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The Cultural Ecology of Iron Deficiency among Northern Kenyan Schoolchildren

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KEYWORDS Bioavailable Iron. Iron Deficiency. School Age Children. Parasitic Infection. Transferring Receptor. Zinc Protoporphyrin. Hemoglobin. Food Proscriptions

ABSTRACT The purpose of this study was to examine the context of iron deficiency and feeding patterns of iron-rich foods among northern Kenyan school-aged children. A nutrition survey was conducted among 300 subjects in two Rendille communities, Korr and Karare. The objectives were to determine the prevalence of iron deficiency as it relates to parasitic infection, dietary intake, and sociodemographic factors, as well as cultural food proscriptions influencing child feeding. Sociodemographic and qualitative data on food beliefs and child feeding practices were obtained from the primary caretaker of each subject. From pediatric subjects 24-hour dietary recall data were obtained with the help of the primary caretaker, and capillary blood from a finger stick was used to detect iron deficiency based on measures of hemoglobin, zinc protoporphyrin to heme ratio, C-reactive protein and transferrin receptor. With an overall prevalence of 31.2%, iron deficiency was found to be associated with dietary iron intakes constrained by diverse economic, cultural and environmental factors among Rendille children. In Karare, where children's iron intake approached recommended levels (only 4.3% of total iron intake), iron deficiency was found to be attributable to low bioavailability of iron, rather than low dietary intake per se. By contrast, in Korr average daily iron intake was estimated at only 65% of recommended allowances, indicating that iron deficiency was not merely the outcome of low bioavailability, but rather overall inadequate iron intake. Sociodemographic analysis showed a significant interaction between sex and economic status, revealing that girls in economically sufficient households were 2.4 times as likely to have iron deficiency as boys. This diference in risk parallels culturally defined gender-based proscriptions for child feeding: girls are believed to benefit from "soft foods", including rice, maize porridge and tea, whereas boys benefit from "hard foods", including meat, blood and beans. Consequently, in households economically able to purchase iron-rich foods, these foods are being preferentially fed to boys. Economic development may result in improved iron status for boys, but will be unlikely to benefit girls in the absence of a dietary modification intervention. A modification of culturally acceptable "soft foods" to include iron-rich foods may provide a sustainable approach to controlling and preventing iron deficiency in this population.

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