

Fitness Level Is Reduced 20% in Teens With JIA

BY JANE SALODOF
MACNEIL
Southwest Bureau

VERSAILLES, FRANCE — A Dutch study of 21 adolescents with juvenile idiopathic arthritis found significant impairment in anaerobic fitness when the youngsters were asked to ride a bicycle as fast as they could.

At peak power, girls reached only 53% of the anaerobic fitness predicted for their weight, while boys did only slightly better, at 71%. Both genders also showed moderate impairment in aerobic fitness at peak power: The girls performed at 78% of predicted levels, and the boys performed at 83%.

"Their fitness is about 20% reduced, compared to normal children. ... They don't feel at ease with exercise," researcher Otto Lelieveld, a physical therapist, said in an interview at the annual scientific meeting of the European Pediatric Rheumatology Congress, where he presented the results in a poster.

Nine boys and 12 girls, aged 16-18, took part in the study. On average, 7.6 years had elapsed since the boys were diagnosed, and 8.9 years had elapsed for the girls.

The teenagers were required to perform the Wingate sprint test.

Mr. Lelieveld of University Medical Center Groningen (the Netherlands) described this as 5 minutes of steady bicycle riding at low speed, followed by a 30-second sprint at peak power.

Study participants did slightly better in measurements of mean power, both aerobic and anaerobic, during the first part of the test, but still showed moderate impairment. In the measurement of muscle endurance, the boys achieved 78% of the mean anaerobic fitness predicted for their weight; the girls achieved 68%. Mean aerobic fitness reached 83% of prediction for the boys and 78% for the girls.

Based on these results, Mr. Lelieveld and his coinvestigators called for the development of exercise programs with more anaerobic and aerobic training for children with juvenile idiopathic arthritis.

"We know now from adult rheumatology that physical therapists are training at too low a level," he said.

The children also are afraid to train themselves, he added. "When they are in remission they can have more pain than in the period when they are acute," he said. "When they start functioning at a higher level, they put more strain on their joints. It is like a vicious circle." ■

Foot Orthoses a Quick Fix for Kids With Idiopathic Arthritis

VERSAILLES, FRANCE — Custom-made foot orthoses produced immediate and significant benefits for juvenile idiopathic arthritis patients, according to the results of a study conducted in Stockholm.

Youngsters with cavovarus foot position showed the most pronounced improvements when they began wearing the device, investigator Marie André reported in a poster at the 12th European Pediatric Rheumatology Congress.

Children with oligoarthritis and polyarthritis had better results than those with enthesitis-related arthritis, according to Ms. André of Astrid Lindgren Children's Hospital at Karolinska University Hospital, and her colleagues.

"We know children need to be physically active," she said in an interview at the meeting. "If you give them orthoses, there may be pain relief and ... improvements in balance, and then maybe they can be more physically active."

The youngsters, aged 8-17 years, performed five standardized capacity tests with and without orthoses: standing, jumping, running, climbing stairs, and walking

200 meters at their own pace. The researchers recorded walking and running times, and assessed balance capacity. With each test, the children rated their pain on a visual analog scale.

The most pronounced improvements were in balance and in pain scores while running. For each measure, 34 children had better results with their orthoses while 5 saw no change, and 9 fared worse.

Many children did significantly better on the timed walking test (31 improved, 3 unchanged, 14 worse). Pain scores were significantly improved when the children were standing (26 better, 14 unchanged, 8 worse), and climbing stairs (27 better, 10 unchanged, 11 worse).

The differences in pain while jumping and walking were not significant, however. Likewise, while 19 children had better running times with orthoses, 16 saw no change, and 13 performed worse.

"In this study we looked at improvement in immediate effects, but orthoses are a long-term treatment, and we are planning a long-term study, too," she said.

—Jane Salodof MacNeil

ALTERNATIVE MEDICINE

AN EVIDENCE-BASED APPROACH

Fasting for Rheumatoid Arthritis

History and Rationale for Use

Fasting was a central component of many ancient medical and spiritual systems, but its modern use began in the United States with the natural and physical medicine movements of the late 19th century. Enthusiasm for the practice burgeoned until, in 1912, a practitioner in the Pacific Northwest, Linda Burfield Hazzard, was brought to trial, found guilty of manslaughter, and sent to prison following the starvation death of a wealthy young Englishwoman under her care.

Although the practice of fasting subsequently fell from favor in the United States, it experienced a resurgence in Europe in the 1950s, particularly in Germany and Scandinavia, where patients can receive the treatment at spas and clinics.

Fasting leads to neuroendocrine changes, as was seen in an investigation of 22 patients with chronic pain conditions who participated in a 7-day fast. These patients had significant increases in urinary concentrations of noradrenaline, adrenaline, and cortisol, while control patients following a vegetarian diet showed no changes (*Nutr. Neurosci.* 2003;6:11-8).

Many patients with rheumatoid arthritis (RA) have reported benefits from dietary therapies such as fasting, and various hypotheses have been proposed to explain this. One suggestion is that alterations in gut microflora and changes in bacterial substances absorbed via the intestinal mucosa may influence inflammatory activity in the joints (*Am. J. Clin. Nutr.* 1999;70[suppl.]:594S-600S).

The Essen Experience

In Essen, Germany, at the department of integrative medicine, Kliniken Essen-Mitte, a large prospective outcome study found significant benefits from a 7-day fasting program among inpatients with various chronic pain conditions including RA, osteoarthritis, fibromyalgia, and migraine.

Patients typically stay at this clinic for 10-14 days and undergo a program of lifestyle modification and mind-body medicine. Treatment costs for the program are reimbursable in the German health care system.

The clinic, which was founded in 1999, expanded in 2001 and began offering medically supervised therapeutic fasts to all patients except those with eating disorders, liver or renal disease, gastric ulcers, or other comorbidities that could make it unsafe to fast.

Between 2001 and 2004, there were 2,787 patients who attended the clinic for 3 days or more. Of the 2,121 patients with complete discharge questionnaires, 952 fasted, 873 followed a normocaloric Mediterranean diet, and 296 followed other nutritional programs such as elimination diets or rice diets and were not included in the study.

Patients who elected to fast had 2 prefasting days when they consumed 800 calories from fruit, rice, or potatoes. During the 7 days of actual fasting, they were instructed to drink 2-3 L of mineral water, herbal tea, vegetable broth, and juice, for a total caloric intake of 350 kcal. In the 4 days following the fast, foods were

slowly reintroduced. Enemas or laxatives were administered during the fast according to patient preference.

At the time of discharge from the clinic, disease-related complaints had improved to a significantly greater degree among fasting patients, with 344 (37%) reporting that their symptoms were "much better," compared with 209 (24%) of the nonfasting patients reporting that level of

improvement. Overall, 743 (78%) of fasting patients reported improvements in their health status, while 176 (18%) reported no change and 33 (3%) reported worsening of their health (*J. Altern. Complement. Med.* 2005;11:601-7).

No serious adverse events were reported. Two patients developed hyponatremia when they continued diuretic use against medical advice; their sodium levels normalized when diuretics were withdrawn. A total of 23 patients stopped fasting early because of hunger or irritability, and 4 had moderate gastric pain. Discomfort during fasting most often occurs on day 2 or 3, when the metabolism is shifting to lipolysis.

The most common complaint during fasting was headache, reported by about 15% of patients. "This was at least partly a result of coffee withdrawal," lead investigator Andreas Michalsen, M.D., said in a discussion of the study at a symposium on alternative and complementary medicine sponsored by the universities of Exeter and Plymouth held in Exeter, England.

"Patients who fasted also seemed to have better success in maintaining beneficial long-term lifestyle changes such as exercise and relaxation," Dr. Michalsen said.

Other Clinical Studies

A systematic review identified 31 original reports on fasting as a treatment for RA; 4 of them were controlled and methodologically adequate. The results of these four studies "support the hypothesis that a short period of fasting followed by a vegetarian diet can cause clinically relevant long-term improvement in patients with RA" (*Scand. J. Rheumatol.* 2001;30:1-10).

The most convincing evidence, according to the authors of the systematic review, was collected in a randomized, single-blind Norwegian study. The study assigned 27 patients to 4 weeks at a health farm where they fasted initially and then followed a vegetarian diet; another 26 patients stayed at a convalescent home for 4 weeks where they followed an omnivorous diet. The groups were followed for an additional 12 months, during which significant differences were seen between the two in multiple disease-activity variables including tender joints, morning stiffness, health assessment questionnaire scores, and global assessment (*Lancet* 1991;338:899-902).

A subsequent analysis of this cohort also found that patients who fasted and then followed a vegetarian diet showed significant decreases in leukocyte counts, rheumatoid factor, and the C3 and C4 complement components, suggesting that "dietary treatment can reduce disease activity in some patients with rheumatoid arthritis" (*Scand. J. Rheumatol.* 1995;24:85-93).

—Nancy Walsh

► Many patients with rheumatoid arthritis report symptomatic improvement with fasting.

► A large, prospective German study suggests that fasting can lead to persistent clinical improvements in inpatients with various chronic pain conditions.