

Fighting pain with fire: hot chili peppers offer relief.

By Mike Field

From The Gazette, the newspaper of The Johns Hopkins University, July 25, 1994

Anyone who has ever bitten into a hot chili pepper will know the feeling: a searing pain on the lips and tongue that no amount of water or ice can seem to cool. Now Hopkins researcher Marco Pappagallo is ready to begin clinical trials that will use the burning properties of hot peppers to combat an affliction common to AIDS patients and some diabetics. The fuel that fires the pepper's burning heat is capsaicin, a naturally occurring compound found in pungent peppers such as the jalapeno, used commonly in Mexican cuisine. Capsaicin, it is hoped, will provide relief to thousands who suffer from a potentially crippling condition brought on by their disease.

Known as painful peripheral neuropathy, the degenerative condition is marked by searing pain on the bottom of the feet that can often immobilize its victims. "In these patients the disease causes the nociceptors, or pain fibers, to die back," said Dr. Pappagallo, a faculty member in the School of Medicine. "This causes an intense burning sensation at the end of the feet that can make walking unbearably painful." An ointment containing a high concentration of capsaicin can block painful peripheral neuropathy by temporarily "burning out" the nerve receptors in the feet, Dr. Pappagallo's studies indicate. "The capsaicin knocks out pain receptors in rats and mice; we're assuming it will do the same for humans," he said.

Research suggests that a single application of the capsaicin cream-extracted from a chili pepper paste-could stop pain for several weeks and possibly several months. "Capsaicin activates pain fibers and then appears to desensitize them," Dr. Pappagallo said. "We know from hot peppers that eating spicy food desensitizes the palate, allowing the person to eat hotter and hotter food. If you stop, however, there is an eventual full recovery of sensitivity." Dr. Pappagallo received FDA approval to conduct clinical trials of a 5 percent capsaicin cream on AIDS patients suffering from painful peripheral neuropathy. So potent is the concentrated cream that the procedure will have to be performed at the hospital, and the participants in the study will receive a local anesthetic before the cream is applied. "We will use an epidural block to numb the feet and legs," he said. "Since this is a pilot project we'll start with a 5 percent concentration, but we may have to go to 10 percent or more. By the time the anesthetic wears off the burning sensation caused by the capsaicin will be gone and, hopefully, the pain fibers will be numb."

Once the nerves are desensitized, patients would maintain the numbness by regular

applications of an over-the-counter sore muscle cream currently available that contains small amounts of capsaicin as its active ingredient. "If effective, the use of this naturally occurring compound would provide pain relief that is cheap, easy to administer and shows no evidence of toxicity," Dr. Pappagallo said. "About 10 percent of AIDS patients suffer from painful peripheral neuropathy, and currently there is no truly effective treatment available. This could provide relief to many, many people."

Dr. Pappagallo is actively recruiting AIDS patients with this condition for the trials. Interested parties should call 955-7338 for further information.