

Trends in long distance training

by Günter Lange

1 Introduction

The current performance development in the distance running events, and the enormous improvements of world records by Chinese women in particular is the result of a target-oriented optimization of the complex training process. In this context a number of trends are becoming evident.

In this article I would like to outline these trends for the benefit of coaches.

2 Training Control

Although, in my opinion, the reputation of sports medicine was undermined by exaggerated claims for the importance of lactate testing, more and more coaches are using lactate as a parameter for controlling/monitoring loads during training.

Online measurement enables the coach to evaluate the external (volume and intensity) and internal (degree of metabolic acidosis) loads. Measurement also enables loads to be immediately adjusted if they are too low or high.

In addition to lactate testing, heart rate monitoring is still used to regulate aerobic exercise. Furthermore, urea testing can be used to prevent overtraining, particularly during training camps.

3 Increasing training loads

A significant increase of training loads and volume, particularly when athletes are already at an elite level, can only take place when their way of life is 'professional' - i.e.

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devoted to high performance sport – and when the framework conditions are optimal.

Examples of extremely high training loads in current women's distance running are:

a) 1000 kilometres in 30 days (women's Marathon training in Japan).

b) daily runs of up to full Marathon distance, i.e. 30 kilometres with:

- first 10 kilometres at 4:00 per km pace;
- second 10 kilometres at 3:50 per km pace;
- final 10 kilometres at 3:40 per km pace; (women's distance training in China).

Because the load tolerance of a runner's physical frame is a limiting factor when increasing load volumes, semi-specific training means, previously used only during injury, are now being used for 'regular' daily training. This training can take the form of:

- 60 minutes swimming (front crawl, breathing every third stroke)
- 1 - 2 hours 'aqua-jogging'
- 1 - 4 hours cross country skiing or roller skiing.

The goal of this type of training is to increase the daily load duration without stressing ligaments, tendons and bones excessively.

4 Use of altitude training

Three to four altitude training camps per year – known as the 'hyoxic chain' – are known to be highly effective for aerobic development so long as there is progression in the following factors:

- altitude (from 1800 to 3500 metres)
- duration (from 21 days to 6 weeks)
- training contents.



What I call 'Clima camps', where athletes train under optimal framework conditions to 'fine tune' their high aerobic capacity, are also now an essential part of preparation for top level competition.

5 Specific strength-endurance training

The ability to maintain stride frequency during the last section of a distance race can be developed either:

- on hilly terrain (or a treadmill with an artificial incline) or by using uphill runs of up to 10 kilometres in length or;
- by combining running specific strength training (with or without apparatus) with interval running at almost race speed.

6 Nutrition

The increased use of locally obtained nutrients (for example turtle blood in China) to improve the regeneration and adaption processes of athletes is significant. It shows that coaches no longer just devise and set training loads but also try and plan/control the recovery process. Nevertheless, the effectiveness of drinking turtle blood to support haemoglobin production during altitude training has yet to be proved! It may be just a placebo.

7 Talent identification and promotion

Societies with a high number of potential runners and large scale regional and national talent promotion systems (i.e. China) will tend to be most successful in the long run.

However, there are still opportunities for talented individuals with the proper dedication and training techniques to make an impact. It is interesting to note that in affluent western societies there are fewer people now willing to lead the ascetic life necessary to reach world class. In developing countries, many young people are coming to see top class athletics as a way to dramatically improve their financial and social status.

8 Co-operation

There has been a trend for distance running coaches to co-operate with coaches from other endurance sports rather than just among themselves.

9 The future

The recent phenomenal performances by Chinese women distance athletes were a milestone in the history of athletics. But there have been other great performances recently which show how great the possibilities are, particularly when one considers the growing number of competitive athletes and the constant refinement of coaching theory and practice.