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INTERVENTION STRATEGIES AND PROGRAMS TO OPTIMIZE THE OCCUPATIONAL PERFORMANCE, WELL-BEING, AND HEALTH OF POLICE OFFICERS: AN INTERNATIONAL OVERVIEW

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Abstract:
Police officers can suffer from chronic diseases or common disorders, such as obesity and cardiovascular disease. The predominantly sedentary nature of the profession, the rapid transition from waiting situations to activities with a high psychophysical impact, the physical inactivity, the work stress, the consumption of tobacco, the sleep disorders and poor eating habits can have a negative effect on the officer's health and well-being. This review discussed the intervention strategies and programs adopted to optimize work performance, well-being, and health in the international police force. Training programs for the well-being of police officers can reduce social costs and improve the health status, physical and working efficiency and longevity of the worker. However, administrations should invest in facilities and equipment, and physical-motor education and awareness programs to be performed in the workplace by adopting a cultural change to improve the health and well-being of their workers. For this purpose, the various professional figures become of fundamental importance, including that of the Tactical Strength and Conditioning Specialists who have the specific skills to develop, implement and support physical-motor education programs to improve the psychophysical well-being and health of police officers becomes of fundamental importance.

Keywords: mobile unit; working efficiency; physical-motor education; occupational stress; tactical populations

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1. Introduction

Police officers are at high risk of developing chronic diseases. Stress, incorrect eating habits, a sedentary lifestyle, cigarette smoking and work shifts are all risk factors with an additive effect that entails a high probability of contracting chronic diseases. However, being physically fit, does not mean being healthy. More than the absence of disease, the concept of health includes lifestyle factors (such as cigarette smoking and poor physical activity), medical factors (such as the risk of cardiovascular disease) and even mental well-being (including stress and fatigue levels). Exercise can be used to increase fitness and health. For example, exercise training protocols to improve fitness are often associated with health benefits, such as reducing the risk of obesity and cardiovascular disease. However, an excessive training regimen could worsen the health status. Hence, fitness and health are not mutually inclusive but should be complementary.

For this purpose, the figure of the Tactical Strength and Conditioning Specialist becomes very important, who can ensure the police forces the achievement of high levels of physical efficiency and of working efficiency. This professional can act through training courses by implementing physical-motor activity programs, improving the state of health, and reducing the risk of injuries and diseases present in this population and, consequently, optimizing their physical efficiency and longevity. This review will describe the intervention strategies and programs adopted to optimize work performance, well-being, and health in international police forces.

2. Chronic diseases widespread in police officers

The Tactical Strength and Conditioning Specialists ensure that police officers have high levels of physical efficiency, particularly working efficiency. However, police officers, who can be considered "tactical athletes" in all respects, are part of the general population and therefore are susceptible to the same health problems. Cigarette smoking and excessive alcohol consumption are prevalent in some international police forces and the general population (Polich, 1981) and may not only be higher (Joseph et al., 2005) but may further increase as a result of stressful events (Smith et al., 2008). Furthermore, smoking and alcohol can be used by these subjects as maladaptive coping behaviours (Gershon, 2002).

Although police officers may have a high level of fitness compared to the general population, less fit personnel are as fit or even lower than the general population (Dawes et al., 2016). One reason could be the sedentary nature of the profession, in fact the police officers carry out mainly sedentary or waiting tasks during most of their working hours. For example, the personnel of the *Mobile Units* are entrusted with tasks that also involve a long wait before performing highly stressful, high-intensity tasks as occurs during positions in public order services. This working mode that we can consider "mixed or intermittent", that is, made up of moments of long waiting followed by activities with a high psychophysical impact, is also widespread in other *"Specialties"* of the State Police,

and puts the police officers at twice the risk of suffering from serious cardiovascular disease (Ramey et al., 2008).

Therefore, this profession requires a high level of physical fitness which, unfortunately, is difficult to maintain during working hours. In addition, working in shifts may reduce the desire to exercise (Harma, 1996). The effect of this poor physical activity on working days can be observed in the high levels of obesity and high body mass index scores in police officers (Sorensen, 2000), compared to the general population. Obesity not only reduces operational skills but is also negatively associated with absenteeism in the workplace after an injury (Poston et al., 2011) and thus productivity. Obesity is a known risk factor for cardiovascular diseases (Poirier & Eckel, 2002), which are of particular interest to this population (Da Silva et al., 2014) due to the arduous nature of certain occupational tasks and risks and their associated impact on health (Da Silva et al., 2014; Plat et al., 2011).

Personal habits relating to diet, exercise and well-being can be educated by employers (it is hoped in the context of prevention activities) but cannot be controlled. Bad habits of rest, stress management and eating habits, and circadian cycle disorders, for example, can contribute to the onset of serious cardiovascular problems and death (Violanti et al., 2013). Other risks arise from metabolic syndrome or syndrome X (a group of risk factors that increase a person's likelihood of developing cardiovascular disease). Unfortunately, these habits significantly increase the risk of cardiovascular mortality in this population (Violanti et al., 2013).

3. Risk factors requiring intervention to improve well-being

It has now been established that there is a need to set up training programs for the well-being of police officers (Orr, 2010; Palmer et al., 1998), assuming that they can reduce social costs and improve the state health and longevity of the worker. Indeed, older police officers run a greater risk of contracting injuries and illnesses both physically and psychologically (Ramey et al., 2009). Reducing the risk factors for injuries and illnesses in the law enforcement population should be a key goal of wellness programs. These risk factors include physical inactivity, stress, tobacco use, excessive alcohol consumption, sleep disturbances, and poor nutritional habits. In this review, risk factors such as physical inactivity, stress, poor eating habits and combined effects will be explored.

3.1 Physical inactivity

Since fitness is negatively correlated with morbidity, it is recommended to perform three or more weekly exercise sessions, i.e. sessions that include targeted training to increase metabolic demands (Haskell et al., 2007). Unfortunately, police officers spend most of their time seated doing paperwork, driving, and waiting for emergency calls, all of which require limited physical activity (Anderson et al., 2001). Furthermore, the situation becomes complicated when one is promoted to a higher qualification, as one takes on

more strategic and more responsible positions that require even less physical activity (Sorensen et al., 2000).

Other factors affecting physical inactivity include work shifts and unexpected. Shift work can reduce sleep quality and, in turn, increase fatigue. Furthermore, research suggests that shift work negatively impacts the willingness to exercise (Harma, 1996). One may be less inclined to exercise because the shift you are about to do may involve strenuous and complex operational tasks. For example, if a training session is carried out that induces fatigue in the lower limbs, this could negatively affect the speed that could require, for example, lightening charges during a public order service. Furthermore, at the end of the shift, fatigue, lethargy, and the need to occupy time for other priorities (for example, family, unforeseen events) can reduce the desire to exercise (Ramey et al., 2008).

3.2 Occupational stress

Work-related stress, a condition that occurs when demands from the workplace exceed the individual's ability to cope with such demands, is widespread in tactical populations (Bedno et a., 2014; Gershon et al., 2002; Greco, 2017; Greco & Fischetti, 2018). Police officers could be exposed to shootings, robberies, serious car accidents, complex public order situations, etc. Additionally, workers may be required to spend periods of time away from their families, which increases stress at work (Bray et al., 2009). These work stresses have far-reaching consequences for tactical personnel. For example, increased occupational stress in tactical populations has been associated with an increased risk of injury (Bedno et al., 2014) and an increased risk of stress-associated illness (Violanti et al., 2006). Furthermore, maladaptive coping strategies may include other health risk factors, such as smoking cigarettes and drinking excessively (Gershon et al., 2002). Finally, if the work stress persists, the police officer could get the burnout syndrome, that is, emotional, physical, and cognitive exhaustion (Shirom, 2003).

3.3 Eating habits

Police officers very often follow poor eating habits (Gu et al., 2012). Tactical nutrition deserves a more detailed separate discussion, however, some factors related to health and well-being deserve to be considered in this review.

First, when it comes to good nutritional practices, the tendency to skip breakfast is of considerable concern. Breakfast is considered an indicator of an appropriate dietary pattern (Ruxton & Kirk, 1997) and quality of health (Belloc & Breslow, 1972; Morgan et al., 1986; Smith, 1998). Regularly skipping breakfast may lead to a greater risk of obesity (Ma et al., 2003), of increasing body mass index (Cho et al., 2003), of losing unrecovered nutrients during the day (Morgan et al., 1986) and to reduce mental health (Smith, 1998). One study found that tactical populations are more likely to skip breakfast than the general population (Orr, 2010). This study also found that many workers ate at their desks during lunch. Workplace lunch has also been associated with negative health outcomes. For example, sitting at a desk for long periods of time can reduce the amount of daily physical activity. Indirectly, sitting at a desk at lunch could lead to more

computer time, which may increase the risk of repetitive strain injuries of the upper limbs (Doheny et al., 1995) and computer vision syndrome (Blehm et al. , 2005), worsening the quality of life (Hayes et al., 2007).

3.4 Combined effects

The health and well-being status are the effect of a combination of risk factors present differently in international police forces and already described, namely: physical inactivity, stress, tobacco use, excessive alcohol consumption, sleep disorders and bad nutritional habits. A classic study by Belloc and Breslow (1972) identified seven lifestyle habits as prerequisites for good health:

1. Moderate exercise two to three times per week (significantly less than current recommendations to do five days per week at moderate intensity or three days per week at high intensity (Haskell et al., 2007))
2. Three meals a day at regular times with no snacks,
3. Breakfast every day,
4. Seven to eight hours of sleep,
5. Do not smoke,
6. Do not excess alcohol,
7. Moderate weight.

Furthermore, Belloc and Breslow (1972) considered these lifestyle habits cumulative, which means that they are related to each other and that they combine in nature. These findings are not surprising, given that scientific evidence suggests that skipping meals is associated with poor sleep quality (Alano et al., 2010) or that alcohol and cigarettes are associated with stress (Rallings et al., 2005). Although the works of Belloc and Breslow (1972) have been criticized for not including stress as a measure of health (Wada et al., 2009), a research by Morimoto (1987) that included measures of stress (subjective stress and work for ≤ 9 hours per day) similarly lists moderate exercise two or more times per week, seven to eight hours of sleep per night, and daily breakfast as indicators of health.

Since risk factors can be combined, risk reduction strategies have the potential to influence multiple risk factors simultaneously. Therefore, the impact of wellness programs can be enormous both in the general population (Sorensen et al., 2000) and in tactical populations (Plat et al., 2011). An example is the SHIELD (Safety & Health Improvement: Enhancing Law Enforcement Departments) program for the police officers of some American states (Kuehl et al., 2016). Instead of identifying a single behaviour, educational sessions conducted for 60 minutes once a week for 12 weeks focused on daily exercise and nutrition, sleep, stress, high alcohol consumption and tobacco consumption. The improvement of these behaviours was observed and generally maintained for about 24 months, thus with a multiple approach that was considered functional for the persistence of positive results.

4. Operational programs for the well-being promotion among police officers

The conditions mentioned above (i.e. obesity, physical inactivity, smoking) affect the health and well-being of police officers, as well as the organization itself (McLaughlin & Wittert, 2009). Poor health can lead to increased absenteeism (Steinhardt et al., 1991) which has a substantial social cost (Fry et al., 2006). It is therefore not surprising that absenteeism is a major reason behind the implementation of wellness and health programs. In the general population, wellness and health programs have been found to have a positive impact on absenteeism and on job satisfaction (Parks & Steelman, 2008). Positive results were obtained by police officers (Rachele et al., 2014), improving physical fitness, reducing stress (Greco, 2020) and decreasing obesity (Harrell et al., 1996).

Training programs aimed at the well-being and health of police officers can show positive effects in both the short and long term. These results are encouraging, but there are potential limitations to be considered in implementing such wellness programs and in improving and maintaining their long-term success. These limitations appear to be:

- *Fiscal constraints* (Kuehl et al., 2013): an obstacle for administrations is funding (Fry et al., 2006). The organization of a wellness and health program is affected by the expenses that must be incurred, but even in the case of free programs there may be indirect costs, such as the cost of personnel to participate in training sessions during working hours (Kuehl et al., 2013). However, investing in facilities and equipment, and in workplace exercise programs can be cost-effective compared to the costs associated with absenteeism and medical expenses (Kuhns et al., 2015; Ramey et al., 2008).
- *Cultural change* (McLaughlin & Wittert, 2009; Smith et al., 2016): adopting a cultural change to improve health and well-being can be taken for granted, instead it can sometimes be very difficult. In fact, most of the barracks, such as those of the Mobile Units, may also have gyms, but a culture of movement is necessary to be able to carry out regular physical activity and to obtain optimal results. Personnel must perceive a tangible benefit to be engaged in cultural change (Berry et al., 2010). Another potential cultural challenge is the fear of change. Less physically fit personnel cannot see the benefits of a physical training program if they have worked for many years without it. Thus, resistance to change can have little impact on the effectiveness of a wellness program (Kuehl et al., 2013).
- *Investment by administrations* (Kuehl et al., 2013; Smith et al., 2016): many wellness and health programs for the police force show that investment by administrations is essential. Indeed, strong leadership is often considered a key factor in the success (Whiteman et al., 2001) or failure (Kuehl et al., 2013) of programs and helps to support these initiatives (Smith et al., 2016). Additionally, a wellness and health program can demonstrate to personnel that the employer values them (Parks & Steelman, 2008).

To this end, the Tactical Strength and Conditioning Specialists must actively engage and enlist the support of institutions to optimize the dissemination, commitment, and longevity of all proposed programs (Kyröläinen et al., 2008; Palmer et al., 1998). Where possible, a wellness and health intervention program should address multiple risk factors because focusing on multiple behaviours can have a longer and more lasting impact (Kuehl et al., 2016). For example, the following approaches could be taken:

- *Awareness-raising programs*: using health status surveillance systems to motivate personnel to change their behaviour by showing them the changes in their health (Poston et al., 2012).
- *Educational sessions*: these sessions can range from programs to eliminate risk factors such as smoking and alcohol to stress management and sleep quality improvement programs, either individually or, preferably, in an integrated manner (Bowles et al., 2006; Kuhns et al., 2015; Smith et al., 2016). Educational sessions can be developed as a refresher for existing personnel and new personnel or even during the training period in the educational institutions, where new members can learn to maintain a state of health and well-being in their new occupation (Fischetti & Greco, 2017; McLaughlin & Wittert, 2009).
- *Support services*: some professionals can help provide adequate training for personnel. For example, nutritionists, physiotherapists (Bowles et al., 2016; Orr et al., 2013) and athletic trainers (Kuhns et al., 2015; Orr et al., 2013; Stone et al, 2020) can contribute to wellness and health services. Specifically, the Tactical Strength and Conditioning Specialist can make an important contribution to the prevention of injuries and illnesses, to the improvement and maintenance of optimal health and physical efficiency in police officers. Other important professional services can be provided by psychologists (Gahm et al., 2009). All these professionals are important to prepare the future police officer as well as the expert policeman to manage the psychological stress that must be faced during the service. Furthermore, these professionals can provide a high psychophysical preparation to ensure physical and working efficiency adequate for the required tasks. For example, the exercises carried out under the guidance of qualified Red Man® instructors can increase the physical and mental performance of the policemen of the Mobile Units in order to deal with work situations effectively and without compromising the health of the operator (Canetti et al., 2020; De Ronzi & Brindisi, 2002).
- *Investments in promoting physical activity*: where possible, there should be an investment dedicated to increasing physical activity. For police officers, time (Kuhns et al., 2015) and motivation (Ramey et al., 2008) are critical barriers to participation in physical activity. An exercise program during service hours not only offers a solution but should be replicated everywhere (Kuhns et al., 2015). Furthermore, physical activity carried out during activities of daily living can also be encouraged, by setting goals such as, for example, walking 10 flights of stairs (Bowles et al., 2006) or 10,000 steps per day (Kuehl et al., 2016).

5. Role and tasks of the Tactical Strength and Conditioning Specialist

The Tactical Strength and Conditioning Specialist has many roles and responsibilities in addition to being an athletic trainer (Triplett, Williams, & McHenry, 2009). First, it must analyze the work tasks that the subjects perform based on the office or department to which they belong, as the physical and work needs may be different. For example, the personnel of the *Mobile Units* exclusively carry out public order services where long moments of waiting alternate with moments of high intensity during operational tasks. The personnel of the squad car or the traffic police carry out the fifth shift (which include nights) and are mainly seated in the car with short but sometimes intense moments of high physical and mental stress in the fulfillment of operational tasks. While those who work in the office only carry out a sedentary activity.

The Tactical Strength and Conditioning Specialist must, therefore, carry out the *needs analysis* to identify essential information in relation to the current and future design of physical conditioning training programs to be carried out by police officers; such programs become a necessary prerequisite without which it would not be possible to carry out the specific training activities provided for each individual specialty adequately and safely (Hurdy, 2016). For this purpose, he must know:

- the type of work tasks performed by the policeman (administrative, Mobile Units, squad car, traffic police, etc.)
- the total number of policemen to be trained (maintaining an instructor - student ratio of 1:20)
- the structure in charge of personnel training (already existing gyms or spaces to be organized from scratch) (IACP, 2012)
- the equipment necessary to achieve the set objectives (based on the size of the available spaces)
- the type of training-educational program to be carried out (reduction and management of body weight, physical conditioning, rapid re-conditioning, nutrition education, resilience, etc.)

The Tactical Strength and Conditioning Specialist must be absolutely up-to-date on the guidelines of the *American College of Sports Medicine* (ACSM, 2017) and the *National Strength and Conditioning Association* (Haff & Triplett, 2016) to be able to adequately administer and manage the physical conditioning activity adapted to police officers, in order to improve their performance and prevent injuries during training. In addition, a medical history questionnaire must be filled in beforehand to find out about any cardiovascular and musculoskeletal problems, and the life habits of the subjects. The didactic-training activity also includes the need for an adequate structure with the presence of suitable equipment for the achievement of the set objectives, i.e. the development of strength and muscle endurance performance, muscle power, aerobic endurance, flexibility and agility, and body composition management (ACSM, 2017; Haff & Triplett, 2016). For example, training aimed at the development and regulation of the tonic-postural system as well as the increase of aerobic power (VO2max) in the personnel

of the *Mobile Units* would bring performance benefits as the personnel themselves are subjected to long wait situations in an upright position with riot gear and the use of gas masks.

The experience coming from international Police Training Centers suggests the presence of several professional figures at the same time who, through their specific skills, can provide the police officers with a 360° training. In addition to the coordination figures and that of the athletic trainer *(Tactical Strength and Conditioning Specialist)*, professional figures such as the nutritionist *(Performance Dietitian)* are important to improve the management of body composition and health status, and the *Mental Skills Specialist* who trains key mental components such as focus and concentration, emotional regulation, imagery, pattern recognition and spatial reasoning, situation awareness and rapid decision making, in order to help police officers improve their performance in operational tasks (Kelly et al., 2013).

6. Conclusions

This review of the international scientific literature found that police officers can suffer from a variety of chronic diseases or common illnesses. Obesity and cardiovascular disease are particularly prevalent in this population. Risk factors such as physical inactivity, work stress, tobacco and / or alcohol consumption, sleep disorders and bad eating habits, dissimilarly present in the international police force, can have a negative effect on the health and well-being of police officers. The additive effect of these risk factors, which could still be controlled and possibly eliminated through wellness programs developed with an approach based on scientific evidence, is of greater concern. However, administrations should invest in facilities and equipment, and in physical-motor education and awareness programs to be performed in the workplace by adopting a cultural change to improve the health and well-being of their workers. For this purpose, the various professional figures become of fundamental importance, including that of the Tactical Strength and Conditioning Specialists who have the specific skills to develop, implement and support physical-motor education programs to improve the psychophysical well-being and the health status of the police officers. Further research is needed to study and learn about the current situation of the Italian police forces, about the specialty of the *Mobile Units* whose peculiarities require a high level of psychophysical preparation. Exploratory surveys (e.g., online questionnaires) and intervention studies (e.g. experimental protocols) would be necessary to provide specific and accurate work protocols to improve the physical and working performance and health of police officers.

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