

Economic Benefits of Physical Activity

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HIGHLIGHT

“Published research investigating the economics of physical activity has reported improved health and lower health care costs, absenteeism, and disability associated with exercise and fitness programs.”

A NOTE FROM THE EDITORS

Many of the papers in this volume have focused on the health benefits of physical activity. For example, a previous issue summarized the many health benefits reported in the Surgeon General’s Report on Physical Activity and Health. It is health benefits that led public health experts to include a national health goal for the year 2000 relating to employee worksite physical activity and fitness programs. Though health benefits are the principal reason why employees benefit from such programs, there are other benefits that come to employers who establish worksite physical activity programs for their employees. Specifically, data are now available to show that employee physical activity programs can save employers money. In this paper, Larry Gettman, one of the leading authorities on the economic benefits of worksite physical activity and wellness programs, summarizes the literature relating to the economic benefits of physical activity programs. This information can be useful in persuading employers to establish programs and meet national health objectives by increasing the availability of worksite activity programs.

INTRODUCTION

Because health care costs in this country have increased at alarming rates in recent years, with the estimate that they will exceed \$1 trillion by the year 2000, there is a concern by corporations, government, and individuals in controlling these costs. One way to cut costs is to influence how health care is delivered—the treatment side of the equation. The other way to cut costs is to *prevent* health problems before they arise thus avoiding the treatment costs in the first place. This is where physical activity and health promotion fit into the prevention formula. And therefore the question naturally arises, “Is physical activity economically beneficial?”

THE ECONOMIC BENEFITS OF PHYSICAL ACTIVITY

The most widely used measure of the economic benefits of physical activity programs is the benefit/cost ratio. The benefit is expressed in amount of dollars saved from lower medical costs, less absenteeism, or reduced disability expenses. The costs in the equation refer to the cost of the physical activity program. The ratio is money saved divided by the money spent. For example, a benefit/cost ratio of 3.43 would mean that \$3.43 were saved for each \$1.00 spent. Benefit/cost ratios reported in the literature for physical activity programs range from .76 to 3.43 (see Table 17.1).

Of course, physical activity is just one part of worksite health promotion, which may also include health risk assessment and behavior modification strategies for nutrition and weight control, stress management, stop smoking, blood pressure control, etc. There are many other studies reporting positive benefit/cost ratios ranging from 1.15 to 5.52 for a variety of health promotion programs (Messer & Stone, 1995). Some of those benefit/cost studies were conducted on comprehensive health promotion programs that included physical activity along with stress management, weight control, nutrition education, stop smoking, etc. These studies were not included in Table 17.1 because the specific benefit/cost ratio for isolated physical activity was not reported. It should be noted as a reminder, though, that all benefit/cost ratios reported for comprehensive health promotion programs are positive, meaning that the benefits of health promotion outweigh the costs of the program.

In addition to benefit/cost studies, there are health risk appraisal publications that have reported lower annual medical claims costs for exercising individuals (low risk) compared to sedentary (high risk) individuals (see Table 17.2). However, the differences between the high risk and low risk medical costs reported by Bertera (1991) and Yen et al. (1991) in Table 17.2 are statistically non-significant.

INFLUENCING HEALTH CARE COSTS WITH FITNESS INTERVENTIONS

Additional information is provided in this section to supplement the evidence cited in Tables 17.1 and 17.2.

- In a study that spanned 14 years, Cady (1985) showed that the fittest employees had only one-eighth as many injuries as the least fit employees and that unfit employees incurred twice the amount of injury cost.
- Baun (1986) showed that exercisers in a Tenneco fitness program had \$553 lower health care costs per person compared to non-exercisers.
- Gettman (1986) found that physically active employees at Mesa Petroleum Co. spent \$217 per person less on medical claims and had 21 hours per person less of sick time than sedentary employees.
- Describing an Army staff project, Karch (1988) noted that participants who logged the most hours of exercise had the greatest decrease in the number of health services used.
- Tsai et al. (1988) showed that injury rates and costs associated with injuries decrease as physical activity levels increase.
- Shore et al. (1989) reported that back fitness improved in municipal workers after six months of exercising and that injury-related absences dropped 0.25 day while nonparticipant absences increased 3.1 days.

- Shephard (1992) reported a zero increase in medical costs for a company with a fitness program and a 35% increase in medical costs for a company with no fitness program.
- Connors (1992) reported that GE Aircraft employees who were members of the fitness center for three years lowered their average annual health care costs from \$1044 to \$757 per individual. In contrast, nonmembers increased their average annual health care costs from \$773 to \$941 per person.

It has been established that physical inactivity increases the risk for several health problems and diseases (Blair et al., 1992). Logic tells us that if a person is inactive (sedentary) and develops more health problems than an active person, the sedentary, unhealthy, or diseased person is going to spend more dollars on health care than the healthy, active person. Therefore, physical activity that leads to healthier living will be economically beneficial because fewer dollars will be spent on health problems.

TABLE 17.1

Worksite fitness programs and benefit/cost evaluations.

Study/ Author(s)/ Year	Purpose	Benefit/Cost Ratio
Canada Life	Compare medical costs in a company with a fitness program to a 1992 control company with no fitness program.	3.43 Shephard, 1992
Toronto Municipality	Evaluate a fitness program designed to reduce job-related injuries and absenteeism.	1.41 Shore et al., 1989
Mesa Petroleum	Examine relationship between physical activity level and medical costs and absenteeism.	0.76 (1982) Gettman, 1986
Prudential Fitness	Evaluate effects of worksite fitness program on health care and disability costs.	1.93 Bowne et al., 1984

TABLE 17.2

Association between annual medical claims costs per person and the sedentary risk factor.

Study/ Cost	Sedentary Difference	Author(s)/ High Risk	Active Low	Year	Cost	Risk
Du Pont Co.	\$3335	\$3205	\$130 ns	Bertera, 1991		
Steelcase	\$ 870	\$ 479	\$391 ns	employees	Yen et al., 1991	
Milliman &	\$1248	\$1152	\$ 96	Robertson	Business & Health, 1995	

A CONSERVATIVE CONSENSUS STATEMENT

The consensus statement published by the Association of Worksite Health Promotion indicates that worksite health promotion, including physical activity, *may* produce health care cost savings making the programs economically beneficial (Kaman, 1995). This conservative statement is based on criticism directed at past health promotion research. Despite the consistent finding that worksite health promotion is effective, critics claim that weak research methods were used. Study groups have been self-selected and biased, and there has been a lack of control groups and a lack of random selection in comparison groups. In addition, there are other factors besides health promotion that may reduce health care costs, and research is needed to identify the specific independent influence that health promotion has on health care costs.

While some of this criticism may be warranted and while research on any topic can always be improved, we cannot negate the consistent findings of the wide variety of investigative approaches that have reported the positive economics of worksite health promotion, including physical activity. R.J. Shephard, a pioneer in worksite fitness research and one of the most respected professionals in the field, states that “large, randomized, double-blind, controlled experiments are not feasible in the context of worksite exercise programs” (Shephard, 1996). And, as an additional point, randomly selecting individuals into groups for research purposes raises some sensitive ethical questions. For example, randomly selecting a person into a sedentary control group and then asking that person to remain sedentary for the sake of good research denies that person the opportunity to change behavior, become active, and reap the rewards of a healthier lifestyle. Most of the past research conducted on the economics of physical activity have used observational methods and descriptive statistics. In the opinion of this author, it is not weak research to observe what happens in a group of people over time and then report the descriptive statistics.

CONCLUSION

Considering the evidence presented through a wide variety of studies, it is concluded that physical activity is economically beneficial. Future research should continue to document the specific relationship between physical activity and the economic costs related to health care and sick time.

MAJOR SOURCES OF INFORMATION

Acknowledgment is given to five excellent review documents that summarize the research related to the general topic of health promotion and its associated economics. The reader is strongly encouraged to review these documents.

■Shephard (1996) examined the methodology of 52 studies on worksite fitness and exercise programs and concluded that participants in these programs show improvements in health-related fitness, a reduction of cardiac risk factors, and a containment of illness. Health promotion practitioners should encourage the development of fitness and exercise programs for both large and small companies and foster employee participation. Researchers should explore further the association between changes in fitness and the economic benefits to the employer.

■Messer and Stone (1995) provided a thorough review and analysis of the studies reporting positive benefit/cost ratios for worksite fitness and health promotion programs. The state of the art in benefit/cost analysis is increasingly rigorous and defensible. Ultimately, benefit/cost analysis may provide the framework for establishing the economic viability of worksite fitness.

■Kaman (1995) edited the second major volume on the topic of worksite health promotion economics sponsored by the Association for Worksite Health Promotion. The consensus statement in this book details the current knowledge on the impact of health promotion on health care costs.

■Opatz (1994) edited the first major volume on the economics of worksite health promotion sponsored by the Association for Worksite Health Promotion. Part I of the book addresses the problems in trying to measure the costs and benefits of health promotion; Part II describes the proper techniques for evaluating programs; and Part III profiles programs at specific worksites.

■Pelletier (1993) published the second in his series of articles that summarize the impact of health promotion programs on health and cost. From 1980 to 1991 there were 24 published studies indicating positive health benefits and economic results and from 1991 to 1993, another 23 studies indicated the same. Pelletier states, "When anyone cavalierly dismisses [these] studies with the glib dismissal of 'there is no evidence,' they are simply ignorant of more than 13 years of increasingly sophisticated research with documentation of both health and cost outcomes."

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