

AEROBIC EXERCISE FOLLOWING TBI

In the past few years, this Research and Training Center has interviewed hundreds of individuals about their lives after experiencing traumatic brain injuries. People were eligible to be part of this sample if they viewed themselves as someone who has “experienced a brain injury and has a disability.” A comparison group of individuals who view themselves as non-disabled was also interviewed. These samples include men and women from all regions of New York State — from rural areas, the cities and suburbs. People as young as 18 and as old as 65, of all races, income levels and life experiences participated in this research. In each issue of *TBI Consumer Report*, we will share some of the insights resulting from these interviews. Here we focus on EXERCISE.

What was the starting point for this research?

A group from the Achilles Track Club in New York City (which includes athletes with many different forms of disability) was interested in having us do a study to define the benefits of exercise for people who have experienced a brain injury. Since studies that follow exercisers over long periods to determine the impact of exercise are very expensive, we decided to see what we could first learn from reviewing data we already had (see box at left). In reviewing responses to our interview, the question we asked was, How do people who currently exercise differ from those who do not? We defined “exercise” as swimming, jogging, biking or doing other sports (that substantially increase the heart rate) for at least 30 minutes at a time. To be considered an “exerciser”, people in our sample had to have been doing this type of vigorous exercise at least three times a week for the past six months. In our sample we found over 60 exercisers and 170 non-exercisers with TBI. We also looked at existing scientific studies to see what they might show about the benefits of exercise.

“I’ve been thinking about getting back to running.”

“That’s good. Because I just started — with a friend I met in my support group — and I’m already beginning to have more energy to do things.”



What was found?

Existing research showed that inactivity has negative effects on everyone, but the effects appear to be worse for people with TBI than for others who have not had a brain injury. Studies also suggested that exercisers with TBI were less depressed and showed improved physical capacity compared to non-exercisers.

Our research revealed a broad range of possible benefits of aerobic exercise for people with TBI:

- ▶ People with TBI who exercised had fewer physical, emotional and cognitive complaints and symptoms, such as sleep problems, irritability, forgetting and being disorganized.
- ▶ Non-exercisers with TBI complained of more cognitive problems or symptoms than did those who exercised, suggesting that exercise may improve abilities such as memory, thinking and the like.
- ▶ As was seen in previous studies, our research showed that exercisers with TBI were less depressed.
- ▶ People with TBI who exercised viewed themselves as being healthier than non-exercisers.
- ▶ The exercisers more often were engaged in school or work and 'got around' the community more freely.
- ▶ Exercisers had more severe brain injuries than the non-exercisers, suggesting that a severe injury does not prevent engaging in exercise.



What do these findings mean for consumers and professionals?

For people with TBI, our study suggests that exercise may decrease some of the difficulties many people with TBI experience — for example, health problems, cognitive challenges and depression.

For health care providers, these findings validate previous research suggesting that people with TBI benefit in a variety of ways from aerobic exercise programs, and in fact point toward a broader array of potential benefits than previously published. The results are reported in the *Journal of Head Trauma Rehabilitation* (Gordon WA, Sliwinski M, Echo J, McLoughlin M, Sheerer M, Meili TE. The benefits of exercise in individuals with TBI: a retrospective study. 1998; 13[4]). This article also reviews the physiological foundations upon which functional improvements may rest. An obvious limitation of this study is that it is retrospective rather than prospective, raising the possibility that in comparison to the group of non-exercisers, the sample who do exercise may have been healthier *prior* to their starting an exercise program after TBI. Prospective, random-assignment studies are needed to more clearly demonstrate the broad benefits that this retrospective study suggests.

How can people with TBI take up or resume exercise?

Our research has focused on aerobic exercise, like running and swimming, which increases the exerciser's heart and lung capacity. This is clearly an important part of any exercise program. Other forms of exercise, like yoga, walking, weight training, bowling, golf (and other activities that are non-aerobic) also benefit people, but in different ways. These activities may be very relaxing, improve concentration and keep the muscles in shape. Experts advise that it is a good idea to do a variety of exercises — those that promote heart and lung capacity (aerobic), those that strengthen and stretch muscles and those that create relaxation for the person.

continued on next page



If you are interested in doing aerobic or other exercise, a starting point is to check with your doctor, especially if you have physical challenges, balance problems or other issues that may affect your safety. A second suggestion is to check out groups and organizations in your community that may provide structured exercise programs, such as schools, the YMCA or YWCA, exercise classes, health clubs, independent living centers and adult education classes. To get started, you might also consider renting or buying an exercise video. Your state or local brain injury association, as well as community and rehabilitation centers may provide helpful information on organized exercise opportunities. Finding others who are exercising regularly is often a major help in getting started and sticking with an exercise program.

Sometimes memory problems may get in the way of doing exercise regularly or in remembering the details of an exercise regimen. If this is an issue for you, keeping a calendar as a reminder of when your exercise is scheduled and recording the dates and time you spend exercising may be helpful. In addition, consumers have suggested using index cards that contain specific steps to follow for each set of exercises. These cards reduce the number of times you may need to ask for help because you forgot some detail of an exercise. If you are just starting a program of exercise, you should start slowly and gradually increase the intensity of exercise over time. If you get bored doing the same thing daily, you might try different types of activities — running on one day, going to exercise class on another and swimming with a friend on a third. The idea is to plan an interesting mixture of exercises, do them regularly and enjoy the benefits!!

*"Could I join You and Your friends?
I do want to run again."*

"Yeah. See Ya, tomorrow morning."

TBI Consumer Report is a publication of the Research and Training Center on Community Integration of Individuals with Traumatic Brain Injury and is supported by Grant No. H133B30038, to the Department of Rehabilitation Medicine, The Mount Sinai Medical Center, New York City, from the National Institute on Disability and Rehabilitation Research, United States Department of Education.