2. Title: Dietary Iron Intake of Adult Thai

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This study was undertaken to estimate the dietary intake of iron in adult Thai as part of the evaluation of iron-deficiency anemia in the lower economic groups. In order to obtain this estimate, 5 day stool collections were obtained while the subjects lived at home and ate their usual diet. Correction for gastrointestinal blood loss was made by administering $Cr^{51}$ labelled O-negative erythrocytes and determining the $Cr^{51}$ content of the stool.

A total of 30 patients have been studied. Data for the entire group is given in Table I. The values are considerably skewed by a few very high values. The median value is 13.5 mg/day, with a semi-quartile range of 7.5-15.5 mg/day. The excretion of iron is not correlated with sex, hematocrit, or weight of stool. Intestinal blood loss was negligible; while the greatest loss was 1.5 mg/day (patient 028), the average was 0.35 mg/day.

There are sources of error in this method of estimating dietary intake:

1. The amount of iron absorbed is not measured. This overages 0.5 mg/day for males and 1.0 mg/day for females who are not anemic, and may be considerably higher (up to 2.5 mg/day) in anemic subjects.

2. There is suboptimal control of the patient, so that collections may not be complete. The lack of even a rough correlation between iron excretion and stool weight makes it impossible to determine whether a given specimen is incomplete.

3. Stool markers were not used in this study, so there is no way to be certain that 5 days of collection actually represent 5 days of dietary intake. The onset of constipation or diarrhea during a collection period would therefore tend to under-or overestimate dietary iron respectively.

4. The assay procedure involves acid extraction of the iron, with the possibility that the iron thus measured is less than total iron (as obtained, for example, by ashing).

The resultant of these errors is probably an understimate of the iron intake, especially as only one stool weight, that of subject 022, was in the range which one might expect with diarrhea. With this limitation in mind, the median excretion is certainly on the order of what is recommmended by the Food and Nutrition Board, National Research Council. These values are males (70 Kg) 10 mg/day; females (58 Kg) 12 mg/day. If one considers that the average body weight of the Thai male is 50 Kg and that of the Thai female 40 Kg, the daily requirement for the Thai may be lower than that of Americans by a factor of 0.7. If this group of randomly-selected subjects truly represents the population from which they are drawn, it would appear that dietary iron deficiency is rarely a cause of anemia

It is felt that the work completed has provided a reasonable good answer, and that further work would not result in significant refinement. For this reason the project is terminated.

## Fecal Iron Excretion

| Patient | Sex | VPC | Serum Fe | 5 day stool weight, gm | Fecal Fe, mg/day |
|---|---|---|---|---|---|
| **0-4.9 mg/day (4)** | | | | | |
| 036 | F | 32 | 92.6 | 303.2 | 2.2 |
| 045 | F | 34 | 20.6 | 289.0 | 2.6 |
| 035 | F | 34 | 44.2 | 436.6 | 3.2 |
| 0011 | M | 45 | 95.3 | 175.2 | 3.5 |
| **5.0-9.9 mg/day (7)** | | | | | |
| 0207 | M | 43 | 67.8 | 773.8 | 6.3 |
| 0213 | F | 37 | 112.9 | 418.0 | 7.0 |
| 0083 | F | 39 | 94.9 | 446.6 | 7.1 |
| 0035 | F | 38 | 60.6 | 259.7 | 8.4 |
| 0054H | M | 48 | 63.9 | 1214.4 | 9.6 |
| 0278 | F | 38 | 64.9 | 630.5 | 9.0 |
| SK | F | | | | |
| **10.0-14.9 mg/day (11)** | | | | | |
| 0063H | M | 42 | 105.5 | | 10.7 |
| 0279 | F | 37 | 108.4 | 594.7 | 11.3 |
| 020 | F | 42 | 51.5 | 673.7 | 11.8 |
| 0236 | F | 36 | 65.8 | 774.6 | 11.8 |
| 0234 | M | 45 | 61.0 | 270.3 | 13.4 |
| 017 | F | 36 | 47.4 | 1159.9 | 13.6 |
| 018 | F | 41 | 85.2 | 1083.3 | 13.8 |
| 021 | M | 43 | 53.0 | 375.7 | 13.9 |
| 026 | F | 40 | 65.8 | 873.8 | 14.4 |
| 034 | F | 40 | 111.1 | 1936.2 | 14.4 |
| 019 | F | 40 | — | 712.4 | 16.4 |
| **15.0-19.9 mg/day (3)** | | | | | |
| 024 | F | 40 | 66.8 | 955.9 | 15.7 |
| 019 | F | 40 | — | 712.4 | 16.4 |
| 022 | M | 43 | 58.0 | 2845.4 | 17.5 |
| **20.0-29.9 mg/day (2)** | | | | | |
| 023 | F | 39 | 32.9 | 629.1 | 25.7 |
| 030 | F | 40 | 88.1 | 1558.2 | 28.8 |
| **30.0-39.9 mg/day (2)** | | | | | |
| 029 | F | 38 | 66.8 | 1439.2 | 32.1 |
| 028 | M | 35 | 98.7 | 1474.2 | 36.1 |
| **Greater than 40.0 mg/day (2)** | | | | | |
| 025 | F | 37 | 60.8 | 1095.4 | 55.9 |
| 031 | F | 29 | — | 1561.6 | 51.6 |