



Dietary fiber and constipation

Dear Editor,

We would like to provide extra information to the readers about the role of dietary fibers in the treatment of chronic constipation in children, in response to the contents of the editorial¹ commenting on our research paper that was published in the *Jornal de Pediatria*.²

Our experimental study,² demonstrated that fiber from soy polysaccharide produced humid fecal weight in rats similar to that produced by cellulose, as a result of its greater fecal humidity. The cellulose, in turn, was associated with greater dry fecal weight. Assuming that drier feces (lower humidity), theoretically, are eliminated with greater difficulty, it can be stated that the soy polysaccharide, hypothetically, should be of greater efficacy for the treatment of constipation, in the event that the effect observed with rats is reproduced with constipated children. In other words, the results of our experimental study² confirmed that our decision to plan a clinical trial of the efficacy of soy polysaccharide for the treatment of children with chronic constipation, had a sound basis in terms of the type of supplementary dietary fiber chosen. Preliminary results of the aforementioned clinical trial were presented at a convention as was duly reported³ in our article² and submitted as a doctoral thesis at the end of 2003.⁴ This being so, it should be recorded that there was an error in the editorial¹ on our research paper, which incorrectly attributed to Freitas et al.² authorship of the clinical trial that was actually undertaken by Motta et al.,^{3,4} including the last sentence ("It is within this context that we insert the laudable attempt to treat constipated children with a commercial product containing soy polysaccharide.") which referenced our experimental study.² It appears that the author of the editorial believes that, soy polysaccharide, despite its chemical characteristic of being analytically insoluble, is more susceptible to fermentation due to its producing greater fecal humidity, thus exhibiting one of the characteristics of soluble fiber, which, probably, she considers unsuitable for the treatment of constipation. The results of our research paper² do not support this hypothesis, based on total weight and fecal humidity. From a wider perspective, with respect of which is the better alternative for the treatment of constipation, soluble or insoluble fiber, one can state: 1) the majority of fibers on sale in our country and indicated for the treatment of constipation are soluble (this does not mean that they are effective, and in our opinion should be assessed in controlled clinical trials); 2) the only two comparative articles on the effects of dietary fiber for the treatment of constipation in children used glucomanan, a soluble fiber.^{5,6} It is worth pointing out that these two articles^{5,6} were published in high-

impact journals by authors with a great deal of clinical and scientific experience in the treatment of constipation. These comments should not be taken as an endorsement of the use of soluble fibers for constipation treatment. In fact, in our first systematic attempt at dietary therapy for constipation in children, we recommend the use of a diet with increased levels of foods that are rich in dietary fiber, that are a normal part of the population's dietary habits, and which contain both soluble and insoluble dietary fiber.⁷

In the editorial a comment is also made that, "While these methodological questions are being discussed (...). Wheat bran, because of its high level of insoluble fiber (lignin, cellulose and non-cellulosic polysaccharides) and high pentose levels, appears to be the ideal fiber, which has been confirmed in several studies of constipated adults".⁸ The article referenced⁸ is a study of eight adults with no gastrointestinal abnormalities, i.e. without constipation. It does not, therefore, back up what is being claimed. The study, undertaken by Tomlin & Read⁸ demonstrated that rice bran resulted in a greater fecal weight and a higher number of evacuations per week than did wheat bran.

Another point made in the editorial is the following: "The authors (of our research paper)² could also reward us with the reverse path, investigating, in children, whether supplementation with products containing large quantities of cellulose is more effective for dry fecal weight than those with soy polysaccharide and if this has a beneficial effect on chronic constipation. It would also be interesting to test the effects of the different supplements on rats previously fed a DF-free diet, to better simulate the clinical condition of constipated children." We are grateful for this suggestion and in return suggest that the author of the editorial shares with the pediatric community her clinical experience with wheat bran for constipation treatment.⁹ In such a report suggestions of how to assure compliance to a wheat-bran rich diet for a year, the techniques used to include wheat bran in the diet, the methods used to assess dietary fiber consumption both before and during treatment and also the criteria used to define efficacy would all be very welcome.

It is worth remembering that chronic functional constipation in children is the result of the interaction of multiple factors.¹⁰ For this reason it is unlikely that dietary fiber alone, whether soluble or insoluble, is the only element that is capable of and indispensable to preventing and treating all cases of constipation. Other patient factors must also be taken into account within a perspective of total care when making diagnostic and treatment decisions.

To end, in our opinion there remain many controversies and much yet to be studied with respect of dietary fibers and their beneficial effects on human health. In this context new means of conceptualizing total fiber as the sum of soluble, insoluble and functional fiber, the need to develop food fiber content tables based on this new concept, the importance of the prebiotic action of certain types of

compounds that act like dietary fiber, the use of supplements containing many different types of dietary fiber that act in distinct parts of the colon, among other subjects, all point to the need to perform much experimental and clinical research into this important field of knowledge.

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Author's reply

Dear Editor,

Prof. Morais, author of the above letter, and I agree to a great extent on the theoretical basis of constipation and dietary fiber, it is only our approach with respect to diet/medication that is a bit different.¹ Therefore, a few small misunderstandings that took place in the editorial² can be easily elucidated. In particular those referring to the bibliographical citations, which were the result of the requirement to limit the number of references to 10. Thus, in the second paragraph of the article that merited our editorial,² Freitas et al.³ stated that, "We performed, at our unit, a randomized, double-blind clinical trial to evaluate the efficacy of a soy polysaccharide fiber supplement for the treatment of chronic functional constipation in children, (...). Because the preliminary results of that study did not confirm the expected efficacy of polysaccharide fiber for chronic constipation treatment (this is where the work by Motta et al. was cited), the current experimental project was designed ...". From this, the readers and I were induced to think that what prompted the experimental research was a lack of efficacy observed in the clinical trial, in contrast with what the correspondents have now explained, but I do not believe that the order of these factors has great relevance to the matter. In my editorial,² it was stated that: "The paper by Freitas et al., in the current issue, also MENTIONS a lack of efficacy when soy polysaccharide was used in children with chronic functional constipation and is an excellent example of experimental investigation based on clinical observation." As the reference of Motta et al.⁴ was cited in the article by Freitas et al.,³ it appeared to us that the use of the word MENTIONS was adequate, although for greater clarity, perhaps "cites a **prior clinical trial**" by the same team (Motta et al.), in which ... could have been used. Unfortunately, in the attempt to avoid including the additional citation, the confusion between the papers by Freitas et al.³ and by Motta et al.⁴ was reproduced in the last paragraph of the editorial,² as the correspondents pointed out. It should be pointed out that to a certain extent the error was minimized by stating that, "Therefore, in our view, the results of the **prior clinical trial** were not unexpected, but the **experimental results from the article in question** were, to a certain extent, surprising." It should also be clear that the statements in this sentence are the result of a wide-ranging previous discussion, on the characteristics of fibers in general and of soy polysaccharide in particular, based on the literature cited in the editorial,² and are not my personal considerations, as the correspondents appear to suggest ("the author of the editorial believes...").

With respect to the employment of wheat bran for constipation treatment, in order to avoid another bibliographic reference in the editorial² (the 11th), a reference that had been cited earlier was used and, while this was a study of volunteer adults WITHOUT constipation,⁵ it cites, among others, a meta-analysis by Müller-Lissner, which evaluated work done with constipated adults studied by crossover.⁶ I am grateful for the chance to draw attention to this and cite in the references for this letter, in addition to that meta-analysis, from 1988,⁶ a subsequent double-blind controlled study.⁷ These studies demonstrated the beneficial effects of wheat

bran in constipated adults, as stated in the editorial.² Furthermore, the use of wheat bran for adults is consecrated and is included in the majority of recommendations for dietary treatments, including those of the American Gastroenterological Association (AGA)⁸ and of Heaton, from the United Kingdom, a recognized expert on the subject, and who, in a textbook chapter⁹ cites further work with wheat bran for constipated adults, and which, while uncontrolled or published some decades ago, cannot be undervalued.

The most often quoted problem with respect to wheat bran use has been difficulties with patient acceptance. However, in my long experience of treating constipated children with wheat bran and also in the experience of other members of the pediatric gastroenterology course at the School of Medicine of Botucatu, UNESP, this difficulty is not significant over the short and medium terms,¹⁰ which is the time scale over which supplementation is most necessary. The correspondents suggest that our experience be shared with the pediatric community, which is in fact happening, through lectures and several book chapters/reviews, including with the collaboration of Prof. Morais himself, one of which has been cited already.¹ More detail will be offered in future publications in journals. It should be explained that at no point in the editorial² was it stated that "dietary fiber is the only element capable of and indispensable to preventing and treating all cases of constipation...". The editorial² does indeed, however, contain the following, "...it is up to clinicians to find ways of making constipated children accept a diet..., IN ADDITION TO PERFORMING NECESSARY INTERVENTIONS..."

Indeed, as the correspondents state, a large proportion of commercial fibers on sale in our country is soluble, but in the form of medication, which simply reinforces our decision to use the food product wheat bran. With respect of the glucomannan soluble fiber, referred to by the correspondents, I would like to remind that it has been indicated for the treatment of obesity,¹¹ because it is one of the most viscous of fibers, which increases satiety and this effect on constipated children is worthy of evaluation.

The final questions raised by the correspondents are extremely pertinent. In addition, without any doubt whatsoever, randomized controlled clinical trials are still necessary and, if possible double-blind ones, in order to elucidate the role played by the different types of dietary fiber in constipated children. Whilst we await the results of such studies, each service should evaluate the therapeutic regimen it considers most adequate in the face of already existing evidence and the difficulties encountered in their own experience.

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Antenatal corticosteroid use and clinical evolution of preterm newborn infants

Dear. Editor

At the service for which I work there is a very interesting situation with respect of mortality rates: they are high primarily as a result of later death and of newborn babies (NB) with weights that, normally, would not be associated with death in developed countries. It is true that the use of antenatal corticosteroids has been increasing, and, together with this, the rates of pulmonary problems have reduced greatly, primarily when associated with the use of nasal continuous positive airway pressure (CPAP). Using logistic regression with a multivariate model in a study of four important maternity hospitals in Rio de Janeiro,¹ we found that ventilator usage, birth weight less than 1,250g, maternal vaginal hemorrhage and the male sex were all variables associated with a risk of death, with the use of pulmonary mechanical ventilation the primary indicator of death. The use of antenatal corticosteroid, caesarian delivery and total parenteral nutrition were all associated with reduced mortality. The use of pulmonary surfactant was shown to be associated with a risk of death, but without statistical significance. Currently the greatest cause of death after the fourth day of life is respiratory problems followed by neonatal sepsis. In conclusion, we are reducing hyaline membrane disease and its severity, but if the children remain on mechanical ventilation for more than 4 days they will be contaminated and die from