News in Brief

DAIRY INTAKE IN CHILDHOOD MAY IMPROVE BONE HEALTH

The long-term effect of dairy consumption in childhood on bone health was examined. A prospective study conducted over 12 years in the Framingham Children's Study (FCS) investigated the bone mineral content (BMC) and bone area (BA) for total body and in 6 regions (arms, legs, trunk, ribs, pelvis and spine) in adolescents aged 15 to 17 years old. 84 complete sets of data were utilised, and dietary intake was assessed using 3-day food diaries collected throughout the study. The dairy content was defined by combining the FCS food diary data with the Food Pyramid serving database from the USDA's Continuing Survey of Food Intake by Individuals. To estimate average servings of dairy per day over all years, the study first estimated average intake at each age and then took the average intake over all ages during the exposure period of interest.

Using a Lunar DPX-L scanner, BMC and BA were assessed when the children were 15 to 17 years old. BMC was estimated by continuous scanner sampling across all body areas, and BA was used as a secondary outcome. BMC and BA were also measured for the 6 individual regions. Factors such as physical activity were ascertained using a questionnaire.

Results indicated that children consuming 2 or more servings of dairy per day were on average slightly more active and watched less television than those consuming less. Higher dairy intake was associated with greater caloric consumption together with higher intake of beneficial micronutrients. Children consuming 2 or more servings of dairy per day were taller and heavier but had a lower BMI than those consuming less. Consuming 2 or more dairy servings per day was associated with significantly higher BMC; 175 gm higher than that of children consuming less ($p = .009$) and BA. Effects were weaker when dairy intake was examined at different age periods rather than average dairy throughout childhood. Intake at 13 to 17 years of age was a stronger predictor of bone health than was intake at earlier ages. For example, consuming 2 or more servings of dairy per day at 13 to 17 years of age was associated with an adolescent BMC that was 113 gm higher than that of lower dairy consumers ($p = .063$). Higher dairy intake at 3 to 6 years of age was only associated with a BMC that was 29 gm higher ($p = .612$) than that of children with lower intake, and the effects at 7 to 11 years of age were intermediate. Thus, the strongest predictor of bone health was mean dairy intake during all childhood years preceding the bone scan.

The combined effects of dairy and foods in other USDA food groups were also explored. Children having high intakes in both dairy and meat/other non-dairy proteins had the highest BMC (3090.1g) and those with low intakes of both foods had the lowest BMC level (2740.2g). The study also found that consumption of 2 or more servings of dairy per day throughout childhood years led to higher BMC levels by the time of adolescence in all individual regions, but especially in the arms, legs, trunk, ribs and pelvis.

Dairy is a key dietary source of vitamin D, a nutrient essential for efficient intestinal

Page 27 ▶

◀ Page 26 – News in Brief

absorption of calcium. Dairy proteins like whey may also affect acquisition of bone by increasing osteoblastic activity and reducing the osteoclastic process. Whey protein has also been shown to suppress bone resorption; thus indicating the possibility that dairy protein could provide beneficial effects on bone mineralisation in children.

Findings from this study indicate the importance of a diet rich in dairy and other protein sources on adolescent bone mass, and adds to the understanding of longer-term effects of dietary patterns on bone health in growing children. However, the authors also caution the sample size of the FCS, which yields limited power for stratified analyses.

Source: Moore L et al. Effects of average childhood dairy intake on adolescent bone health. Journal of Paediatrics DOI: 10.1016/j/jpeds.2008.05.016

BREATHING EXERCISES FOR ASTHMA

Asthma is characterised by respiratory symptoms, variable airflow obstruction, airway inflammation and hyper-responsiveness. Patients may express concern about medication, and many apply non-pharmacological and complementary therapies including breathing modification techniques. It was hypothesised that breathing retraining would improve asthma health status and asthma control without changing objective physiological and inflammatory markers.

A prospective, parallel group, single-blind, randomised controlled trial compared breathing training (BT) with asthma education (to control for non-specific acts of clinician attention). Subjects were randomised to receive 3 sessions of either physiotherapist-supervised BT (n = 94) or asthma nurse-delivered asthma education (n = 89). Results were collated using the Asthma Quality of Life Questionnaire (AQLA) score, with secondary outcomes including spirometry, bronchial hyper-responsiveness, exhaled nitric oxide, induced sputum eosinophil count and Asthma Control Questionnaire (ACQ), Hospital Anxiety and Depression (HAD) and hyperventilation (Nijmegen) questionnaire scores.

In the BT group, explanations of normal breathing and effects of "dysfunctional breathing" was provided. Subjects were taught appropriate regular diaphragmatic and nasal breathing techniques and encouraged to practice these exercises daily. Non-specific effects of professional attention were controlled for by allocating similar sessions with a health professional, using an asthma nurse who delivered asthma education. The control group received information on asthma, atopy concepts and treatment rationale but was not provided personalised asthma advice.

AQLQ changes and secondary outcomes were compared and analysed 1 and 6 months after the intervention. At the primary outcome, significant improvements were found in the AQLQ scores following both BT and control groups; the mean (95% confidence interval) change in AQLQ was 0.92 units in the BT group and 0.88 in the control group. However at the 6-month assessment, the improvement from baseline in the BT group was 1.12 compared with a smaller change of 0.74 in the control group, with significant between-groups difference of 0.38.

Secondary outcomes from the ACQ found non-significant trends favouring the BT group at the 6-month assessment. There were significant reductions in the HAD Anxiety and Depression scores for both groups, and there was no significant difference at 1-month following intervention. At the 6-month assessment, between-group differences were observed favouring the BT group in both scores.

Results of the study indicated that physiotherapist-supervised breathing retraining programme was found to be associated with improvements in the primary outcome. At the 6-month assessment, a significant difference was observed between the groups, confirming a specific benefit associated with the breathing programme. Although adults with asthma who were taught breathing exercises showed improvements in health status, symptoms and psychological well-being, these exercises did not alter objective measures of airway hyper-responsiveness or inflammation, and thus cannot replace the need for anti-inflammatory medication. This study suggests that breathing exercises may have a role in patients with sub-optimally controlled mild to moderate asthma, but authors recommend that the use of such techniques must occur with patient education on the ongoing need for anti-inflammatory pharmacotherapy. ■

Source: Thomas M et al. Breathing exercises for asthma: A randomised controlled trial. Thorax DOI:10.1136/thx.2008.100867