

cases," he adds.

When asked about intensive training, researchers repeatedly mention gymnastics, with its emphasis on speed combined with intricate movement, as having a high incidence of overuse injuries for young teenagers. Micheli says frequent shocks to the growth plate of the wrist can cause the two bones in the forearm to grow unevenly. Back injuries also are common, Malina says.

Young gymnasts may face the most danger when they strain young joints at particularly vulnerable times. In the July 1988 *CLINICS IN SPORTS MEDICINE*, Micheli writes that, whatever the sport, most injuries to young athletes in training occur during growth spurts, which stretch the muscles and tendons anchored at the elbow, knee and ankle, reducing their normal flexibility.

To be safe, coaches should watch for times of accelerated growth, easing training programs during those periods, Micheli cautions. Growth spurts are more frequent in 11- to 13-year-old girls and 13- to 16-year-old boys, and can be detected by a physician or an experienced coach. Sometimes the tightening of joints is obvious: "If a kid who used to be able to touch their toes suddenly can't get halfway to their knees, you know the joints have lost flexibility."



Photos: John Kelly, III

Nadia Comaneci came back to the Olympics in 1980. She was a little bigger then, performing superbly until a fall from the bars pulled down her ratings. At the same time, an 8-year-old Massachusetts girl was getting the first taste of a sport she would later crave. Dawn Lynde was flown to Texas in 1986 for training with elite gymnastics coaches. For two years, she practiced six to eight hours every day, until an agonizing shoul-

der-joint injury forced her off the mats. Last July, she and her dreams came home to Greenfield for good. For each Nadia, there are hundreds of Dawns.

It is ironic when the exercise that may leave some young athletes with pains and limps is the same that improves the health of others and propels a few to the Olympic games. The obvious advantage to training is that "young athletes are much more physically fit than other kids in their class," observes Paul Dymont, chief of pediatrics at the Maine Medical Center in Portland and chairman of the American Academy of Pediatrics Committee on Sports Medicine. According to a 1985 study sponsored by the President's Council on Physical Fitness and Sports, 40 percent of school-age boys under 12 and 70 percent of all school-age girls could do no more than one pull-up.

Those who can do not just pull-ups, but back flips and double axles, must heed their bodies' warning signs to avoid irreversible damage, says Dymont. "There's always a point [at which] if you keep on going, you could develop a permanent disability," he says.

So the youth of the United States are a paradox. "Most of our kids aren't getting enough exercise," laments Micheli, "except for a few who may be getting too much." □

Books

Books is an editorial service for readers' information. To order any book listed or any U.S. book in print, please remit retail price, plus \$2.00 postage and handling charge for each book, to **SCIENCE NEWS BOOKS**, 1719 N Street, NW, Washington, DC 20036. All books sent postpaid. Domestic orders only.

Annual Reviews of Nutrition, Vol. 8—Robert E. Olson, Ed. Includes reviews in the fields of experimental, clinical and public health nutrition. The prefatory essay concerns nutrition policy and the relationship between science and politics. *Annual Reviews*, 1988, 629 p., charts & graphs, \$37.

Gemstones—Christine Woodward and Roger Harding. This book, filled with color illustrations, explores the nature of gemstones and their special attributes of beauty, rarity and durability. The familiar gemstones along with some lesser-known gems are described and illustrated. Discusses the mineral properties of gems. Tells how gem minerals form, where they are found and how they are mined. Includes a brief account of gem cutting. Sterling, 1988, 60 p., color illus., paper, \$9.95.

The Honey Bee—James L. Gould and Carol Grant Gould. Presents these fascinating creatures as animals of surprising complexity that are able to produce food, communicate and even dance. Traces humans' relationship with honey bees from prehistoric times to the present. Describes the intricate life cycles of both individual bees and colonies. Examines the elaborate communication systems that regulate the activities of the bee colony members that may number as many as 60,000. *Sci Am Bks* (W H Freeman), 1988, 239 p., color/b&w illus., \$32.95.

The Media Lab: Inventing the Future at MIT—Stewart Brand. The Media Laboratory at MIT, a unique interdisciplinary center, is based on its director's conviction that the whole gamut of communications media—television, books, telephones, recordings, newspapers, magazines and film—is being transformed by computers. The lab is concerned with electronic communication technologies and, according to the preface, how humans connect, how they are connecting faster and wider with new technology and how they might connect better. Much of the book is a tour of some of the lab's research; the rest is concerned with "the media lab of the world," discussing how the new communications technologies will affect the world. Originally published in hardback by Viking Press in 1987. Penguin, 1988, 285 p., color/b&w illus., paper, \$10.

On Human Nature—Edward O. Wilson. A work about science and about how far the natural sciences can penetrate into human behavior before being transformed into something new. Examines the reciprocal impact that a truly evolutionary explanation of human behavior must have on the social sciences and the humanities. Originally published in hardback in 1978. Harvard U Pr, 1988, 260 p., paper, \$8.95.

On the Track of Ice Age Mammals—Antony J. Sutcliffe. Examines the causes and consequences of major fluctuations in the Earth's climate by exploring events of the ice age. Investigates the fossil and geological evidence—the diversity of species, plant remains, cave art and glacial processes. For the general reader with interest in but little previous knowledge of the subject. Originally published in hardback in 1985. Harvard U Pr, 1988, 224 p., color/b&w illus., paper, \$12.95.

Relatively Speaking: Relativity, Black Holes, and the Fate of the Universe—Eric Chaisson. Einstein's relativity theory, one of the foundations of modern physics, is frequently not understood by nonscientists. Chaisson, in his preface, suggests "that anyone willing to forgo common sense and human intuition can grasp the essentials of this, the grandest accomplishment of the physical sciences." In this well-illustrated book the author attempts to demystify the theory of relativity for the general reader and to introduce some of its fascinating applications in cosmology and in the study of black holes. Norton, 1988, 254 p., illus., \$18.95.

Selling Science: How the Press Covers Science and Technology—Dorothy Nelkin. Explores the images of science and technology conveyed to the public through newspapers, news magazines and widely distributed specialized magazines, including women's, health and business magazines. Examines the characteristics of both journalism and science that help shape these images of science and technology. Originally published in hardback in 1987. W H Freeman, 1988, 224 p., paper, \$9.95.

Space Science in the Twenty-First Century: Imperatives for the Decades 1995 to 2015—Space Science Board. This National Research Council report covers six major subject areas—astronomy and astrophysics, fundamental physics and chemistry, life sciences, mission to planet Earth, planetary and lunar exploration, solar and space physics—in individual volumes plus an overview volume. These reports set forth the scientific opportunities in space research and its applications in the years 1995 to 2015. *Natl Acad Pr*, 1988, 7 vols., 72-143 p. each vol., paper, each vol. \$12, 7-vol. set \$67.