



From the front lines

Aux premières lignes

Dr. McKenzie is with the Allan McGavin Sports Medicine Centre, Division of Sports Medicine, Faculty of Medicine, University of British Columbia, Vancouver, BC.

This article has been peer reviewed.

CMAJ 1998;159:376-8

Abreast in a Boat — a race against breast cancer

Donald C. McKenzie, MD, PhD

Many patients trying to get back to “real life” after a serious illness are disheartened to find that the post-treatment phase of their care is sadly wanting. Survivors of breast cancer are no exception. Many women describe a period of uncertainty and depression, often of considerable length, after active treatment ends. Their anxieties and concerns about the illness remain, but they lose contact with the medical support network. There are no standardized guidelines for the management of survivors of breast cancer. Recommendations with regard to physical activity are generally conservative and direct patients as to what they cannot do rather than what they can or should do.

The treatment of breast cancer commonly involves lumpectomy or mastectomy with axillary node dissection, followed by adjuvant radiotherapy and chemotherapy as indicated. This treatment improves survival¹ but can result in pulmonary fibrosis, restrictive lung disease and diminished exercise capacity.^{2,3}

Physical activity affects the production, metabolism and excretion of the female hormones, as well as energy balance, and these factors may be linked to the lower risk of breast cancer in habitually active women.^{4,5} Formal exercise programs for women with breast cancer are few and limited to small groups of patients, although the general consensus is that exercise helps to maintain functional capacity in these patients.⁶⁻⁸ Current opinion suggests that avoidance of strenuous activity is necessary to prevent lymphedema after treatment for breast cancer, although some women with breast cancer have recently begun to challenge this taboo.⁹ In fact, there are many reasons to believe that upper body exercise has a role in recovery from breast cancer and lymphedema because it can improve range of motion and reverse muscle atrophy, activate skeletal muscle (which may help pump lymph),¹⁰ stimulate the immune system¹¹ and reset the sympathetic tone of the lymphatic vessels.¹²

Abreast in a Boat, a dragon boat team

To emphasize our belief that exercise is beneficial and to increase breast cancer awareness, we formed a dragon boat team in February 1996. The only criterion for joining was a history of breast cancer; age, athletic ability and paddling experience were not considered. The 24 paddlers who signed up ranged in age from 31 to 62 years. They were, and are, a very courageous group of women who volunteered for this adventure without any assurance about its outcome.

Dragon boating was chosen for many reasons. It is a strenuous, repetitive upper body activity that projects a visible message to all people with breast cancer. In many ways, it is an ideal exercise. It is non-weight-bearing and therefore is associated with a lower risk of injury than weight-dependent activities such as running. It is safe, and with proper technique the paddler can recruit a reasonable amount of muscle mass and induce positive adaptations in the musculoskeletal and cardiovascular systems. It uses predominantly upper extremity and trunk muscles, and the improvement in strength has a carry-over effect to day-to-day activity. The training intensity can be varied simply by pulling harder. This is important because, with a wide variety in ages and athletic abilities, each paddler can still experience a training effect. For example, a request to paddle at 80% of maximal effort will provide the same relative training effect for each woman, even though the absolute amount of work might vary considerably.



Dragon boating is a team sport that builds harmony and a feeling of togetherness. It is esthetically pleasing and represents honest physical work that results in predictable improvements in fitness. The dragon boats can hold 22–26 paddlers, and this provides an opportunity to work with a large group at one time. Vancouver's Dragon Boat Festival, in which we have participated annually since 1996, is one of the world's largest, and thus we had a great opportunity to showcase the results of our program. Above all, dragon boating is an exhilarating experience that every paddler has enjoyed.

In the strictest sense the Abreast in a Boat project represents a study in prescriptive exercise. A special population — absolutely. An unusual mode of exercise — certainly. However, the basic principles of exercise prescription still apply. Frequency, duration, type of exercise and intensity remain important parts of exercise prescription, and were considered in our training. A progressive program of stretching and strengthening exercises was introduced along with guidelines to improve aerobic fitness. The program called for 3 workouts per week. These were straightforward resistance exercises with emphasis on the upper extremity, shoulder and back. The cardiorespiratory component was represented by walking or jogging, cycling, swimming or virtually any exercise involving a large muscle mass that could be done continuously for at least 20 minutes.

More recently, to prepare for a competition in New Zealand (Fig. 1) in February, we trained throughout the winter months in Vancouver, incorporating circuit training that combined resistance and aerobic activity. Predictably, the paddlers became fitter and on-the-water performance improved.

In April 1996 the group assembled at False Creek Rac-

ing Canoe Club for their first look at a dragon boat. Of the initial group, only 2 women had experience with dragon boating. The introduction to paddling emphasized the fundamentals of paddling in a team — technique and timing.

After some discussion, our name — Abreast in a Boat — was chosen. On-the-water practices were held twice weekly and continued throughout April, May and June, our goal being to complete the race course in the Vancouver festival in late June. The team was entered in the Novice class and was therefore racing against mixed teams of male and female paddlers, who were, on average, 2 decades younger. The women completed the course with technical skill, energy and emotion — mostly joy. Their success gave participants a profound sense of accomplishment and was suitably rewarded by the large crowd of family, friends, spectators and other paddlers who understood the magnitude of their achievement. Although the goal of the paddling program has always been simply to participate in dragon boat festivals, these women train and compete to the best of their abilities; occasionally this exceeds those of other teams in their race. We have a phrase that accurately describes our race experiences: "We seldom place, but we always win."

The impact of this experience on these women has been overwhelming, the physical changes barely keeping pace with the changes in psyche. To other people with breast cancer, the women have become role models, giving inspiration to lead full and active lives. We have created a training manual¹³ with suggestions for other groups who are beginning a similar paddling program elsewhere. The team has also travelled to spread the message that "there is life after breast cancer." The dragon boat phenomenon has become attractive to other women, and as



Fig. 1: The Abreast in a Boat team braving the rough waters of Wellington Harbour, New Zealand, at the World Club Crew Championships.



of June 1998 there were 10 teams in Canada, more in United States and a new team in New Zealand.

The medical problems that have arisen among the dragon boat team members have been minimal, musculoskeletal in nature and all related to unaccustomed exercise. They have been treated with conservative measures and responded quickly. Few practices were missed. No new cases of lymphedema arose, several women reported improved range of motion of their shoulders, and one woman reported resolution of a prolonged case of reflex sympathetic dystrophy. We have routinely encouraged the use of a compression sleeve by paddlers, but acceptance of this aid has not been universal.

What have we learned about exercise in women who have had breast cancer? Our findings are all anecdotal but nevertheless compelling. The paddlers showed a marked improvement in both physical and mental health. Perhaps this improvement is a product of self-selection, but there were no significant side effects. We did not see the cases of lymphedema we had been warned about. In terms of impact on patients' lives, it has been the most significant experience in my professional career.

The Abreast in a Boat Society has been formed to help people living with breast cancer understand that they can lead full, active lives despite the physical limitations imposed by this disease. The society seeks to improve the quality of life of women with breast cancer while research is being done to find a cure. With the help of charitable foundations and corporate sponsors, the society raises awareness about breast cancer and encourages the pursuit of a cure.

How important is the Abreast in a Boat project? It is an approach to promoting health and raising breast cancer awareness that is driven by women with the disease. It

reaches out to other women and offers them a message of hope and support. It is helping to change attitudes toward "life after breast cancer," and it encourages women to lead full and active lives. It is making a difference.

References

1. Ragaz J, Jackson SM, Le N, Plenderleith IH, Spinelli JJ, Basco VE, et al. Adjuvant radiotherapy and chemotherapy in node-positive premenopausal women with breast cancer. *N Engl J Med* 1997;337:956-62.
2. Roberts CM, Foulcher E, Zaunders JJ, Bryant DH, Freud J, Cairns D, et al. Radiation pneumonitis: a possible lymphocyte-mediated hypersensitivity reaction. *Ann Intern Med* 1993;118:696-700.
3. Wiley LD, Reid DC, McKenzie DC. Evaluation of exercise tolerance before and after stage II breast cancer therapy in women [abstract]. *Med Sci Sports Exerc* 1998;30(5):S159.
4. Thune IT, Brenn T, Lund E, Gaard M. Physical activity and the risk of breast cancer. *N Engl J Med* 1997;336:1269-75.
5. McTiernan A, Stanford JL, Weiss NS, Daling JR, Voigt LF. Occurrence of breast cancer in relation to recreational exercise in women 50-64 years. *Epidemiology* 1996;7:598-604.
6. Mock V, Burke MB, Sheehan P, Creaton EM, Wingham ML, McKenney-Tedder S, et al. A nursing rehabilitation program for women with breast cancer receiving adjuvant chemotherapy. *Oncol Nurs Forum* 1994;21(5):899-907.
7. Strender L, Lindahl J, Larsson L. Incidence of heart disease and functional significance of changes in the electrocardium 10 years after radiotherapy for breast cancer. *Cancer* 1986;57(5):929-34.
8. Greenberg DB, Sawicka J, Eisenthal S, Ross D. Fatigue syndrome due to localized radiation. *J Pain Symptom Manage* 1992;7(1):38-45.
9. Kent H. Breast cancer survivors begin to challenge exercise taboos. *CMAJ* 1996;155(9):969-71.
10. Viru A, Viru M. The specific nature of training on muscle: a review. *Sports Med Train Rehabil* 1993;4:79-98.
11. Pedersen BK, Bruunsgaard H. How physical exercise influences the establishment of infections. *Sports Med* 1995;19:393-400.
12. Roddie IC. Lymph transport mechanisms in peripheral lymphatics. *News Physiol Sci* 1990;5:85-9.
13. McKenzie DC, Jespersen DK. *Abreast in a Boat — team manual*. Vancouver: Allan McGavin Sports Medicine Centre; 1998.

Reprint requests to: Dr. Donald C. McKenzie, Allan McGavin Sports Medicine Centre, Division of Sports Medicine, Faculty of Medicine, University of British Columbia, 3055-2329 West Mall, Vancouver BC V6T 1W5; fax 604 822-9058



Barbara Sibbald