of colorectal tumours but possibly not in all cases.

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Analysis of the absolute risks in coeliac disease indicates the importance of the prevention of osteoporosis

In their article reviewing recent advances in coeliac disease (*Gut* 2006;**55**:1037–46), the authors discuss the impact of clinically diagnosed coeliac disease, including the two most recognised complications of osteoporotic fracture and malignancy. Their analysis correctly concludes that there is now reasonably precise information of the actual risks to patients of osteoporosis, lymphoma and other malignancies, but they describe the overall risk of fractures as being “at most moderate”. They miss, however, the opportunity to compare the absolute risks of these complications, which suggest in fact that osteoporosis prevention should remain the principal concern of long-term care in this condition.

The relative and absolute risks of fractures were well described in an important population-based cohort of patients with 4732 disease, using data from the UK General Practice Research Database between 1987 and 2002, by West *et al*¹ These authors also published data on the risks of malignancy in the same cohort of patients with disease over the same period.² Data from these two papers have been extracted and combined in table 1.

The hazard ratios for fractures are between 1.3 (for any fracture) and 1.9 (hip fracture at any age). The ratios for lymphoproliferative disorders are higher, and differ according to whether this is in the first year after diagnosis (7.32) or subsequently (3.40). But, as fractures are common in the control population, and lymphomas are rare, it is illuminating to look at absolute numbers and not just ratios.

The difference in the absolute number of lymphoproliferative diagnoses between patients with coeliac disease and controls (6/10 000 person-years after the initial year) is lower than the differences in numbers of hip fracture after age 45 years (10/10 000 person-years), ulna/radius fracture (9/10 000 person-years) and less than one-fifth of that for any fracture (32/10 000 person-years).

Hip fractures usually occur in extreme old age, in the 80s and 90s, but only 204 (4.3%) of the patients studied in this cohort were >75 years of age. In this age group, the absolute difference observed in patients with coeliac disease was 24/10 000 person-years. Although in patients with coeliac disease there

Table 1 Reported numbers, hazard ratios and rates for fractures, malignancy and lymphoproliferative disorders in a cohort of patients with coeliac disease^{1 2}

	Number of cases in coeliac cohort	Hazard ratio	Rate per 10 000 person-years		
			Controls	Patients	Difference
Any fracture	356	1.3	106	138	32
Hip fracture	24	1.9	5	9	4
After age 45 years	–	–	–	–	10
After age 75 years	–	–	–	–	24
Ulna/radius fracture	67	1.77	14	25	9
Any malignancy	134	1.31	–	–	–
In first year after diagnosis	–	2.07	53	104	51
After first year of diagnosis	–	1.1	57	62	5
Lymphoproliferative disease	23	4.27	–	–	–
In first year of diagnosis	11	7.32	3	26	23
After first year of diagnosis	12	3.40	2	8	6

may be a slight increase in mortality, the increase occurs in the years immediately after diagnosis,³ and most would expect to live past 75 years of age. The lifetime risk of a 50-year-old white woman having a hip fracture is estimated to be about 16%⁴ and this seems to be increasing.⁵ In patients with coeliac disease, a hazard ratio approaching 2 implies that an additional 10–16% might expect to have a hip fracture related to their disease. Also, it should also be noted that the only data from this coeliac cohort for vertebral fractures are unpublished except in this review, but showed a rate ratio of 1.5. These are the most common type of osteoporotic fractures, with estimated lifetime risks of 32% in women,⁴ which are often undiagnosed but a considerable source of morbidity. Other data have shown that patients with coeliac disease detected in screening programmes have similar degrees of osteopenia to those with symptoms.⁶ However, screening for coeliac disease in all patients with reduced bone mineral density has a low yield in the absence of gastrointestinal symptoms or anaemia.⁷

We cannot be certain that younger patients with coeliac disease will experience these same risks as they age, as poor nutrition in childhood may have been a greater factor in the older group of patients. However, as the risk of diagnosing lymphoproliferative disease, like other malignancies, is highest around the time of diagnosis of coeliac disease, but the risk of osteoporotic fracture rises with age, this becomes an increasing, and justified, concern. Apart from a gluten-free diet, little can be done to prevent or treat coeliac-associated lymphoma, but there are many interventions available for osteoporosis that may be considered.⁸ Patients with coeliac disease will continue to require appropriate and rational guidance on how to prevent this complication of their condition, which should now be recognised as their most important long-term medical concern.

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Author's reply

In his letter, Dr Walters presents data extracted from two of our papers on the fracture, malignancy and mortality risks of people with coeliac disease.^{1 2} I agree that the risks of hip and vertebral fracture increase with age but his implication that further interventions for people with coeliac disease to prevent these fractures is justified lacks empirical evidence. From our own data we have reasonably precise measures of the absolute risks of fracture yet how important these increased risks are remains a matter of interpretation.

For example, another way of describing the excess rate of 24 hip fractures per 10 000 person years in people with coeliac disease over the age of 75 years is to imagine that you have 100 people with coeliac disease in your clinic over the age of 75 years that you are going to follow up for 10 years. During that time we would expect an extra two or at most three hip fractures to occur compared with that expected in the general population. To attempt to prevent these few fractures we would need to use an intervention that, at the very least,