Dimethyl sulfoxide (DMSO) is an industrial solvent that has become a legend in its own time. In 1963, Dr. Stanley Jacob introduced DMSO to reduce the swelling and pain of arthritis. Quickly, a wide variety of unsubstantiated claims were made, and enthusiasm apparently precluded careful studies.

In fact, the compound has a number of interesting pharmacologic properties that may be beneficial to patients. Its ability to penetrate intact skin, carrying a variety of chemicals, offers hope for eliminating many painful injections; its inhibition of certain prostaglandins offers hope that various inflammatory diseases may be suppressed; its local analgesic properties may reduce cutaneous pain from burns and injuries; its ability to dissolve compounds such as amyloid and collagen might be harnessed; and DMSO's ability to reduce increased intracranial pressure in head injuries could reduce morbidity if not mortality.

But research has not yet demonstrated that the potential of DMSO can be safely fulfilled. Clinical research was suspended in 1965 when injury to the lens was found in animals, but inasmuch as no human injury was detected, limited studies were permitted again in 1968. Asked for an opinion in 1972, the National Academy of Sciences stated that the compound should remain an investigational drug. During this period many papers detailed anecdotal results of cutaneous, intravenous, or oral use, and in 1978 the FDA approved Rimso (50% solution of DMSO) for the treatment of interstitial cystitis, the only approved use of the drug today. In the same year the Arthritis Advisory Committee to the Food and Drug Administration rejected the new drug application approval of DMSO based on the submitted studies. The committee requested that the National Institute of Health Center for Cooperative Studies of Rheumatic Diseases perform a controlled study of DMSO treatment of cutaneous ulcers in scleroderma, a study now underway. Other work, in progress or completed, includes studies on head injury, strain and sprain, and transcutaneous carrier properties.

Research to date has shown that the use of DMSO has a number of unpleasant features. Among these is "musty, garlicky" breath odor in about 80% of patients within minutes of skin application; this odor also permeates clothing and furniture in contact with skin to which DMSO has been applied. Local skin sensitivity with erythema and ulceration is common. In addition, the treatment regimen (immersing a part of the body in a DMSO solution several times a day for five to ten minutes) is difficult to maintain.

A further difficulty with DMSO is the nature of the products currently available, "veterinary" and "industrial" strengths. Veterinary DMSO, usually a 90% solution, because of its heavy concentration causes greater cutaneous toxicity. The industrial solution is usually even stronger, and the manufacturer makes no claim regarding absence of contaminants. Although no cases of poisoning through contamination have been substantiated, the lining of storage containers could contaminate the DMSO. If the skin is contaminated with dirt or chemicals, it is important to remember that DMSO probably will carry these compounds through the skin and into the circulation.

Pediatricians are likely to be asked by parents and athletic coaches whether DMSO is safe and effective for the treatment of sprains and strains. The answer is that the DMSO products currently available (veterinary and industrial) cannot be considered safe for human use and that effectiveness for this purpose has not been established.

This statement has been approved by the Council on Child and Adolescent Health.

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RESIDENCY FELLOWSHIPS STIPULATIONS

To enable young physicians to complete their pediatric training, the American Academy of Pediatrics will grant a small number of fellowships of $1,000 and $3,000 each to pediatric interns and residents for the year beginning July 1. Candidates must meet the following requirements:

1. Be legal residents of the United States or Canada;
2. Have completed, or will have completed by July 1, a qualifying approved internship (P1-0) or have completed a P1-1 program, and have made a definite commitment for a first year pediatric residency (P1-1 or P1-2) acceptable to the American Board of Pediatrics; or
3. Be pediatric residents (P1-1, P1-2, or P1-3) in a training program and have made a definite commitment for another year of residency in a program acceptable to the American Board of Pediatrics;
4. Have real need of financial assistance; and
5. Support their application with a letter from the Chief of Service substantiating the above requirements; if a change in residency training program is contemplated (ie, moving to another institution), a letter from the chief of this service certifying acceptance to this program will also be necessary.

The fellowships have been provided through grants to the American Academy of Pediatrics by Mead Johnson Nutritional Division, Gerber Products Company, and the McNeil Consumer Products Company.

Although the fellowship awards are intended primarily for the support of first and second year pediatric residents, it is also recognized that some physicians may desire a third or fourth year of pediatric residency. Up to 25% of the fellowships may be awarded to persons in this category. Consideration will be given to geographic spread of awards, and preference will be exhibited for well-qualified but smaller training centers which perhaps have fewer resources for residents in training than do some of the larger centers.

The Committee on Residency Fellowships of the American Academy of Pediatrics will make final decision on the granting of the Awards. Those interested in applying may write to Jean D. Lockhart, MD, Department of Health Care and Pediatric Practice, American Academy of Pediatrics, PO Box 1034, Evanston, IL 60204, for application forms.

The envelope must be postmarked no later than March 1, 1983 in order to be eligible.
Dimethyl Sulfoxide (DMSO)  
*Pediatrics* 1983;71:76

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