Nonheme-iron absorption from a phytate-rich meal is increased by the addition of small amounts of pork meat - DTU Orbit (18/04/2019)

**Nonheme-iron absorption from a phytate-rich meal is increased by the addition of small amounts of pork meat**

**Background:** Muscle tissue from various sources is known to promote nonheme-iron absorption. However, systematic studies of the dose dependency of this effect of meat on iron absorption from an inhibitory meal with low amounts of meat are lacking.

**Objective:** We investigated the dose-response effect of small amounts of meat on nonheme-iron absorption from a meal presumed to have low iron bioavailability.

**Design:** Forty-five healthy women with a mean (+/-SD) age of 24 +/- 3 y were randomly assigned to 1 of 3 groups, each of which was served (A) a basic meal (rice, tomato sauce, pea puree, and a wheat roll) and (B) the basic meal with either 25, 50, or 75 g pork (longissimus muscle). Meal A contained 2.3 mg nonheme iron, 7.4 mg vitamin C, and 220 mg (358 mumol) phytate. Each meal was served twice, and the order of the meals was ABBA or BAAB. The meals were extrinsically labeled with Fe-55 or Fe-59. Iron absorption was determined from measurements of Fe-59 whole-body retention and the activity of Fe-55 and Fe-59 in blood samples.

**Results:** Twenty-five grams meat did not increase nonheme-iron absorption significantly (P = 0.13), whereas absorption increased 44% (P < 0.001) and 57% (P < 0.001), respectively, when 50 and 75 g meat were added to the basic meal. In absolute values, this corresponds to an absorption that was 2.6% and 3.4% higher, respectively, than that with the basic meal after adjustment of the data to a level of 40% absorption from a reference dose.

**Conclusion:** Small amounts of meat (greater than or equal to 50 g) significantly increase nonheme-iron absorption from a phytate-rich meal low in vitamin C.

**General information**
- Publication status: Published
- Organisations: Enzyme and Protein Chemistry, Department of Systems Biology
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- Pages: 173-179
- Publication date: 2003
- Peer-reviewed: Yes

**Publication information**
- Journal: American Journal of Clinical Nutrition
- Volume: 77
- Issue number: 1
- ISSN (Print): 0002-9165
- Scopus rating (2003): SJR 2.664 SNIP 2.594
- Web of Science (2003): Indexed yes
- Original language: English
- Source: orbit
- Source-ID: 46099
- Research output: Contribution to journal -> Journal article – Annual report year: 2003 -> Research -> peer-review