

Advances in Geriatrics

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Celebrating 20 Years of Excellence in Exercise for the Older Veteran

Just over 20 years ago, in response to the Veterans Health Care Amendment of 1983 (which mandated preventive services in the VA health care system), the Geriatric Research, Education and Clinical Center (GRECC) at Durham VA Medical Center (VAMC), Durham, NC received funds to establish a facility-based exercise program for older veterans. The program, aptly named Gerofit, offered an individually tailored and supervised exercise program for veterans aged 65 and over. Over the years, this modest geriatric clinical demonstration project has evolved into a successful program with clinical, research, and educational components.

GEROFIT BEGINNINGS

The Gerofit fitness center initially consisted of a modest-sized room and a lot of creative thinking. Exercise modalities included stationary bicycles, stair climbing machines, and hydraulic and resistive weight training machines. More space for exercise was created by moving any portable equipment onto the covered walkways outside or into the nearby parking area (Figure). The sight of cheerful, smiling, older veterans wearing Gerofit T-shirts and wheeling stationary bicycles into a parking lot gave us instant visibility. Although it was a shoestring approach, we were able to deliver a comprehensive exercise program that also included an off-site water aerobics class.

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Over time, other modifications (including floor exercises, balance training, yoga, and tai chi) were added to the program. Eventually, Gerofit and our medical center's employees fitness program (a program those of us involved with Gerofit helped facilitate) moved into a shared fitness center.

THE PROGRAM TODAY

Today, the Gerofit program meets three mornings a week at the medical center and two afternoons a week at the off-site pool. The doors open shortly before 8:00 AM and patients arrive continuously until around 10:30 AM. Throughout the morning, three to four sets of structured floor exercises are facilitated, a tai chi class is offered, and patients move freely from one station to another to perform strengthening and aerobic exercises. Camaraderie and social support are evident, as is the great pride in the common bond of being a veteran.

To date, over 1,200 veterans have been screened and have participated in some aspect of the program, with an average daily census of about 60

patients. Some patients come for the short term to learn skills that will enable them to exercise successfully at home, while others continue participating regularly for years. Our patient roster is diverse and typical of a geriatric veteran population. In terms of health status, participants range from healthy older adults with few medical diagnoses to patients with lengthy problem lists and medication regimens. Patients' conditions include cardiovascular disease, cancer, hypertension, arthritis, pulmonary disease, and kidney disease. Additionally, some patients have prostheses or assistive devices or are wheelchair bound from spinal cord injuries.

The core staff members include the program director, who is an exercise physiologist and an epidemiologist; another exercise physiologist; and an advance practice nurse, who oversees the initial screening of program participants. Both the program director and the advance practice nurse have been with the Gerofit program since its inception. These individuals develop an exercise prescription for each participant, based on a general template

The VHA's Geriatric Research, Education and Clinical Centers (GRECCs) are designed for the advancement and integration of research, education, and clinical achievements in geriatrics and gerontology throughout the VA health care system. Each GRECC focuses on particular aspects of the care of aging veterans and is

at the forefront of geriatric research and clinical care. For more information on the GRECC program, visit the web site (<http://www1.va.gov/grecc/>). This column, which is contributed monthly by GRECC staff members, is coordinated and edited by Kenneth Shay, DDS, MS, director of geriatric programs for the VA Office of Geriatrics and Extended Care, VA Central Office, Washington, DC.



for a progressive exercise program for a sedentary older adult (Table).

**PROGRAM PARTICIPANTS:
THEN AND NOW**

Over the years, our program participants have changed in health status consistent with the national epidemic of obesity. Twenty years ago, the most common chronic conditions among participants were arthritis (41%), hypertension (33%), and heart disease (27%), with an 8% prevalence of diabetes. The average body mass index (BMI) was 26—considered overweight. Today, the prevalence of arthritis and hypertension has increased dramatically among participants—to 62% and 74%, respectively. Most striking is the increased prevalence of diabetes, from 8% to 38%. The average weight of program participants is approximately 20 lb more than it was 20 years ago, and the average BMI is now 30—considered obese. In addition, the average number of comorbidities for Gerofit patients has increased from 1.6 to 5.3.

Following exercise guidelines of the mid-1980s, patients underwent a screening exercise stress test prior to program participation. Over time, and after a risk-to-benefit ratio assessment, we eliminated the stress test with no loss to program safety.¹ Today, staff members briefly interview patients to identify their medical histories, risk factors, barriers to exercise, incentives to exercise, and Gerofit program goals. In addition, all patients perform a physical function test (including gait speed measurement, an up and go test, repeated chair stands, and a six-minute walk) on the first day of participation. This test serves as a baseline for our longitudinal studies of each patient's physical function, rather than as a screening tool for exercise eligibility.

In more than 20 years of exercise programming through Gerofit, there has been only one participant death



Figure. The Gerofit program pioneers in July 1986. From left, Ed Mason, Eileen Woods, Bob Hill, Fred Stinson, Miriam Morey, Pat Maisto, Gail Crowley, and Harvey Everitt.

that we believe occurred within two to four hours of the participant leaving our facility. We have, on occasion, admitted individuals to acute care clinics or the emergency department for treatment of potentially hazardous symptoms or the rare fall or injury. We can state emphatically that any potential risks to the patients have been far outweighed by the program's benefits.

MEASURED OUTCOMES

From the start of Gerofit, we have collected patient data in the screening and enrollment process to help us track program outcomes. In our numerous examinations of the program, we have investigated the burden of various diseases on exercise parameters and explored longitudinal trajectories in performance over time.² In addition, we have published several reports of clinical outcomes, including improvements in exercise capacity, cardiovascular risk factors, and psychological well-being among participants.^{3,4} We also reported a favorable survival effect among long-

term program adherents in comparison to patients who dropped out of the program.⁵ And, in 2004, we demonstrated that, while veterans enrolling in Gerofit had significantly poorer physical function scores when compared with national normative data, those who continued in Gerofit for six months or longer had physical function on par or higher than national norms.⁶

EXPANDING BEYOND GEROFIT

While we are quite satisfied with the successes of Gerofit, we have no desire to rest on our laurels when we can see, with a simple walk around the VAMC, many older veterans who cannot benefit from the program. In most cases, these veterans are too frail for Gerofit or live too far away to attend. Consequently, we began a research program focusing on home-based delivery of exercise counseling and interventions targeting the frailer, older adult.

The VA Rehabilitation Research and Development service funded a feasibility trial in July 2001 of home-based

Continued on page 53

Continued from page 50

Table. Progressive exercise routine template for a sedentary older adult participating in Gerofit

Weeks	Aerobic modalities	Strengthening modalities	Other modalities to consider
1–2: Introduction and acclimatization	<ul style="list-style-type: none"> • Stationary bike—2 sets; 5 min; 12–14 RPE^a • Treadmill—1 set; 5–10 min; 12–14 RPE • Arm ergometer—2 sets; 2 min; 12–14 RPE 	<ul style="list-style-type: none"> • Leg press—1 set; 8–15 repetitions; 13–15 RPE • Multiexercise hydraulic resistance machine—8–15 repetitions each of leg extension, chest press, shoulder press, and abdominal crunch; 13–15 RPE 	<ul style="list-style-type: none"> • Tai chi • Multistation gym • Dumbbells
2–6: Begin progression	<ul style="list-style-type: none"> • Stationary bike—increase duration of each set to 7 min • Treadmill—increase duration as tolerated • Arm ergometer—work toward increased intensity goal of 15–17 RPE 	<ul style="list-style-type: none"> • Increase resistance on all modalities by 2%–10%, depending on patient’s progress and comfort level (emphasize pain free exercising) • Begin floor exercises routine (20–25 min staff-led series of flexibility, strengthening, and coordination exercises) 	<ul style="list-style-type: none"> • Tai chi • Multistation gym • Dumbbells
6+: Continued progression and exercise routine refining	<ul style="list-style-type: none"> • Progress all modalities so patient is accumulating at least 30 min total • Stationary bike—increase duration • Treadmill—increase duration as tolerated • Arm ergometer—increase sets to 3; increase duration of each set to 3 min; work toward increased intensity goal of 15–17 RPE 	<ul style="list-style-type: none"> • Increase resistance on all modalities biweekly or monthly by 2%–10%, depending on patient’s progress and comfort level (emphasize pain free exercising) 	<ul style="list-style-type: none"> • Yoga • Multistation gym • Dumbbells • Aquatic aerobics

^aRPE = rating of perceived exertion. This is a subjective measure of exercise intensity with a possible range of 6 (no exertion at all) to 20 (maximal exertion).

Continued on page 57

Continued from page 53

counseling to improve physical function. In order to succeed in broadening our patient base, we recognized that we needed to build strong bridges with the primary care and geriatric clinics. Therefore, an integral component of our research award was the development of an exercise counseling training module for primary and geriatric care practitioners. With consultation from the developers of the nationally known Physician-based Assessment and

graduate and graduate students of exercise science. Because our Gerofit staff possess extensive expertise in exercise promotion, we also assist with teaching classes for the VA's Managing Overweight/Obesity in Veterans Everywhere (MOVE!) program, serve on our VAMC's patient education committee, and oversee an employee fitness program.

Collectively, these efforts have had a synergistic effect on our work

tion to institution. Given the current VA initiatives to promote physical activity—such as the MOVE! program (<http://www.move.va.gov>) and the HealthierUSVeterans: Fit for LIFE program (<http://www.healthierusveterans.va.gov>), however, the environment is optimal for more thoroughly integrating health promoting activities into the care we provide for our veterans.

Second, we advise starting small but encourage our colleagues to dream big. By integrating education, research, and clinical products into our overall program structure (including our integrated program for employee fitness), we've grown from a modest clinical demonstration project to a valued asset of our medical center.

We already are involved in shaping the future directions of our initial project through ongoing modifications that address chronic obesity and its impact on health outcomes. Even as we do so, however, we anticipate the emergence of a new patient demographic—the younger veteran with physical and cognitive limitations—that is likely to have an impact on the future of our program. We believe that it will be necessary to provide for these patients' physical fitness needs on a scale our VAMC has not previously faced. And we believe that a geriatric model of enhancing fitness might serve as an excellent starting point for efforts in this direction. Our hope is to play a significant role in addressing this challenge. ●

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Counseling for Exercise program,^{7,8} we developed materials specifically for the older adult. (Physical activity assessment and counseling modules are available at <http://www1.va.gov/resdev/resources/pubs/LIFE-modules.cfm>.) Each participating provider received training in methods to counsel patients for physical activity.

The feasibility study yielded improvements in physical activity rates and ability and led to a larger, follow-up, randomized, controlled trial that is currently nearing completion.^{9,10} At the same time, we expanded our educational efforts by developing a Gerofit training module in geriatric exercise that is offered to trainees (including medical students, geriatric interns, geriatric fellows, and students in the graduate nursing program) from our academic affiliate, Duke University, Durham, NC. We also developed a Gerofit internship program for under-

with Gerofit and have enhanced our research program considerably. We currently are directly involved in numerous funded research projects both within our own VAMC and with our academic affiliate. We mentor promising young investigators in exercise-related research, and exercise, function, and mobility have become core research foci of our GRECC.

WHAT THE FUTURE HOLDS

As we look to the future, there are key lessons in program development we have learned along the way. First and foremost is the need for strong institutional support. We were fortunate in this regard and owe much of our success to the unwavering support of our management and leadership. We recognize from communications with colleagues throughout the years that support for nontraditional health promotion activities varies from institu-

Continued on page 65

Continued from page 57

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