

Acupuncture Relieves Knee Pain

Study Finds "Clear, Durable Effect" in Reducing Pain and Improving Function

By Michael Devitt

According to the National Institutes of Health, more than four million people seek medical care for a knee problem each year.¹ A leading cause of chronic knee pain, particularly in young adults, is patellofemoral pain syndrome (PFPS).

The condition occurs most frequently in adolescents who participate in sports, and is one of the most common diagnoses given at orthopedic centers and sports medicine clinics worldwide.

Despite its prevalence, the contributing factors to patellofemoral pain syndrome are unclear. Although several studies have linked knee pain to certain physical activities, there seems to be no direct correlation between the level of pain and the degree of cartilage damage to one's knee, or to the amount of flexion or extension a person's knee experiences.^{2,3}

To date, no single therapy has been shown to be completely effective in treating PFPS. However, acupuncture has shown promise in treating similar conditions such as gonarthrosis and osteoarthritis of the knee.⁴ In an effort to evaluate its effectiveness on PFPS, a team of researchers from Jensen Fysikalske Institutt in Bergen, Norway performed acupuncture on a group of 70 patients aged 18-45. Their results, which appear in the December 1999 issue of the *Journal of Alternative and Complementary Medicine*, show that acupuncture "may be an alternative treatment" for patients suffering from patellofemoral pain syndrome.⁵

The study's patients were randomly assigned into an acupuncture group or a control group. The acupuncture group consisted of 36 patients (20 female) with an average age of 29; the control group contained 34 patients (21 female) with an average age of 33.4.

All patients in the acupuncture group received treatment at the ST-34 and SP-10 points. Other points used included LE-5 and ST-35; SP-9 and ST-36; BL-17; BL-18; BL-20; BL-23; LI-4; and CV-4, depending on each patient's diagnosis. Treatment was administered by a licensed acupuncturist twice weekly for four weeks, with each session lasting between 20-25 minutes.

Patients were evaluated both before and after treatment using the Cincinnati Knee Rating System (CRS). The CRS measures symptoms of pain, swelling, giving way and function on a scale of 1-100, with a higher score meaning fewer signs of injury or pain symptoms. A variety of physical tests were also employed, including the Stairs-Hopple test, a quadriceps atrophy exam, and a visual analogue scale for evaluating pain.

Based on the researchers' findings, acupuncture appeared to have a dramatic effect on reducing knee pain and symptoms and improving function. Within six weeks, the CRS scores for patients in the acupuncture group improved between 4.2 and 11.9 points per category (see **Table I**).

Improvement in the acupuncture group continued far beyond the initial six weeks, the scientists noted. "The score continued to increase more in this group than in the control group for all scales during the 12-month observation time," they said, "and is significantly different from the results in the control group at 12 months after inclusion."

Table I: Patient knee results using the Cincinnati Rating System. The control group was not evaluated for CRS scores at six weeks after the start of the study.

CRS Score	Group	Baseline	6 Weeks	5 Months	12 Months
CRS, symptoms	Acupuncture	26.8	33.3	34.8	37.1
	Control	25.7	N/A	31.2	29.4
CRS, function	Acupuncture	31.2	36.3	37.0	38.0
	Control	30.4	N/A	34.7	32.3
CRS, pain	Acupuncture	6.8	11.0	11.5	12.8
	Control	7.5	N/A	9.8	9.4
CRS, global score(out of 100)	Acupuncture	58.0	69.9	71.9	75.2
	Control	56.1	N/A	66.1	61.7

The CRS scores were further analyzed for the clinical implications of each category. At the start of the study, two patients in the acupuncture group and one patient in the control group experienced no pain, or only occasional pain during rigorous physical activity. Twelve months after treatment, that number had

increased to 14 patients in the acupuncture group, versus only three patients in the control group.

Similar results were found for improved knee function. Five acupuncture patients and four control patients reported no or only slight limitation to activity at the start of the study; those figures increased to 17 and seven, respectively, one year after treatment.

The researchers acknowledged that no placebo group was used in the study, reasoning that there is "no fully satisfying way" of designing an acupuncture placebo group. Because almost any needling of the skin may raise the body's endorphin levels or trigger other response systems, it was decided to use an untreated group as controls. As a result, the effect of acupuncture itself could not be evaluated, but rather "the effect for the patient of going to acupuncture treatment."

Nevertheless, the effect did appear to produce the desired results both patients and researchers were looking for - namely, decreased knee pain and increased knee function. While no definitive studies have shown a specific treatment for patellofemoral pain, the scientists concluded that "our study is one of the largest treatment studies on the syndrome, and it shows a clear, durable effect of acupuncture treatment in reducing pain and improving function for the patient."

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