

מארחים: המכללה האקדמית בוינגייט  
היחידה לספורט הישגי  
מכון וינגייט והוועד האולימפי  
כ"ג-כ"ד בטבת, תשע"ח



**PERIODIZATION IN SPORT SEMINAR**  
Hosted by the Academic College at Wingate,  
the Elite Sport Department, the Wingate Institute  
and the Olympic Committee of Israel  
**JANUARY 10-11, 2018**

## **סמינר פריודיזציה בספורט**

**מארחים: המכללה האקדמית בוינגייט, היחידה לספורט הישגי,  
מכון וינגייט והוועד האולימפי בישראל**

**מרצים מרכזיים:**

**פרופ' קרלו קסטנייה, אוניברסיטת תור ורגטה ברומא, איטליה  
המעבדה לאימון כושר וביומכניקה, התאחדות הכדורגל האיטלקי, פירנצה, איטליה**

**ד"ר גנדיוס סוקולובס, גלובל ספורט טכנולוגיה, בע"מ, קולורדו ספרינגס, ארה"ב**

## **Periodization in Sport Seminar**

**Hosted by: The Academic College at Wingate,  
the Elite Sport Department, the Wingate Institute,  
and the Olympic Committee of Israel**

### **Keynote Speakers:**

**Prof. Carlo Castagna, University of Rome Tor Vergata, Rome, Italy**

**Fitness Training and Biomechanical Laboratory, Italian Football  
Federation (FIGC), Florence, Italy**

**Dr. Genadijus Sokolovas, Global Sport Technology, Inc., Colorado  
Springs, USA**

### **Seminar Committee:**

Prof. Ronnie Lidor

Mr. Yaniv Ashkenazi

Dr. Antonio Dello Iacono

Dr. Leonid Kaufman

Dr. Devora Hellerstein

# Seminar Program

9:00-10:00	<b>Wed, Jan 10 יום ד', כ"ג בטבת</b> <b>התכנסות והרשמה</b>		<b>Thurs, Jan 11 יום ה', כ"ד בטבת</b> <b>התכנסות והרשמה</b>	
	Registration and Reception		Registration and Reception	
	Chairs: יו"רים Dr. Antonio Dello Iacono and Dr. Leonid Kaufman, The Academic College at Wingate		Chairs: יו"רים Dr. Antonio Dello Iacono and Dr. Leonid Kaufman, The Academic College at Wingate	
10:00-11:00	הרצאת פתיחה Lecture: Mr. Patrick van Leeuwen, Performance Director, Maccabi Tel Aviv FC- אולם 3		הרצאת פתיחה Lecture: Ms. Ira Vigdorchik, Rhythmic Gymnastics National Coach, Israel Gymnastics Association - אולם 3	
11:00-12:00	הרצאת מליאה ספורט אישי Keynote Lecture - Individual Sports: Dr. Genadijus Sokolovas, Global Sport Technology, Inc., Colorado Springs, USA אולם 3	הרצאת מליאה ספורט קבוצתי Keynote Lecture - Team Sports: Prof. Carlo Castagna, University of Rome Tor Vergata Rome, Italy אולם 2	הרצאת מליאה ספורט אישי Keynote Lecture - Individual Sports: Dr. Genadijus Sokolovas, Global Sport Technology, Inc., Colorado Springs, USA אולם 3	הרצאת מליאה ספורט קבוצתי Keynote Lecture - Team Sports: Prof. Carlo Castagna, University of Rome Tor Vergata Rome, Italy אולם 2
12:00-12:30	<b>Break הפסקה</b> Dance Hall אולם מחול		<b>Break הפסקה</b> Dance Hall אולם מחול	
12:30-13:30	הרצאה ספורט אישי Lecture - Individual Sports: Mr. Rafi Grodetzki, Athletics Coach, Israel Athletics Association אולם 3	הרצאה ספורט קבוצתי Lecture - Team Sports: Dr. Antonio Dello Iacono, The Academic College at Wingate Mr. Juan Torrijo Navarro, Maccabi Tel Aviv FC אולם 2	הרצאה ספורט אישי Lecture - Individual Sports: Dr. Leonid Kaufman, The Academic College at Wingate אולם 3	הרצאה ספורט קבוצתי Lecture - Team Sports: Mr. Grezgorz Rys, National Coach (Men), Israel Volleyball Association אולם 2
14:30-15:30	פגוש את המרצה Meet the Presenter Prof. Carlo Castagna, University of Rome Tor Vergata Rome, Italy חדש ישיבות חדש		פגוש את המרצה Meet the Presenter Dr. Genadijus Sokolovas, Global Sport Technology, Inc., Colorado Springs, USA חדש ישיבות חדש	

# Planning Training in Football

*Carlo Castagna*

*University of Rome Tor Vergata, Rome, Italy*

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*Fitness Training and Biomechanics Laboratory, Italian Football Federation (FIGC), Coverciano, Florence, Italy*

Performance in football is the result of the harmonic interplay of several components, mainly tactical, technical, physical and psychological. Given football's nature comprising a number of relevant fixtures considered at elite level, training must be accurately provided to optimize team and players' performance. The interaction between fitness and fatigue plays an important role in the development of the weekly training cycle aiming to maximize team performance in the match. When planning training in football, competitive level differences should be considered. In youth soccer long-term planning should be considered to develop talented players. In this presentation the aspects of planning modern football training will be discussed, providing information from scientific evidence and current best practice, either at club or academy level. The formulation of new concepts for best practice will be proposed.

## Training Load Control in Football

In football, training monitoring plays a key role for a successful team and for players' performance whatever the competitive level. Current technological advancement enables data collection never before possible, resulting in a plethora of available information. Today, almost every aspect of the game and the training process can be monitored with proper technology. With the aim of making successful decisions to direct the training process coaches need to discriminate between useful (signal) and redundant or non-relevant (noise) information in accordance with their team strategies. In this seminar useful methods and metrics for activating successful control of the training process in football will be critically addressed. The interaction between the internal and external training load

will be examined, providing practical applications. Guidelines on how to regulate the training load will be critically discussed and possible future directions of the science applied to training load control and regulation in football will be considered.

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**Prof. Carlo Castagna** received his PhD from the University of Granada, Spain (2012) and University of Rome Tor Vergata, Rome, Italy (2015) on the physiology of futsal and training-load analyses in football respectively. He has been Head Sport Scientist of the Fitness and Technical Department of the Italian Football Referees Association (AIA-FIGC) since 2007. From 2008 he has been a sport science collaborator for the FIFA-MARC refereeing department and a FIFA Referee Fitness Instructor since 2012. With the role of training-load analyst of FIFA match officials, Carlo Castagna participated on behalf of FIFA F-MARC at the London 2012 Olympics Football Tournament, FIFA U20 World Cup (WC) 2013 (Turkey), FIFA WC 2014 (Brazil) and FIFA U17 WC 2015 (Chile). From 2008 to 2012, he served as Consultant of the Olympic Training Department of the Italian Olympic Committee for Team-Sports. He is currently lecturer and researcher at the School of Sport and Exercise Science at the University of Rome Tor Vergata, Rome, Italy. For the same University he was Coordinator of the Team Sport Research Area. Since 2011, he has been the Head of the Football Training and Biomechanics Laboratory of the Technical Department of the Italian Football Association (FIGC) located in Coverciano, Florence. In this position he assessed the fitness level of all male and female Italian youth national teams and of the Female Italian National team. His main research interests in soccer relate to match analysis, field-testing and training-load optimization for elite and young soccer players (National and Club teams) and referees (Elite, National and Regional Level). Since 2011, Carlo Castagna is a member of the International Advisory Research Board for the Copenhagen Centre for Team-Sport and Health, University of Copenhagen, Denmark. He serves as an invited reviewer for several international scholar journals and since 2007 he is a member of the editorial board of the International Journal of Sport Medicine and Physical Fitness. He published 139 papers (IF 318.53, RGS 41.92, HI 49, December 2017) focusing on team sports performance, mainly football, in impacted journals indexed on PubMed.

# **The Effects of Structural and Technical Constraints on Football-Based Passing Drill Exercises: Suggestions for Periodization Planning and Skill Development**

*Antonio Dello Iacono*

*The Academic College at Wingate, Israel*

Optimal performance in football results from the interaction between several physical and physiological constraints, as well as technical-tactical capacities. The investigation of the key performance outcomes provides practitioners with a reference framework that can be a useful means for optimal planning of training. In literature, only limited valid and reliable data are available with regard to football-based training drills commonly applied to regular training sessions including specific technical constraints. The aim of this study was to profile the physiological, time-motion and technical responses induced by football passing drills, and to analyze the influence of structural and technical constraints. Twenty-two male footballers performed 5 two-experimental protocols consisting of either a triangle-shaped or a Y-shaped drill format, in which the number of players (8 vs. 6) and the technical demands (single vs. double pass) were manipulated. The physiological responses (heart rate, rating of perceived exertion), external load measures (GPS-related) and technical performances (pass speed and accuracy) were analyzed. The results highlighted specific profiles for the experimental protocols: 1) a higher number of players involved led to greater internal and external load responses and higher technical scores; 2) additional technical requirements, such as for the double-pass task, determined lower internal load responses and a greater amount of acceleration and deceleration actions, but trivial or unclear effects on the technical performances. In light of these findings, coaches could include passing drill formats with a variable number of players and technical demands, within appropriate long-term programs addressing both physical adaptations and skills development.

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**Dr. Antonio Dello Iacono** became the Director of the Sport Science Department at Maccabi Tel Aviv Football Club (Israel) in 2015, and is in charge of defining best-practice and evidence-based guidelines in terms of training methodologies. He previously worked as a sport scientist and professional adviser for several sport entities, professional clubs, federations and individual athletes. He holds a Bachelor's degree in Sport Sciences, two Master's degrees in Science of Physical Activities for Prevention and Rehabilitation and Motion Analysis, and a PhD in Sciences of Human Movement. Dr. Dello Iacono is currently a lecturer and researcher, as well as Head of the Sports Training Specialization, at the Academic College at Wingate (Israel) and his main research interests focus on assessing and profiling (via testing and tracking), improving and monitoring the physical performance determinants of team sports performance, with an emphasis on developing youth players. Antonio has published more than 20 papers in peer-reviewed journals, with more than 15 as a first author.

# Periodization in Training of Young Athletes

**Rafi Grodetzki**

*Athletics Coach, Israel Athletic Association*

The most important element in training youth and in designing a monthly, annual and multi-annual program is understanding that youth are not adults. Despite the desire to achieve excellent results, the aim is to build a broad foundation of abilities which will serve as a good basis for success in adolescent and adult ages. Any attempt to rush training processes will eventually lead to failure and disappointment. Thus, achieving results or criteria in a discipline should not be the main goal, but rather the focus should be on building a broad basis of abilities and the gradual strengthening of athletes, with steady increments of training loads so that they will be able to handle much greater loads during adolescence and especially adult ages, in terms of running load, strength training, endurance, etc. Therefore, periodization among youth significantly differs from adults and there are no significant achievements which the athletes are required to attain.

The process of periodization is expressed in the foundation of the training program design for young athletes. Differences between young and adult athletes are expressed in a number of aspects, including the duration of the season, training experience, team size, talent level in the team, and the competitive sport discipline.

I employ a two-peak season. The winter peak occurs mid-February and the summer peak at the end of June. In my experience, reaching the peak in winter followed by a short decrease in load, then a return to training and a gradual return to competition, best helps athletes strengthen for the important summer season. This process is more effective than a one-peak season.

In my view, which I emphasize to my young athletes, a large part of the competitions, especially invited competitions and age league competitions should be approached as practice or interim assessment tests rather than for the aim of achievement.



In addition, maximum and decisive attention should be given to the mental aspect of training youth, even at the stage of program design, as expertise in the athletics branch arrives late and differs from athlete to athlete. This provides the athlete with the necessary skills for gradual future success.

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**Rafi Grodetzki** was a soccer player from the age of eight to 25. He played in all the youth leagues as well as the Premier League and the National League. He has worked as the coordinator and coach of the athletics study track at Kiryat Sharet Campus, Holon, for the past 22 years. He is the Head Coach of Hapoel Holon Athletics Club and the Head Coach of the Israeli youth and adult national teams in the sprint and hurdles disciplines.

For the past 20 years, he has also worked as a fitness coach for Premier League basketball teams (Nes Ziona, Ashdod, Hapoel Holon, Ramat Hen).

He completed his Bachelor's and Master's degrees in Life Sciences at the Academic College at Wingate.

# **Diverse Aspects of Periodization in Elite Sport**

***Leonid Kaufman***

*The Academic College at Wingate, Israel*

*Former National Swimming Coach, The Israel Swimming Association*

Periodization in sport expresses the different training periods an athlete undergoes during his/her athletic career. The coach must be familiar with and understand the following types of periodization: multi-year planning, four-year planning, annual planning, macrocycle (seasonal) planning, mezcycle (monthly) planning, microcycle planning as well as single unit planning.

This lecture discusses the first and largest type of planning – multi-year planning (a swimmer's entire career). The swimmer's career is influenced by the athlete's sexual development and the precise planning of the training process during these years. As a result, the 'S' phenomenon is the basis for the athlete's expression in his/her career.

The lecture also presents the ages at which athletic achievements can be reached and discusses the three main periods: first high achievement, optimal age for reaching the peak, and maintaining it.

The presentation is intended for practitioners dealing with the training process and competition in elite sport.

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**Dr. Leonid Kaufman** immigrated to Israel from the Former Soviet Union in 1991 and began training the future competitive swimmers of the State of Israel at the Academy for Excellence in Sports at the Wingate Institute. He continued training as the Head Coach of the Academy for 26 years, until 2017, and was the Israeli National Swimming Coach from 2006-2016 as well as an Olympic Coach in the past five Olympic Games from 1996-2016. In 2011 he was awarded the honor of Coach of the Year. He is currently a coordinator and lecturer of courses at the School of Coaching Certification at the Academic College at Wingate and a lecturer at the Training Department in the Academic College at Wingate.

Among his many outstanding achievements are three Olympic Finals, 20 Olympic swimmers, seven World Championship Finals, 12 European Championship medals for distance swimming, 14 European Championship medals for sprints, one World Championship medal for sprints and 13 European Youth Championship medals. The many elite swimmers he trained include two-time European Championship Finalist, Eitan Orbach, Olympic Finalist, Yakov Toumarkin, and World Championship Finalist, Gal Nevo.

# Periodization in Volleyball

***Grzegorz Ryś***

*National Coach (Men), Israel Volleyball Association*

This presentation is based on a long-term program for the Israel Volleyball Association's (IVA) Men's National Team which is the result of cooperation between the national team and clubs. It discusses how periodization methods can be implemented into the program and how can typical challenges arising from the program design process be solved.

Periodization should be based on a 4-year program, reflecting the typical Olympic cycle. The challenge national coaches face is finding the optimal model for integration between the national team and clubs during the season in terms of the international goals of the national team. The work performed in clubs should be similar to work performed in the national team. The most important element is to work according to similar tactics and a block-defense system. The program should contain all details needed to achieve good results at the international level.

Components of the program should take into consideration the following:

1. Yearly plan
2. Monthly plan
3. Microcycle plan
4. Goals (long-term and short-term)
5. Selection of players

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**Grzegorz Ryś** is an international coach who has served as the National Coach of a number of teams around the world. He was the coach of the Egypt Men's National Volleyball Team and Poland's Junior National Team. His team won 2nd place during the European Championship (ECH) and first place in the Junior World Championship (JWCH), respectively. Currently, he is the Israel National Coach for the Men's Volleyball National Team.

# **Presentation “Seasonal Training Design Using the Rate of Adaptation”**

***Dr. Genadijus Sokolovas***

*Global Sport Technology, Inc., Colorado Springs, USA*

This presentation covers our studies on seasonal training design. Optimal and individual training design should match athletes’ adaptation. Adaptation may be measured as physical (endurance, strength, flexibility, etc.) as well as physiological (heart rate, lactate threshold, CK, VO2 max, etc.). Adaptation can be evaluated not only using various physiological/biochemical testing methods, but also by using test sets during the training season. Not all test sets are useful in optimizing training. We developed unique test sets, which allow us to quantify adaptation and select optimal training volumes/intensities to match individual adaptation. Examples of training sets in various sports are presented in the presentation. Based on 30+ years of research, training design for sprinters, middle distance and distance athletes is discussed. The presentation also covers seasonal training design for youth athletes.

## **Presentation “Long-Term Training and Athletes Development”**

This presentation covers various phases of athletes’ development in long-term training based on sensitive periods of biological maturation. Sensitive periods include athletes’ growth, strength, endurance, flexibility, and physiological development. Long-term training should take into account the sensitive periods. There is an optimal age to develop various physical qualities in long-term training. Examples of long-term training are presented. Training recommendations for various ages of athletes are included in the presentation. To optimize and individualize long-term training, coaches may measure a few simple parameters, which would help to evaluate the stage of biological maturation and the training volumes/intensities for young athletes.

There is an optimal age to achieve elite level performances in various sports and events. Analysis of performance progression allows to evaluate the age of peak performances. Models of performance progression are also included in the presentation.

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**Dr. Genadijus Sokolovas** is a Senior Physiologist at Global Sport Technology, Inc. since 2005, where his expertise is applied for developing testing and assessment programs and tools, developing training programs and educational materials, and providing consultation for elite athletes and coaches in diverse sport branches.

He has also served as a High Performance Director at USA Pentathlon since 2010. Since 2011, he has been a FINA Expert (International Swimming Federation) where he conducts Swim Power tests and Race Analysis tests at FINA Swimming World Championships.

In 2000-2009 Dr. Sokolovas was Director of Physiology and Director of Sport Science at USA Swimming in Colorado Springs, CO, USA. There, he developed testing programs and databases for USA Swimming National Team members. He conducted testing, evaluation, and consulting for USA Swimming National Team athletes and coaches before and during all major international competitions and Olympic Games from 2000 to 2008, including Olympic Gold medalists and world record holders Michael Phelps, Natalie Coughlin, Dara Torres, Jenny Thompson, Ryan Lochte, Aaron Peirsol, Brendan Hansen, Ian Crocker, Katie Hoff, Kate Ziegler, Misty Hyman, Amanda Beard, Tara Kirk, Megan Quann-Jendrick, Neil Walker, Gary Hall Jr., Anthony Ervin, Ed Moses, Lenny Krayzelburg, Jason Lezak, Cullen Jones, and others (more than 2,000 World Class swimmers have been tested).

Dr. Sokolovas completed his Master's Degree from the Lithuanian Academy of Physical Education in 1983 and his Ph.D. in Physical Education and Sport from the Russian Academy of Physical Education, Swimming Department, in 1988.

He holds patents in the Body Vibration Generator Having Attachments for Exercises to Target Body Regions and in the Vertical Swim Trainer.

# Periodization in Football

## *Juan José Torrijo Navarro*

*Maccabi Tel Aviv F.C., Israel*

Periodization is a systematic planning of training. It is very important, because the aim is to reach the best possible performance of our team during different phases of the season. A well-structured periodization will prevent overload of training, introducing recovery phases on time. The main aspects that should be taken into account include sleep, nutrition, and active recovery. Appropriate periodization provides a work structure, gives your team motivation, prevents a fitness plateau, focuses on your weakness, prevents injuries and prioritizes recovery before overtraining.

I will present my distinctive planning in reference to performance programs (strength and conditioning) and prevention programs (core, proprioception, strength) during the season of a professional football team. The programs are integrated in a structure based on football training and depend on loads of training and games in each period of the season. Sports science provides us with important data that can guide us in this process, and I will present the different parameters and tools for managing the process of periodization. The distribution of loads during different microcycles of training and sessions will be shown as well.

Communication and continuous interaction between different members of staff (technical, medical and physiotherapy) and players are one of the most important keys for success in this process. For this reason, the periodization of meetings is also one of the most important tools for understanding the process and applying it comprehensively.

**Juan José Torrijo Navarro** was the fitness coach of Valencia C.F. from 1996-2012. He served as the Head Fitness Coach of Maccabi Tel-Aviv in 2012-2013 and the Head Fitness Coach of Brighton and Hove Albion F.C. in 2013-2014. Since 2014 he has been the Head Performance Coach of Maccabi Tel-Aviv.

Juan José Torrijo Navarro holds a Bachelor's degree in Physical Activities and Sport Sciences and a Master's degree in Physical Fitness in Football.

# The Maccabi Tel Aviv Academy Training Philosophy

*Patrick van Leeuwen*

*Performance Director, Maccabi Tel Aviv F.C., Israel*

This presentation discusses how the Maccabi Tel Aviv (MTA) Academy is organized and focuses on the development of the players and coaches as individuals leading to a team organization. The work of the coaches is closely associated with the technical and tactical matters demanded from the players.

The presentation explains why the MTA Academy works with **one philosophy** rather than focusing on multiple playing styles. In terms of coaching, we focus on the connection from the academy philosophy to the team philosophy or age group related philosophy. We aim at following one philosophy for all teams leading to the complete development of our coaches.

In terms of players, we focus on team development and, within the team, the individual player's development. This presentation discusses how we train the players and how we evaluate them.

In the MTA Academy team planning precedes the individual plan, as the team organization is used as an opportunity for the individual player within this team plan to progress.

The presentation will also present how team and individual development can be applicable not only for other team sports, but also for individual sports.

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**Patrick J. van Leeuwen** is the current Performance Director of the Maccabi Tel Aviv F.C. and MTA Academy Director and Sport Director. He graduated at the age of 21 from the Dutch Academy of Sports with the UEFA A License in football coaching. From that moment, he has fully immersed himself in football and has accumulated a great deal of significant experience which he would apply in his future coaching career. His professional football career as a player ended because of an injury at the age of 27. As he had earlier planned, he got an invitation to start his coaching career at Feyenoord Rotterdam. Later in his coaching and manager career he obtained the UEFA Pro License.

He has played in the Sparta Rotterdam team and the Helmond Sport team. He has served as a coach in Feyenoord Rotterdam, Shakhtar Donetsk, Kairat Almaty and Maccabi Tel Aviv.

# The Challenges of Periodization in Rhythmic Gymnastics

*Ira Vigdorchik*

*Rhythmic Gymnastics National Coach, Israel Gymnastics Association*

Rhythmic Gymnastics is a unique sports branch due to its complex physiological and mental demands. The majority of training hours comprise goal oriented training, repetitive training and training for maximal movement precision. An elite athlete is required to train up to 10 hours per day, often without a day of rest during the week.

The competitive season in the Rhythmic Gymnastics branch is challenging since it comprises two significant competitions, the World Championship and the European Championship. It lasts nine months with only four months between each Championship. In the three remaining months, the gymnast must prepare entirely new routines for the following season, making adaptations to the slight change of rules each season, **in addition to the preparation, practice and ongoing maintenance in the studio and the gym hall.**

The question remains whether periodization is appropriate in a branch of this kind? Is it expressed in any way? For there is almost no break between seasons and the skills required by the gymnasts require continuous training and maintenance. How can the coach in this branch design periodization and should the emphasis be physiological or perhaps mental, depending on the athlete's abilities?

The principles of success in this branch are based on the coach's ability to maneuver between the overwhelming demands of the sport and the need for designing periodization in training, **within the season itself, and to balance among practice, treatment, maintenance of the body and recovery.**

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**Ira Vigdorichik** is a graduate of the Academic College at Wingate. She has been an Rhythmic Gymnastics coach for 30 years. She served as the Israeli National Coach in 2006-2008 and is the current National Coach since 2013.

Her many achievements include the historic Olympic Finals in Beijing 2008 in the individual event and 6<sup>th</sup> place in the Olympic Finals in Rio 2016 for the team event. Moreover, her athletes have won a silver medal for the baton event in the 2014 World, a silver medal for the all-round event in the 2015 European Games, a gold medal for the baton and hoop event and a bronze medal for the all-round event in the 2016 European Championship.



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