

Dietary mineral intakes of young Tibetan children living in areas endemic for Kashin-Beck disease: preliminary results of a cross-sectional survey

Michael Dermience^a, Françoise Mathieu^b, Xiao Wei Li^c, Stefanie Vandevijvere^d, William Claus^b, Viviane De Maertelaer^e, Ghislaine Dufourny^f, Li Bin^g, Dechen Yangzom^h, Georges Lognay^a

^a University of Liege – Gembloux Agro Bio Tech, Department Agro-Bio-Chem, Analytical Chemistry, Passage des Deportes, 2, B-5030 Gembloux, Belgium

^b Kashin-Beck Disease Fund asbl-vzw, Rue de l'Aunee, 6, B-6953 Forrieres, Belgium

^c China National Center for Food Safety Risk Assessment, CFSA, Panjiayuan Nanli, 7, Chaoyang District, 100021 Beijing, PR China

^d University of Auckland, School of Population Health, Auckland, New Zealand.

^e Free University of Brussels – SBIM and Institut de Recherche Interdisciplinaire en Biologie humaine et moléculaire, CP602, route de Lennik, 808, B-1070 Brussels, Belgium

^f Haute Ecole Lucia de Brouckere – CIRIHA, Avenue Emile Gryzon, 1, B-1070 Brussels, Belgium

^g Center for disease control and prevention – North Lin Kuo road 21, Lhasa, T.A.R., PR China

^h Kashin-Beck Disease Foundation, Gakyiling Hotel, Tuanjie Xincun, Sera Road, 850 000 Lhasa, T.A.R., PR China

Kashin-Beck disease (KBD) is an endemic and chronic osteochondropathy whose etiology remains unclear. Environmental factors are assumed to be involved, among which the selenium and iodine deficiency is frequently cited. The prevalence rate may be high in some rural areas of the Tibet Autonomous Region. The diet of the rural community is significantly different from the other communities (nomads and city-dwellers), who remains unaffected by KBD. Because their foods are mainly derived from local agriculture and artisanal production, their mineral composition may show significant discrepancies when compared with food composition data. The present survey aims at assessing the mineral dietary intakes of young Tibetan children living in rural areas endemic for the Kashin-Beck disease. A cross-sectional survey enrolling 250 children was carried out. The intakes were recorded for two days, on two different seasons, by the 24-hour food recall method. The minerals investigated were selected for their implication in bone metabolism and a specific food composition table was compiled from the China Food composition (book 1, 2nd edition), the USDA Food search for Windows (Version 1.0, Database version SR23), and a broad investigation on mineral composition of local and traditional Tibetan foods (Dermience et al., 2014). The calculation of daily intakes for the first season is now complete and some trends are emerging. Preliminary results suggest, inter alia, that the intakes of calcium are too low with unfavorable calcium to phosphorus ratio. On the contrary, sodium and manganese intakes are too high and could exceed tolerable upper levels.