Fit (and healthy) for duty: Lipid profiles and fitness relationships from police officers in a health and wellness program

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INTRODUCTION

• Work police can place officers at high risk of cardiovascular disease (CVD) (6). Numerous factors contribute to this risk for officers, including: increases in sedentary activities (e.g., sitting in a police vehicle), stress, shift work, loss of sleep, reduced physical activity, and poor dietary choices (5,6).

• It is incumbent on police departments to encourage their personnel to at least maintain, if not improve, their health and fitness.

• The purpose of this study was to detail the lipid profiles of police officers from a health and fitness testing, exercise programming, and health and fitness testing (3).

METHODS

• De-identified archival data for officers from 2 years of the program were analyzed. This included 169 males and 39 females in 2018, and 194 males and 43 females in 2019.

• Bloodwork (total cholesterol, LDL, HDL, triglycerides) was collected in a fasted or non-fasted state.

• Health and fitness testing for police officers include exercise tests of different capacities, in addition to specific bloodwork. Indeed, lipid profiles can provide an indication of CVD risk (1,4).

• Profile of interest include total cholesterol, low-density lipoproteins [LDL], high-density lipoproteins [HDL], and triglycerides (1,4). However, there is no research that has detailed the lipid profiles from police officers within a health and wellness program.

• The purpose of this study was to detail the lipid profiles of police officers from a health and wellness program in 2018-2019, and correlate lipid profiles with different fitness capacities.

RESULTS

• Across both years, 68-76% of officers had desirable total cholesterol and HDL, 67-72% of officers had desirable triglycerides. However, 54-62% of officers had LDL above desirable; 13-14% of officers had mildly/highly triglycerides, and 16-18% had high triglycerides (Figure 1).

• In 2018, HDL had significant small and trivial correlations with VO2max and sit-ups, respectively (Table 2). Triglycerides had a small correlation with sit-ups. In 2019, HDL had a significant small correlation with VO2max (Table 3).

• Most officers had good lipid profiles relative to CVD risk. As the health and wellness program was voluntary, the results could be due to healthy worker effect. The healthy worker effect is a bias that can occur in occupational epidemiology studies (2). In this study's contest, less healthy officers were less likely to participate in the program. Nevertheless, the police department should view the data from this study as a positive outcome relative to the overall health of their participating officers. There were officers who had poorer lipid profiles who would benefit from continued program participation, validating the importance of such programming within police departments.

• It would be beneficial to recruit more officers to participate in health and wellness programs, although this can be very challenging. Incentives are often used to encourage participation (3). Further, the data shown in this study may provide some evidence as to program participation for officers with healthier lipid profiles.

• Higher VO2max and more sit-ups related to higher LDL, which is preferable. In 2018, lower triglycerides related to higher sit-ups. However, the correlation strengths were only trivial, and there were no other significant relationships. This could indicate the need for a multifaceted approach for wellness programs in order to reduce CVD risk in officers (i.e., health and fitness testing, exercise programs, diet, wellness education).

CONCLUSIONS

Table 1. Desirable blood lipid levels for total cholesterol, low-density lipoproteins [LDL], high-density lipoproteins [HDL], and triglycerides (1,4).

Table 2. Relationships between blood lipids and fitness in police officers from a health and wellness program in 2018.

Table 3. Relationships between blood lipids and fitness in police officers from a health and wellness program in 2019.

References


