



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI SCIENZE MEDICHE VETERINARIE



UNIMORE



A.I.S.E.T.O.V.



FESTEM

2018 SCIENTIFIC MEETING
ITALIAN ASSOCIATION FOR THE STUDY OF
TRACE ELEMENTS IN LIVING ORGANISMS - AISETOV

Ozzano Emilia, Bologna - October 12, 2018



Department of Veterinary Medical Sciences DIMEVET
Alma Mater Studiorum, University of Bologna

**The role of trace elements in health: from healthy
environments to healthy living organisms**

ABSTRACT BOOK

Organized by:

AISETOV, UNIBO and UNIMORE

P-17. The new-old exposure to lead: assessment of food contamination and estimation of dietary intake in a Northern Italy population

Tommaso Filippini¹, Marcella Malavolti¹, Silvia Cilloni¹, Federica Violi¹,
Carlotta Malagoli¹, Luciano Vescovi¹, Marco Vinceti^{1,2}

¹*Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN), Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia, Modena, Italy*

²*Department of Epidemiology, Boston University School of Public Health, Boston, USA*

Background and aim: Lead is a heavy metal released in the environment after natural and anthropogenic activities. Food and water are the major sources of human exposure, with some through air, dust and soil. In this study, we aimed at characterizing lead content in foods consumed in Northern Italy population in order to estimate its dietary intake.

Methods: To do that, we collected food samples during the period from October 2016 to February 2017 from local markets, and we measured elements content using inductively coupled plasma-mass spectrometry. Finally, we assessed dietary habits of a Northern Italian community through a validated food frequency questionnaire, and we eventually estimated dietary intake of lead in that community.

Results: In the 908 analyzed food samples, highest lead contamination levels were found in seafood, vegetables, sweets and beverages. The estimated dietary intake was 12.94 µg/day (interquartile range-IQR 9.36-17.51 µg/day), corresponding to 0.186 (IQR 0.133-0.454) µg/kg of body weight/day, with major contribution from beverages and vegetables and cereals. Similar results were found in both sexes, with daily dietary intake of 14.13 µg/day (IQR 10.10-17.82) and 12.19 µg/day (IQR 8.97-17.36) in men and women, respectively.

Discussion: Our study provides an updated assessment of lead exposure through diet in a Northern Italian community. Although environmental lead contamination and exposure has markedly decreased in the last decades, recent findings pointed out that a safety threshold value could not be established for prevention of adverse effects due to lead exposure. In our community, despite the generally low levels of intake compared with other European populations, the levels of lead intake are at still at risk for chronic renal disease and hypertension.



Printed in Modena (Italy)
October 2018