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LETTER TO THE EDITOR

Insoluble fiber and intestinal microbiota metabolism

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Goldsmith and Sartor [1] recently published in your journal an original paper entitled "The role of diet on intestinal microbiota metabolism: downstream impacts on host immune function and health, and therapeutic implications." The authors reviewed the current knowledge of potential diet and gut microbiota-mediated pathophysiology. Most interestingly, they reported evidence that short-term diet manipulation has little effect on *microbial composition*, but very rapidly shifts *microbial gene expression* in mice.

I write to suggest publication of a comprehensive review of cellulose and wheat bran mechanisms related to microbiota metabolism. The authors repeated a growing misconception [2] by stating that these two insoluble fibers are not fermentable carbohydrates—further obscuring the benefits of insoluble fiber. In 1984, Denis Burkitt [3] described a lack of cereal fibers as "predominantly incriminated" in the prevalence of gastrointestinal diseases associated with Western diets, and ensuing research provides supportive rationale for Burkitt's hypothesis.

It has been shown that 34 % of the fiber (cellulose) in wheat bran is fermented in humans [4]. In pigs, it was shown that wheat bran improves the delivery of short-chain fatty acids to needy host tissues *by shifting the fermentation of resistant starch distally* [5]. Recently, cellulose ameliorated colitis in mice [6], and wheat bran improved quality of life and Crohn's disease symptoms in humans [7]. Regarding microbial gene expression, the *phytase activity of wheat bran is unsurpassed* [8]; thus, wheat bran may potentially prevent shifts in microbial gene expression toward invasiveness, by boosting phosphate availability [9].

Comprehensive and accurate conceptualization of insoluble fiber is an important step in informing future diet research and translational dietary recommendations.

Conflict of interest The author declares that she has no conflict of interest.

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