

# This Week's Citation Classic

**Trowell H.** Ischemic heart disease and dietary fiber.  
*Amer. J. Clin. Nutr.* 25:926-32, 1972.

**Fiber, redefined as dietary fiber, contains hemicelluloses, cellulose, pectin, and lignin. This definition has been accepted in Europe and the United States. Lightly processed, high-fiber, high-complex carbohydrate foods protect against ischemic heart disease, the commonest cause of death in the western world. [The SCJ® indicates that this paper has been cited over 195 times since 1972.]**

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"In 1960 after teaching medicine for 30 years in East Africa I wrote a book in which a small suggestion was made that high-fiber African diets might protect against diseases of the colon, such as diverticular disease and colonic cancer.<sup>1</sup> Then I retired to England. In 1970 my younger surgical colleague Denis Burkitt started writing articles about fiber. Then we planned a joint article; eventually we edited a book about fiber.<sup>2</sup> He wrote that I must define fiber. No English or American book on nutrition or gastroenterology or food tables then even mentioned fiber. The *Index Medicus* did not have this heading until 1977. When I discovered this I was stunned; it was certainly in plant foods.

"A few animal foodstuff tables reported fiber as crude fiber, estimating it by a 150-year-old method. Plant foods were extracted by dilute acid, followed by dilute alkali; the dried residue was the crude fiber (CF). Too crude! I wanted a figure for the residue remaining after digestion by human alimentary enzymes. This I defined to be dietary fiber (DF). Wheat white flour contains CF 0.1 percent, but DF 3.4 percent. Some difference!

"Food manufacturers of animal laboratory foodstuffs had published crude fiber figures; but the authors who used these animal foods rarely reported these unimportant data in their articles. Intrigued by this simple observation I examined all animal experiments to produce atherosclerosis; many articles reported that high-fiber foodstuffs reduced serum cholesterol levels. There had been few experiments in human volunteers to test this idea.

"As ischemic heart disease is the commonest cause of death in the western world and high serum cholesterol levels are a risk factor, interest in fiber therefore grew rapidly. Subsequently no 'cures' of ischemic heart disease have been reported, but the milder form of this disease —angina— has disappeared fairly often in patients taking low-salt, high-fiber, high-complex carbohydrate, low-fat diets; they stop all drugs.<sup>3</sup> But then my Kikuyu patients ate this type of diet in 1930 and had virtually no ischemic heart disease."

1. **Trowell H C.** *Non-infective disease in Africa*. London: Arnold, 1960. 481 p.
2. **Burkitt D P & Trowell H C**, eds. *Refined carbohydrate foods and disease. Some implications of dietary fibre*. London: Academic Press, 1975. 370 p.
3. **Trowell H C & Burkitt D P**, eds. *Western diseases: their emergence and prevention*. London: Arnold, 1981. In press.