Long term planning of combined event training

Hansruedi Kunz

1. Introduction

The combined events in athletics (Decathlon and Heptathlon) should not be regarded as a mere putting together of ten or seven events, but rather as a single integrated event. Nevertheless the combined events consist of different single events, some of which have a positive relationship to the other events while some have a negative relationship. Combined event preparation must therefore be a training of compromise with its main objective being to increase the total number of points scored rather than maximise the performance in any single event.

The long term planning of combined event training includes the planning of training volume and intensity, as well as the temporally and methodically correct organization of technique and conditioning training. The training of the psychological and tactical qualities should be integrated into technique and conditioning training and do not have to be planned in detail.

Within the framework of long term training planning, as many individual prerequisites as possible must be taken account of. These include constitution, load bearing capacity, school and job situation, training possibilities and climatic conditions.

2. Training volume and intensity

Athletes who want to achieve top performances in the combined events must perform both intensive and exten-
sive training. Since the ideal top performance age is between 24 and 28 years, training volume and training intensity should be not increased to the maximum before having reached this age. Within the framework of the long term training process, training volume and thereafter training intensity should be increased. Maximum training volume can vary depending on the load-bearing capacity, the school or job situation and the regeneration possibilities of the respective athlete. A regular training volume of more than 25 hours a week does not make sense without simultaneously taking ergogenic aids which, of course, are banned. Without these ergogenic aids however, such a high training volume has a negative influence on performance. A 14 year old multiple event athlete should *not* train more than 5 hours a week, whereas the optimal training volume for 19 year old junior athletes is around 15 hours a week (see Figure 1).

The combined event training of both youth and junior athletes should not be very intensive. The organism must gradually adapt to high training loads. At the top performance age, however, training must be intensified. Only by doing so is it possible to perform all the training contents necessary for improving an athlete's combined event performance without too great an expenditure of time.

3. Technique training

Technique training varies in the course of the long term training process. Whereas, during childhood and adolescence, sensible playforms for learning the rough forms of the individual movements are suitable training methods, in the course of the following, years individually suited training forms for the refinement and stabilisation of movements become more and more important.

There is also a difference between top level youth and adult athletes as far as the emphasis on individual events within the combined events is concerned (see Figure 2).
During youth training, performance in the technically simple events (100m, Long Jump, High Jump) and the endurance events (by means of play forms) should be developed to a reasonably high level. This is possible with a relatively small amount of training since the learning of the events mentioned above does not take much time. Furthermore, the physical prerequisites of young athletes are ideal for these events. At top performance age, high training volumes particularly in the 100m, High Jump and 1500m are no longer worth the effort since certain prerequisites (e.g. mechanical advantage) have changed in an unfavourable way. In this context, however, long jump training is an exception since such training is advantageous even at adult age because of the considerable transfer effect on the combined events.

<table>
<thead>
<tr>
<th>TRAINING EVENTS</th>
<th>PERCENTAGE TRAINING REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>100M</td>
<td></td>
</tr>
<tr>
<td>LONG JUMP</td>
<td></td>
</tr>
<tr>
<td>SHOT PUT</td>
<td></td>
</tr>
<tr>
<td>HIGH JUMP</td>
<td></td>
</tr>
<tr>
<td>400M</td>
<td></td>
</tr>
<tr>
<td>110M HURDLES</td>
<td></td>
</tr>
<tr>
<td>DISCUS THROW</td>
<td></td>
</tr>
<tr>
<td>POLE VAULT</td>
<td></td>
</tr>
<tr>
<td>JAVELIN THROW</td>
<td></td>
</tr>
<tr>
<td>1500M</td>
<td></td>
</tr>
</tbody>
</table>

AGE | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26

Figure 2: Technique training within the framework of the long term training process
The technically complex events (Shot Put, Hurdles, Discus Throw, Pole Vault, Javelin Throw) should not be neglected during youth training since this age is best suited for learning new movements. The time available should be spent by learning movements and not by trying to increase performance by means of specific conditioning training. At top performance age, greater emphasis should be put on the technical events. This means that, apart from technical training, additional time should be spent on the improvement of the technical prerequisites (e.g. strength training for the throwing events).

400m training should be avoided during adolescence. The juvenile organism is not yet ready for anaerobic loads. At top performance age, 400m training must be intensified without becoming extreme. The advantages of anaerobic training are not only an increase in 400m performance, but also an improvement of 1500m performance and recovery capacity as well as the development of the fighting qualities which are essential for success in the combined events.

4. Conditioning training

Since both the Decathlon and Heptathlon are speed-strength events, the conditional capacity of the athlete is always of great significance. Both the long term and short term conditioning training of combined event athletes must be planned exactly since both the athletes’ career and form at any given time can be controlled best by this kind of training. In all age groups, and particularly with older top level athletes, conditioning should be trained for more extensively than technique (see Figure 3).

Many years experience shows that older combined event athletes can increase their performances more by improving their conditional prerequisites than by optimising their technique. However, when undertaking conditioning training, certain principles should be observed. The training of the co-ordinative abilities is an important basis of technique training. The learning of most movements has a positive influence on the further development and optimization of combined event performances. Furthermore, by doing such training (games, apparatus gymnastics, jogging), the organism is trained in a many sided and balanced way. Coordination training should be done predominantly during youth, whereas top level decathletes do not have enough time for this.

Aerobic endurance must be built up early so that the highest level of performance is achieved between 20 and 22 years. Later, the goal should be the maintenance of the level of endurance acquired. A high level of aerobic endurance is a prerequisite for tolerating hard combined event training. Serious aerobic training not only has positive effects on the endurance events (800m and 1500m), but it also helps in the prevention of injuries and can be used for controlling the athletes’ form.

Speed, particularly running speed, can be ideally developed during youth age training. Its significance is smaller than that of speed strength. Furthermore, it is more difficult to improve speed by training. For this reason, speed training should not be over-emphasised if the athlete does not have the success expected.
Maximum strength training should be undertaken almost exclusively by top level athletes. The juvenile organism is not suited to such extreme loads. Whereas in youth training, athletes almost exclusively work with their own body weight as resistance, adult combined event athletes must also use barbells or perform high-load exercises such as depth jumps. The main training means in top level training are not strength training machines, but barbells since the movement dynamics of barbell training resemble that of the combined events. It should be taken into account that, for most athletes, maximum strength training is also the best means for developing speed strength.

Hard anaerobic endurance training should also be reserved for top performance age athletes. First of all, a solid base of endurance should be developed. Only thereafter, when the organism's development has been finished, can the athlete perform hard anaerobic training. When doing anaerobic training caution should be practised, since too high loads can lead to a loss of speed.

In all age groups, flexibility training plays an important role according to the individual athlete's respective prerequisites. Good flexibility is not only a performance-determining factor in certain events (e.g. Hurdles, Javelin Throw), it is also an important prerequisite for injury free training.

---

**Figure 3: Conditioning training within the framework of long term planning of training**
From time to time, the level of the conditional capacities should be checked by means of condition tests. Tests which have a high correlation with Decathlon results and the movements of the individual events (e.g. shot throwing, medicine ball throwing, snatch) are particularly suitable. Such tests can be used for comparing actual and required values and serve as the basis of potential corrections of the training plan. They can also heighten the athlete’s sense of achievement and strengthen his trust in his own performance capacity. By doing so, they promote the athlete’s long term success.

The long term planning for the Heptathlon does not differ very much from that of the Decathlon. The small differences are the reduced training volume and the somewhat smaller significance of maximum strength and aerobic endurance training.