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# EFFECT OF LOW AND HIGH FIBRE ON THE APPARENT DIGESTIBILITY OF DIETARY COMPONENTS IN MEN

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The benefits of dietary fibre for humans have recently received much attention (Burkitt and Trowell, 1975). Although Heywood (1975) has reviewed the subject in Australia, there has been little research carried out on the topic here.

Thirteen healthy, male subjects were placed on a low fibre regimen for 22 d; for the next 26 d wheat bran (12 g/d) and whole-meal bread were included in the diet. Two additional subjects remained on the low fibre regimen throughout. During the last 7 d of each regimen subjects took one tablet of 400 mg $Cr_2O_3$ thrice daily, and alternated between two specified menus. For the last four of the 7 d they adhered to one menu. All foods were weighed carefully. At the commencement and end of the last 4 d, subjects also took a gelatine capsule containing 500 mg of carmine to delineate faecal material resulting from the balance period when a total collection of faeces was made. Thus digestibility of the major chemical components in the diet, determined by standard analytical procedures, was measured using both total collection and $Cr_2O_3$.

The low and high fibre regimens contained 6.6 and 12.9% neutral detergent fibre, and 10.5 and 10.9 MJ of digestible energy, respectively. There was no difference ($P>0.05$) between the apparent digestibility of dry matter using total collection and $Cr_2O_3$ (for only six subjects on the low fibre regimen). Average values, using both methods for calculating apparent digestibility coefficients for the major chemical components, are shown in Table 1. Values did not change during the two periods for the two subjects held continuously on the low fibre regimen.

TABLE 1. Mean (±SE) apparent digestibility (%) of chemical components of 13 subjects on a low fibre and high fibre regimen.

| Regimen | Dry Matter | Energy | Nitrogen | Fat | Ash |
|---|---|---|---|---|---|
| Low Fibre | 94.2 (0.3)$^{a**}$ | 94.3 (0.3)$^{a}$ | 89.7 (0.4)$^{a}$ | 97.2 (0.4)$^{a}$ | 82.5(1.3)$^{a}$ |
| High Fibre | 90.6 (0.2)$^{b}$ | 91.7 (0.2)$^{b}$ | 87.5 (0.5)$^{b}$ | 96.8 (0.3)$^{a}$ | 73.9(1.2)$^{b}$ |

** a,b values with the same superscripts are not different ($P>0.05$)

Unlike the other components the digestibility coefficient for fat was not affected by the increased consumption of fibre. On the basis of previously published data, a depression in digestibility of the major chemical components would be expected. However the additional faecal dry matter on the high fibre regimen was not fully accounted for as fibre. Any beneficial effect that bran may have on heart disease apparently is not due to its influence in reducing absorption of dietary fat.

BURKITT, D.P. and TROWELL, H.C. (1975). "Refined Carbohydrate Foods and Disease: Some Implications of Dietary Fibre". (Academic Press: London).

HEYWOOD, P.F. (1975). *Med. J. Aust.* 2: 179.

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