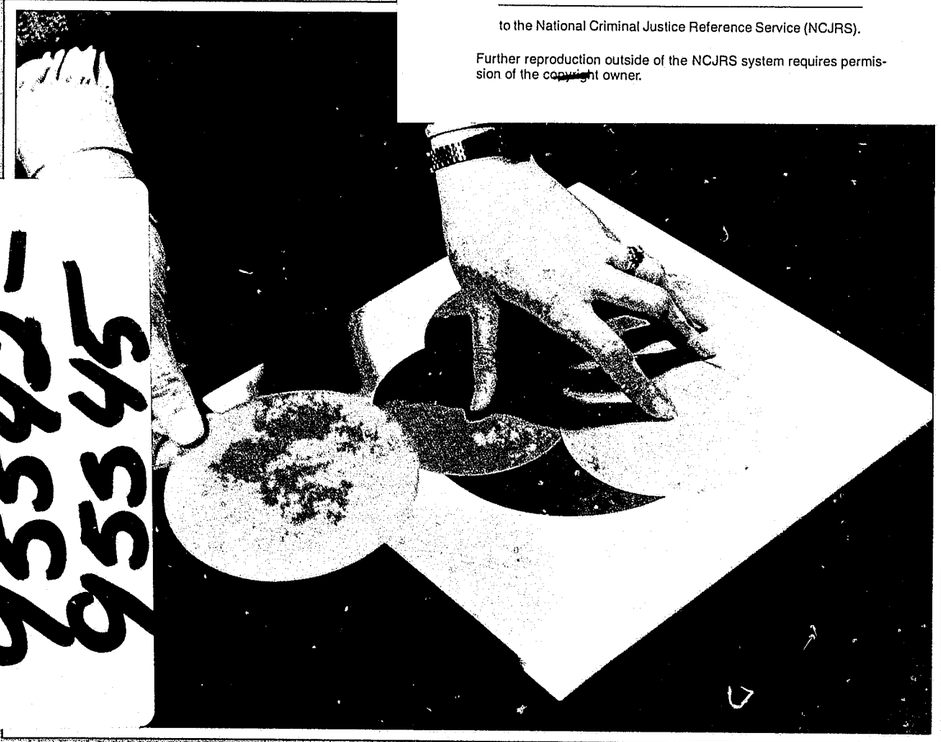
FBI LAW ENFORCEMENT BULLETIN

SEPTEMBER 1984



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Raising the Stakes in Carnival Fraud

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Contents

The Cover: Knowledge of carnival games and carnival fraud techniques assist law enforcement personnel in ensuring that games are kept legitimate. See article page 1.

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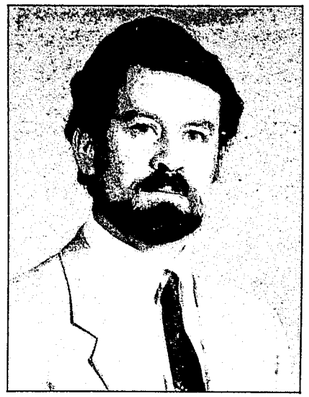
IDLE Officers Get Fit

"The basic goal is to assist new and existing employees in becoming physically fit and staying fit throughout both their careers and lifetimes."

Law enforcement officers must be physically fit to meet many emergency situations. Yet, most law enforcement tasks, such as riding in a patrol car and writing reports, breed poor physical health. The Idaho Department of Law Enforcement's (IDLE) solution to the problem was to shapeup its officers with a departmentwide physical fitness program.

Goals for the fitness program were generated by a committee of representatives from each division and bureau within the department. With these goals in mind, a fitness program was designed.



Dr. McNeill

Mr. Prentice

The basic goal is to assist new and existing employees in becoming physically fit and staying fit throughout both their careers and lifetimes. More specifically, the program is designed to increase cardiorespiratory endurance, dynamic strength, and flexibility. It also teaches employees how to maintain a lifetime exercise schedule and provides reinforcement and support for maintaining a high level of fitness.

Implementation

Because funding for the fitness program was not initially included in the department's budget, corporations, utilities, and foundations throughout the State were asked to make monetary contributions. The money generated was used to purchase evaluation equipment and provide initial training for instructors statewide. A 95-page fitness manual was also assembled for distribution to each employee.

A variety of incentives were developed to help motivate participants. For example, employees may earn on-duty workout time, t-shirts, administrative leave days, tennis shoes, or an attractive lapel pin. The improved personal appearance and the positive example set by supervisors involved in the program also appear to be powerful motivators.

After training fitness instructors from both the State police and the Bureau of Narcotics, the fitness program was implemented at the administrative level. The administrators were given a physical examination and an EKG stress test by a cardiologist. The examinations indicated that 3 of the 26 administrators tested had a cardiorespiratory problem.

When the stress tests were completed, two lead instructors presented a 4-hour fitness education program. The administrators' levels of fitness were then evaluated and the evaluations were used to design individualized exercise programs. Re-evaluations were given after 6 weeks, and the administrators' programs were either maintained or modified and a new goal sheet was set. The same procedure was used to implement the fitness program for field personnel.

The department's physical fitness program is currently voluntary for both commissioned and noncommissioned employees; however, it will eventually become mandatory for commissioned employees.

Results

Since inception of the program, evaluation data have been recorded and sent to a consulting exercise physiologist at the University of Idaho. This information has been entered into a research computer, making the results of the fitness program available.

Since accountability was viewed as a critical dimension of the exercise program, physiological data from the officers' medical examinations were recorded and analyzed by type of officer (e.g., patrol, port-of-entry, narcotics agents); by district (Idaho is divided into six geographical districts, each with its own law enforcement personnel as well as the department headquarters, which is considered a separate district for analysis purposes); and by evaluation period. Data from 14 fitness-related variables were recorded at the initial evaluation, 6 weeks into the program, midway between the initial measure and the first

quarterly evaluation, and quarterly. Each officer was identified by name, district, and officer type.

Several tests were used to evaluate the data. Each officer's progress was analyzed for each of the fitness variables using Analysis of Variance (ANOVA), and the Duncan's Multiple Range Test was used to test significance among quarters. Using this type of analysis, we were able to monitor the progess of the entire department. Analyses done by officer type and district resulted in large differences in group sizes since there are many more State troopers than port-of-entry officials, and headquarters has fewer personnel than any other district. As a result, the ANOVA procedure was not suitable for evaluation of the data by district or officer type. Instead, the statistically more acceptable General Linear Models Procedure, followed by the Duncan's Multiple Range Test, was used in the further differentiated analyses.

It is important to remember that the primary purpose for analyzing the data was to provide statistical evidence showing the program has made significant changes in the officers' physical fitness levels. Although positive changes had occurred in the fitness of other groups involved in exercise programs, it was believed to be imperative that an ongoing status report be provided to the participants of the IDLE program.

Dissemination of information regarding progress of the program and the commitment of headquarters to it have served as excellent motivators for continued participation. It has also been found that evaluation of the physical variables by districts developed a friendly rivalry and strong *esprit de corps* among the officers. (See figs. 1 and 2.)

Aerobic Fitness

In the IDLE program, maximum oxygen consumption is estimated from the officers' performance in either a 12-minute cycle ride, a 3-mile walk, a 1.5-mile run, a 12-minute swim, or a 12-minute run/walk. The tables used to estimate the max VO(2) are those published by the Aerobics Research Institute, Dallas, Tex. There was general progress in achieving higher levels of aerobic conditioning during the course of the program. (See figs. 3 and 4.)

The results of the ANOVA for evaluation time and max VO(2) and the Duncan's Multiple Range Test indicate that there has been a steady, significant increase in the aerobic capabilities of the Idaho officers. The max VO(2) predicted for the fourth quarter evaluation is not significantly different from that estimated for the

Figure 1

General Linear Models Procedure for Variable Body Fat

Dependent variable body fat—source	DF	SS	MS	F value	Prob	Std dev
Model	48	3634	75.7	2.90	0.0001	5.1
Error	681	17762	26.1			

". . . the program is designed to increase cardiorespiratory endurance, dynamic strength, and flexibility."

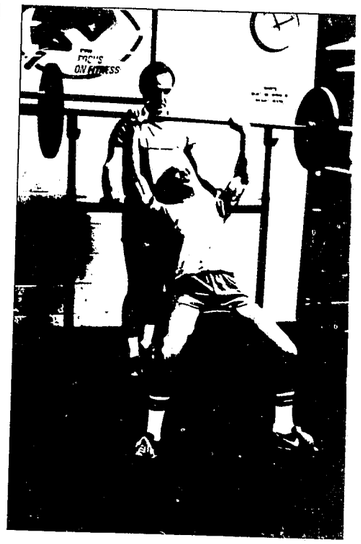
Figure 2

General Linear Models Procedure

Duncan's Multiple Range Test for Variable Body Fat by District

Grouping	Mean	N	District
A	23.09	97	1
A	21.80	130	4
B	20.33	106	2
B	20.18	102	5
B	20.18	135	6
C B	19.04	12	0
C	18.34	148	3

Alpha level=.05.
Means with no common letters in the grouping column are significantly different.



third quarter; however, both are significantly greater than that estimated for the 2d quarter, which in turn is significantly greater than the estimates of max VO(2) for the 6-week evaluation and the 1st quarter evaluation. It should be noted that the improvement in aerobic functioning is almost a perfect parallel with the duration of the program; the only exceptions are the 6-week and 1st quarter measurements. However, from a statistical standpoint, there is little difference between these two estimates. These is also a significant increase in max VO(2) between the initial observation and those estimates determined for the 1st quarter and the 6-week observation.

In an attempt to illustrate the relationships among some of the variables being monitored, Person Product-Moment correlations were determined for the variables presented in figure 5. Many of these relationships are already well-established in the current literature; however, data on the officers involved in the program have been generated for their use. The assumption was that the relationships would then become more meaningful and might, in some way, help maintain and improve officer participation in the fitness program.

The probability of each of the observed relationships occurring by chance alone is presented in parentheses under each value for rho in figure 5. There is a significant negative relationship between max VO(2) and diastolic blood pressure, systolic blood pressure, body fat, waist girth, and resting heart rate. That is to say, it can be expected that max VO(2) will decline as each of the other variables increases. Conversely, it can be expected that max VO(2) will increase as blood pressure, body fat, waist, girth, and resting heart rate decrease. The remainder of the variables are positively related. As waist girth increases, there will generally be an increase in blood pressure, both systolic and diastolic, as well as an increase in resting heart rate. Resting heart rate is significantly related to systolic blood pressure, but there seems to be no relationship with diastolic blood pressure.

Figure 3

Analysis of Variance Procedure

Evaluation Time and Max VO_2

Dependent variable VO_2— source	DF	SS	MS	F value	PR F	Std dev
Model	5	5055.2	1011.0	52.53	0.0001	4.39
Error	730	14131.7	19.4			

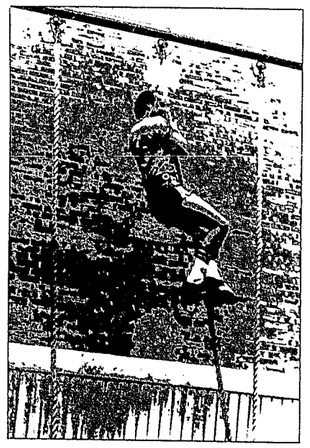
Figure 4

Analysis of Variance Procedure

Duncan's Mulitiple Range Test For Variables VO_2

Grouping	Mean	N	Evaluation time
A	42.02	93	4
A	41.84	102	3
B	39.92	68	2
C	36.68	164	0.5
C	35.57	141	1
D	35.30	168	0

Alpha level=.05.
Means with no common letters in the grouping column are significantly different.



Conclusion

The implications of these relationships are abundantly clear—we have direct control over our waistline and body fat. A combination of exercise, diet, and education (all of which are dimensions of the IDLE fitness program) can be used to modify the health-related variables favorably. It is through the use of personalized information that we hope to continue to motivate and educate our officers concerning the value of an exercise program and its contribution to their health and well being, both on and off the job.

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Figure 5

Pearson Product-Moment Correlations Between Selected Physical Variables

	Max VO_2	Waist	Resting heart rate	Body fat
Diastolic blood pressure	−.22 (.0001)	.39 (.0001)	.07 (.10)	.28 (.0001)
Systolic blood pressure	−.17 (.0001)	.29 (.0001)	.18 (.0001)	.26 (.0001)
Body fat	−.38 (.0001)			
Waist	.37 (.0001)			
Resting heart rate	−.35 (.0001)	.20 (.0001)		

The numbers in parentheses indicate the probability of the relationship occurring by chance alone.

END