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ON-DUTY STRENGTH AND CONDITIONING PROGRAMMING CONSIDERATIONS FOR POLICE OFFICERS

INTRODUCTION

The purpose of this article is to review the physiological determinants of police work, provide the strength and conditioning professional with an overview of common constraints associated with training police officers, discuss the role of autoregulated training, and provide programming recommendations for training police officers around their patrol shifts. Police officers are expected to maintain physical abilities to withstand the chaotic demands and scenarios they may face on duty. While sedentary tasks such as deskwork and sitting in a patrol vehicle may comprise the majority of a police shift, police officers must be physically prepared for sporadic high-intensity tasks inherent to the occupation. These tasks may include, but are not limited to: sprinting, climbing, carrying external loads (e.g., weaponry, specialist equipment, or body armor), grappling with a perpetrator, or any combination of these tasks (9,10,19).

Police cadets complete fitness training and assessment for the physical demands of policing while in academies (7). Compared to cadets, incumbent police officers (i.e., police officers with multiple years on the job) tend to possess lower aerobic and anaerobic fitness, reduced muscular endurance, and increased body fat percentage (16). As these variances are not fully explained by age, one may conclude incumbent police officers lose fitness with time on the job (16). Longitudinal studies reporting changes in fitness of the same recruits at 12-year and 15-year follow-ups support this conclusion (4,22). A recent longitudinal study following a cohort of incumbent police officers for five years and reported small or trivial losses in fitness (8). These data suggest greater fitness losses are experienced by recruits as they transition to early career police officers, and fitness tends to be lost—not gained—throughout the career of police work (8). To counteract loss of fitness and improve occupational performance within their ranks, police agencies may seek the services of qualified strength and conditioning professionals.

CHALLENGES OF POLICE OFFICER FITNESS

In addition to facilitating improved job performance, physical fitness may support a police officer's physical and mental health as well as their ability to mitigate stress—all key potential facilitators of a healthy and long career in law enforcement. These features express the importance of physical fitness training throughout the established police officer's career. However, several potential challenges may interfere with efforts to improve physical fitness in incumbent police officers.

At the organizational and individual levels, multiple factors may interfere with a police officer's ability to maintain physical fitness. Many police agencies are suffering from greater personnel shortages than ever, which may result in shifting of personnel and limited time resources (1,2). Presumably, strength and conditioning professionals, facilities, and equipment may also be in short supply. Moreover, a challenge common across police work is planning physical fitness training around the patrol shift schedule. While there may be variability between police departments on how patrols are scheduled, here is a typical layout:

- Patrol scheduling is divided into 2 – 3 time slots over a 24-hr period—days, midnights, and, occasionally, evenings.
- Time slots are further divided into two distinct days: A Days and B Days. An individual police officer is assigned to a time slot on an A Day or B Day for a 10 – 12+ hr shift.
- The police officer works a consistent schedule of multiple days on, followed by multiple days off (e.g., two days on, two days off, three days on, two days off, then repeat).

If police officers have the opportunity to perform physical fitness while on duty, training will typically take place at their assigned station and be performed immediately prior to or following their scheduled patrol shift. When performing on duty fitness training, regardless of modality (e.g., strength training, cardio, yoga, etc.), it is imperative to consider training factors that could affect the police officer's job performance and recovery. Workouts cannot interfere with a police officer's job duties and should not appear as an extra hassle in their already busy lives; instead, fitness training should rejuvenate and energize the police officer.

If training pre-shift, exercise must be carefully programmed to ensure physical abilities are not masked by fatigue. If training post-shift, a police officer's vigor or desire to perform strenuous training may be diminished. The strength and conditioning professional should be prepared to make adjustments to training variables, such as rest periods, intensity, volume, and total duration to preserve readiness for patrol or account for varying levels after patrol. A brief subjective readiness assessment or objective test, such as a handgrip dynamometer squeeze or vertical jump, may help inform training modifications.

FITNESS PROGRAM PLANNING AND AUTOREGULATED TRAINING

Police officers benefit from fitness programming constructed around evidence-based training principles. However, the influence of occupational conditions may warrant considerations, such

as exposure to high-stress situations, experiencing potentially dangerous work operations, lack of sleep due to long patrol shifts, and poor nutrition due to lack of access to nutritious foods while on patrol. For example, a single work call may lead to lasting residual stress—physical and emotional—that could affect readiness throughout the remainder of the patrol and beyond. Police officers may also contend with additional stressors related to health, families, finances, relationships, and other factors outside of work. A police officer's readiness and availability varies day-to-day; therefore, offering fitness training flexible enough to meet the needs of police officers helps to ensure training adherence and progress.

Volatility in the professional and personal lives of police officers makes planning the "perfect" training program unlikely, if not impossible. Rigid programming may be unsustainable. Long-term adherence to unsustainable programming may lead police officers to feel they have failed or believe that their lifestyles are not conducive to fitness training. Instead, educating and encouraging police officers to regulate aspects of their own training may be a more viable strategy for long-term success.

Autoregulation of exercise intensity, volume, and exercise selection can be accomplished through programming methods. For example, the strength and conditioning professional may provide Rating of Perceived Exertion (RPE) targets to encourage autoregulated selection of exercise load (24). The strength and conditioning professional may choose to include acceptable repetition ranges alongside RPE targets rather than fixed repetition targets to facilitate autoregulation of exercise volume. Another strategy would be to offer a menu of alternative exercise selections with varying neuromuscular demands rather than a single option. Anecdotally, providing police officers with a degree of autonomy in their training can lead to greater workout adherence and overall buy-in, helping to solidify physical fitness training as a long-term element in their lifestyles.

PROGRAM DESIGN

Designing a physical fitness program for police officers begins with a needs analysis. Similar to a needs analysis for sport, a needs analysis for policing identifies occupation-related training needs and helps guide programming. The needs analysis includes the definition of the tasks or demands of the occupation, a description of the characteristics of the police officer, identification of goals and priorities, and analysis of the resources and limitations of the program (21). The latter three categories of the needs analysis are heavily dependent on factors unique to the police officer. Meanwhile, directives of the program, characteristics unique to the department (e.g., funding, time allocation, and equipment availability), and task analysis that considers physiological, biomechanical, injury-risk, environmental, and psychological features of law enforcement may be generalizable across the occupation. The task analysis for police officers provided in Figure 1 is based on synthesis of relevant literature and the authors' personal occupational experiences (5,9,14,15,17,18,23). While a task analysis provides general guidance for program design, the strength and conditioning professional must also consider the individual features of police officers, which requires assessing previous training background, injury history, training availability, and personal goals.

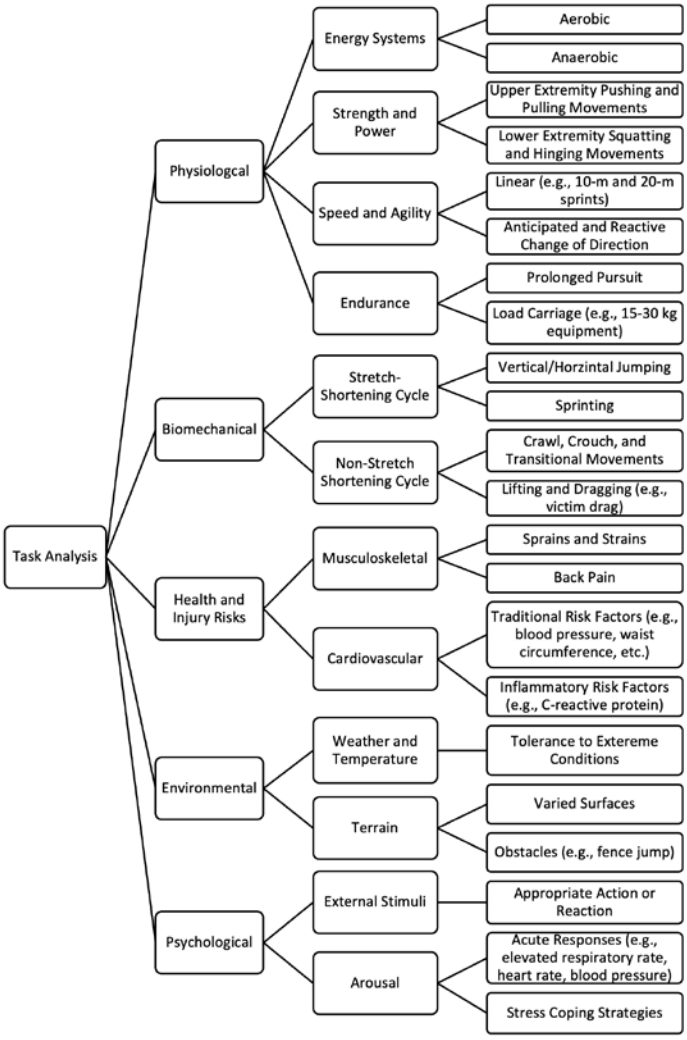

FIGURE 1. TASK ANALYSIS FOR LAW ENFORCEMENT PATROL OFFICERS

TRAINING SPLIT

Fitness training for police officers emphasizes training for full body strength, energy system efficiency, and functional ability. Single body part or isolation exercises may be appropriate to address deficiencies or mitigate injury risk. Body part splits are likely inefficient for this population. Police officers may not be consistently able to commit to a predetermined number of days per week to training. Moreover, they may not be able to allocate similar time or energy to each training session. Full body

programs with concurrent emphases on strength, conditioning, and functional training in each workout helps to ensure equitable training across all body regions, energy systems, and abilities. With a full body and concurrent emphasis program, a police officer only available to complete one training session in a given week still experiences a comprehensive training stimulus. For police officers able to train more frequently (e.g., three or four sessions per week), full body, concurrent emphasis sessions allow the training volumes to spread out throughout the week, helping to mitigate muscular soreness and the potential negative effects of fatigue on patrol. Table 1 provides example workouts structured using "blocks" of occupationally relevant exercises performed as alternating sets. Each workout concludes with a conditioning "finisher."

TABLE 1. EXAMPLE 1-WEEK TRAINING PROGRAM FOR ON-SHIFT POLICE OFFICERS

DAY 1	EXERCISE	SETS X REPETITIONS	INTENSITY OR RATING OF PERCEIVED EXERTION (RPE)	REST	NOTES
BLOCK 1	Barbell front squat	4 x 8 – 10	7 – 8	1 min	Focus on technique as priority
	Farmer's carry	4 x 60 s	Total load of 50% of bodyweight	2 min	Can use dumbbells or kettlebells
BLOCK 2	Landmine press	3 x 6	8 – 9	30 – 45 s	Can use legs to assist in press
	Medicine ball scoop throw	3 x 3 each side	6 – 10 lb	1 min	Focus on power through hips
BLOCK 3	Kettlebell swing	3 x 6 – 8	7 – 8	1 min	Ballistic effort every repetition
	Inverted row	3 x 12 – 15	Bodyweight	1 min	Maintain body position as horizontal as possible
FINISHER	Assault bike intervals	10 x 15 s / 45 s	10 / 5	No rest throughout the series	Perform sprint effort for 15 s, followed by casual effort for 45 s

DAY 2	EXERCISE	SETS X REPETITIONS	INTENSITY OR RATING OF PERCEIVED EXERTION (RPE)	REST	NOTES
BLOCK 1	Dumbbell bench press	2 x 15, 2 x 12	7 – 8	1 – 2 min	Perform with a neutral grip position
	Chin-ups	3 x 5, 1 x AMRAP	Bodyweight	Full recovery	As many rounds as possible (AMRAP)
BLOCK 2	Dumbbell Romanian deadlift (RDL)	3 x 8 – 10	7 – 8	30 – 60 s	Achieve stretch in bottom position
	Front rack carry	3 x 40 m	10	Full recovery	Maintain an upright trunk
BLOCK 3	Dumbbell split squat	2 x 10 – 12 each side	6 – 7	1 min	Hold 2 dumbbells by side
	Landmine rotation	2 x 8 – 10 each side	6 – 7	1 – 2 min	Perform repetitions with slow tempo
FINISHER	AMRAP circuit	10 min	7 – 8	No rest while performing circuit	AMRAP

TABLE 1. EXAMPLE 1-WEEK TRAINING PROGRAM FOR ON-SHIFT POLICE OFFICERS (CONTINUED)

DAY 3	EXERCISE	SETS X REPETITIONS	INTENSITY OR RATING OF PERCEIVED EXERTION (RPE)	REST	NOTES
BLOCK 1	Trap bar deadlift	5 x 5	8 – 9	1 min	Focus on technique as a priority
	Band standing rotation	3 x 10 each side	n/a	Full recovery	Rapid concentric rotation and slowly return to start
BLOCK 2	Goblet squat	3 x 8 – 10	7 – 8	30 – 60 s	Maintain a dumbbell or kettlebell slightly off the chest
	Dumbbell chest-supported row	3 x 8 – 10	8 – 9	1 – 2 min	Hold each repetition for 2 s at the top
BLOCK 3	Single-arm dumbbell overhead press	2 x 10 each side	7 – 8	30 – 60 s	Can be performed standing, seated, or kneeling
	Suitcase carry	2 x 20 m each side	Heavy enough to make it difficult when carrying	1 – 2 min	Maintain as upright of a position as possible
FINISHER	Steady state cardio	30 – 60 min (note: this can be performed as a separate session, if needed)	6 – 7	No rest while performing the series	Cardio exercise of choice (e.g., row, ski, bike, stair climber, etc.)

TABLE 2. SUGGESTED MOVEMENT PATTERN-BASED EXERCISE SELECTIONS

Squat Exercise Variations	Barbell front squat, dumbbell goblet squat, belt squat, dumbbell split squat, Zercher squat, safety squat bar squat
Hinge Exercise Variations	Kettlebell deadlift, trap bar deadlift, dumbbell single-leg Romanian deadlift (RDL), kettlebell swing, landmine RDL
Press Exercise Variations	Dumbbell bench press, landmine standing press, single-arm kettlebell overhead press, barbell incline press
Pull Exercise Variations	Chin-ups, inverted rows, single-arm dumbbell rows, chest-supported row
Carry Exercise Variations	Dumbbell farmer's carry, kettlebell front rack carry, dumbbell suitcase carry, plate overhead carry
Rotation Exercise Variations	Landmine standing rotations, medicine ball scoop throw, standing band rotations

EXERCISE SELECTION

Exercise selection for police officers includes foundational multi-joint movement patterns of squatting, pressing, pulling, hinging, rotating, and carrying in various positions. Police officers familiar with basic exercise technique may benefit from inclusion of various unilateral- and unilateral-biased variations of foundational exercises (e.g., dumbbell split squats, single-arm overhead kettlebell presses, and single-arm dumbbell rows). Having a bank of exercises for each movement pattern may assist in efficient selection and progression of appropriate exercises. Suggested exercises for each movement pattern are provided in Table 2.

While the fitness program should be built around exercises with occupationally-relevant movement patterns, the exercise selected for each pattern should be individualized for individual police officers based on the presence or history of injury, exercise experience, and technical abilities. For example, a police officer with shoulder or wrist restrictions may perform the Zercher squat

or safety squat bar squat rather than the barbell front squat. Alternatively, if the police officer is unaccustomed to loaded squatting, the dumbbell goblet squat may be a superior initial exercise selection, as it has been proposed as part of a progression toward squatting with a barbell (3). Police officers' preferences should also be considered when selecting exercises. Ultimately, police officers should not be "forced" to perform any specific training exercise, as there is no single exercise required for police officer fitness improvement.

DURATION, VOLUME, INTENSITY, AND REST INTERVALS

Training session duration is a major variable when performing fitness on a police shift. Implementing a fitness program requires careful evaluation of a police officer's available time and schedule. It should be noted that a training session does not always have to fit into the traditional 60-min block that the field is so accustomed to. For example, Orr et al. reported that 45-minute training sessions with exercise intensities tailored to the ability levels of participants are as effective as 60-min sessions performed with standardized intensities (17). Training sessions ranging from 30 – 60 min in duration have been shown to improve physical fitness in police officers and cadets (6,17,20). Moreover, findings in non-police populations suggest the efficacy of short high-intensity functional training (HIFT) interventions (11). These workouts incorporate multiple types of exercises and require 15 min or fewer to complete (11). Although growing literature tends to support the efficacy of extremely short duration, high-intensity training sessions for reducing risk of cardiometabolic illness and premature death, their effectiveness for improving police task abilities has not yet been demonstrated (13). Due to the myriad of fitness-related qualities desirable for police work, the authors encourage police officers to commit a minimum of 15 min per session, with 30 – 60 min per session preferred. Ultimately, training session duration, exercise order, volume, intensity, and rest intervals may require modification based on the police officers' time constraints. Figure 2 proposes general structures of training sessions with various durations.

CONCLUSION

Program design for police officers is based on the same premises as program design for sport athletes; however, the constraints, needs, and individual features of these populations tend to differ. Training police officers may present a variety of challenges, including those imposed by scheduling around the patrol shift. Programming should be needs-based, individualized, flexible, and balanced. It should facilitate concurrent improvements in strength, conditioning, and functional abilities, while minimizing risks of injury and undue fatigue. Although training sessions should be directly supervised for best results, strength and conditioning professionals responsible for large geographic areas or large populations of police officers might need to use a remote training program delivery method (e.g., mobile applications) (12,20). Care should be taken to provide regular in-person or video check-ins with police officers to ensure exercises are performed with appropriate technique. Despite intrinsic challenges, a well-designed and properly implemented fitness training program is likely to result in enhanced job task abilities, improved health, and career longevity for the police officers who partake.

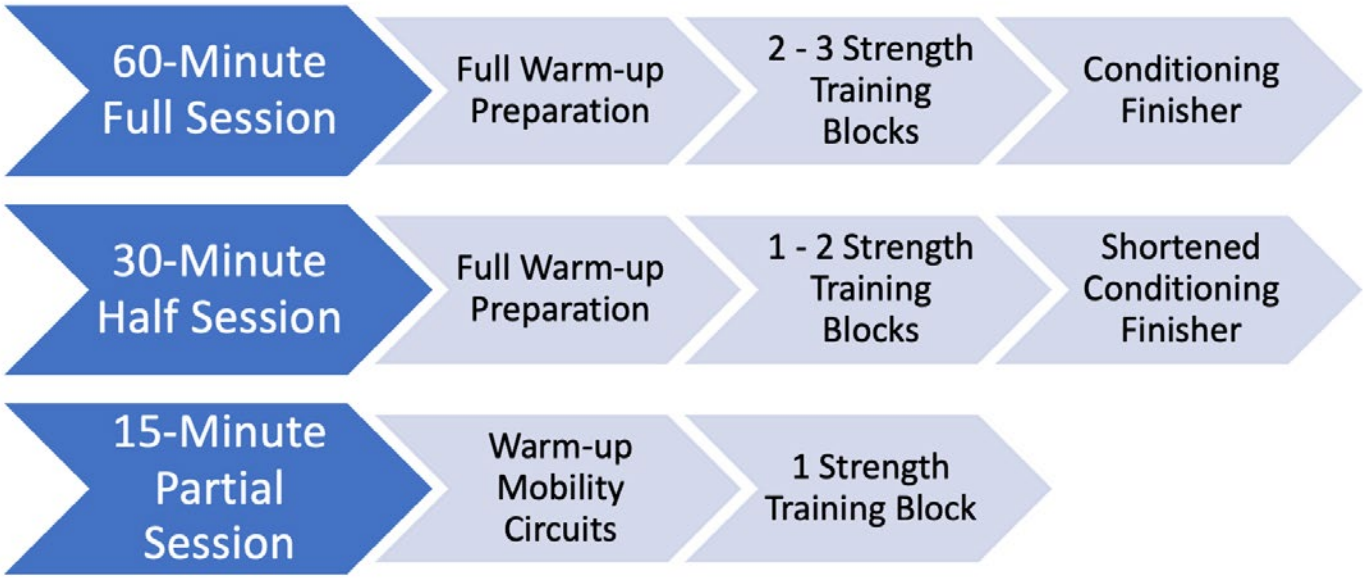

FIGURE 2. SAMPLE TRAINING SESSION DESIGNED BASED ON TIME CONSTRAINTS

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