Editorial

The Aging Athlete

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Grow old with me! The best is yet to be.

—Robert Browning, 1864

WITH increasing life span and improved quality of life, more persons are taking part in a variety of athletic endeavors. In this issue of the Journal there is an article demonstrating the ability of middle-aged and young older persons to take part in one of the most physically demanding and dangerous of sports, namely, climbing mountains in the Himalayas (1). For every seven persons who reach the peak of Everest (29,025 ft.), one dies. Climbers face the challenges of acute mountain sickness (headaches, anorexia, insomnia, and extreme fatigue), high-altitude cerebral edema, high-altitude pulmonary edema, frostbite, hypothermia, and snow blindness. Last year Lev Gaskinov from Georgia, at age 60 years and 161 days, beat out the previous oldest person to ascend Everest, Ramon Blanco, by one day.

This year Al Hanna, a 69-year-old who started climbing at 58 years, attempted to climb Everest. He has already climbed six of the world’s famous seven summits. He gets up at 1:00 every morning to spend three hours climbing a sled hill in Lincoln Park, Chicago, with a 60-pound pack on his back. To Hanna, the characteristics of a successful climber are determination, faith, courage, fitness, and teamwork (2); characteristics that certainly would also be ideal for successful aging! Unfortunately, Al only reached the Southern Summit before being forced to turn back—nevertheless, an unbelievable accomplishment for someone his age.

A recent survey of senior athletes performed by Pfizer, Inc found that 66% have played their sport for more than 20 years (3), 33% practice 8 or more hours per week, and 50% practice 3 to 7 hours per week. Sixty-nine percent are online. Eighty-eight percent see their physician regularly, and 66% take at least one prescription medication. Certainly this survey would support the concept that exercise is an important component of healthful aging.

Despite these positive reports from the Masters athlete front, age clearly takes its toll on performance. The world record speed for the 100-m dash declines by 0.06 m/s/y for men and women over the 5 decades from 30 to 80 years of age (Figure 1). For the 10,000 m, the rate of slowing was 0.05 m/s/y for men and 0.08 m/s/y for women. In the shot put, the rate of decline was 0.25 m/y for men and 0.31 m/y for women. On a more optimistic note, the decline for the 100 m was 0.07 m/s/y, which was 0.02 m/s/y less than that found by Moore (4) 25 years ago. The slowing of speed and decrease in strength in Masters athletes is consistent with the reports that with aging there is a loss of type II (fast-twitch) muscle fibers (5). Brooks and Faulkner (6) found that the decline in back, arm, and leg strength was closely correlated with the decline in the time for the 200 m world records over age. Meltzer (7) reported more rapid decline in Olympic weight lifting ability corrected for body weight than appears to be the case for sprint performance, which fits with the scientific demonstrations of a decline in muscle power with aging (8). However, older athletes can occasionally outdistance their younger competitors. Oscar G. Swahn won the gold medal for shooting at the 1912 Olympic games and a silver medal at 72 years and 280 days in 1920.

$V\dot{O}_2$max declines at the rate of about 10% per decade beyond the age of 25 years (9). Masters athletes tend to have a decline in $V\dot{O}_2$max that is about half the rate of nonathletes. Nevertheless, even longitudinal studies on Masters athletes who continue to train show a decline in $V\dot{O}_2$max (10,11). Previously, we have suggested that the $V\dot{O}_2$max is the predominant factor involved in the decline in world record performance with age (12). Bortz and Bortz (13) demonstrated a strong association between $V\dot{O}_2$max decline and decline in records for running, rowing, and swimming. They felt that a decline of 0.5% per year is a basic biomarker of the aging process.

Older athletes are more likely to develop injuries than other adults (9). This includes a greater incidence of acute injuries as well as an increase in overuse injuries. The slower repair rates with aging become problematic for the aging athlete. However, a study of 50- to 80-year-old members of a runners club found that over 6 years members had better overall health and less disability compared with a university population (14).

Hood and Northcote (15) studied 20 athletes aged 56 to 77 years. They found that they had left ventricular hypertrophy without the left ventricular dilation seen in younger athletes. A number had bradycardia; two required treatment with pacemakers. False-positive exercise tests were seen in 3 of 19 individuals. Using perfusion scan technology, Kat-
zel and colleagues (16) found that 16% of Masters athletes have silent myocardial ischemia.

There is a surprising paucity of literature on sports injuries in older persons. It has been suggested that older golfers may have increased disuse injuries (17). Twenty-two percent of the U.S. Masters swimmers’ membership is over 50 years of age. Rupture of the rotator cuff is more common in older than in younger swimmers (18).

There is a great need for increased study of sports injuries in mature athletes. Until now, articles on the management of injuries in older athletes have usually just repeated the experience with younger athletes reminiscent of the original geriatric review articles. Careful study of the training needs and the approach to injury management in veteran athletes will lead to enhanced performance and less disability.

The world record for the 1-mile run has improved by approximately 1% every 6 years. Figure 2 plots the world record for the 1-mile over time against the Masters records. As can be seen, at the beginning of the century the world record holders for the 1-mile were slower than the present day 40-year-old Masters athlete. Thus, while it is clear that the older athlete will never be better than the younger one, it is likely that the best is yet to come for the aging athlete and for the older non-Masters athlete who indulges in a modicum of exercise (19).

References
9. Maharam LG, Bauman PA, Kalman D, Skolnik H, Perle SM. Mas-

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**Editor Nominations**

**Journal of Gerontology: Social Sciences**

The Gerontological Society of America’s Publications Committee is seeking nominations for the position of Editor of the *Journal of Gerontology: Social Sciences.*

The position will become effective January 1, 2002. The Editor makes appointments to the journal’s editorial board and develops policies in accord with the scope statement prepared by the Publications Committee and approved by Council (see the journal’s masthead page). The Editor works with reviewers and has the final responsibility for the acceptance of articles for his/her journal. The editorship is a voluntary position. Candidates must be members of The Gerontological Society of America and dedicated to developing a premier scientific journal.

Nominations and applications may be made by self or others, but must be accompanied by the candidate’s curriculum vitae and a statement of willingness to accept the position. The deadline for all nominations and applications is March 1, 2001. Nominations and applications should be sent to the GSA Publications Committee, Attn: Jennifer Campi, The Gerontological Society of America, 1030 15th Street, NW, Suite 250, Washington, DC 20005-1503.