

## **CompassSport Series - Fitness for Orienteering**

### *Part 3 – Training Cycles*

*This series of articles over the next year is aimed at helping the orienteer, irrespective of their age, ability or ambition, to develop their understanding of the fitness aspects of the sport and to help increase their enjoyment of orienteering through a logical approach to fitness development.*

The previous article in the series outlined the need for the aspiring orienteer to consider their overall competition goals and begin building the approach to their training year around these objectives through a cyclical or ‘periodised’ approach. We now switch our attention to breaking this grand plan down into smaller chunks and outline specific details about what each period of the training year should concentrate upon. Our focus now should be on the ‘microcycle.’

#### **Microcycle**

As discussed in the last article, the microcycle is usually ‘a weekly or 3-7 day training programme’ (Bompa, 2009) within the annual scheme. This is regarded by many as the fundamental planning tool within the training process and is in effect the focus of most discussions between athlete and coach. The microcycle is structured with clear objectives in mind, related to the phase of the annual training cycle that the athlete finds themselves at. Underpinning the design of the microcycle are factors such as intensity, volume and training methods. Microcycles must be flexible and allow for adaptations to the initial plan to occur, particularly when the orienteer has other factors to consider, such as work, family, etc. and many orienteers often need to change their daily plans within the microcycle whilst attempting to keep the overall goals for the week in mind. Any modifications to the plan, such as the inability to carry out a planned training session due to other commitments, must be taken into account for the remainder of the microcycle, so that training objectives are still met wherever possible.

#### **Structure**

The overall content and design of the microcycle will be dictated inevitably by the phase of the periodised plan that the orienteer finds themselves at. There are two contrasting approaches to consider here. Some athletes and coaches will work backwards from the grand plan or ‘macro to meso to microcycle’ method. This has the advantage of considering overall objectives and planning from there, but can result in a lack of flexibility. Others adopt a more dynamic ‘bottom-up’ approach and work to a maximum of two microcycles into the future, whilst keeping an eye on the bigger picture. Whatever method of planning is adopted, fundamental factors will be inherent within the structure of all microcycles and these are:

- The objectives of the overarching mesocycle (usually 4-6 weeks long)
- The allotted time available for training
- The desired training intensity
- The methods required to bring about the training adaptations
- The need to vary loads to allow rest/recovery to occur
- The timing of any races/competitions within the microcycle

The sequencing of sessions within the microcycle is probably the most important aspect of the design of the training week, as the fatigue generated by a particularly hard, intense session will affect the quality and make-up of the training sessions that subsequently follow. Maximal loads should be used no more than twice a week, with rest days and lighter sessions interspersed to enable maximum recovery to take place.

Often the same basic structure will be repeated throughout a mesocycle, especially during the preparation phase, with the focus on development of one or two particular fitness components. Underlying all of this is the stage of development of the orienteer, with those who have a strong fitness foundation able to develop more taxing and complex microcycles.

### **Fitness Factors**

Previously in this series of articles the important fitness characteristics to be developed by the orienteer have been highlighted and the microcycle needs to decide which of these elements will be the core focus. Potentially, these are:

- 1) Aerobic capacity (endurance or stamina)
- 2) Anaerobic capacity (lactate threshold and tolerance)
- 3) Muscular endurance/strength (primarily leg and core)

Other components to consider at some point are:

- 1) Flexibility (particularly dynamic)
- 2) Speed/power (especially for those focussing on sprint racing)
- 3) Balance/agility

The general principle, according to Bompa (2009) is that when targeting the development of sub-maximal aerobic capacity, usually the goal of the preparation phase, 'three sessions a week will suffice'. This will change towards the competitive phase, when endurance work will fall to a maximum of two sessions a week, with a growing focus upon higher intensity, anaerobic work. One or two sessions a week are required for maintenance of strength, flexibility, speed/power and agility training. This is obviously a rudimentary structure and factors such as age, ambition, time availability, training background, etc, need to be taken into account. Let's consider now the possible microcycles the orienteer could adopt and how these would work in practice at different times of the training year.

### **Classifying Microcycles**

The first method for classifying microcycles, and probably the most common, is around the number of training sessions per week. This number will be dictated by a range of factors, not least the stage of development of the orienteer, their training status and the amount of time they can dedicate to their programme. The most common structure, and the type that most club and young orienteers adhere to, is one where the individual trains only once a day and between three to five times a week. Usually the off-days are devoted either to total rest or light, recovery-style sessions. Athletes who are more advanced in their training and development can undertake more rigorous regimes and will undertake schedules with two or more sessions a day. For instance, the athlete can use a 3+1 microcycle, where the individual trains for three successive half days, followed by a half day of rest. This can be extended further

to a 5+1 or a 5+1+1 approach, if the orienteer is physically mature enough to be able to withstand the strain that this places on the body, and this is where the elite orienteer will be able to devote time to the different factors that require development. The progression through these outline schemes is shown in the figures below.

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.							
p.m.	Training	Training		Training		Training	

Figure 1.1 Microcycle with four training sessions per week. (From Bompa, 2009)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Training	Training	Training	Training	Training	Training	
p.m.	Training		Training		Training		

Figure 1.2 Microcycle with a 3+1 structure. (From Bompa, 2009)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Training	Training	Training	Training	Training	Training	Training
p.m.	Training	Training		Training	Training		

Figure 1.3 Microcycle with a 5+1+1 structure. (From Bompa, 2009)

Obviously, the training dynamics will change across the microcycle, with the need to devote different sessions to varying aspects of training. The intensity of training should fluctuate to accommodate the focus of the training and the need for the athlete to recover between demanding bouts of exercise. These alterations will be dictated by the objectives of the microcycle and how this fits into the phase of the periodised calendar. Bompa (2009) uses a model of six different intensity zones to map out how the orienteer may vary their training load throughout the week and this is shown in table 1. Examples of these intensities in practice are shown in figures 2.1 & 2.2.

Intensity zone	Training Demand	Percentage of maximum performance	Intensity
5	Very high	90-100	Maximum
4	High	80-90	Heavy
3	Medium	70-80	Medium
2	Low	50-70	Low
1	Very low	<50	Very low
Recovery	Recovery	No training	Recovery

Table 1. Intensity zones and training demand (From Bompa, 2009)

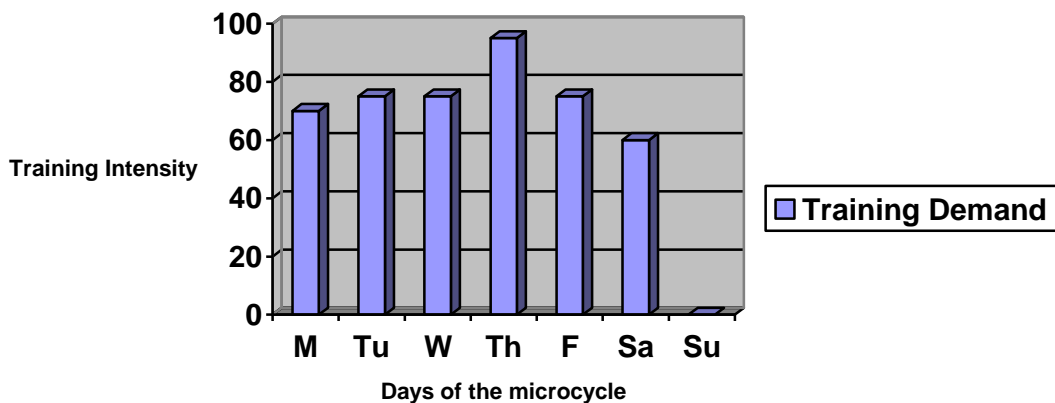


Figure 2.1 Microcycle with one peak (Adapted from Bompa, 2009)

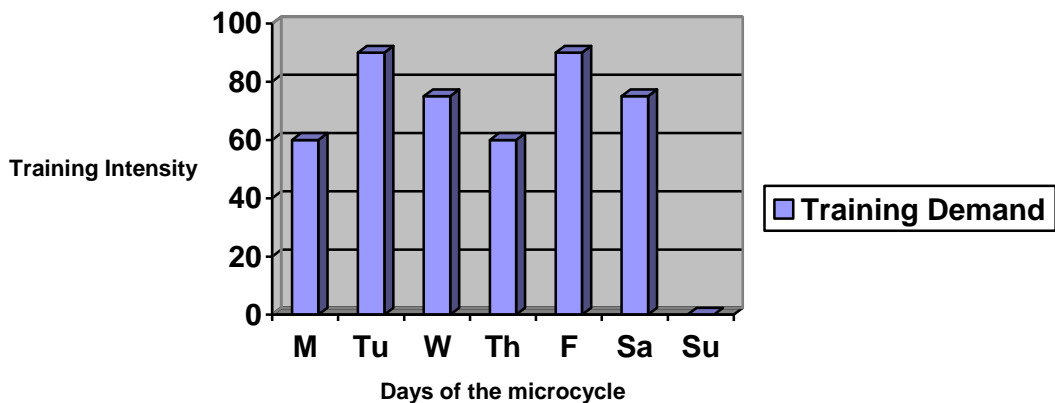


Figure 2.2 Microcycle with two peaks. (Adapted from Bompa, 2009)

Recently Smith (2003) has proposed that a classification of specific microcycles should be considered by athletes and coaches when planning their programmes. Each microcycle thus falls into one of the following five categories:

- Ordinary, moderate microcycle (intermediate training load)
- Shock microcycle (significant increase in training load to previous microcycle)
- Applied microcycle (to allow athlete to adjust to new training conditions or to ensure competition preparedness)
- Competition microcycle
- Recovery microcycle (to follow on from shock or competition microcycles)

Shock microcycles (increased volume and/or intensity in training) are the most demanding but are needed to elicit an increased response to training. However, these must be monitored carefully to avoid overtraining or injury.

### Microcycles in practice

The final step in our discussions on microcycles should now focus on what all of this theory means in practice for the orienteer, as he or she works through the various phases in the orienteering programme. Let us remind ourselves of these key phases in the periodised training programme and their primary focus:

- *Transition phase* – recovery from the competitive demands of the previous phase and a ‘bridge’ into next season. Usually around 4-6 weeks in duration.
- *Preparatory phase* – split into three parts (base1, base 2, specific – each lasting around 4-6 weeks), with a focus firstly on high training volume and endurance development, followed latterly by an increase in intensity and reduction in volume, as the focus begins to switch to the enhancement of anaerobic characteristics.
- *Competitive phase* – maintenance of training gains, reduction in load and an increase in sharpening work in order to enable the orienteer to peak physically for major competitions.

Shown below are examples of typical training weeks for orienteers at different stages of the periodised year, using Bompa’s (2009) ‘3+1’ model from figure 1 as a template.

Figure 3.1 Sample microcycle to be used during transition phase

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Recovery	Endurance (Aerobic)	Core	Endurance (Aerobic)	Strength (Endurance)		Endurance (Aerobic)
p.m.		Flexibility		Recovery			Flexibility

Figure 3.2 Sample microcycle to be used during preparatory phase (Base 1)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Running Drills	Endurance (Aerobic)	Strength (Endurance)	Endurance (Aerobic)	Strength (Endurance)		Endurance (Aerobic)
p.m.		Flexibility		Recovery			Core

Figure 3.3 Sample microcycle to be used during preparatory phase (Base 2)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Running Drills	Endurance (Aerobic)	Strength (Endurance)	Endurance (Anaerobic)	Endurance (Aerobic)		Endurance (Aerobic)
p.m.		Flexibility		Recovery			Core

Figure 3.4 Sample microcycle to be used during preparatory phase (Specific)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Recovery	Speed / Power	Strength (Power)	Endurance (Anaerobic)	Endurance (Aerobic)		Endurance (Aerobic)
p.m.		Flexibility		Recovery			Core

Figure 3.5 Sample microcycle to be used during competition phase (Base 1)

Session Time	DAY						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
a.m.	Recovery	Speed / Power	Strength (Power)	Endurance (Anaerobic)	Endurance (Aerobic)		Competition
p.m.		Core		Recovery			Flexibility

The key sessions are highlighted in yellow and these should form the central ‘plank’ of any training programme, irrespective of the orienteer’s performance level. For orienteers that have a limited time for training, or just want to reach a basic level of competitive fitness or are starting out on a structured fitness programme, then these are the pivotal sessions. Gradually, as the training base is developed, the other sessions can begin to be incorporated, starting with the sessions highlighted in green and moving ultimately, if possible, to all of those shown, once the orienteer is physically developed enough to cope with such a training load. Please remember that there are few hard and fast rules here and that all training programmes must be flexible and, ultimately, you have to be prepared to deviate off any plan that is not working for you.

### Conclusion

The plans, both from the weekly microcycle through to the overarching periodised scheme, are now in place. We can now begin, in the next article, to look at adding the essential detail to each microcycle within the various phases of the training programme and focus on specific suggestions for what each session should comprise. The orienteer will then be armed with all the information to flesh out their training on a day-by-day basis and we should start to see fitness gains being made within a short space of time!

### Bibliography

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