

CompassSport Series - Fitness for Orienteering

Part 2 – Putting the Programme Together

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 examined the underlying physiological requirements of the sport and now, armed with this knowledge, we can start to put together a programme of fitness work that looks to link the important components required for optimal orienteering performance to the ambitions and goals of the orienteer.

Motivation

As orienteers, we all have different aims and objectives for our participation in the sport. The bulk of the orienteering community is made up of enthusiastic amateurs who have varying levels of ambition, with some aspiring to reach the top of their age class and, possibly, national and international honours within the sport. Others will be happy with more modest goals and see the weekend competition as an end in itself. Obviously the fitness programmes will be highly varied for this diverse group, with those who are focussed on performance improvement and maximising their talent requiring a very different approach to those who are content to let the weekend racing make up the core of their fitness work. There is also the elite end of the sport to consider, comprising a mixture of young, talented juniors, making their way through regional and national squads, all the way up to established international athletes, who may have been competing on the world stage for a number of seasons.

Time

Another factor to consider when devising the training programme is that of time availability. Most orienteers will be trying to achieve a balance between the various commitments in their lives and the amount of time that they can give over to training will naturally make an enormous difference to the outcome. It is natural to presume that elite orienteers will have much more time on their hands to develop their fitness through a methodical and logical approach and, indeed, many will build their work and home lives around this need. Without this dedication and commitment, they will inevitably struggle to compete on the international stage.

For the average orienteer, however, fitness development can be much more complex, with time pressures arising from a number of sources. It is how the individual balances these and makes sufficient time for fitness work that is ultimately the key. The relationship between time and motivation is usually a strong one, with the dedicated, ambitious orienteer often making sacrifices in their work and home life in order to fit in a structured, focussed training programme.

Fitness Factors

Looking back at the previous article in this series, we can summarise here the components of fitness, shown by the available scientific research to be the important ones to focus on. 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 which may well feature in the programme and would also have positive benefits for performance would be:

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

This is a reasonably diverse range of fitness factors to develop and it is logical to assume that in order to improve these in a methodical fashion, the orienteer must look to take a long term view when devising their programme of fitness work. It is neither necessary nor desirable to attempt to improve all these components at the same time.

Finally, therefore, taking into account the orienteer's motivation, their time availability and the fitness demands of the sport, we can begin to build an appropriate training structure for the individual.

Periodization

The majority of sports are built around a seasonal calendar, so that there is a change in focus for the athlete at various times of the year. Most team sports, such as rugby, football and cricket, will have a regular programme of matches throughout their season and there will be a definite start and finish to their competitive programme. Orienteering has a slightly different model here, in that events tend to put on by clubs throughout the year and, if one really has the desire to, it is possible to race almost every weekend throughout the year. However, there is still a seasonal approach to the calendar, with the majority of the important national fixtures, such as the JK festival, the British Championships, and other national level events, often incorporating selection races for the elite, featuring primarily from late winter through to spring time. Elite athletes competing on the international stage will also have competitions that extend this season into the summer months, with JWOC and WOC typically featuring in July and August.

Therefore the dedicated, ambitious orienteer has a natural focus for their training programme, which should be built around these important races. If you are aiming to achieve national honours, selection for elite squads, or the best results at these prestigious events, then it is important to adopt a periodized approach to your training programme. By dividing the training year into distinct phases, with specific objectives, the orienteer can maximise the physiological adaptations occurring through the programme, and thus optimise race performance, whilst ensuring that they minimise the risks of psychological and physiological fatigue.

Periodization as a concept has existed for a long time, with modern developments in this field taking place during the Soviet state-funded era of their sport in the 1960's and 70's. Over the last forty years, further refinements to this concept have occurred to help develop our understanding of how to achieve the balance between optimising physical performance and avoiding fatigue and injury.

Periodization has two important aspects:

- 1) A division of the training plan into smaller phases, making it easier to plan and modify the programme as the athlete works towards their goals.
- 2) The phases can be used to target effectively and efficiently the various fitness components in order to develop the highest levels of endurance, speed, power, etc. possible.

The first principle here is to construct the plan around the number of competitive phases in a year. As orienteering, for most competitors, has one main competitive phase (late winter – late spring), the plan is described as ‘monocyclic’ and can be divided into three main phases: preparatory, competitive and transition (recovery). The preparatory and competitive phases are usually divided into two subphases, classified as general and specific because of the differing focus of activities within each subphase. Also, the competitive phase is often subdivided into precompetitive and competitive phases.

Elite orienteers competing at international events in the summer months will generally have a ‘bi-cyclic’ plan, where sequentially they would have the monocyte as above complemented by a second phase of preparation, competition and transition. This could be extended further, if there is also an autumn race programme of importance, into a ‘tri-cyclic’ scheme. Bompa (2009) suggests that a mono-cyclic approach is optimal for novice and junior athletes, with bi- and tri-cycles recommended only for experienced athletes with significant training backgrounds. Too many competitions create significant stress on the performer, through travel, expectations and social and psychological factors that can eventually lead to under-performance and potential burnout.

Training cycles

The training phases are often sub-divided down into three levels of training cycle, which build on each other during the year to form the periodized plan. They are known as microcycles (a small grouping of training sessions, usually a week), mesocycles (a grouping of several microcycles, with a predetermined training goal, usually lasting around 2-6 weeks) and macrocycles (usually an entire year, season or time period of 16-24 weeks.). Figure 1 below summarises the division of the annual orienteering training plan into phases and cycles for the orienteer adopting a mono-cyclic approach.

The main determinant of the duration of each phase of training is the competitive schedule and to optimize performance for the key races requires orienteers to undergo several months of training. Most of the gains in the underlying physiology of the orienteer will be made in the preparation phase, but the plan must be well organized and sequentially develop the key components required for the sport (Bompa, 2009). Let us now look at these phases in more detail.

The **preparatory phase** usually denotes a period where training volume is emphasised, with lower intensities of exercise being the key strategic objective. The quantity of endurance work is very high and the work intensity is low. This period will also be used to develop strength, focussing primarily on core and leg work for the orienteer. As the switch is made from general to specific preparation, the orienteer will begin to reduce training volume and increase the intensity.

	ANNUAL TRAINING PLAN													
Phases of Training (Macrocycles)	Preparatory					Competitive				Transition				
Subphases	General Preparation		Specific Preparation			Pre-Competition		Competition						
Mesocycles														
Microcycles														

Figure 1. Divisions of an annual mono-cyclical training plan for orienteering into phases and cycles of training.

Endurance work now starts to increase in pace and the focus is on beginning to develop anaerobic capacity through longer interval, fartlek and tempo sessions. Core work and strength sessions will be increasingly turning to power based work, with a drop in repetitions and an increase in weight lifted. Pre-season technical work with map, compass and held in terrain will now become increasingly important.

The competitive phase will now see a greater emphasis on intensity and quality sessions (further anaerobic work, focussing on shorter intervals, hill work and possible plyometric/sprint activities for sharpening). Technical work will be done at pace and this will all add to the physical fine-tuning of the orienteer. The focus of the competitive period is to maintain the gains of the preparation phase and to reduce the volume load, in order to leave the competitor in peak form for the race programme itself.

The transition phase is used to recuperate from the demands of competition, mentally and physically, and to 'unload' the athlete. It is, however, vital for the orienteer's long term development that this is not seen as an 'off-season' with total rest, but more a bridging period into the next annual training plan.

A detailed periodized plan for elite junior orienteers is shown in Figure 2, where all of these phases and cycles are shown tied into a typical competitive calendar.

Science has allowed us to develop our understanding of how training will modify our physiological systems, but unfortunately the optimal periodization model for each sport and the time required for an optimal increase in training status has yet to be fully determined (Bompa, 2009). The balance of the annual programme still requires the blending of scientific principles with the experience and knowledge base of the orienteer and their coach, where appropriate. Programmes ultimately must be tailored to meet individual needs as well as the demands of the sport. There are no hard and fast rules here!

Conclusion

The take home message from this article is that all aspiring, ambitious orienteers need to consider the utilisation of an annual training programme in order to maximise their competitive performance. It is vital that the orienteer sets out their goals for the season ahead and then looks to build a plan that works towards these objectives. Consider what your key targets are, eg. top 5 in age class at the British championships, selection for VHI, gold standard at the Lakes 5 day festival, and then work the programme back from these highlighted race goals.

Now we have looked at how to devise the 'grand plan', in the next issue we will start to look at what an orienteer should be doing more specifically on a week by week basis (ie. typical microcycles) throughout this periodized year.

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