Benefits of Recreation
Research Update
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PERSONAL BENEFITS OF RECREATION

PHYSICAL - GENERAL

• The health benefits of regular physical activity have been well established. It is now clear that regular physical activity reduces the risk of morbidity and mortality from several chronic diseases and increases physical fitness, which leads to improved function. There also appears to be a linear dose-response relationship between physical activity and health and functional effects. If a group of sedentary and unfit adults would accumulate 30 minutes of walking per day (or the equivalent energy expenditure in other activities) they would receive clinically significant health benefits. It does not matter what type of physical activity is performed (sports, household or occupational tasks) all are beneficial. The key factor is total energy expenditure (Blair, Kohl, Gordon, & Paffenbarger, 1992).

• In an excellent overview, Blair (1993) summarizes the relationship between physical activity, fitness and health. He notes that substantial evidence supports the notion that sedentary habits increase the risk of morbidity and mortality from a number of chronic diseases, including; coronary artery disease, hypertension, colon cancer, obesity, functional capability and non-insulin-dependent diabetes mellitus. (For those interested the best reviews to date include: Blair, Kohl, Gordon & Paffenberger, 1992; Bouchard, Shephard & Stephens, 1994; Wankel & Sefton, 1994).

• Sedentary individuals have a nearly twofold increased risk for coronary heart disease compared with those who are physically active (Powell, Thompson, Caspersen, & Kendrick, 1987).

• Death rates in sedentary individuals are approximately twice as high as for physically active persons (Paffenbarger, Hyde, Wing, Lee, Jung, & Kampert, 1993).
● Men who were initially sedentary but who started participating in moderately vigorous sports had a 23% lower risk of death than men who remained inactive (Paffenbarger, Hyde, Wing, Lee, Jung, & Kampert, 1993).

● Individuals climbing 36+ flights of stairs per week had a 28% lower relative risk of death from cardiovascular disease than sedentary individuals (Paffenbarger et al., 1991).

● A roughly 10-percentage point increase in the number of active people in the state of Minnesota would be expected to reduce deaths by 5% in men and 6% in women (Blackburn & Jacobs, 1993).

● Vigorous activity is necessary for protection against heart disease (Morris, Clayton, Everitt, Semmence, & Burgess, 1990).

● 6.1% of the deaths in the Harvard Alumni Study population could be attributed to a sedentary lifestyle (Paffenbarger, Hyde, Wing, & Hsieh, 1986).

● In the Aerobics Centre Longitudinal Study, 9.0% of the deaths in men and 15.3% of the deaths in women were attributable to low physical fitness (Blair, Kohl, Paffenbarger, Clark, Cooper, & Gibbons, 1989).

● Physical inactivity is a risk factor of the same status as cholesterol, smoking, and hypertension (Fletcher et al., 1991).
• Starting an activity program reduced risk of dying by 51% in men who became physically active when compared to those who remained sedentary (Blair, 1993).

• Over 250,000 deaths from nine chronic diseases in the U.S. in 1986 were due to sedentary habits (Hahn, Teutsch, Rothenberg, & Marks, 1990).

• Physical activity protects against stroke (Wannamethee & Shaper, 1992).

• Beginning moderately vigorous sports is as important to risk reduction as stopping smoking (Blair, 1993).

• Swimming was found to have definite benefits for the patient with asthma. The benefits derived included an increase in aerobic fitness and a decrease in asthma morbidity (Bar-Or, & Inbar, 1992).

• Moderate intensity exercise may be as effective in increasing HDL-cholesterol levels as higher intensity training (Duncan et al., 1991).

• Physical activity decreases the risks of colon cancer (especially in men) and breast and reproductive cancer in women (Blair, Kohl, Gordon, & Paffenbarger, 1992).

• An estimated 66,000 (U.S.) deaths from coronary heart disease, colon cancer and diabetes could be prevented annually if one-half of the sedentary people became active on a regular basis (Powell & Blair (In Press)).

• Physical fitness is inversely associated with cancer deaths in the Aerobics Centre Longitudinal Study (Blair et al., 1989).

• Moderate levels of physical activity or fitness are associated with important and clinically significant reductions in all-risk mortality (Blair, Kohl, Gordon, & Paffenbarger, 1992).

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• Increased physical activity assists in the prevention of the onset of noninsulin-dependent diabetes mellitus (Manson et al., 1992).

• Leisure-time physical activity was inversely related to the development of noninsulin-dependent diabetes mellitus in a study of University of Pennsylvania alumni (Helmrick, Ragland, Leung, & Paffenbarger, 1991).

• Regular moderate sports playing adds 1.25 years to the life expectancy of a 45-54 year old man (Paffenbarger, Hyde, Wing, Lee, & Kampert, 1993).

• Individuals who engage in physical activity are more likely to have better nutritional practices (e.g., consume more carbohydrates and fibres, less saturated fat, have a more balanced diet and eat a good breakfast) (Wankel et al., 1994).

• Choi (1992) reviewed studies examining the hypothesis that physical exercise is effective in the management of menstrual cycle symptoms and, thus, is beneficial to women. The author suggests that because physical exercise is associated with reductions in anxiety and depression in general, and these findings are stronger for women, exercise may help alleviate menstrual symptoms and possibly be a preventative measure.

• Lee (1991) reviewed the literature dealing with women and exercise to establish whether there is evidence that exercise will benefit women in the same way as men. The review revealed that women can benefit physiologically and possibly psychologically from exercise.

• Grove, Wilkinson and Dawson (1993) completed a study of female smokers and found that with just 15 minutes of daily exercise, cigarette cravings were reduced.
Davison and Grant (1993) completed a review and concluded that regular walking provides an adequate stimulus for many young, middle aged and elderly people to achieve significant gains in aerobic power. The available evidence suggests that walking has the potential to lower blood pressure, improve lipid profile, reduce body fat, enhance mental well-being and reduce risk of coronary heart disease.

Dubbert (1992) reviewed the research on the preventive and rehabilitative applications of exercise and literature on exercise adherence from the past 10 yrs. There is now substantial evidence that a low level of physical activity is associated with decreased life expectancy for both men and women and contributes independently to the development of many prevalent chronic diseases.

Lamb, Brodie, Minten and Roberts (1991) completed statistical analyses on 2 surveys of British adults - the Indoor Sports Research Project (1,122 adults) and the Health and Lifestyle Survey (5,998 adults). The results showed that sports participants had significantly lower body mass index values, lower blood pressures, and lower resting pulse rates. They also possessed better self-perceived health and perceived themselves to be more active than members of the general population.

Minor (1991) examined the results of arthritis exercise research and found that regular physical activity has been shown to be effective in the management of selected forms of arthritis.

Shephard, Verde, Thomas and Shek (1991) completed a review of the literature and noted that moderate doses of endurance exercise has a beneficial effect on immune responses.
• Vuori, Oja and Paronen (1994) conducted three successive mail studies in Tampere Finland and found that physically active commuting to work (PACW) meets requirements of health and fitness enhancing activity. In addition a subsequent study indicated that PACW can be successfully promoted using low cost measures. In conclusion the authors suggest that PACW may offer substantial potential for enhancing health and fitness provided that it can be practiced safely.

• In a study of 219 employed males and females it was found that leisure participation and leisure satisfaction were positively associated with perceived wellness. Specifically, family satisfaction accounted for 26% of the variance in perceived wellness, leisure satisfaction for 10% and health satisfaction for 7%. The positive association found between engaging in leisure activities and perceived wellness in this study is consistent with findings from other studies (Ragheb, 1993).

• Robison, Rogers, Carlson and Mavis (1992) found that adherence to a work-based physical activity program increased as a result of an incentive based intervention. In addition there were significant improvements in cardiovascular efficiency and work capacity.

• In a study of 492 workers from 2 pharmaceutical firms, Rosenfeld and Tenenbaum (1992) found that perceived well-being was higher for individuals involved in regular physical activity than for those who were not involved in regular physical activity.

• Negative behaviours displayed by institutionalized adults with a mental handicap decreased by 24% and positive behaviour increased by 66% after one hour of continuous physical activity (Brown, & Chamove, 1993).

• An exercise program was shown to facilitate job-related task performance in adults with mental retardation (Croce, & Horvat, 1992).
PERSONAL BENEFITS OF RECREATION

PSYCHOLOGICAL - GENERAL

- The International Society of Sport Psychology (1992) has suggested, based on an accumulation of research findings, that the potential psychological benefits of being involved in regular physical activity programs are: reduced state anxiety; decreased levels of mild to moderate depression; reductions in neuroticism and anxiety; an adjunct to the professional treatment of severe depression; the reduction of various stress indices; beneficial emotional effects across all ages and for both sexes.

- A survey completed in the U.S. examined the public's perceptions of the benefits of recreation and parks services. The top five benefits of local park and playground use perceived from individual, household and community perspectives were: Individual benefits - exercise/fitness, relaxation/peace, open space, place for kids, and nature; Household benefits - exercise/fitness, relaxation/peace, fun/entertainment, place for kids, and place to play; Community benefits - exercise/fitness, place for kids, gathering place, activities, and community spirit. The survey also found that among respondents who frequently used parks 33% reported their health as excellent compared to only 20% of those who did not use parks. Those people who did not use local parks were most likely to report fair or poor health (Godbey, Graefe, & James, 1993).

- A recent meta-analysis (that is, a big review of all findings on the topic) found that a bout of acute exercise leads to a reduction in tension and anxiety for up to 30 minutes following the activity - irrespective of the intensity or the duration of the exercise (cited in Rejeski, J., Thompson, A., Brubaker, P. & Miller, H. (1992).

- Only relaxation leads learning in importance as a motivator for many leisure activities. Learning, education and protecting the environment are high priority motivators for participating in leisure activities (Roggenbuck, Loomis, & Dagostino, 1990).
• Americans are motivated to choose leisure activities for nine reasons. From most to least important the motivations are: Recuperative (94%) - to recharge, recuperate; Tenacious (95%) - when a person makes a commitment to do an activity they will likely keep doing it; Hands-On (81%) - do-it-yourself, home renovators, home repairs, working with their hands; Sociable (76%) - participate in leisure for sociability; Intellectual (68%) - reading, solving puzzles, intellectually curious, lifelong learning; Pleasure-Seeking (64%) - motivated to seek pleasurable experiences; Competitive (64%) - motivated to participate in competitive activities; Escapist (63%) - want escape from reality during leisure; Ambitious (33%) - take on the world types. Age breakdowns reported help to understand who to market recreation and leisure activities to (Spring, 1992).

• Recent research on the process of exercise adoption has suggested that individuals move through a series of stages on the way to incorporating regular physical activity into their lifestyle. A study was completed with the purpose of trying to better understand the process of exercise adoption. It found that the perceived benefits of exercise and perceived self-efficacy were highest in the action stage (those who are physically active) and lowest for the pre-contemplators (those who do not exercise and have never even considered exercising). Perceived barriers to exercise were highest among the pre-contemplators and lowest in the action stage. The findings suggest that an individual is more likely to engage in regular exercise if he/she has a higher sense of self-efficacy, a greater perception of the benefits of exercise and a lower perception of the barriers to exercise (Schneider, Stokols, & Lindberg, 1994).

• Rosenfeld & Tenenbaum (1992) note that physical activity has been shown to have both short and long-term psychological effects on well-being. A variety of research completed by numerous authors has shown that physical activity has been found to positively affect self-esteem, anxiety, depression, tension, and stress.

• Wankel and Mummery (1994) found that intention to participate in regular vigorous physical activity decreases consistently across age groups in the Canadian population.

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Brown (1991) attempted to determine if physical fitness buffers the negative effects of life stress. He found that people who are physically fit are less vulnerable to the adverse effects of life stress than are those who are less fit.

A study of 244 overweight women found that adherence to nurse-led exercise interventions was considerably higher than those reported in the literature for overweight women. Some possible contributing factors included: the participants were "excited" to find out that nurses would be their exercise leaders; the participants perceived that the nurse leaders would be concerned about their health and would not expect more than the women were capable of doing. (Gillett, Johnson, Juretich, Richardson, Slagle, & Farikoff, 1993).

A review of the psychological benefits of exercise found that: exercise is an effective antidepressant; all modes of exercise (aerobic and anaerobic) are effective in decreasing depression - the longer the program the better the effects; there is an association between exercise and decreased tension, decreased anxiety, ability to cope with stress; exercise plus supportive counselling was most effective at helping students with low self-concept improve their views of themselves (Anthony, 1991).

Ragheb and McKinney (1993) conducted a study to examine how leisure or campus recreation contributed to the reduction of students' perceived academic ability. They found that: the more students participate in recreation activities, the less they perceive academic stress; and the greater the satisfaction with leisure the lower the perceived academic stress.

Brown and Robinson (1993) examined the relationship between regular meditation and/or physical exercise and 3 dimensions of self-actualization in 103 advanced graduate counseling students (aged 23-62 yrs) who had completed at least 1 semester of practicum. They found that a combination of exercise and meditation helped reduce anxiety in the graduate students.
Berger and Owen (1992) studied 87 college students in 2 swimming classes, a yoga class, and a lecture-control class. All subjects completed the Profile of Mood States and the State-Trait Anxiety Inventory. An ANOVA indicated that both yoga participants (n = 22) and swimmers (n = 37) reported greater decreases in scores on Anger, Confusion, Tension, and Depression than did the control students (n = 28). Among the men, the acute decreases in Tension, Fatigue, and Anger after yoga were significantly greater than those after swimming. Women reported fairly similar mood benefits after both swimming and yoga.

Curnow and Turner (1992) assigned 46 undergraduates (aged 18-24 years) to 1 of 4 treatment conditions: (1) exercise with music, (2) exercise without music, (3) no exercise with music, and (4) no exercise, no music (control). Subjects completed the Torrance Tests of Creative Thinking before and after treatment. Music, exercise, and exercise with music was found to positively influence fluency and creativity.

McGowan, Pierce and Jordan (1991) examined the effect of a single exercise session on mood state. 72 college-age students completed the Profile of Mood States prior to and immediately after a 75-min activity class (running, karate, or weight lifting). They found that a single exercise session can reduce reported total mood disturbance, tension, depression, anger, and confusion.

Stein and Motta (1992) examined the effects of aerobic and nonaerobic exercise and depression and self-concept in pretest-posttest design. 89 college students (aged 18-42 years) engaged in either the aerobic exercise of swimming, the nonaerobic exercise of weight training, or general education - a no-exercise control. Individuals in the swimming and weight training programs were shown to have lower depression scores than those in the general education group. The weight training group displayed higher self-concept than the swimming group.
• Brandon and Loftin (1991) assessed the fitness level of 8 female and 9 male recreational cyclists via ergometric testing on a cycle trainer with oxygen consumption and cardiovascular monitoring. Psychometric measures administered were the short version of the Beck Depression Inventory, the internal portion of the Multidimensional Health Locus of Control Scale, the State-Trait Anxiety Inventory, and the Self-control Questionnaire. Significant correlations were observed between fitness and the depression scores, internal locus of control, and self-control measures, suggesting a possible link between physical fitness and improved emotionality.

• Brill, Kohl and Blair (1992) evaluated the possible confounding effects of anxiety and depression on the relation between physical fitness and mortality in male patients who were given a preventive medical examination between 1977 and 1986. Physical fitness was measured by maximal exercise treadmill testing. Anxiety and depression were measured by Clinical Analysis Questionnaire. The authors found that the risk of death in unfit men was significantly higher than that of physically fit men regardless of anxiety or levels of depression.

• Cramer, Nieman and Lee (1991) examined the relationship between moderate exercise training (5, 45-minute sessions/week of brisk walking) for 15 weeks, psychological well-being, and mood state in 35 sedentary, mildly obese women (aged 25-45 yrs). 18 subjects exercised; 17 subjects were controls. Measures included a general well-being schedule, the State-Trait Anxiety Inventory, and Profile of Mood States. Moderate exercise training improved psychological well-being and mood state in the mildly obese subjects.

• Haworth and Hill (1992) measured motivation, enjoyment, and access to various categories in both work and play of 20 young adults (aged 20-30 yrs) and examined their relationship with psychological well-being (PWB). Various measures were used, including the General Health Questionnaire. Results found enjoyment obtained from leisure experiences to be related to overall psychological well-being.
● de-Zwaan (1992) examined the effects of strenuous exercise on serum levels of desipramine in a 26-yr-old woman with major depressive disorder and amitriptyline in a 22-yr-old woman with dysthymia and nonpurging bulimia nervosa. Exercise was shown to provide a moderate increase of antidepressant serum levels in depressed individuals.

● Norvell, Martin and Salamon (1991) assigned 43 sedentary postmenopausal women (mean age 58.9 yrs) to a 12-wk aerobic exercise group, a 12-wk passive exercise group, or a sedentary control group. Before and after the 12-wk period, the women completed measures of physical fitness and psychological functioning. Improvement in aerobic power as a result of regular physical activity was shown to be significantly correlated with improvement in overall psychological distress, depression, and perceived stress in the sedentary, middle-age women.

● Steege and Blumenthal (1993) evaluated the effects of aerobic exercise and strength training on premenstrual symptoms of 23 healthy premenopausal women (aged 45-55 yrs). Premenstrual symptoms were assessed at baseline and following 3 months of exercise. They found that aerobic exercise had a positive influence on premenstrual symptoms, especially premenstrual depression.

● Tucker and Maxwell (1992) determined the extent to which participation in a weight training program was associated with changes in body cathexis and emotional well-being, as well as the extent to which psychological factors affected these changes. An experimental group of 60 female university students participated in a 15-wk weight-training intervention. They also participated in a physical exercise program 3 days/wk along with a control group of 92 women. Women in the weight training group showed greater improvement in emotional well-being and body image than the exercise only group. Weight training was associated with psychological improvements.
• In two experiments, Thayer, Peters, Takahashi and Birkhead-Flight (1993) studied the effect of moderate exercise on self-rated mood and other behaviors. Brisk 5-minute walks were taken by 16 smokers (aged 18-44 years) before a desired cigarette and by 18 frequent snackers (aged 18-52 years) before a sugar snack on multiple occasions over 3-week periods. Walks produced increased energy feelings and reduced urge to smoke or snack. Also, the walks doubled the time before smoking the next cigarette or eating the next snack in free smoking and snacking conditions. Data suggest a self-regulation of mood model in which moderate exercise may sometimes be substituted for smoking or snacking on the basis of common mood effects.

• The effects of acute and long-term exercise on perceptions of personal efficacy in sedentary, middle-aged males and females was examined. Both males and females demonstrated significant increases in efficacy following acute exercise. Females, who had demonstrated initially lower self-perceptions than males, made dramatic increases in efficacy during the exercise program, equalling or surpassing those of the males (McAuley, Courneya, & Lettunich, 1991).
PERSONAL BENEFITS OF RECREATION

PHYSICAL - CHILDREN AND YOUTH

- Hinkle (1992) discusses aerobic exercise (specifically running) and the psychological, behavioral, and physical benefits children obtain by participating in fitness programs. The author suggests that school counselors and physical education teachers can play an active role in the development of lifelong fitness for children by encouraging, supporting, developing, and implementing creative aerobic running programs in the schools.

- Jain, Rai, Valecha and Jha (1991) evaluated the effect of yoga training in 46 young asthmatics (aged 11-18 yrs) with a history of childhood asthma. Yoga training resulted in a significant increase in pulmonary function and exercise capacity in these young asthmatics.

- Modified Judo practice was shown to improve physical fitness, developmental skills, fine and gross motor skills, and psychosocial attitude in a study involving blind, mentally retarded children (Gleser, Margulies, Nyskat, Shlomo, et al., 1992).

PSYCHOLOGICAL - CHILDREN AND YOUTH

- Folsom-Meek (1991) assessed the weight, body mass index, 4 scores from the Health Related Physical Fitness Test, and the total score from the Self-Concept Scale of 97 elementary school children in Grades 1-6. Physical fitness was found to be positively related to the development of a positive self-concept.

- Vilhjalmssson and Thorlinsson (1992) analyzed data from a national survey of Icelandic adolescents and concluded that sport participation in clubs and groups positively relates to life satisfaction. Adolescents involved in club and group sport smoke and drink alcohol less than non-sport participants. In addition, the study supports the physiological benefits of group and especially club sport participation.
PERSONAL BENEFITS OF RECREATION

PHYSICAL - OLDER ADULTS

● Thirty community-dwelling, moderately depressed elderly were randomly assigned to 1 of 3 interventions: experimenter-accompanied exercise in the form of walking; a social contact control condition; and a wait-list control. The experimenter-accompanied exercise and social contact were equally effective in reducing both total depression and psychological symptoms compared with no treatment. However, only the exercise condition resulted in a significant decrease in somatic conditions. All things considered these findings show that, at least in the short term, accompanied exercise reduces a broader range of depressive symptoms in the moderately depressed elderly, as compared to social contact alone (McNeil, LeBlanc, & Joyner, 1991).

● When examining a sample of active middle-aged and older adults, one's sense of physical competence was the best predictor of life satisfaction. Those people who participated in an exercise program had higher levels of perceived physical ability and also perceived their lives to be more satisfying. The authors suggest that "an older exercise participant who perceives himself to be physically able, tends to be intrinsically motivated to engage in physical activity and not dependent on feedback from others, and believes that his/her exercise programs meets affiliation needs, is likely to be satisfied with life in general" (Tappe, M. & Duda, J. (1989).

● Twenty active elderly male and female subjects (mean age = 66.4 years) participated in a 12 week weight training program to find out if it was possible to increase muscular strength and lean body weight. Males (n=11) had an average increase of 66% in total maximum weight lifted while the females (n=9) showed an average increase of 72.2%. Lean body weight also increased but not to a statistically significant degree. A weight training program was seen to have positive effects on this group of elderly citizens. (Dupler, & Cortes, 1993).
A sample of sedentary older adults from the Duke Exercise and Aging Study were introduced to and participated in an exercise program for eight months (this was then extended for six more months). Following the 14 months the older adults achieved up to an 18% increase on aerobic capacity! However, the most interesting results came one year later. At this time 87 older adults (or 88% of the original group) completed a follow-up questionnaire. Of these 94% (85 people) had continued to participate on some form of physical activity, including stretching exercises, walking, stationary bicycle riding, strength training, yard work, swimming, golf, among others. The MAJOR REASONS for continuing to exercise were: 1. it kept them in good shape and good health; 2. it improved energy level and alertness.(Emery, Hauck, & Blumenthal, 1992).

O'Brien and Vertinsky (1991) present an excellent overview of the benefits of exercise for older women. Among others, they specifically note that there are two main types of benefits of exercise for older women: 1. Within weeks, short-term enhancement of physical, social, and emotional well-being 2. Long-term contributions to prolonged good health, resistance to illness, optimization of self-care and functional independence, reduced mortality risk, and overall increased quality of life to accompany the extended longevity.

Ashley (1993) notes that dance has many benefits for older adults, including improved balance and coordination, physical fitness, weight control, creative expression, and relaxation.

Cowper, Morey, Bearon and Sullivan (1991) examined the impact of supervised exercise on the health status (measured by the Sickness Impact Profile) and well-being (measured by the Psychological General Well-Being Index) of 23 elderly veterans (aged 65-80 years). The intervention consisted of 90 minutes of exercise, 3 days per week at 65-75% of maximal capacity. At 1 year follow-up, the program resulted in significantly increased psychological well-being and cardiovascular fitness in the veterans.
Jirovec (1991) examined the impact of a daily exercise regimen on the mobility, balance, and urine control of 15 cognitively impaired elderly nursing home residents (aged 70-97 years). Daily exercise was found to improve both the mobility and bladder control of this elderly group.

McMurdo and Burnett (1992) found that spinal flexion, perceived health status, life satisfaction, and maximal physical exertion were significantly improved following participation in a 32 week aerobic exercise class in a group of older healthy volunteers (age range 60-81 years).

Physically active older adults have lower blood pressure than do their less active counterparts (Pescatello et al., 1991).

Active middle-aged and older populations have lower total cholesterol levels than do their less active counterparts (Reaven et al., 1990).

Physical activity reduces the risk of hip fractures in older adults (Paganinin-Hill et al., 1991).

Hopkins et al., (1990) found that after 12 weeks of participating in low-impact aerobic dance three times/week, previously sedentary elderly women (age range 57-77 years, mean = 65) improved significantly on the following functional fitness components; cardiorespiratory endurance, strength/endurance, body agility, flexibility, body fat, and balance. Only the motor control/coordination component did not show any significant differences between the experimental and control groups. This study demonstrates the physical conditioning capability of sedentary elderly women and that low-impact aerobic dance can be an effective medium for improving functional fitness.
PERSONAL BENEFITS OF RECREATION

PSYCHOLOGICAL - OLDER ADULTS

- The effect of a long-duration endurance exercise training program on selected psychological processes in a non-diseased, community-dwelling sample of older non-exercising adults was examined. The training occurred over a 1 year interval, during which participants progressively increased their exercise intensity to sustain large improvements in cardiovascular fitness. In fact the average increase in \( V_{O2\text{max}} \) was 28% over baseline. There was also a significant improvement in self-reported morale in the exercise group over the controls. It was suggested that exercise may work to further enhance positive affect and the future outlook in non-depressed older adults (Hill, Storandt, & Malley, 1993).

- As part of a larger study on the physical fitness and body composition of participants at seniors' games, a qualitative exploration of personal life philosophy was undertaken in order to initiate understanding about the cognitive make-up of competitive older men and women. The responses provided evidence that sport and physical recreation may be an important type of coping strategy for some elderly adults who find meaning and a sense of achievement in challenging themselves physically. Beyond the general optimism in life orientation, uncertainties about the nature of the future left many with a sense of urgency combined with specific short-term goal setting (O'Brien, & Conger, 1991).

- Emery and Blumenthal (1991) completed a review of the research literature pertaining to the effects of physical exercise on psychological and cognitive functioning of older adults and noted that older adults perceive significant changes in cognition and affect following regular exercise.
SOCIAL BENEFITS OF RECREATION

● The Detroit Recreation and Parks Department has shown marked success in using leisure programs to combat juvenile delinquency. The Youth Restitution Program offered participants the chance to turn their lives around, improve family relationships and make their future prospects brighter. The program included assignment of community service work, which placed the youth in recreation centres where they assisted their supervisors with the supervision of children's recreation and sport activities, maintaining the building, distributing meals to seniors and beautifying the recreation centre. In addition to community service work, leisure counselling was also made available to the youth to help them make positive leisure choices. In documenting the success the Detroit Recreation and Parks Department have shown that: a recidivism rate among participants of only 3%; 80% of the participants continue helping with centre activities after their community service requirement is completed; the program has also helped to counter the lure of crime, teen pregnancy and drug abuse (Krichbaum, & Alston, 1994).

● Canadian examples of recreation programs aimed at "high risk" youth include the Night Hoops program in Halifax, Nova Scotia and the PAL juvenile crime prevention program in Edmonton, Alberta. The Night Hoops initiative is a recreational basketball league designed to attract kids away from the temptation of drug dealers and other criminal action. Evaluation of the effort is in progress and anyone interested in finding out the results should contact the Coordinator, City of Halifax Drug Awareness Program. The Edmonton Police Activities League (Edmonton PAL) is a recreational based, juvenile crime prevention program that relies heavily on athletic, recreational and social activities to encourage harmony among students and to create a positive bond between police officers and high risk youth. A pilot program was launched in March 1994 which provided after school activities for 40 children (grades 4-6) for 10 weeks. Anyone interested in finding out the results of the program can contact Program Director, Edmonton Police Activities League (PAL), City of Edmonton Police Department.
The Phoenix Arizona Parks, Recreation and Library Department was given a grant for two summers to fund various recreation programs aimed at teenagers. Funding was secured to add late night/weekend activities and provide more services to teens during expanded leisure time over the summer months. The result was a 52% reduction in juvenile crime. A series of programs were provided at a cost of 74 cents per person, whereas it costs $38,000/year to lock up one teen. While not the only solution, recreation and parks programs are seen a vital cog in the chain of helping curb youth crime (Phoenix Parks and Recreation Staff, 1994).

Northern Fly-In Camps Inc. is a federally registered no profit corporation whose mission is to provide healthy recreation for children living in remote northern communities by implementing summer sports camps for children and to assist in the development of leadership skills of young people in these communities. To date most of the programs have been shown to have effects on the crime rates in the communities reached. In a separate project studying the short-term impact of Northern Fly-In Sports Camps in northern Manitoba, the authors found that in addition to lowered crime rates, adolescents also experienced improved mood state, reductions in stress and anxiety, greater levels of involvement in physical activities and more positive perceptions of the Royal Canadian Mounted Police (Searle, Winther, & Reed, 1994).

When studying the extracurricular activities of adolescent drug abusers versus non-users it was found that: abusers reported they had more friends who were abusers than did non-users; nonusers reported spending much more free time with their family than did abusers; nonusers reported significantly higher involvement in extracurricular activities (i.e., teams, clubs, group activities) than abusers. In summary, nonusers tended to be highly involved in extracurricular activities, spent more time with their family and less time with peers/friends than did the drug abusers (Shilts, 1991).
- When comparing the behavioural characteristics of drug abusers and nonusers it was found that the leisure activities usually participated in by drug abusers prior to drug use and by the nonusers were different. That is, significantly fewer drug abusers than nonusers mentioned that when they were free they helped with housework or the family business, attended extramural classes or institutes or community centres, took part in games or sports or went on a picnic. Drug abusers were significantly more likely than nonusers to report they gambled or hung around on the streets when they had nothing to do. Drug abusers were also more likely to patronize cinemas or just stay home and do nothing than users, whereas nonusers were more likely than drug abusers to report they pursued hobbies, listened to the radio, watched TV, went shopping with friends in their leisure time (Teck-Hong, 1992).

- Current research indicates that co-participation in leisure activities is positively related to family satisfaction, family interaction, and family stability (Orthner, & Mancini, 1990).

- A study by Pelham and Campagna (1991) found that exercise can foster social interaction along with improvements in aerobic fitness and psychological state. They recommend that regular exercise should be a priority item in the daily routine of a schizophrenic patient in the psychiatric rehabilitation setting.

- In a study looking at the social impacts of community festivals it was found that the major social benefits of community festivals were: establishing community pride; social interaction; togetherness/sharing of ideas, community identity and community wellness (Delamere, & Hinch, 1994).

- Benefits of the provision of recreational sport opportunities for young offenders include; enhanced self-esteem, development of self-awareness, more disciplined attitude, greater awareness of health and hygiene, gains in confidence, peer group socialization, positive adult role models who care about participants (Crompton, 1993).
• A comprehensive literature search related to the potential of recreation in delinquency intervention found that: there were increases in self-esteem and improved overall self-concept; there were decreases in the sense of hopelessness of at-risk or delinquent youth (McKay, 1993).

• Aversa (1991) completed a case study of yacht club membership and found that the relationships traditionally associated with the nuclear family are realized in club membership. In the absence of traditional families, due to such things as geographic distance, new members related to their fellow members in ways similar to family style of relating.

• Pellegrini and Davis (1993) found that recess provided significant opportunities to be physically and socially active. The level of social activity and post-recess attentional measures were strongly correlated. The longer children waited to obtain recess time the less attentive they became during classroom time.

• Pellegrini and Smith (1993) found that recess behavior is a generally positive predictor of children's social and cognitive development. It is concluded to have social value and relevance.
The 1993 World Travel & Tourism Council Report re-emphasizes the industry's leading contribution to the world and national economies and its role in helping nations to create new businesses, and more importantly, new jobs. Some of the projected impacts from a Canadian perspective are: For every 1 million dollar increase in travel and tourism gross output in 1994, 21.9 new jobs will be created; in 1994 it is projected that 1 in 7 jobs in Canada will be directly or indirectly accounted to the tourism and travel industry; in 1994 it is projected that Canada will have 2.37% of the worldwide travel and tourism market, which accounts for a gross output of 80.7 billion dollars (Travel & Tourism, October 1993. A special report from the world travel & tourism council.).

The Phoenix Arizona Parks, Recreation and Library Department was given a grant for two summers to fund various recreation programs aimed at teenagers. Funding was secured to add late night/weekend activities and provide more services to teens during expanded leisure time over the summer months. The result was a 52% reduction in juvenile crime. A series of programs were provided at a cost of 74 cents per person, whereas it costs $38,000/year to lock up one teen. While not the only solution, recreation and parks programs are seen a vital cog in the chain of helping curb youth crime (Phoenix Parks and Recreation Staff, 1994).

Wood has concluded that if Canadians were sufficiently active, health care spending associated with the treatment of ischemic heart disease would be 24% lower. She estimates that the potential savings to the health care system would be in the range of $300 to $400 million per year (Cited in Swedberg, & Izso, 1994).

In a study conducted to assess the impact of the 1991 Canada Winter Games on the Prince Edward Island economy it was projected that: the total money to be injected into the economy was in the neighbourhood of $49.7 million; the games would attract approximately 30,000 visitors who would spend around $11 million; 175 direct jobs and 432 indirect jobs would be created; and volunteers would save the Games Society $10.975 million (The Business Institute Charlottetown, P.E.I., 1990).
Every five years the U.S. Fish and Wildlife Service and the U.S. Bureau of Census conduct a survey on the money spent in pursuit of nature tourism. Nature tourism includes activities such as hunting, angling and watching wildlife. The most recent survey, conducted in 1992, found that a total of $59 billion was spent on wildlife recreation in 1991. 48% of this total was spent on equipment, 39% spent on trip-related expenses (meals, motels, gas, etc) and 13% other expenses. (Source: EcoTourism Management: A newsletter of information and advice for the visitor industry).

Research has shown that the economic benefits of urban trees and forests are enormous. For example areas identified as having significant economic impacts are: increased real estate values, energy savings, enhanced opportunities for recreation, improved air quality and stormwater management (Dwyer, 1993).

The public still perceives parks and recreation as a necessary social institution, one which has a definite mission. The author suggest that recreation benefits the economy through its relationship to travel and tourism. Recreation does aid in the reduction of health care costs through its relationship to health and fitness. Recreation aids in combating delinquent behaviour (Sessoms, 1993)

The provision of parks and recreation services play an influential role in a community's economic development efforts. When companies chose to set up business or relocate, the availability of recreation/parks/open spaces is very high on the priority list for selection. Recreation and parks have a profound influence on people's preferred living locations (Love, & Crompton, 1993).

Recreation and parks services are very important to the attraction of retirees to communities (Backman, & Backman, 1993).

Benson (1993) completed a study aimed at calculating use values for recreation in existing forests. The results of the study showed that non-specialist day visitors to commercial forests place high value on the wildlife, landscape, and access attributes of the sites. Results suggested a total use value of at least $34.6 million at 1988 prices.

Benefits Research Update
• Goodale (1993) notes that studies of the benefits of parks and recreation have accelerated in recent years, as researchers throughout Canada and the US are working toward a more complete understanding of the power of parks and recreation. The direct economic benefits are obvious. Leisure has, in fact, become the center of the world’s, nation’s and cities' economies. Recreation’s benefits also contribute powerfully to health, and it seems increasingly clear that the only way out of the health care cost crisis is prevention, thus avoiding cost. The economic value of recreation for health may rank with or ahead of entertainment, travel, and tourism. There are many other benefits: learning, development, identity, family, community; organizational, social, environmental and spiritual benefits.

• Leutzinger and Blanke (1991) studied the effect of an on-site fitness center on perceptions of worker productivity after 9 months of operation. Perceptions of the fitness center and the relationship between regular exercise and perceived worker productivity were measured using survey responses from 539 members and 504 nonmembers. Results suggest a strong positive relationship between membership status, exercise adherence, and perceptions of the fitness center, as well as a positive relationship between regular exercise and perceptions of worker productivity. Findings suggest that membership and exercise adherence in an on-site fitness program affected perceptions of worker productivity.

• Each additional mile walked or run by a sedentary person would give him/her an extra 21 minutes of life and save (U.S.) society an average of 34 cents in medical and other costs (RAND Corporation, 1993).
Steinhardt, Greenhow and Stewart (1991) examined the relationship of physical activity and cardiovascular fitness to absenteeism and medical care claims among 654 male and 80 female law enforcement officers (aged 21-60 yrs). Sedentary officers were absent significantly more often than active officers. Female officers were absent significantly more than male officers. Although proportionally more female officers than males scored above the 50th percentile on fitness, increased fitness for females was not related to decreased absenteeism. Increased fitness for male officers was related to decreased absenteeism. Medical care claims for a subsample of 363 male officers were lower for more fit and more active officers, although this relationship was nonsignificant.

While reviewing the impact of tourism on the Australian economy, Rowe (1993) cites tourism projections for the year 2000. By 2000, tourist expenditures will reach A$43 billion in an industry that will employ 700,000 Australians. In order to accommodate the 'boom' there will need to be a 60% increase in motel and hotel rooms, which equates to a new hotel opening every week until the end of the century.

While reviewing the nature of tourism in Cyprus, Kammas & Salchi-Esfahani (1992) that tourism can be beneficial to the overall growth and development of small island communities. In the case of Cyprus tourism has grown to be one of the most important sectors of the economy and has created jobs for 20% of the population.
ENVIRONMENTAL BENEFITS OF RECREATION

- Wilkinson (1992) notes that ecotourism has a positive influence on environmental conservation with the recognition that without effective conservation, there would be no tourism industry. Recreation has a positive impact on environmental attitudes and perceptions.

- Living close to natural environments was found to be very important to elderly residents and was found to enhance their quality of life. Specific results of the study found that having different kinds of outdoor settings close to one's home was associated with high residential and life satisfactions. Residents of a complex with nature nearby and who had private balconies were more satisfied with their housing than residents of a high-rise site. Having window views of nature was also associated with higher residential satisfaction (Talbot, & Kaplan, 1991).

- Ulrich et al. (1991) completed a study to determine the calming effects of natural versus urban environments. Subjects who watched a stressful movie recovered faster and more completely when exposed to follow-up films featuring natural versus urban environments.

SPECIAL NOTE:

- For those who wish to review an excellent example of how to use a benefits-based approach in your community please refer to the following article by Ross Fair which appeared in the October 1992 edition of Recreation Canada (Fair, 1992).

**Two other resources that cannot be missed when examining the benefits of recreation are:**

REFERENCES


EcoTourism Management: A newsletter of information and advice for the visitor industry. Summer, 1994, p. 3.


*Travel & Tourism,* October 1993. A special report from the world travel & tourism council.


