

## Cool Sportswear

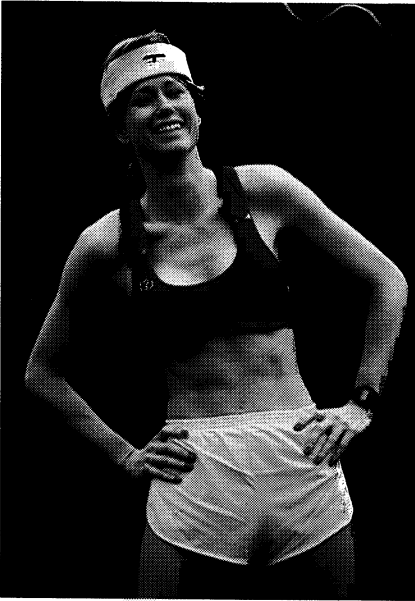
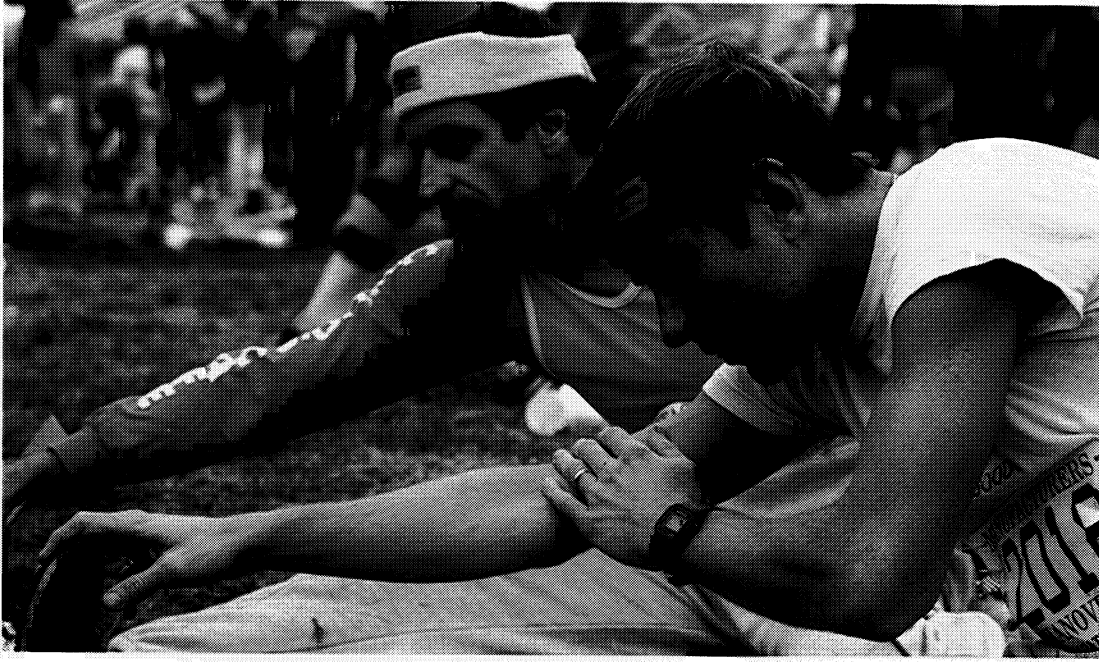
Last year's New York Marathon (below) offered an appropriate setting for introducing a new line of athletic wear and Techni-Clothes Inc. of New York City was on hand to demonstrate its space-spinoff apparel. Techni-Clothes is headed by Dr. Lawrence H. Kuznetz, who is also a bioengineer and physiologist at Johnson Space Center (JSC), working in the Space Shuttle program. With the help of some JSC colleagues, Kuznetz has developed a number of commercial products based on his space expertise, in particular his experience in designing circulating liquid cooling systems for astronauts' space suits.

Techni-Clothes' initial line is a series of items for cooling athletes, allowing them to perform more



strenuous activity without becoming overheated. Like the space suit, the apparel is designed to remove heat by the circulating liquid method, which would have been too cumbersome for sports use. Instead, Techni-Clothes' gear incorporates packets containing a heat-absorbing gel, a more efficient version of the "blue-ice" sold for use in picnic coolers. The gel packet slips into an insulated pocket of the athletic garment (left) and is positioned near parts of the body where heat transfer is most efficient—for example, the forehead, neck or wrist. A gel packet is good for about an hour; it can be replaced from a supply of spares in an insulated container worn on the belt.

At top right, a pair of New York marathoners run through warmup exercises, each wearing a cooling headband; in the bottom right photo, marathoners display other Techni-Clothes headgear. The company's



line also includes wrist bands and running shorts with gel-pack pockets. The products are targeted primarily for the estimated 25 million runners and joggers in the U.S., but they can be used by any athlete whose performance may be affected by hot weather.

The photo at left illustrates still another Kuznetz product, also a space spinoff but based on somewhat different technology. In this application, Kuznetz employed materials technology and systems engineering techniques to design a bra for female runners and joggers. Called the Support-Her Bra, it is manufactured by Prologs Inc., Hicksville, New York. The halter-like garment is not just a modesty aid to curb embarrassing "mammary bounce;" made of a knit interlining and a nylon mesh outer shell, it is a carefully engineered restraint and support device intended to prevent shoulder and back strains, abrasions and other problems encountered by women runners, particularly those with large breasts. The items pictured are the first to become commercially available, but Kuznetz and his associates have designed several other space spinoff products, including special purpose clothing, survival gear and medical rehabilitation devices.

