

Sports scientific explanations on the development of the European Police Performance Badge (EPLA)



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The *Union Sportive des Polices d'Europe (USPE)* commissioned the *Faculty of Sports and Health Sciences of the Technical University of Munich* to develop the EPLA. The latter aims at checking and assessing the motor skills of police officers, as policing requires a high level of physical fitness.

Security presupposes fitness, which is why topics like health and physical capacity are of major significance in active policing. Physical fitness is considered to be a key qualification of police officers, and the general public quite rightly expect to rely on an efficient police force. Amongst other things, the physical fitness of active police officers promotes the feeling of security and creates trust (cf. Fundamental Positions on Sport within the Police defined by the German Police Board of Trustees - *Deutsches Polzeisportkuratorium*).

The EPLA is to be instrumental in attaining these objectives.

Testing physical fitness requires objective and measurable criteria that describe an officer's sporting performance. As a consequence, a performance catalogue aligned with the four basic motor skills - i.e. strength, endurance, speed and coordination - was developed in accordance with sports scientific aspects and is at the heart of the EPLA (see section 1). Moreover, major emphasis was put on computing the performance requirements applicable to the various disciplines and respective age groups on the basis of sports scientific findings (see section 2). Another important criterion embraces the verification of individual performance on the three performance levels bronze, silver and gold (see section 3).

This process has evolved in close cooperation with USPE representatives and experts. Above all, this guarantees the practical relevance of the badge that is deemed necessary for creating and safeguarding its acceptance in the USPE member states.

1. Structure of the performance catalogue

The EPLA performance catalogue is designed to create a clear structure in tandem with a transparent system and inner logic. In this context, particular attention is to be paid to the explicit correlation between the individual disciplines and the basic motor skills. In addition, the performance requirements are to be standardised across all individual disciplines. As a consequence, the performance catalogue was subdivided into two main categories in line with the basic motor skills, namely *physical fitness* and *coordination*. In training research, physical fitness is regarded as the essential prerequisite for performing well in sport.¹ Additionally, fitness is broken down into four basic motor skills: *endurance*, *strength*, *speed*

¹ HOHMANN, A., LAMES, M. & LETZELTER, M. (2007): Einführung in die Trainingswissenschaft. Wiebelsheim: Limpert.

and *flexibility*. According to *HOHMANN et al.*, *coordination* represents another performance factor. However, regarding the skills model, *flexibility* assumes a special role. Although it represents a fundamental, elementary prerequisite for performing exercises at a fairly good level, while also serving the purpose of injury prevention, flexibility outside competitive sports cannot be properly assessed and verified in an objective way due to the fact that, pursuant to *WEINECK*², an athlete's muscles should be stretched optimally and not maximally with regard to a specific movement or type of sports. As a consequence, the redesign of the performance catalogue did not necessarily have to focus on *flexibility* as a criterion that needed to be verified.

The above performance factors, namely *physical fitness* and *coordination*, are not only indispensable in terms of an optimum training programme designed to achieve maximum and/or optimum performance at a certain point in time, they also constitute the criteria that need to be taken into account in the assessment of an individual sports performance. To ensure better comparability of an individual's performance level in the course of his/her lifetime, but also for the purpose of inter-individual comparison of performance, the performance catalogue was aligned with the above skills model. Irrespective of the person testing the athlete and the chosen discipline, this is to obtain evidence on an individual's physical fitness that is as objective as possible. Furthermore, this allows police officers to avail themselves of more structured training opportunities and to better plan their training.

1.1 Choice of disciplines

An attractive range of sports disciplines was chosen on the basis of a suitable selection of practice- and occupation-related forms of exercises under the skills model. This does not only promote the level of acceptance in the USPE member states, but also reinforces the basic idea of EPLA: "promoting the physical fitness of all police officers serving in the USPE member countries, furthering the European idea and developing a common "corporate identity" amongst European police forces" (cf. Rules and Regulations Governing EPLA).

The performance catalogue exclusively includes disciplines that either embrace a form of movement related to everyday policing or taken from one of the major and popular sports disciplines such as track and field, swimming, cycling and gymnastics that are recognised across the whole of Europe. Based on the principle of predominance, the individual disciplines have been assigned to the four categories, with the focus being on the decisive question of what discipline predominantly requires which basic motor skill. A further factor relevant to the choice of disciplines is reasonable and simple verifiability. In addition, the disciplines have to be feasible in the overall framework of the possibilities offered by police sport, while ensuring impartial measurability on the three performance

² WEINECK, A. & WEINECK, J.: (2005): Sportbiologische und Trainingswissenschaftliche Grundlagen. Forchheim: Zenk.

levels. To guarantee a clear and straightforward structure, both female and male athletes are offered the same disciplines. Nonetheless, the requirements are adjusted to the individual gender.

Below, the background information on the individual groups of skills/categories as well as the respective disciplines are specified in more detail:

Category 1: Endurance

*Endurance is the ability to withstand a physical strain that will eventually lead to insurmountable fatigue for a long time and to sustain exposure to this strain despite the fatigue.*³ This group of disciplines examines an individual's general, dynamic and aerobic basic endurance. This embraces a cyclic movement that mainly takes place within the framework of aerobic energy supply, while involving a major part of all skeletal muscles.

- I 3000m running: Typical, standardised and meaningful form of testing endurance performance. Literature offers comparative values. The relevance to practical working life and everyday work is clearly discernible.
- I 800 / 400m swimming: Swimming does not only form part of the basic cultural techniques, it also counts among the fundamental human capabilities and may, thus, also form a rescue scenario during a police operation.

Category 2: Strength

This category of disciplines focuses on testing EPLA-specific strength endurance as well as strength power speed. *Strength endurance is defined as the fatigue resistance of the organism in the event of long-lasting strength performance, whereas strength power speed is the ability of the nervous and muscular system to move the body, parts of the body or objects at maximum velocity.*⁴ As opposed to category 3 (speed), what is paramount is not the speed of movement, but overcoming this resistance.

- I Standing long jump: Typical, standardised and meaningful way of testing strength performance – also applicable to strength power speed.
- I 50 m swimming fully clothed: Swimming fully clothed looks back upon a long tradition in USPE competitive sports and forms part of the combined lifesaving event held during the European Police Swimming Championships. It is a meaningful way of testing strength endurance, while also representing a potential rescue scenario during a police operation.

Category 3: Speed

*Speed in sport is the ability to achieve maximum possible reaction and movement speeds under specific defined conditions on the basis of cognitive processes, maximum willpower as well as the functionality of the nervous and muscular system.*⁵ This category of disciplines examines the *speed of frequency of cyclic movements*. This refers to repetitive, uniform movements at maximum velocity against low levels of resistance during brief periods of physical exercise and strain.

³ cf. ZINTL, F., EISENHUT, A. (2009): Ausdauertraining. München: BLV.

⁴ cf. WEINECK J. (2009). Optimales Training. Balingen: Spitta.

⁵ cf. GROSSER, M., STARISCHKA, S. & ZIMMERMANN, E. (2008): *Das neue Konditionstraining*. München: BLV.

- | 50 / 100m sprint: Typical, standardised and meaningful way of testing cyclic speed performance. The relevance to practical working life and everyday work is clearly discernible.
- | 200m cycling: Meaningful way of testing cyclic speed performance. The 200m sprint cycling event has a high level of practical relevance to police bicycle patrol units.

Category 4: Coordination

*Coordination skills are skills that are primarily controlled by coordination, i.e. the processes governing movement control. They enable the athlete to safely and economically master and control motor activities in foreseeable situations.*⁶ Thus, the focus is primarily on movement technique and the quality of movement execution, while the energetic processes of muscle movement only play a secondary role.

- | Long jump: Determining the exact point and time of take-off after approaching at a high run-up speed requires a high level of coordination (coordination under time pressure). One more time, this is a discipline that shows practical relevance to everyday working life.
- | Shooting with a service pistol: The necessity to fire several rounds in a limited period of time and precisely hit the target puts high requirements on coordination skills (coordination when pressed for time and precision). This exercise also has a clear practical relevance to everyday working life.
- | Skipping: Skipping was added to the performance catalogue to supplement the other disciplines in category 4 that require a somewhat higher organisational effort, while providing an alternative to USPE member states where officers do not carry firearms. Skipping requires a very high level of coordination and allows a reasonable differentiation between all age groups and the performance levels bronze, silver and gold via adjusting and controlling the respective levels of difficulty.

2. Computation of performance requirements

When developing the performance requirements, major emphasis was put on ensuring that the scores could be computed in a transparent fashion and would stand up to scientific scrutiny.

While designing the performance catalogue it was necessary to ascertain age and gender specific performance requirements. For this purpose, the project started by defining the development of the performance curves for the four basic motor skills (endurance, strength, speed, coordination) over a lifetime. This was done on the basis of

- | national and international literature on data and standard values relating to motor skills that was screened and evaluated by means of meta-analysis (out of a total of 1,591,818 individual values from 413 studies) and
- | a large-scale survey that was conducted amongst 3707 fitness orientated recreational athletes in cooperation with the German Olympic Sports Confederation.

⁶ cf. HIRTZ, P.: Koordinative Fähigkeiten - Kennzeichnung, Altersgang und Beeinflussungsmöglichkeiten. *Medizin und Sport* 21 (1981), 348-351; FREY, G.: Zur Terminologie und Struktur physischer Leistungsfaktoren und motorischer Fähigkeiten. *Leistungssport* 7 (1977), 339-362.

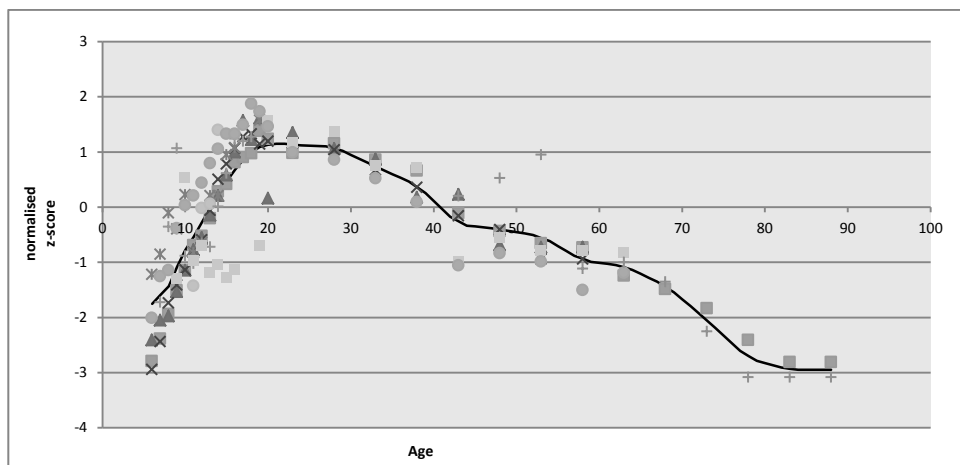


Figure 1: Graph outlining strength capability in the course of a lifetime

A second step involved the computation of the values for individual disciplines and age groups on the basis of this data pool by applying data mining techniques, whereupon these values were allocated to three different performance levels (see section 3). In cooperation with USPE experts, individual values were adjusted by means of a plausibility check for ensuring practical relevance and practicability with respect to rather uncommon disciplines such as *swimming fully clothed* or *shooting with a service pistol* that can currently not rely on any or only few reference values.

The result of this computation represents the performance requirements to be met for obtaining a silver badge. The relevant scores required for achieving the bronze and gold badge were defined by means of standard deviation. In this context, the performance required for obtaining bronze is designed in such a way that the requirements may be fulfilled by any fitness orientated police officer. As a rule, the gold performance level should only be attainable by means of continuous training.

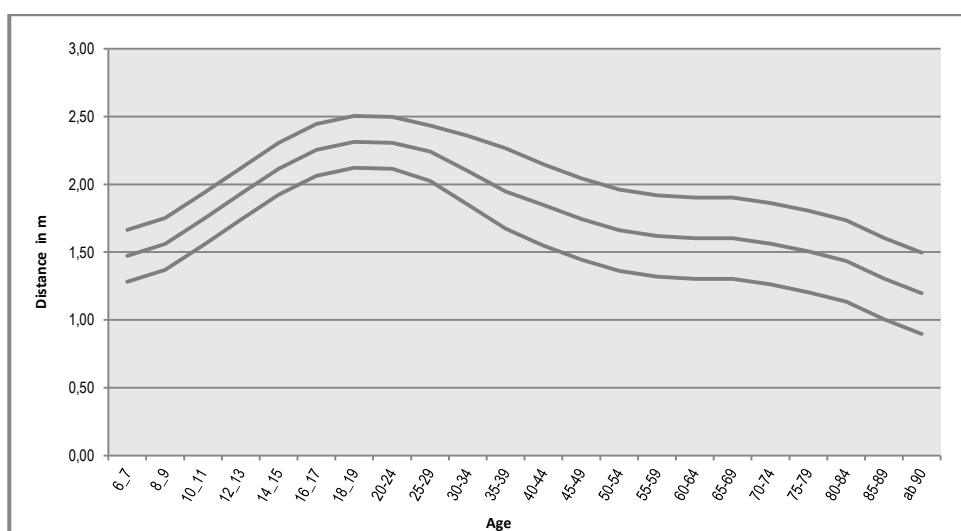


Figure 2: Graph outlining standing long jump performance requirements in the course of a lifetime



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3. Introduction of a three-tier structure

The three-tier evaluation system embracing gold, silver and bronze badges, which are allocated subject to the degree of compliance with the set assessment criteria, is regarded as highly expedient. From a sports educational and didactic point of view, this puts special emphasis on performance and aims at giving participants an incentive to continuously improve their performance by training on a regular basis in order to achieve a higher-level badge.

Each performance achieved on the bronze, silver and gold level is assigned a score:

bronze = 1 point; silver = 2 points; gold = 3 points.

For being awarded the EPLA badge, a minimum number of four exercises (one discipline per category) have to be completed on the bronze level (4 points). This implies that each category has to be completed at least on the bronze level, and that it is impossible to compensate underachievement in one category by overachieving in another category. This procedure ensures that for being awarded the EPLA it is necessary to actually perform well in terms of all basic motor skills.

Overall scores and the respective allocation of points to the three performance levels are assigned as follows:

4 - 7 points = bronze; 8 - 10 points = silver; 11 - 12 points = gold.

Furthermore, this three-tier structure provides the possibility of setting up a performance system for the various units/organisations within the police of a USPE member state.