

A Low Intervention Program for Weight Loss in Law Enforcement Officers

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Abstract: At the request of Texas state game wardens, a low intervention weight-loss program was implemented for 48 officers assigned to 3 law enforcement districts and the department headquarters staff. The program was designed to take advantage of the social interaction and support of wardens assigned to the same unit. At termination of the 14-week program, 90% of the participants had lost weight and mean weight loss for all officers was 8.6 lb. Weight-loss was related to initial weight of participants and to the district of assignment. Program cost was similar to those of other low intervention programs and substantially less than other types of weight loss programs.

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Law enforcement is an occupation that depends on physical fitness for proper performance (Broyles 1987). However, a current study by the International Association of Chiefs of Police (IACP) found that law enforcement officers are, as a group, less active and experience more health problems related to decreased physical activity than the average American (IACP 1978). This report concluded that blood-cholesterol counts and body fat contents of law enforcement personnel was higher than average and that their cardio-respiratory fitness and performance in several physical tests were below average. They concluded that, on average, an officer's physical work capability is lower than an accountant's. Approximately 72% of all significant medical findings in law enforcement officers are fitness-related and >60% of on-duty deaths of law enforcement officers are related to cardiovascular problems (Inst. for Aerobics Res. 1980).

To address this problem for state law enforcement officers, the Law Enforcement Division of the Texas Parks and Wildlife Department (TPWD) instituted a Health-Fitness Program (HFP) for state game wardens and park peace officers in 1987. The program goal was an increase in officer awareness of the positive health benefits, increased lifespan, and quality of life that could be obtained through

modification in basic lifestyles and habits. The objectives of this program included, but were not limited to:

1. Encouragement of regular exercise programs,
2. Stressing nutritional needs for maintenance of a well-balanced diet with concomitant weight control,
3. Prevention of back injuries,
4. Stress management, and
5. Education about drug and alcohol abuse.

The initial phase of the HFP was an assessment of physical fitness which included an evaluation of basic blood chemistries (including cholesterol and blood sugar), blood pressure screening, and assessment of overall physical conditioning. The HFP was immediately embraced by personnel and by 1990, 85% of all peace officers were voluntary participants in at least 1 phase of assessment.

As interest in the program grew, Law Enforcement Division field staff requested a "weight management" program. While many different types of weight-loss programs have been documented in health-care literature (Wing and Jeffery 1979, Stunkard 1985) programs which emphasize "behavioral therapy" and a "work site environment" have been shown to produce excellent long-term results.

In early attempts in behavioral therapy, researchers found that attrition rates for people who voluntarily participated in weight loss was consistently at or near 50% with minimal associated weight loss. However, when the element of competition between groups was added to this regime, attrition rates decreased to 20% and weight loss substantially increased (Brownell et al., 1984). Wing and Jeffery (1979) reported an average weight loss of 11.2 lbs per person in survey of 48 different behavioral therapy programs involving 995 participants. Weinsner et al. (1984) reported that treatments of 8 to 12 weeks uniformly produced a mean loss of 8.8 to 11 lb.

The program used in this study utilized subtle, unspoken competition between discrete working groups coupled with behavioral therapy and is a modification of a similar regime reported by Brownell et al. (1984). Program focus was on making gradual changes in lifestyle through which weight loss would occur in obtainable incremental steps set by the participant. In essence, weight loss was not to be the goal of this program, but rather a measure of success in education of peace officers in lifestyle alternatives. The actual goal was to provide officers with knowledge and skills necessary for long-term changes in lifestyle and attitudes which could result in equally long-term weight management.

Methods

In September 1989 a 14-week "pilot" program was initiated for 48 TPWD officers. Each officer's normal duty assignment was to 1 of 3 different administrative districts (all located in 1 administrative region) or to law enforcement administrative staff officers in the departmental headquarters. Realistic weight-loss goals were set

by counseling individual officers prior to program inception. The weight-loss goal for all officers assigned in a target district or to headquarters staff was summed and this value was set as the overall district or headquarters staff weight-loss goal.

We hypothesized that the key to success in this program, similar to that experienced by Brownell et al. (1984), would be development of a competitive "team spirit" between the 3 districts (individually) and the headquarters staff. The winning "team" would be that district which came closest to its collective weight loss (WL) goal. It should be noted that although no competition was discussed as part of the program, the officers in the districts immediately "tossed the gauntlet" and began an interdistrict competition themselves.

Each participant was provided with a loose-leaf notebook which contained a program overview and manual of reference materials including:

1. A summation of the individual officer's baseline physical condition (i.e. weight, height, heart rate, program weight loss goal, etc.),
2. A walking/jogging exercise program,
3. An exercise activity chart which showed the calorie consumption associated with various types of activities,
4. Calorie charts showing caloric values of different foods,
5. A food consumption record form, and
6. A chart for recording weekly weight.

At weekly intervals during the 14-week program duration, the officer received a brief lesson which was added to the manual. The order of presentation of these lessons to officers was aimed at adding additional information in short, succinct, easy-to-read instructions which would build upon each other over the course of the program.

The program offered to field staff and headquarters staff was the same with 1 exception. To compare results of this program to other such programs administered by other researchers, officers at the headquarters staff were weighed weekly to the nearest 0.5 lb by health promotion staff located at the headquarters building. In as much as it was impractical for field personnel to be similarly weighed, officers in the field were asked to weigh themselves to the nearest 0.5 lb and to then report their weight to the health promotion staff for data recording. Health promotion staff verified reported weights of field officers at 7 weeks and at the program termination.

Upon program termination, initial weight, final weight, and WL data for all participants and for each district were summed and compared by analysis of variance. Difference in initial weight and final weight for all officers was investigated using a paired *t*-test (Ott 1977). We employed Sheffe's F-test for multiple comparisons of WL, initial, and final weight within districts (Hicks 1973).

We investigated the relationship of WL to initial weight and district with a multiple regression model of WL as the dependent variable with district and initial weight as independent variables. Level of significance was set at $\alpha = 0.05$ in all tests.

Results

Of the 48 officers who participated in the 14-week program, 43 lost weight (90%), 1 (2%) experienced no weight change, and 4 (8%) officers gained weight. Mean WL for all officers was 8.6 lb and mean final weight of officers was significantly less than mean initial weight ($P < 0.01$). There was no significant difference among districts for mean initial weight or mean final weight (Table 1). Average WL was 4.1, 4.8, 12.3, and 12.0 lb respectively for districts 1–3 and headquarters staff. Mean WL in districts 1 and 2 were not significantly different but were significantly different from mean WL in district 3 and headquarters staff. Mean WL in district 3 and headquarters staff were not significantly different from one another. Percentage of WL goal achieved was 38%, 48%, 79%, and 87% respectively for districts 1–3 and headquarters staff.

The multiple regression model relating weight loss to initial weight and district indicates the amount of weight lost by an officer was related not only to the initial weight of the officer but to his assigned district ($P < 0.01$, $r^2 = 0.35$). As would be expected, weight loss tended to be greater in heavier officers but district of assignment was a significant factor in the amount of weight lost. This is well illustrated in the comparison of district 1 and headquarters staff. The mean weights for these groups were similar, 218 lb versus 220 lbs. However, the mean WL in headquarters staff was 3-fold that of officers in district 1.

Discussion

The results of this study clearly demonstrate that a low intervention weight loss program for law enforcement officers can result in significant weight loss. The mean weight loss of 8.6 lbs for all officers in this 14-week program is consistent with that

Table 1. Summary of weight loss data for Law Enforcement Division officers participating in 14-week weight loss program.

	District 1 (<i>N</i> = 11)	District 2 (<i>N</i> = 11)	District 3 (<i>N</i> = 16)	Headquarters staff (<i>N</i> = 10)
Mean initial weight (lb)	218.0 ^a	204.5 ^a	235.2 ^a	220.3 ^a
Standard deviation (lb)	42.3	12.0	37.6	24.9
Mean final weight (lb)	213.9 ^a	199.7 ^a	222.9 ^a	208.2 ^a
Standard deviation (lb)	40.3	12.6	37.0	23.3
Mean weight-loss (lb)	4.1 ^a	4.8 ^a	12.3 ^b	12.0 ^b
Standard deviation (lb)	6.3	5.3	6.0	5.3
Percentage of district weight-loss goal attained	38%	48%	79%	87%
Percentage of officers losing weight	73%	82%	100%	100%

^{a,b} Mean weight loss values with different superscripts were different at a 0.05 level of significance.

reported by Weinsier et al. (1984) and the 12.1- to 12.3-lb loss of officers in district 3 and in headquarters staff equals the maximum expected weight loss reported for such programs (Wing and Jeffery 1979, Weinsier et al. 1984).

Even though all officers who began the program were weighed at the end of the program, we have no mechanism to directly measure their attitude and actual degree of participation. However, the fact that 90% of officers involved in this program lost weight suggests that attrition was 10% or less. This is consistent with lowest attrition rates reported in health care literature (Wing and Jeffery 1979, Weinsier et al. 1984) and much better than the 50% attrition rate attributed to programs carried out in the absence of competitive interactions (Brownell 1986).

While any organizational structure or work site which stimulates social interaction of coworkers is conducive to success in this type of weight control program (Brownell 1986), law enforcement organizations may provide a near perfect setting for program success. The organizational structure of the Law Enforcement Division of TPWD, for example, is founded upon individual districts. These are manned by officers who typically are very supportive of each other and enjoy constructive competition with other districts. As a result, the synergism involved in the desire to succeed both individually and as a "team" may create a level of additional motivation than would not exist in a less structured environment. After all, misery loves company.

We estimate the total cost of implementing this program to have been \$1,000. This included postage, program development and administration, and study materials. With a total weight loss of 413 lb, the cost estimate per pound of weight lost is about \$2.42. This compares favorably with the \$1.71/lb reported for other work site programs and substantially less than other types of weight loss regimes which have been reported to range from \$4.83 to \$26.03/lb (Brownell et al. 1984).

The scientific and health care literature are replete with research studies which proves the necessity for "healthy" life style habits. These include exercise, stress control, proper nutrition, and weight management. Coronary artery disease is the predominant cause of premature death in Americans and is directly related to these factors.

This study demonstrates that changing awareness of eating habits can result in decreased body weight. However, weight loss is not the only benefit which can be gained by programs which emphasizes changes in life-style habits. Other studies have shown that being overweight or obese is often accompanied by a variety of other cardiovascular problems (Roberts 1981, Van Itallie 1985) and that serum cholesterol can be reduced concomitant to weight reduction (Van Itallie 1985). For example, 29 of the 48 officers who participated in this weight loss program also participated in cholesterol screening (Authors' unpubl. data). These 29 officers experienced a decline in cholesterol levels and a significant improvement in indices associated with lowered risk of heart attacks.

All law enforcement organizations have an enormous human resource investment in every officer. While officers receive extensive training in weaponry, defensive techniques, enforcement of regulation and court proceedings, they often lack

the training necessary to defend themselves against their most common and dangerous killer. Data compiled by the Federal Bureau of Investigation indicate that coronary heart disease claims more lives of active-duty agents than all other causes of death (Beccaccio 1982). Clearly, programs which positively affect changes in life style can result in not only in improvement of the officers' ability to perform duties but an improved quality of life away from assigned duties.

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