



# Periodization of strength and conditioning during the competitive period: 6 weeks on tour with elite junior tennis players

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## ABSTRACT

The importance of maintaining optimal physical condition during a six-week tour with elite junior players will allow tennis performance to be maintained or diminished as little as possible during a prolonged competitive period. It is important to adapt the type of periodization during the tour according to the needs of each player, as well as to establish physical routines that will allow them to reach their optimal physical, mental and tennis condition.

**Key words:** strength and conditioning, juniors, tournament tour, periodization.

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## INTRODUCTION

The strength and conditioning work during a 6-week tour for junior players is fundamental to maintain their optimal physical condition in each week of competition. The physical condition of the player and the results of the matches during the tour are factors that are interrelated and have a direct influence on each other. In this article we analyse the periodization followed by elite junior players in the previous training blocks, during the tournaments and the routines used daily. For more information on periodization in high performance tennis players see Martens & Maes (2005), Porta & Sanz (2005), Roetert & McEnroe (2005) and Morris (2005) among others.

## TOURNAMENT SCHEDULE

The planning of the ITF Juniors tournament tour in 2019 was composed of 5 tournaments, two Grade 2 (G2) tournaments - Salsomaggiore and Città di Prato -, one Grade 1 (G1) tournament - Città di Santa Croce -, one Grade A (GA) tournament - Trofeo Bonfiglio -, and one Grand Slam - Roland Garros (see Table 1). As preparation and contact with the players, a block of pre-competitive training was carried out to prepare them for the first tournaments and a block of training prior to Roland Garros. Molina (2005) provided specific details on periodization during this type of tour.

## IMPORTANCE OF PRE-TOUR WORK

Prior to the start of the tour, the players and coaches of the players selected for the Grand Slam Development Fund (GSDF) European Tour 2019 filled out reports with details of tennis, mental and physical aspects. Delving into the area of physical preparation, it is essential to know the injury history prior to the tour of each player as well as the discomfort or possible chronic injuries they may have. This is a determining factor in the planning and structuring of the sessions during the tour. It is also vitally important to know what kind of physical

**Table 1**

*Tournament schedule on the European Tour 2019.*

DATE	COMPETITION
25-28 APRIL	BLOCK OF PRE-COMPETITIVE TRAINING
29 APRIL	36th Bayer di Salsomaggiore Tournament, Italy (G2)
5-11 MAY	27 International Tournament Junior Circuit "Città di Prato", Italy (G2)
11-16 MAY	41st Torneo Internazionale "Città Di Santa Croce" Mauro Sabatini, Italy (G1)
16-23 MAY	60th Trofeo Bonfiglio - Campionati Internazionali d'Italia Juniores, Italy (GA)
23-31 MAY	TRAINING BLOCK
1 JUNE	ROLAND GARROS

work the players do daily: weekly hours of tennis training and physical preparation, physical goals, type of specific work prior to the tour, routines during and outside of competition and other relevant aspects of the player, as it is essential for the effectiveness of any planning that the coach knows his players, knows how they respond to certain situations and plan accordingly. It is this in-depth understanding of the players that will reward your programme with success (Morris, 2005).

Effective communication is a two-way process (i.e., it requires intermediate steps and a common understanding between two or more individuals) and is fundamental between all components of the team surrounding each player. (Young, 2006) and fundamental between all the components of the team surrounding each player, so it is necessary to ensure prior communication between the player and his technical staff to achieve maximum performance during the tour. Another relevant aspect prior to the tour, in this communication



process between technical staff and coaches of the tour, is to obtain objective results of various physical tests performed by the player, from stress tests to objective data from physical tests. These data are of great help in drawing a physical profile prior to the tour and to know the level of the player in the different areas of physical condition.

**PERIODIZATION DURING THE TOUR**

There are several factors to consider that can change the practical application of periodization during a tournament tour. The main factors that complicate its application in tennis are the lack of an official off-season period, the single-elimination competition system, the continuous ranking system, and the unique nature of the game, which constitute a serious challenge (Roetert and McEnroe, 2005). Therefore, physical trainers must find and apply the periodization model that achieves the best performance of the player during the competitive period.

Some contemporary periodization models are the following: integrated methods (training of all elements of the game (conditional, coordinative, cognitive) with emphasis on technique and tactics) by Bondarchuck (1988) ATR (Accumulation - load, transformation - realization) by Issurin and Kaverin (1985) structured methods or structured micro-cycles (weekly periodization, concentrated blocks, prolonged fitness) by Tschien (1985), Seirul.lo (1987) and Bomp

(1999), which present solid alternatives to periodization in sport games including tennis (Crespo, 2011). During the present tour an adaptation of structured weekly micro-cycles between tournaments was used using the ATR model, adapting its three phases previously mentioned to the calendar of the next tournament.

**PRACTICAL APPLICATION - PRACTICAL EXAMPLE OF A MICROCYCLE BETWEEN TOURNAMENTS**

**Development of a microcycle prototype with exercises.**

The application of the "Accumulation" phase within the microcycle between tournaments was only carried out if the player finished the tournament in the qualifying phase for the main draw or in the first or second round, having enough time to continue with the following phases of the periodization in the following days (see Table 1). The aim of this phase is to try to maintain strength levels at their optimum or to decrease them as little as possible during the six weeks of competition touring. The number of sets and repetitions are adapted to the player's experience in each exercise, motor control and the difficulty of its execution. In this way, a margin is established in the number of repetitions (which will depend on the objective of the program) so that the player adapts the subjective load to the difficulty of reaching the percentage of subjective strength established by the physical trainer without negatively affecting the performance of the tennis player when the competition begins.

The transformation phase during an adapted competitive microcycle is based on plyometric training/high speed execution through resisted training with elastic bands, light weight medicine balls, racquet with external resistance or a plastic cover and own body weight. Plyometric training has been shown to be an important stimulus for improving explosive actions in junior tennis players. (Fernández-Fernández, Sáez de Villareal, Sanz-Rivas, & Moya, 2016). It is important that the execution technique is correct, the rest time between sets is adequate, and the number of repetitions is adapted to the objective. In coordinative training, the importance of explosive movements with visual stimuli of short duration and high intensities, with high rest times (density 1:4) is emphasised.

**Table 2**  
General microcycle between tournaments.

DAY 5	DAY 4	DAY 3	DAY 2	DAY 1	MATCH
WARM-UP 30'	MOBILITY ROUTINE 20' + SPECIFIC WARM-UP 20'	WARM-UP 20'	MOBILITY ROUTINE 20' + SPECIFIC WARM-UP 10'	WARM-UP 20' + MOBILITY ROUTINE 10'	<b>TOURNAMENT</b> COOL DOWN 30'
INJURY PREVENTION PROGRAM 20'	COORDINATION TRAINING 20'	INJURY PREVENTION PROGRAM 20'	SPECIFIC TENNIS COORDINATION	PLAYER ROUTINE 10'	
		EXPLOSIVE POWER 25'	TRAINING 20'	REACTIVE TRAINING 15'	
TENNIS	TENNIS	TENNIS	TENNIS	TENNIS	
STRENGTH PROGRAM 30'					
COOL DOWN 30'	COOL DOWN 30'	COOL DOWN 30'	COOL DOWN 30'	COOL DOWN 10'	
RPE: 6-7 DENSITY: Light-middle load	RPE: 5-6 DENSITY: 1:4	RPE: 4 DENSITY: 1:5	RPE: 4 DENSITY: 1:5	RPE: 3 DENSITY: 1:5	



Finally, in the realization phase, the days prior to the match, training with specific movements on the court and reaction to visual stimuli of high intensity and very short time were performed. Because tennis could be classified as a task of external regulation, where it is necessary to collect and adapt continuously to the information received from the environment and the player must constantly anticipate the ball and his opponent (Micó Salvador, Martínez-Gallego, & Rams, 2020) the objective in this phase is to work specifically on the player's reactive capacities with specific movements and/or racquet, varying in the cognitive and perceptive process with different types of balls, cognitive tasks, and body adjustment. Both the transformation phase and the realization phase were carried out prior to tennis training, since this type of exercises provide a high neuromuscular activation that enable the player to start training in an optimal competitive state.

It is important to highlight that the general microcycle between tournaments is flexible and should be adapted to the needs or objectives of the players in the competitive period between tournaments. After losing in the tournament, the players whose fatigue index accumulated after the matches was high, had one day of recovery between tournaments, adapting the general microcycle to the needs of the players and the calendar of the next tournament. If players had three days until the next tournament, their periodization generally started on "day 3" to prepare for the next match.



## PRACTICAL APPLICATION - COMPETITION DAY

During the competition day, the main task of the physical trainer is to help the player in the pre-match warm-up or pre-match training. Since each player has his specific preferences and routines, the physical trainer's work consist in helping the warm-up for those players who needed it (it was optional):

1. **Exercises of progressive mobility of the joints:** pelvic girdle, shoulder girdle, back, wrists, ankles.
2. **Body activation.**
3. **Specific activation with equipment:** with elastic bands, medicine ball, spades, etc.
4. **Proprioceptive exercises and plyometrics:** Static and dynamic balance followed by explosive movements of high intensity and short duration such as Dropjump and countermovement jump, tennis specific coordination with weight transfer.
5. **Variability:** Reactive and perceptual exercises with tennis ball and reactive ball.



## LOAD CONTROL DURING THE TOUR

One of the aspects of improvement for a better control of the loads during the training blocks of both the first and the sixth week could have been the implementation of the load control through the subjective values of the perceived effort of each training session of Genevois, Rogowski, & Le Solliec (2020). In this way, both coaches and physical trainers could obtain some reference values on the load of each session and/or match, which could help in making decisions on the duration, intensity, and number of training sessions.

## CONCLUSIONS

The application of such periodization in a six-week tournament tour with elite junior players was successful in allowing the ITF/GSDF team players to continue their pre-tournament fitness without any injuries that prevented them from competing. It also helped some of the players to establish a physical routine prior to matches and training, helping them to achieve optimal physical and psychological activation.



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## REFERENCES

- Bompa, T. O. (1999). *Periodization: Theory and Methodology of Training*. Human Kinetics, Champaign, IL.
- Bondarchuk, A. (1988). Constructing a training system, part II. *Track Technique* 103: 3286-3288.
- Crespo, M. (2011). Tactical periodization in tennis: Introduction. *ITF Coaching and Sport Science Review*(53), 16 - 19.
- Fernández-Fernández, J., Sáez de Villareal, E., Sanz-Rivas, D., & Moya, M. (2016). The Effects of 8-Week Plyometric Training on Physical. *Pediatric exercise science*( 28), 77 -86. <https://doi.org/10.1123/pes.2015-0019>

- Genevois, C., Rogowski, I., & Le Sollic, T. (2020). Measurement and control of tennis training load: a case study. *ITF Coaching and Sport Science Review*(80), 3 - 5. <https://doi.org/10.52383/itfcoaching.v28i80.60>
- Issurin, V.B. and Kaverin, V.F. (1985). *Planirovaina i postroenie godovogo cikla podgotovki grebcov*. Moscow, Grebnoj sport.
- Martens, S., & Maes, C. (2005). Periodization for professional female players. *ITF Coaching and Sport Science Review*(36), 13 - 15.
- Micó, S., Martínez-Gallego, R., & Rams, J. (2020). The development of perception in tennis. *ITF Coaching and Sport Science Review*, 28(80), 18 - 20. <https://doi.org/10.52383/itfcoaching.v28i80.65>
- Molina, I. (2005). Periodization in the ITF Junior Circuit. *ITF CSSR*, 13(36), 6.
- Morris, C. (2005). Periodization for Players up to the Age of 18. *ITF Coaching and Sport Science Review*(36), 7 - 10.
- Roeter, E., P. & McEnroe, P. (2005) Can periodization work in men's professional tennis? *ITF Coaching and Sport Science Review*(36), 11 - 12.
- Porta, J., & Sanz, D. (2005). Planning for Men's High Level Tennis. *ITF Coaching and Sport Science Review*(36), 12 - 13.
- Tschiene, P. (1985). The annual training cycle. *Rivista de Cultura Sportiva (SDS)*, 2: 14-21.
- Seirul.lo, F. (1987). Planning option in sports of long period of competitions. *RED*, 3, 53-62.
- Young, J. (2006). Look and listen before you leap: keys to effective communications with Players. *Coaching & Sport Science Review*, (38) 2 - 3.

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