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## EARLY PRECURSORS OF ATHLETIC TALENT: EVIDENCE FROM A STUDY AMONG OLYMPIC CHAMPIONS

## **Issurin Vladimir** ABCDEFG

Wingate Institute for Physical Education and Sport, Netanya, Israel

**Key words:** athletic talent, retrospection analysis, long-term preparation, talent precursors

#### Abstract \_

**The aim.** To define sport mastery psychic determinants and its training conditions at the early stage of the sport training **Hypothesis.** The duration of time that was assumed by psychologists to bring first sport results: 10 years 10 000 hours of

the training volume [1] was verified. **Subject of the study.** 11 Olympic champions (various sports disciplines), coaches and sport managers. **Methods**. The diagnostic poll method using interview techniques, polls and documents analysis. **Results**. The Olympic champions:

- before committing to their sport profession they used to anticipate in various sport disciplines. Only professional swimmers tended to start their career at childhood, others tended to commit to their professions when at puberty.
- they required less time to achieve their first international results than it was presented in the theoretical assumptions at the time.
- they owned the typical psychic features for their professional sport discipline. The most common mentioned were: Selfmotivation, high responsibility, fatigue tolerance, physique, emotional stability, fast learning skills, competitiveness, mental toughness,

**Conclusions.** 1. The beginning of the swimming career was confirmed to be at childhood and youngsters at puberty.

- Contrary to the theoretical assumptions the Olympic champions required less time to achieve first international sport successful results
- 3. All gathered evidence provided the foundation to undermine psychologists' assumptions [1] regarding the time required to bring young athlete first successful results in sport 4. The work volume required to achieve first international successes by the Olympic champions on avarage took = 3084 hrs (min 1840 hrs- max 4495 hrs).

## Introduction

Identification and promotion of athletic talent is one of the most disputable and important problems of contemporary sports science. Sports history of great Olympic athletes can give valuable input into investigation of the nature and discovery of athletic talent. The interest to personalities, athletic biographies and particularities of long-term preparation of great champions was traditionally in the focus of sport media and training analysts [2–7]. Despite the fact that a large number of papers have already been published, a relatively small quantity of serious studies have been devoted to the discovery of the earliest precursors of athletic talent. Specifically, it is not known how preliminary preparation of outstanding athletes differs from the preparation of their peers and generally accepted standards. It can be hypothesized that outstanding athletes possess special personality

traits and some psychological skills, which predetermine their successful athletic careers. Apparently, such an appropriate, in-depth study of outstanding athletes can give relevant information related to the availability of early precursors of their athletic talent.

### **Purpose**

The study purpose is to investigate and deal with the investigation of long-term preparation of outstanding athletes aiming to find early precursors of their athletic talent.

## Material and methods.

The study design presupposed in-depth interviewing of eleven Olympic champions, representing different countries. In addition, several personal coaches and sport managers were questioned as well. Retrospective data of the subjects were collected with regard to their sport history, namely: premature athletic activity before preparation in their favorite sport, age at which systematic training of this favorite sport started and age at which they achieved heir first big success; total accumulated training time expenses each year prior to the first big success; personality traits and psychological characteristics identified during initial stages of long-term preparation; availability of early indications of extraordinary athletic abilities. All subjects were informed of the study purpose and expressed their readiness for cooperation.

### Results

#### Training specifics of outstanding athletes at the initial stage of long-term preparation

The available data give objective information concerning content, workout frequencies, time expenses for training per week and over the season during the stage of preliminary preparation of the surveyed outstanding athletes (Table 1).

As it is shown in Table 1, all subject sexecuted much higher training volumes during the initial stage of their care ersthan the generally recommended norms and standards. Moreover, their training volumes largely exceed the workloads performed by their peers. According to self-reports of the survey ed athletes, they executed increased workloads following their self-motivation with-

Table 1. Characteristics of training designat the stage of preliminary preparation of studied outstanding athletes

Athlete's name	Age of preliminary preparation	No. of workouts per week	Training time ex- penses per week, Hrs	Total training time per year, Hrs
Viatcheslav Ivanov (VI) –rowing; USSR	14–15	5–9	9–16	580–620
Yuri Stetsenko (YS) – kayaking; USSR	14–15	3–4	6–8	200–450
Sergey Chukhray (SC)– kayaking; USSR	13–14	8–10	10–14	480–560
Vladimir Parfenovich (VP) – kayaking; USSR	14–15	5–7	8–12	350–410
Ivan Klementiev (IK) — canoeing; USSR, Latvia	15–16	6–8	10–16	380–540
Maxim Opalev (MO) – canoeing; Russia	12–13	8–11	10–15	230–310
Gal Fridman (GF) – windsurfing; Israel	12–13	6–8	9–12	600–650
Massimiliano Rosolino (MR) – swim- ming; Italy	9–10	4–6	7–10	180–290
Sergey Fedorovtsev(SF) – rowing; Russia	13–14	4–6	6–12	350–560
Ruta Meilutyte (RM) – swimming; Lithuania	7–8	4–5	4—6	280–420
Daria Domracheva (DD) – biathlon; Belorussia	12–13	6	14–16	460–520
Average internationally accepted standard	Duration – 2–3 years	3–4	3–5	120–170

out external pressure or any additional demands. These additional extra work load sconsisted of voluminous low intensity exercises with accentuated technical control. Importantly, the coaches of the studied athletes always supported their initiative in execution of additional tasks and sessions and were attentive to technical details of performance but gave sufficient freedom in execution of additional tasks and sessions. In addition, all subjects remarked that they felt satisfaction from their training activities.

# Premature sport activities and choice of the favorite sport

The findings evidenced that a majority of studied athletes practiced some other sport activities before they started systematic preparation in their favorite sport. Some of them have had preparation in organized groups, namely: VI became qualified boxer before he started training in rowing, VP had 5 years training practice in wrestling, DD trained cross-country skiing for 6 years. The other subjects (YS, SC, IK and SF) practiced different sports such as football, running, skiing, etc. in informal activities. Several athletes who began their dedicated preparation at an early age started it in favorite sport, namely, RM and MR in swimming, MO in canoeing/kayaking and GF in windsurfing.

## Total accumulated training time expenses before 1<sup>st</sup> big success

The total training time duration since the beginning of purposeful preparation until the 1<sup>st</sup> big success varied between 4 and 7 years. The 1<sup>st</sup> big success as an indicator of expert performance has been specified as earning a medal at World/Continental Junior Championships or National Senior Championships [3, 4]. The average accumulated training time expenses until the first big success was equal to 3,084 hours that varied between 1,840 and 4,495. Although the studied athletes executed much larger volumes of training compared to their peers and the workload standards, their total accumulated training time was much less than proposed by Ericsson et al. [1], who postulatedthe10-year rule and 10,000 hours of deliberate practice until attainment of a superior level of expert performance.

#### Early signs of sport-specific giftedness

Information on early indicators of extraordinary athletic abilities was received immediately from the subjects as well as from their coaches and sport managers. The questioned persons marked various signs of giftedness emphasizing psychological attributes, physical features such as learn ability, fatigue tolerance and body build (Table 2).

Table 2.	Early	indicators	(EI)	of	extraordinary	athletic	abilities	of	the	sub	jects
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Athlete's name	Age starting training in favorite sport	Age when El were marked	Indicators of extraordinary athletic abilities*
Viatcheslav Ivanov (VI)	14	15–16	Self-motivation, consciousness, fatigue tolerance, body build, learn ability, competitiveness
Yuri Stetsenko (YS)	14	15–16	Self-motivation, high responsibility, competitiveness, learn ability, self-esteem, fatigue tolerance
Sergey Chukhray (SC)	13	14–15	Self-motivation, mental toughness, fatigue tolerance, learn ability, body build
Vladimir Parfenovich (VP)	14	15–16	Self-esteem, self-motivation, competitiveness, , body build, fatigue tolerance, emotional stability,
Ivan Klementiev (IK)	15	18	Self-motivation, dedication, learn ability, fatigue tolerance, emo- tional stability, competitiveness.
Maxim Opalev (MO)	12	13	Self-motivation, competitiveness, high responsibility, dedication, learn ability, fatigue tolerance
Gal Fridman (GF)	12	12–14	Self-motivation, high responsibility, fatigue tolerance, learn ability, emotional stability, competitiveness
Massimiliano Rosolino (MR)	6	9	Self-motivation, learn ability, awareness , body build, competi- tiveness
Sergey Fedorovtsev (SF)	13	15	Self-motivation, high responsibility, fatigue tolerance, body build, learn ability
RutaMeilutyte (RM)	7	9	Self-motivation, high responsibility, consciousness, dedication, learn ability, body build
Daria Domracheva (DD)	12	13–14	Self-motivation, high responsibility, fatigue tolerance, competi- tiveness, mental toughness, learn ability

\* Indicators are ordered according their importance as declared by athletes and/or their coaches

As it can be deduced from the data in Table 2, selfmotivation was highest ranked by the subjects. Among the other personality traits indicated by the questioned athletes were competitiveness, high responsibility, consciousness and dedication. Several athletes mentioned psychological skills such as mental toughness and emotional stability. The most influential physical attributes mentioned by the subjects appeared to be high learn ability and fatigue tolerance.

### **Discussion**

One of the most salient outcomes of the present study is the fact that all the outstanding athletes who were interviewed executed much larger volumes of training at the initial stages of their long-term preparation. The athletes increased the level of the workload following their own self-initiative without any external demands. They also reported that they felt satisfaction from training routines and athletic progression. Importantly, each of them marked self-motivation as one of the decisive factors determining their successful preparation. These findings are consistent with the data of Gould et al [5] who interviewed 10 US Olympic champions and revealed that motivation of achievement competence was indicated by each subject as an important reason for sport activity during their early years. The summary of many studies allowed to find that self-motivation is definitely one of the most frequently mentioned features of the potentially talented youth (see review by Anshel and Lidor [8]). However, in order to be intrinsically motivated, the athlete should feel that his/her efforts lead to visible enhancement of skills and sport-specific abilities, and this positive feedback produces strong support for continued preparation. It is apparent that perceived competence plays a crucial role in maintenance and rein for cement of an athlete's self-motivation [9].

Contrary to the theory by Ericsson et al. [1], all subjects marked and emphasized that their initial training activities were always enjoyable. The excellent swimmer - Massimiliano Rosolino reported that he feels satisfaction from training and loves it very much. Similarly, the following three Olympic champions – Viatcheslav Ivanov, Sergey Chukhray and Vladimir Parfenovich noticed that they experienced satisfaction from training from the first steps in their athletic careers. Apart from that, Ericsson's theory [1] is refuted with regard to the amount of deliberate practice. In all cases, the total amount of training time expenses until achievement of a level of expert performance (1<sup>st</sup> big success) was much less than 10.000 hours. Eventually, exceptionally talented athletes attain a level of excellence much faster than proposed in the theory by Ericsson, whereas the less talented individuals do not achieve this level even after 10,000 hours of highly dedicated practice.

## Conclusions

Unlike the traditional approach mostly functioning along with somatic and physiological prerequisites of athletic talent, the findings of this study emphasize the importance of behavioural and personality traits, which can serve as early predictors of athletic talent. The most important precursor of athletic talent in the great athletes studied was their willingness and readiness to perform much larger workloads compared to their peers and team mates. The introduced findings are evidence that such personality traits as self-motivation, competitiveness, high responsibility, consciousness and dedication have a high predictive potential for athletic talent. In addition to these, the gifted performers have shown early acquisition of psychological skills such as mental toughness and emotional stability. The most influential physical attributes mentioned by the subjects appeared to be high learn ability and fatigue tolerance.

The available data contradict the theory of deliberate practice by Ericsson et al. [1] that proposes the10-year rule and accumulation of 10,000 hours of highly dedicated practice for achieving a level of expert performance. The greatly talented athletes studied obtained the level of excellence following 4-7 years of specialized preparation with the average accumulated training time expenses equalling 3,084 hours. The reported particularities of superior athletes and their preparation during the initial stage of their careers in sport can be used for the early identification of potentially talented young prospects.

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#### Address for correspondence:

Prof. Vladimir Issurin vladi2691@gmail.com