



# Talent in Sport: Early Discovery and Methodological Prerequisites

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# Definitions:

***Athletic talent** is a special extraordinary ability that allows athlete to reach excellence in his/her sport activity.*

***Athletic giftedness** - can be characterized as a predisposition to and a higher learn/trainability for a given activity.*

It is commonly accepted that AT is closely associated with genetically transmitted properties

# However

**Theory of deliberate  
practice introduces an  
alternative to concept of  
natural talent**

# Prof. Anders Ericsson with his theory of deliberate practice



**Ericsson et al. (1993) proposed the framework of deliberate practice that suggests an alternative approach to youth sport programming.**

**The framework outlines that to reach the highest level of performance, one must engage in 10,000 hours or 10 years of deliberate practice in their chosen domain (sport).**

**The deliberate practice was defined as high quality, high concentration practice that is not usually inherently enjoyable; practice activities must become increasingly more complex over time, and practice must be done with the primary goal of improving performance.**

**Is the theory of Prof.  
Ericsson supported with the  
evidences from elite sport?**

# Purpose:

Examination of theory of deliberate practice and its applicability to career of exceptionally talented athletes in different sports.

# Purpose:

The study was aimed to find out earlier precursors of Athletic Talent and particularities of long-term preparation of exceptionally talented athletes.

# METHODS

**Subjects: 20 Olympic champions in different disciplines**

- In-depth interviewing
- Retrospective analysis of preparation
- Data on accumulated training time expenses
- Performance trends and personality traits

# Long-term Preparation of Great Athletes

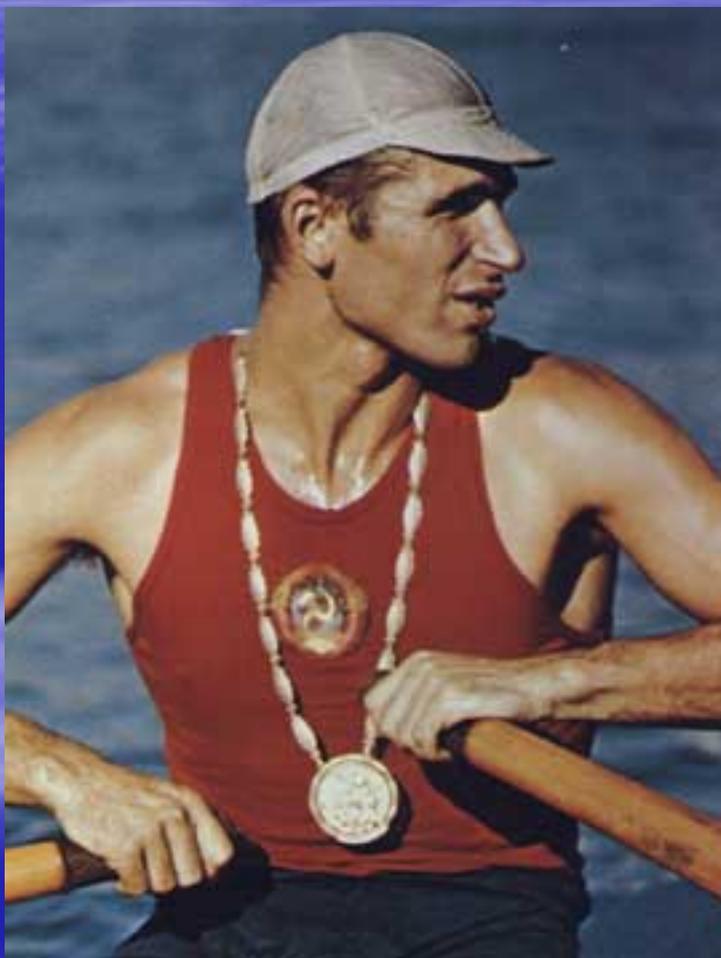


# Personal Data of Respondents of the Study

Name, country, birthday	Athletic discipline	Personal achievements
Viatcheslav Ivanov (VI), USSR, 30.07.1938	Rowing	Olympic Champion 1960, 1964, 1968;
Anatoly Bondarchuk (AB), USSR, 5.05.1940	hammer throw	Olympic Champion 1972,
Yuri Stetsenko (YS) – USSR, 11.04.1945	Kayak pair, four	Olympic Champion 1972;
Sergey Chukhray (SCh), USSR, 31.05.1955	Kayak pair, four	Olympic Champion 1976 and 1980 (twice);
Yuri Sedykh (YSd), USSR, 11.06.1955	Hammer throw	Olympic Champion 1976 and 1980
Vladimir Parfenovich (VP), USSR, 2.12.1958	Kayak single, pair	Olympic Champion 1980 (three times); ten-fold World champion
Ivan Klementiev (IK), Latvia, 18.11.1960	Canoe single	Olympic Champion 1988;; 7 World champion
Bogdan Makuc (BM), USSR, 4.04.1960	Artistic gymnastics	Olympic Champion at 1980, team competition
Gal Fridman (GF), Israel, 16.09.1975	Sailing, windsurfing	Olympic Champion 2004; Olympic bronze medal 1996; World champion at 2002
Massimiliano Rosolino (MR), Italy, 1.07.1978	Swimming,	Olympic Champion 2000;
Igor Vihrov (IV), Latvia, 6.06.1978	Artistic gymnastics	Olympic Champion at 2000, floor discipline
Maxim Opalev (MO), Russia, 4.04.1979	Canoe single	Olympic Champion 2008; eleven-fold World champion
Andrey Moiseyev (AM), Russia, 3.06, 1979	Modern pentathlon	Olympic Champion at 2004 and 2008
Sergey Fedorovtsev (SF), Russia, 1.07.1980	Rowing	Olympic Champion 2004;
Tagir Khaybulaev (TK), Russia, 24.07.1984	Judo	Olympic Champion 2012;
Daria Domracheva (DD), Belorussia, 3.08.1986	Biathlon	Three-fold Olympic Champion at 2012
Mansur Isaev (MI), Russia, 23.09.1986	Judo	Olympic Champion 2012
Arsen Galstyan (AG), Russia, 12.09.1989	Judo	Olympic Champion 2012;
Ruta Meilutyte (RM), Lithuania, 19.03.1997	Swimming	Olympic Champion 2012; World champion 2013, European champion 2014

**All above listed great athletes were interviewed with regards to their yearly training time expenses, trends of athletic performances, personality traits, family and social support. In addition several coaches were questioned as well.**

# Viatcheslav Ivanov, USSR



Gold

1956 Melbourne

Single sculls

Gold

1960 Rome

Single sculls

Gold

1964 Tokyo

Single sculls

## World Championships

Gold

1962 Lucerne

Single sculls

## European Championships

Gold

1956 Bled

Single sculls

Bronze

1957 Duisburg

Single sculls

Bronze

1958 Poznan

Single sculls

Gold

1959 Macon

Single sculls

Gold

1961 Prague

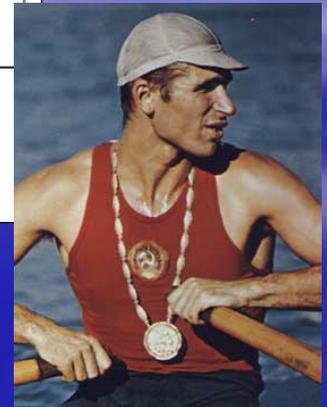
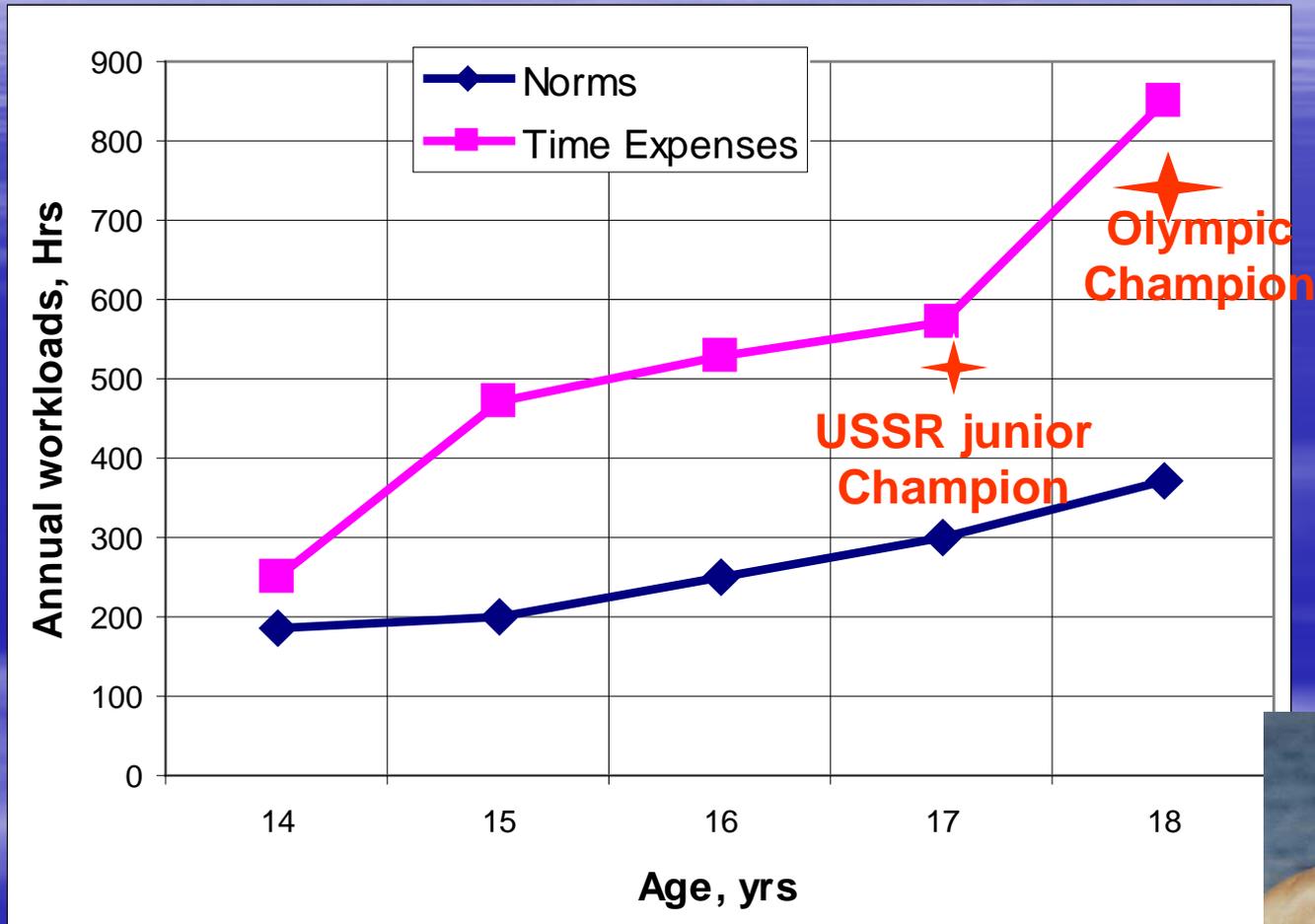
Single sculls

Gold

1964 Bosbaan

Single sculls

# Viatcheslav Ivanov



# Vladimir Parfenovich, USSR



## Medal record

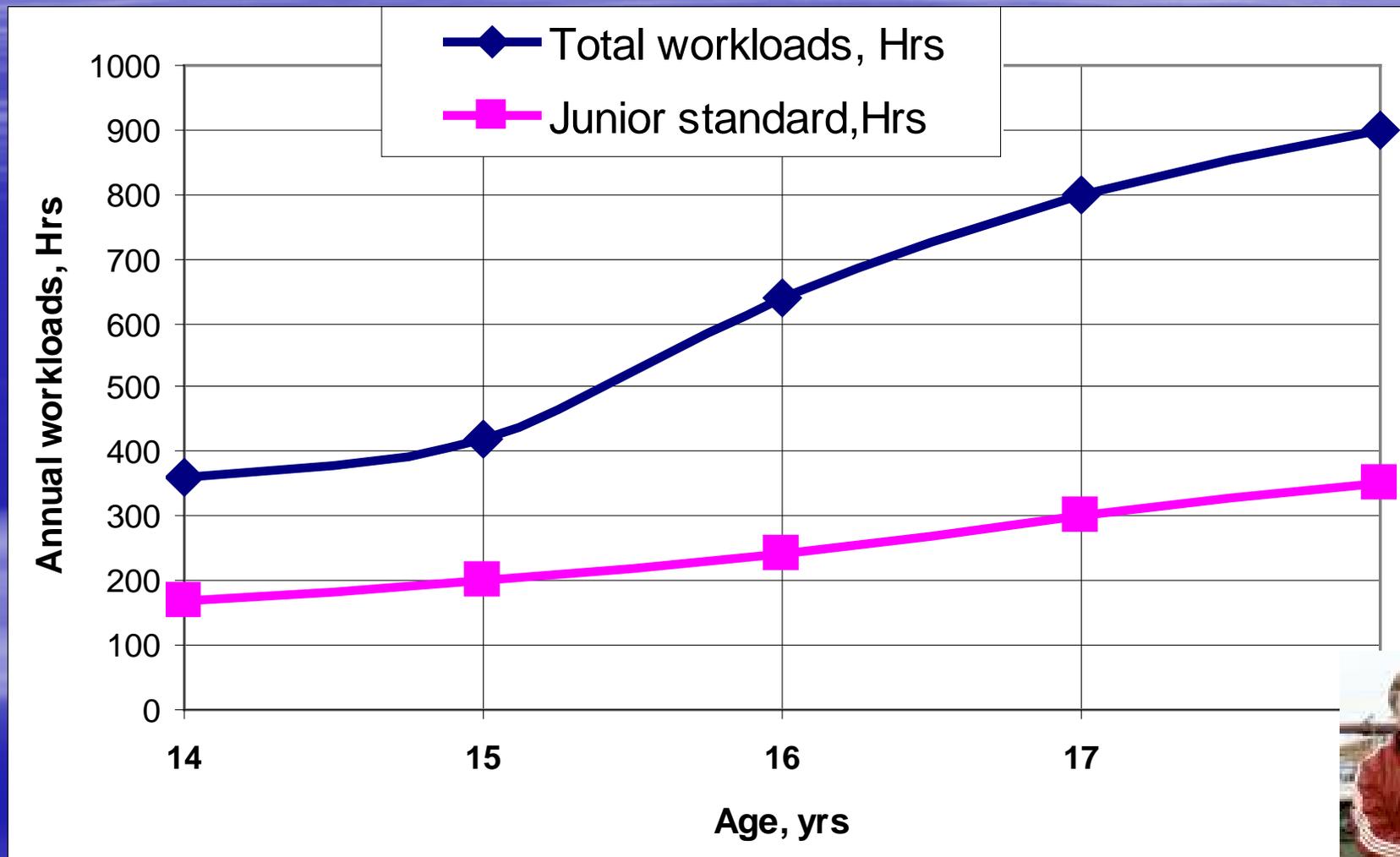
### Men's canoe sprint

#### Olympic Games

<b>Gold</b>	<u>1980 Moscow</u>	<u>K-1 500 m</u>
<b>Gold</b>	<u>1980 Moscow</u>	<u>K-2 500 m</u>
<b>Gold</b>	<u>1980 Moscow</u>	<u>K-2 1000 m</u>

**10-fold World Champion**

# Vladimir Parfenovich: Way to Peak-performance



# Ivan Klementiev - URS, Latvia



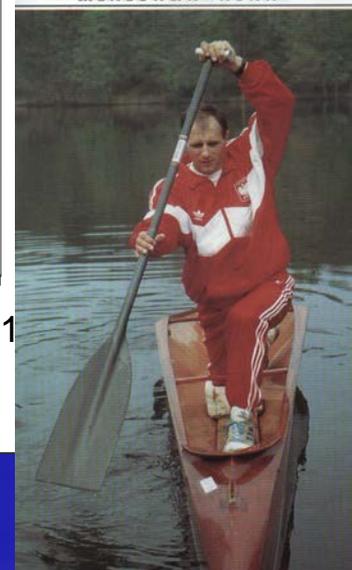
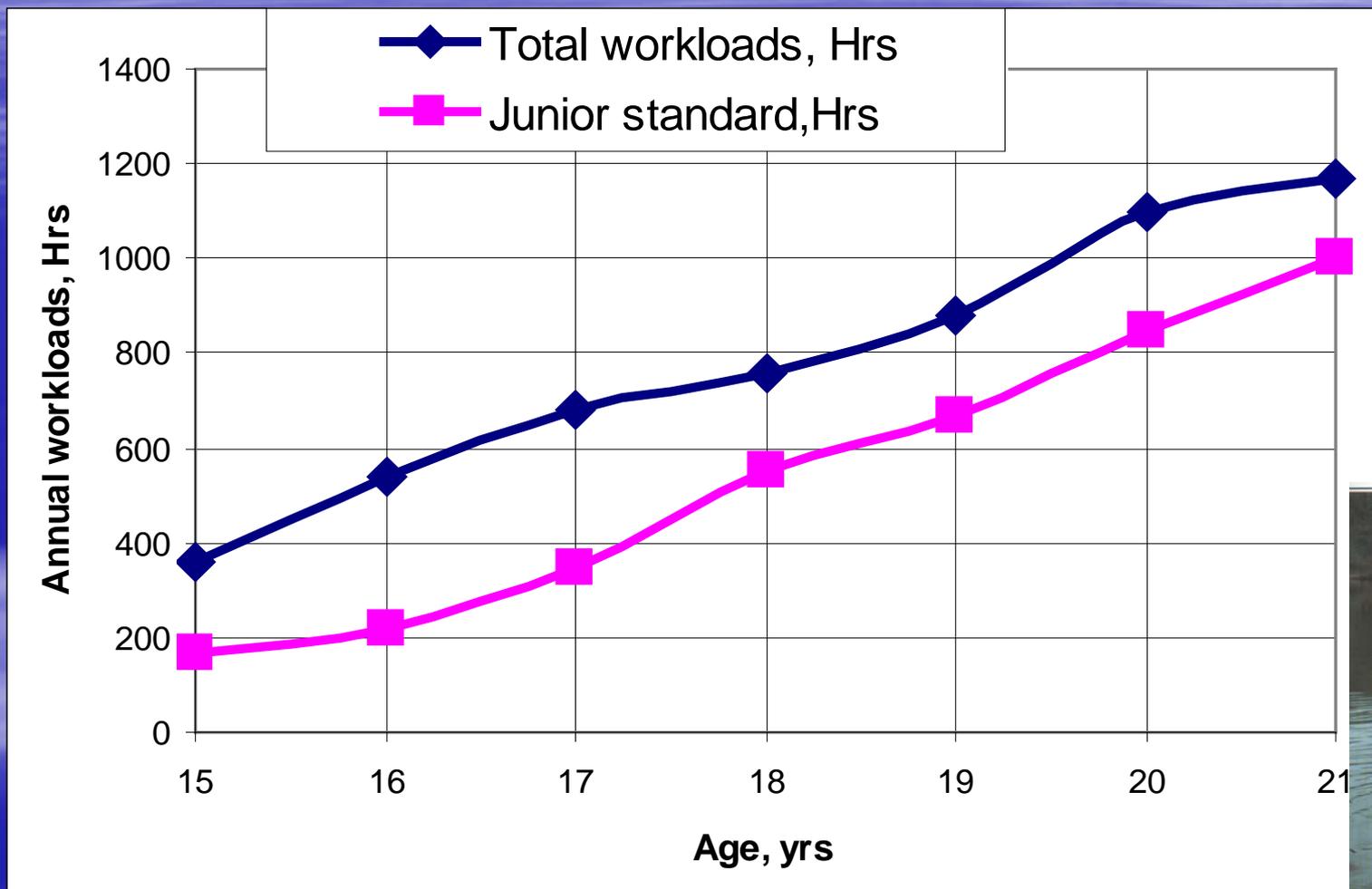
## Men's canoe sprint

### Olympic Games

Gold	<u>1988 Seoul</u>	<u>C-1 1000 m</u>
Silver	<u>1992 Barcelona</u>	<u>C-1 1000 m</u>
Silver	<u>1996 Atlanta</u>	<u>C-1 1000 m</u>

**7-fold World Champion**

# Ivan Klementiev : Way to Peak-performance



# Rūta Meilutytė

## Lithuania



### Medal record

Olympic Games 2012 London

100 m breaststroke - **Gold**

World Championships (LC) 2013

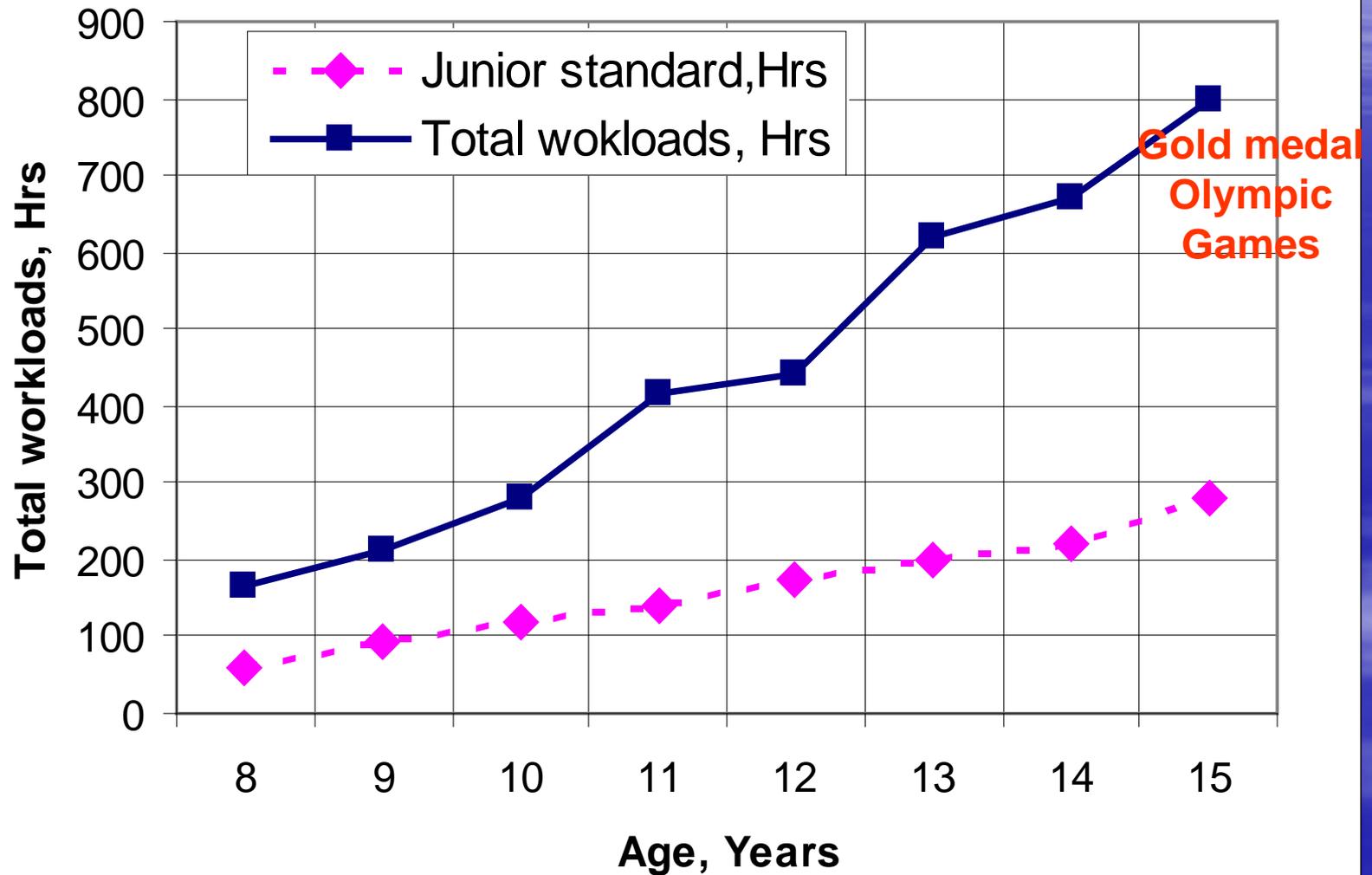
100 m breaststroke - **Gold**

50 m breaststroke - **Silver**

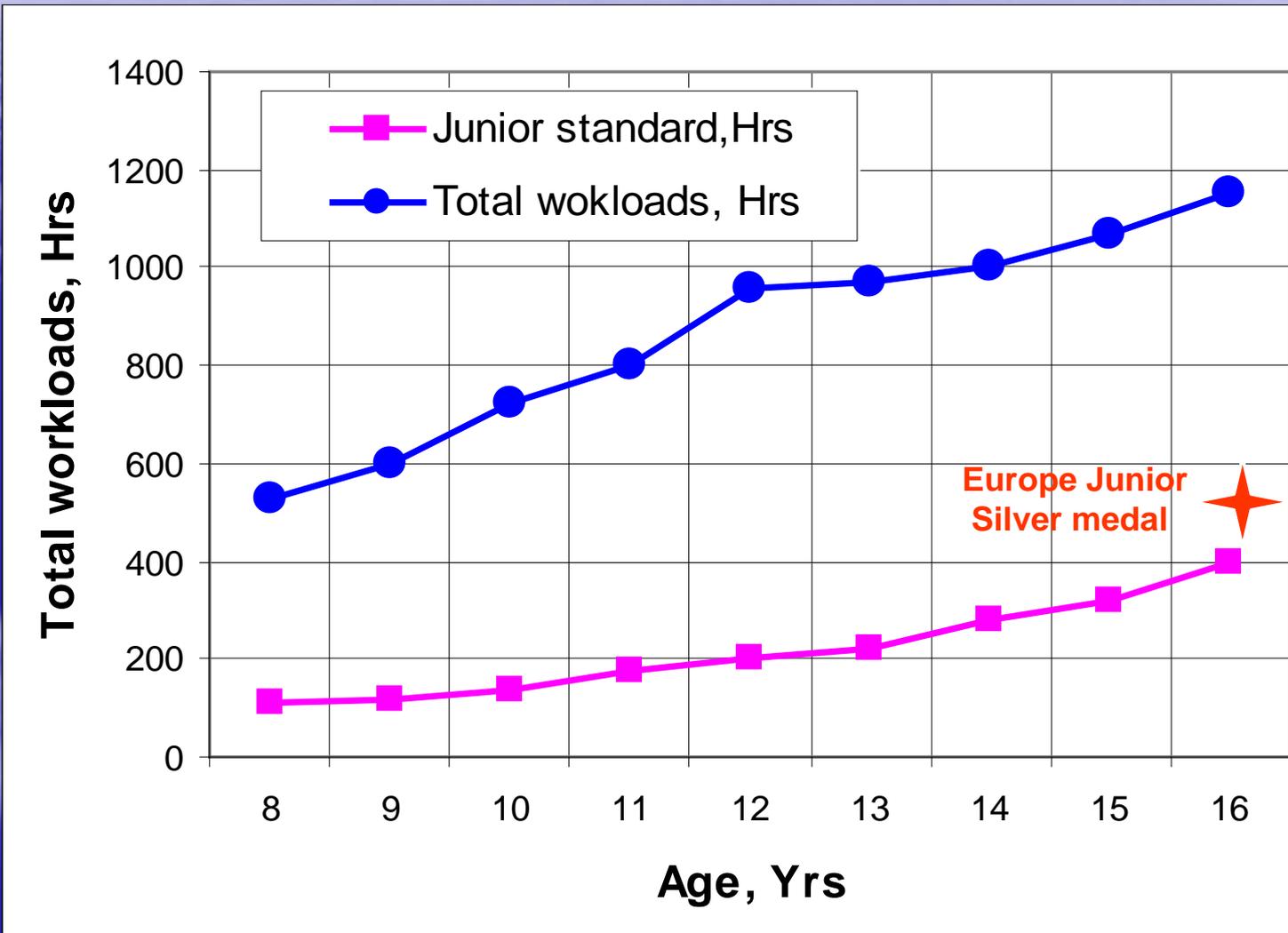
European Championships 2014 Berlin

50 m breaststroke - **Gold**

# Rūta Meilutytė



# Igor Vikhrov



**All respondents reported that even during initial preparation they executed higher volumes of training routines compared to their peers and teammates**

**In all cases the training volumes of excellent athletes on the initial stage of their career were much higher than generally recommended norms. However these extra workloads consisted of voluminous low intensity exercises with accentuated technical control**

**Contrary the theory of Erikson et al. (1993) all respondents marked and emphasized that their initial training activities were always enjoyable**

## Age starting training and 1<sup>st</sup> big success, and accumulated Training Time Expenses until 1<sup>st</sup> big success

Athlete's name	Age start training	1 <sup>st</sup> big success	TTE until 1 <sup>st</sup> big success, hours
<b>"Basic group"</b>			
Viatcheslav Ivanov	14	17	1840
Anatoly Bondarchuk	18	26	3140
Yuri Stetsenko	14	18	2910
Sergey Chukhray	13	17	3195
Yuri Sedykh	12	18	3830
Vladimir Parfenovich	14	18	3120
Ivan Klementiev	15	21	4495
Maxim Opalev	12	16	3245
Andrey Moiseyev	19	21	5250
Gal Fridman	12	15	2735
Massimiliano Rosolino	7	17	2480
Sergey Fedorovtsev	13	17	3840
Tagir Khaybulaev	9	15	3690
Mansur Isaev	8	13	3340
Arsen Galstyan	9	15	3990
Ruta Meilutyte	7	14	2807
<b>Artistic gymnastics</b>			
Olga Karasyova	5	16	8020
Bogdan Makuc	9	18	9680
Igor Vikhrov	7	16	9055

# Total training time expenses until attainment of world-class status

<b>Groups</b>	<b>Total training time expenses</b>	<b>Years of long-term preparation</b>
<b>“Basic group”</b>	3369 Hours (1840 - 5250)	3.9 (3-7)
<b>Artistic gymnastics</b>	8918 hours 8020 and 9680	10 (9-11)

# The age starting training and 1<sup>st</sup> big success in Olympic champions from esthetic sports

Athlete's name, country, sports	Start training	Age of 1 <sup>st</sup> big success	Main athletic success
Alexei Nemov, Russia, artistic gymnastics	5	13 - Winner of USSR junior championship,	4-fold Olympic champion 1996 and 2000
Alina Kabayeva, Russia, rhythmic gymnastics	3.5	15 Winner European championships	Olympic champion 2004, 9-fold World champion
Svetlana Khorkina, Russia, art gymnastics	4	15 Winner National championships,	Olympic champion 1996 and 2000, 2-fold World champion
Katarina Witt, GDR, Figure skating	5	16 Winner National championships,	Olympic champion 1984 and 1988, 4-fold World champion
Marina Anissina, Russia, France; figure skating	4	15 Winner J National championships	Olympic champion 2002 World champion 2000
Sara Hughes, USA; figure skating	3	14 Silver medal J World Championships	Olympic champion 2002, World champion 2001
Alexei Yagudin, Russia, figure skating	4	14 4 <sup>th</sup> at National S championships,	Olympic champion 2002, 4-fold World champion
Evgeni Plushenko, Russia, figure skating	4	14 Winner of J World championships,	Olympic champion 2006 and 2014, 3-fold World champion

**Apparently that theory of deliberate practice is selectively applicable to highly coordinative esthetic sports but contradicts to reality of endurance, power and combat sports, where exceptionally talented athletes attain level of excellence much faster.**

# Earlier Precursors of Athletic Talent



## Earlier indicators of extraordinary athletic abilities of the respondents

Athlete's name	Age starting training in favorite sport	Age when EI were marked	Indicators of extraordinary athletic abilities*
Viatcheslav Ivanov (VI)	14	15-16	Self-motivation, consciousness, fatigue tolerance, body build, high learnability
Sergey Chukhray (SC)	13	14-15	Self-motivation, mental toughness, fatigue tolerance, , high learnability, body build
Vladimir Parfenovich (VP)	14	15-16	Self-esteem, self-motivation, body build, competitiveness, fatigue tolerance, emotional stability, , high learnability
Ivan Klementiev (IK)	15	18	Self-motivation, coordination, fatigue tolerance, emotional stability, competitiveness, , high learnability
Maxim Opalev (MO)	12	14	Self-motivation, competitiveness, high responsibility, , high learnability, fatigue tolerance
Gal Fridman (GF)	12	12-14	Self-motivation, high responsibility, fatigue tolerance, , high learnability, emotional stability
Massimiliano Rosolino (MR)	6	9	Self-motivation, high learnability , awareness , body build, competitiveness
Sergey Fedorovtsev (SF)	13	15	Self-motivation, high responsibility, fatigue tolerance, body build
Ruta Meilutyte (RM)	7	9	Self-motivation, high responsibility, consciousness, , high learnability, body build
Daria Domracheva (DD)	12	13-14	Self-motivation, high responsibility, fatigue tolerance, competitiveness, mental toughness, high learnability

**Willingness to train, high and stable motivation, and high trainability can be considered as earlier indicators of extraordinary giftedness**

# Earlier precursors of AT

- 1. Appropriate body status evaluated by body size, somatotype, body fat and flexibility that correspond to demands of targeted sport activities.**

# Earlier precursors of AT

**2. High learnability and general coordination that provide favorable acquisition of new technical and cognitive skills.**

**3. High improvement rate characterized by performance enhancement of basic sport-specific components.**

# Earlier precursors of AT

**4. Exceptional attitude to training characterized by high discipline, initiative and endeavor to perform each training routine with highest quality.**

**5. Personality traits such as intrinsic motivation, persistence, dedication, determination and creativity.**

# Earlier precursors of AT

- 6. Earlier acquisition of psychological skills i.e. mental toughness, emotional stability, self-regulation, competition focusing, imagery etc.**
- 7. Sport-specific abilities i.e. strength and/or endurance, explosiveness, fatigue/stress tolerance, “ball feeling”, “sense of water” etc.**

# Final Scientific Remarks



**Data of 17 Olympic champions from endurance, power and combat sports contradict to theory of 10 years deliberate practice whereas data of 3 representatives of artistic gymnastics support this theory.**

**Therefore, theory of 10000 hours of deliberate practice and 10 years rule are selectively applicable to reality of contemporary high-performance sport.**

**Unlike of previous publications this study  
highlights exceptional attitude to training  
as important precursor of athletic  
talent**

**The salient precursor of athletic talent of studied great athletes was their willingness and readiness to perform much larger workloads compared to their peers and teammates**

**THANK YOU FOR YOUR  
ATTENTION!**



