

*A pair of effective exercising devices
highlight an array of aerospace
technology transfers to the fields
of sports and recreation*

Body-Building Boons From Apollo



Members of the National Football League's Oakland Raiders work out with the Apollo Exerciser. The device is used by 82 professional sports teams, more than 1,000 colleges and some 10,000 high schools.

Aboard Apollo 7, the first manned flight of the Apollo program, astronaut Donn Eisele reported that his lower abdominal muscles ached somewhat from "floating around in the seated position." But, he told mission control, he felt a lot better after using the Exer-Genie.

Crewmates Walter Schirra and Walter Cunningham concurred that the exercising device was a "good deal." "One of the best 'spacey' things we've had in years," Schirra added.

The Exer-Genie they were talking about was an innovative exerciser based on the principle of muscle strengthening through controlled resistance.

Hooked to the spacecraft wall, it enabled the astronauts to keep various muscles toned by rope-pulling from several angles and positions. It proved an answer to a problem that had concerned NASA for some time.

The problem was the effect on the human body of long duration weightlessness and confinement without exercise. The Apollo program contemplated flights of eight to 13 days. Research by Johnson Space Center indicated that lengthy activity restriction and exposure to zero gravity could induce loss of calcium and bone density, possibly metabolic and cardiovascular problems. These findings inspired further research on offsetting dietary measures, together with a quest for some effective system of exercise.

Normal means of exercise were not applicable, due to weightlessness and the limited space within Apollo. Bulky equipment was out, since there were many other items competing for space and weight allowances. Johnson Space Center came up with Exer-Genie, developed by Exer-Genie, Inc., Fullerton, California. The device weighed less than two pounds and took up very little room, yet it permitted a wide range of resistive exercises. It proved effective and was used on subsequent Apollo missions. The astronauts' use of this exerciser generated publicity that has spurred sales of Exer-Genie.

The Exer-Genie program utilizes familiar types of exercise, such as isometrics (pushing or pulling against an immovable object) and isotonic (motive exercises such as calisthenics or weight lifting) but with the important added factor of controlled resistance. The device is an arrangement of hand grips and nylon cord wrapped around an aluminum shaft. Controlled friction determines the resistance and the user can set the amount of resistive force to his own physical conditioning needs.

Since Apollo days, the Exer-Genie and a similar device called the Apollo Exerciser have found wide acceptance among professional, collegiate and high school athletic teams, and among the growing number of individuals interested in physical fitness. These devices are efficient and economical replacements for conventional conditioning equipment and extremely versatile, allowing more than 100 basic exercises for shaping up specific muscle groups.

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Exer-Genie (left) and the Apollo Exerciser, novel physical conditioning aids of the type used by Apollo astronauts in space. Within the cylinders, the nylon cords rotate around a shaft, developing controlled resistance for more effective body-building.

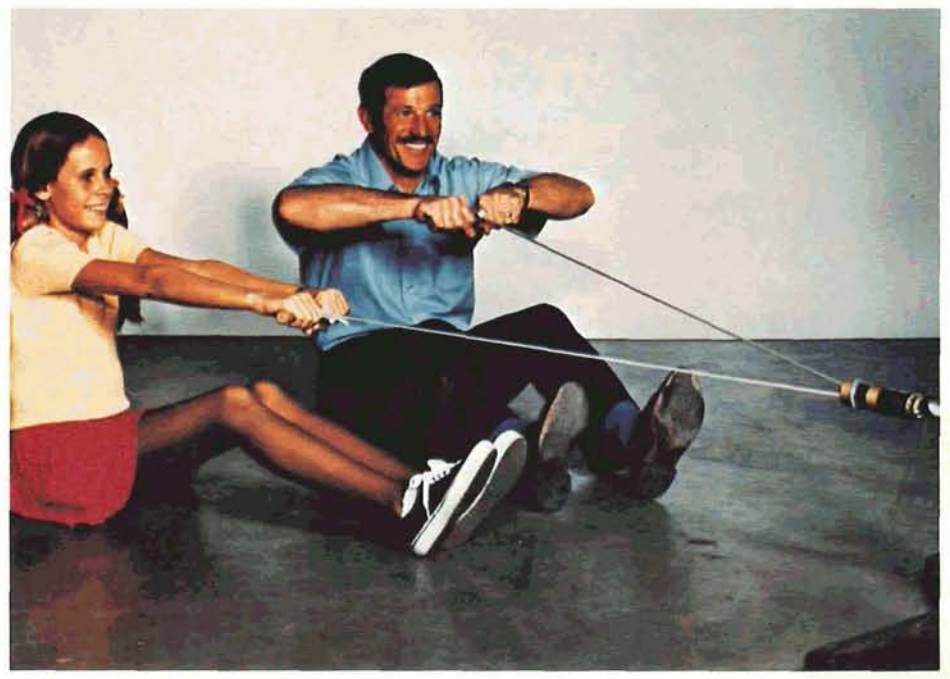
One of the more important advantages is time-saving, since time is a deterrent to many who might otherwise engage in a conditioning program. Advocates of "isokinetics," as some call the controlled resistance exercise method, say that 12 to 15 minutes of daily effort provides the equivalent in cardiovascular improvement and general physical toning of 40-60 minutes daily work in isometrics-isotonics.

Fitness Motivation Institute of America, San Jose, California, markets the Apollo Exerciser. Like Exer-Genie, the Institute sells to professional and amateur athletic groups, but its main thrust is at "the average, out-of-shape, overweight American," particularly businessmen who don't have the time for conventional exercising. The Institute offers its "Total Isokinetics" program to business firms, stressing the

corporate advantages of improving conditioning, and especially building cardiovascular endurance, among the company's executives. It provides a package—including lectures, counseling and a course of training—tailored to a particular company's needs.

Exer-Genie and the Apollo Exerciser have made remarkable impacts on the physical fitness world in a relatively short time—and interest is still on the upswing.

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Using the Exer-Genie, father and daughter demonstrate the teamwork approach employed in group conditioning. The Exer-Genie offers more than 100 basic exercises and variations.