Bone density and milk

Consider fat as well as calcium intake

EDITOR,—Sean Murphy and colleagues concluded that milk consumption should be encouraged during childhood and adolescence to prevent osteoporotic fractures in later life.[1] This, however, prompts several questions.

Firstly, the subjects in the authors' study were asked to categorise their milk consumption without estimating their past total calcium intake. It is known that many subjects who do not drink milk consume other dairy products (cheese and ice cream). Secondly, the subjects had to recall their milk consumption up to age 25, which was a long time before the study (50 years for the 74 year old woman). It could as well be concluded that good memory makes strong bones or vice versa.

If the results are reliable they lead to an interesting speculation. It is known that calcium supplementation increases bone mass in childhood.[2] This does not occur later in life. Might calcium, or some other agent in dairy products, affect the developing bone in a way that later in life allows calcium intake and maintains high mineral density?

I strongly disagree with the public health implications cited by Murphy and colleagues. Dietary habits are learnt in childhood and adolescence and commonly followed throughout life. Before milk is recommended other important factors should be considered. Based on the facts in Robert Lindsay and Jeri Nieves's editorial, at least three or four glasses of milk a day should be recommended.[3] If this is the case the fat intake and its effects on cardiovascular complications, through increasing lipid concentrations, should be taken into account. Atherosclerosis leading to an early death or to vertigo followed by falling over and fractures in later life is a reason for restricting milk consumption. Additionally, a high percentage of subjects are intolerant to lactose; for them at least, calcium pills would be better. The consequences to the dairy industry would then be that its production should be geared towards low fat products of cheese, milk, and ice cream.

Osteoporosis deserves to be examined—its mechanisms and prevention and treatment. But recommendations to drink or not drink milk should not be made before all possible factors, not just osteoporosis, have been taken into account.

KAIJA SEPPÄ
Acting associate professor

Department of Public Health,
University of Tampere,
Box 607,
FIN-33101 Tampere,
Finland

1 Murphy S, Khaw K-T, May H, Compston JE. Milk consumption and bone mineral density in middle aged and elderly women. *BMJ* 1994;**308**:939-41. (9 April.)
2 Johnston CO, Miller JZ, Slemenda CW, Reister TK, Hui S, Christian JC, *et al.* Calcium supplementation increased bone mineral density in children. *N Engl J Med* 1992;**327**:82-7.
3 Lindsay R, Nieves J. Milk and bones. *BMJ* 1994;**308**:930-1. (9 April.)

Exercise and body size influence bone density

EDITOR,—Sean Murphy and colleagues show a relation between milk consumption before the age of 25 and hip bone mineral density.[1] Willett has shown that the consumption of nutrients is a function of energy intake, which in turn will be related to body size and physical activity.[2] Although Murphy and colleagues examined the data with regard to present body mass index and level of physical activity, the possibility cannot be excluded that calcium intake before the age of 25 was then related to exercise and body size. As these factors also influence bone mineral density the association with calcium intake may be spurious.

ALISON AVENELL
Research registrar

Department of Clinical Biochemistry,
Aberdeen Royal Hospitals NHS Trust,
Aberdeen AB9 2ZB

1 Murphy S, Khaw K-T, May H, Compston JE. Milk consumption and bone mineral density in middle aged and elderly women. *BMJ* 1994;**308**:939-41. (9 April.)
2 Willett W. *Nutritional epidemiology.* Oxford: Oxford University Press, 1990:245-71.

Target schoolchildren for intervention

EDITOR,—The paper by Sean Murphy and colleagues[1] and the editorial by Robert Lindsay and Jeri Nieves[2] are forceful reminders that the seeds of osteoporosis are sown not at the menopause but in childhood. The prevalence of osteoporosis is broadly determined by peak bone mass, rate of bone loss after the menopause, and longevity. While debate continues about the advisability of offering bone sparing regimens to healthy but osteopenic women at the menopause, there can be little controversy over advocating that children and adolescents should achieve the maximum possible bone mass.

The withdrawal of school milk from British children in the early 1970s may prove to have been a nutritional error, although no British study has tried to determine whether its effect, if any, can be teased out from the other factors contributing to secular trends in bone mass. The other main factor promoting acquisition of bone is physical exercise, and it is therefore disheartening to hear of the National Union of Teachers' rejection of the proposal by the sports minister to include five core sports in the schools' curriculum. The encouragement of physical sports and the inculcation of the sporting habit and a love of games are surely essential parts of education, with dividends not only in personal achievement but in health.

The profession should note the need for health promotion among our generally healthy children. The battle against osteoporosis cannot be won on the playing fields of our schools, but the environmental and nutritional determinants of peak bone mass require more precise descriptions in terms of their duration of operation, their interrelation, and their contribution to the variance in bone mass. Postmenopausal osteoporosis has been well described as a paediatric disease. Unfortunately, the bones of children are invisible, bone accretion is asymptomatic, and a poor peak bone mass may be compatible with health.

The retrospective observation by Murphy and colleagues that milk consumption in childhood correlates with peak bone mass should lead to interventional studies among children.

D W PURDIE
Director

Postgraduate Education Centre,
Hull Royal Infirmary,
Kingston upon Hull HU3 2JZ

1 Murphy S, Khaw K-T, May H, Compston JE. Milk consumption and bone mineral density in middle aged and elderly women. *BMJ* 1994;**308**:939-41. (9 April.)
2 Lindsay L, Nieves J. Milk and bones. *BMJ* 1994;**308**:930-1. (9 April.)

> Letters should be no more than 400 words long, should contain a maximum of five references including one to the *BMJ* article to which they refer, and must be typed with double spacing. All authors need to sign the letter and provide their current appointment and address. Please enclose a stamped addressed envelope if you require an acknowledgment. First reports of original research are not published in the letters section.

Low recruitment rate may introduce selection bias

EDITOR,—Sean Murphy and colleagues state a recruitment rate of 54% for the bone mineral screening programme in Aberdeen.[1] We would like to point out that this applies to a subgroup of 400 women who took part in a trial comparing recruitment methods for the programme.[2] Our further trial of recuitment methods showed a response rate of 77% (open invitation plus a fixed appointment reminder).[3]

For epidemiological research Murphy *et al*'s recruitment rate, which is much lower than ours, is a matter of concern—particularly as we have shown that non-attenders have significantly different characteristics from attenders (including bone mineral density).[4] In addition, our current research indicates that those who require a reminder (23% of those who attend) show significantly different characteristics from attenders who do not require one (including bone mineral density for 50-54 age group).[5] Our research indicates that selection bias does occur, which challenges whether the findings of the study by Murphy and colleagues can be generalised to middle aged and older women in the community.

R E THOMAS
Research assistant
D J TORGERSON
Research fellow
D M REID
Consultant rheumatologist

Health Services Research Unit,
University of Aberdeen,
Aberdeen AB9 2ZD

1 Murphy S, Khaw K, May H, Compston JE. Milk consumption and bone mineral density in middle aged women and elderly women. *BMJ* 1994;**308**:939-41. (9 April.)
2 Garton MJ, Torgerson DJ, Donaldson C, Russell IT, Reid DM. Recruitment methods for screening programmes: trial of new method within a regional osteoporosis study. *BMJ* 1992;**305**: 82-4.
3 Torgerson DJ, Garton MJ, Donaldson C, Russell IT, Reid DM. Recruitment methods for screening programmes: trial of an improved method within a regional osteoporosis study. *BMJ* 1993;**307**:99.
4 Torgerson DJ, Donaldson C, Garton MJ, Russell IT, Westland M, Reid DM. Population screening for low bone mineral density: do non-attenders have a lower risk of osteoporosis? *Ost Int* (in press).
5 Thomas RE, Torgerson DJ, Reid DM. Selection bias: implications for osteoporosis screening programmes [abstract]. *Current research in osteoporosis and bone mineral measurement iv: 1994*, Bath: BIR (in press).