apports conseillés pour la satisfaction de ces besoins. EMC Endocrinologie-Nutrition 10-308-A-10.

METHODS

- The 24 hours dietary reccall (three pass) was used to assess the dietary profile.
- Data entry was realized by epidata software 3.1.
- A specific Tunisian food composition database and the Food Processor software were used to compute average daily intake of energy (kcal/day), and macro- and micro-nutrients.
- Variables were expressed as mean ± standard error of mean using STATA 9.
- Mean comparison were realized by logistic regression.
- Reference dietary intakes for French popultion were used [5].

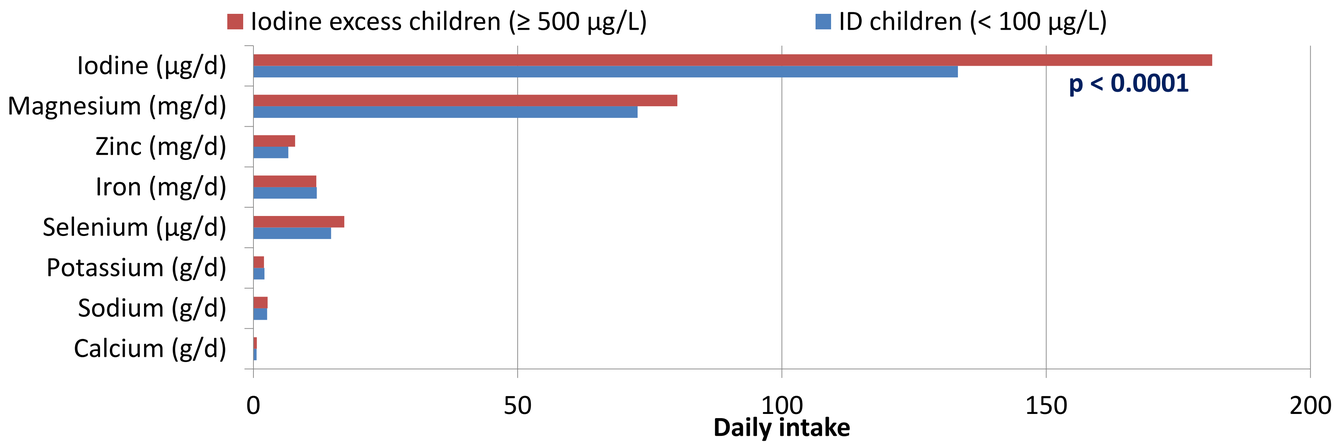
RESULTS AND DISCUSSION

- **Fig3 :** Comparison of **macronutrients** intake



- No associations were found between iodine status and macronutrients intake.
- The coverage rate for macronutrients intake was satisfactory ; 81.9% for fats, 85.3% for carbohydrates and 85.8% for proteins.
- **In general**, macronutrients intake was in agreement with WHO recommandations: 55-75% for carbohydrates, 15-30% for fats and 10-15% for proteins.

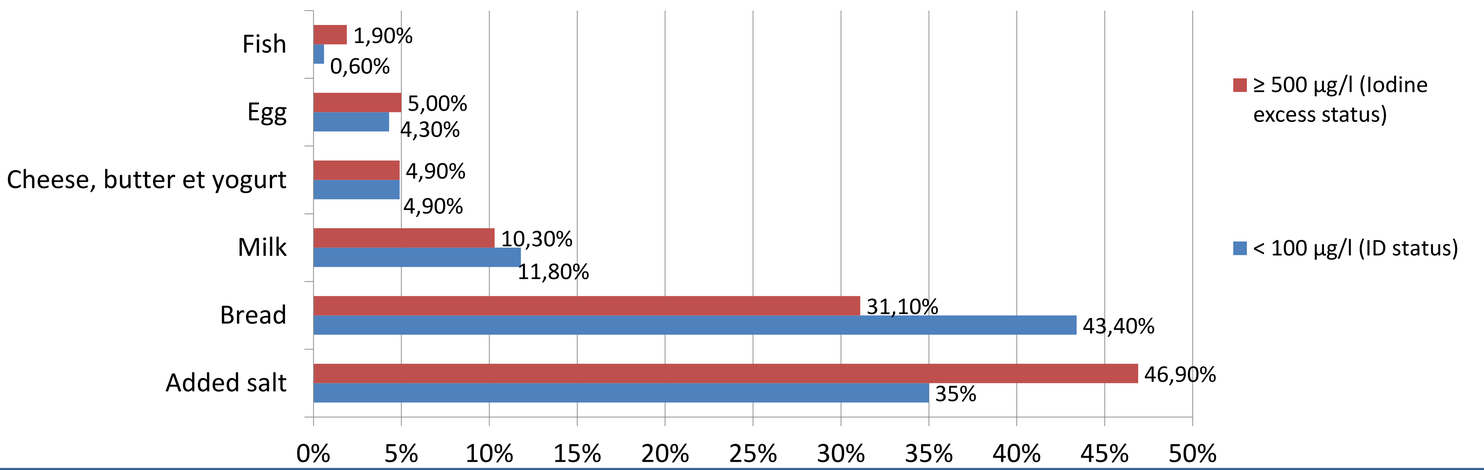
- **Fig4 :** Comparison of **minerals** intake



- Iodine intake was signifcantly higher among SAC having iodine excess.
- No associations were found between iodine status and other minerals.
- Low selenium intake (43.7% percent of coverage) was found among both groups which may exacerbate the goiter formation.
- SAC achieved satisfactory coverage percentage of iron intake (124.4%).

- Similar vitamins intake was found according to the iodine status of SAC.

- **Fig5 :** Contribution of iodine rich foodsto the daily intake iodine



- Bread and added salt were the most decisive sources of iodine for ID children and those having excess of iodine status, respectively.
- Salt consumption was higher than 5 g/d (limit set for adults) in both groups.
- No difference as regard to salt consumption.
- Probably, the iodine level in the used salt was different among children.

CONCLUSION

The focus for future effort should be on:

- Strengthening the **monitoring system** of salt iodization program to ensure the sustainability of IDD elimination
- Trackting both **iodine deficiency** and **excess** as 25.1% of SAC had median UI ≥ 300 and 4.2% ≥ 500 µg/L in 2012[2]
- Conducting **periodic surveys** on a representative sample of target groups to monitor the sustained production and use of adequately iodized salt