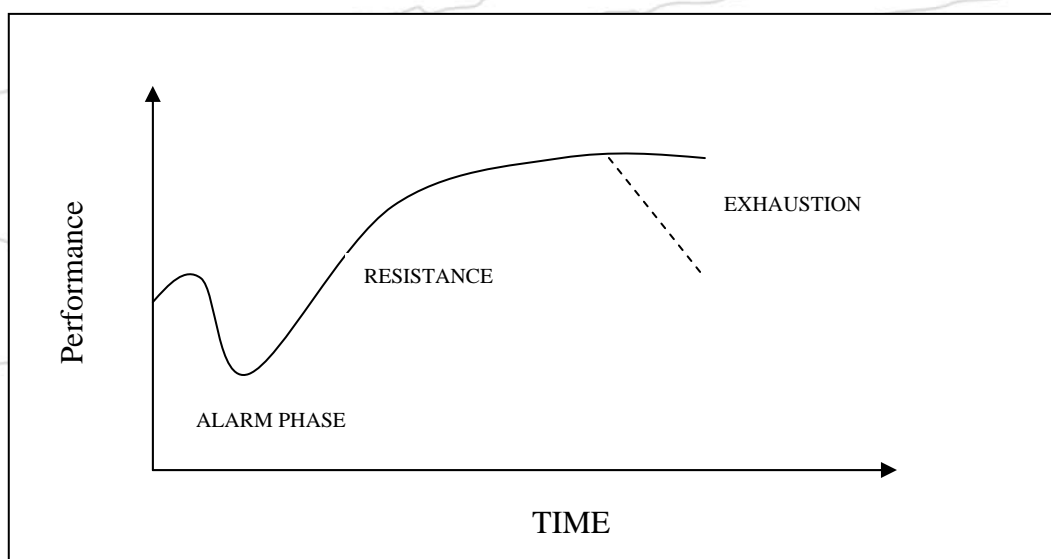


Recovery Strategies

Periodization

The manner in which the human body reacts to stress has been described by Hans Selye as the General Adaptation Syndrome (GAS). Selye outlines a 3 stage response to stress which was later applied to sport and exercise training. The 3 stages are as follows.

1. The body is exposed to a stress stimulus and the body goes into **shock** or **alarm** when there is a decrease in performance, fatigue, stiffness or soreness may be experienced – this may last several days to weeks.
2. The body begins to adapt to the stimulus and begins to **resist** it and returns to normal function.
3. At this point the body demonstrates its ability to cope with the stress. At this point there is neurological adaptation whilst muscle tissue adapts through a number of different mechanisms. This phase of adaptation is sometimes known as **supercompensation**.
4. If the stress persists for an extended period of time the athlete may enter the **exhaustion** phase. Many of the symptoms of the alarm phase can be shown here and as a result the following can occur.
 - a. Monotony
 - b. Overtraining
 - c. Other maladaptations



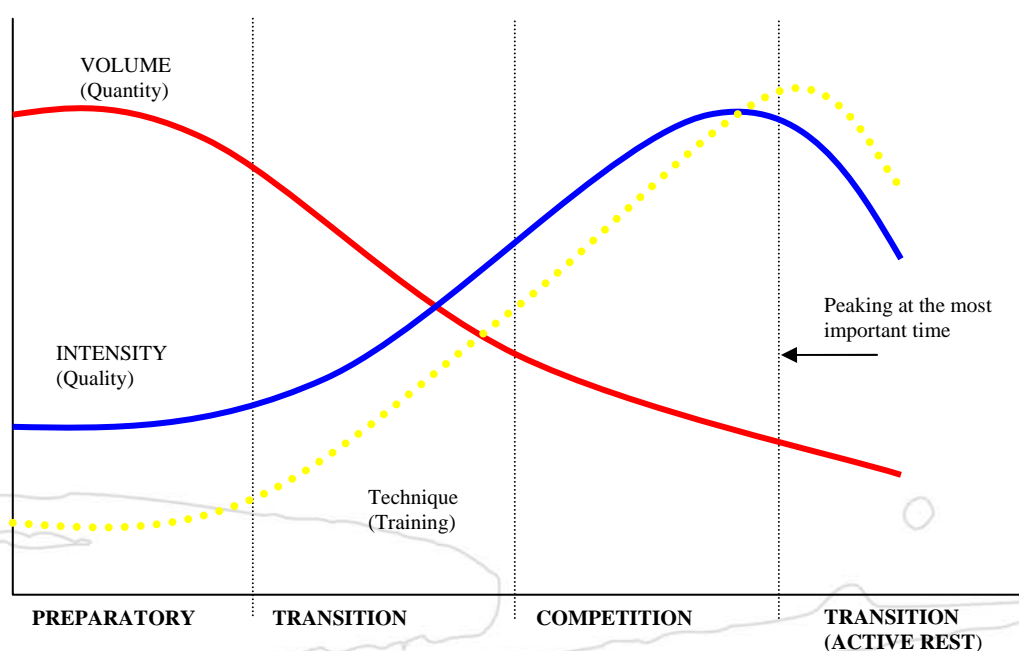
General Adaptation Syndrome

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The GAS model was evolved into the traditional model of periodization by Matvyev. The key concept is that if you continually stress the human body through training then eventually the systems can no longer adapt and reduction in performance will occur. Periodization in its most basic form: -

1. Reduces the occurrence of overtraining
2. Allows time for the body to repair and recover
3. Plans a peak in performance for the most important events.



Basic periodization requires splitting the training period into different phases across the period of time that you are working across. The phase could be several weeks up to a 4 year cycle.

Macrocycle – The largest training block could be a 4 year cycle but is generally considered 1 year.

Mesocycle – Within the macrocycle are 2 or more mesocycles each lasting several weeks to several months. The number depends on the athletes goals, competition schedule.

Microcycle – The mesocycle is divided into 2 or more micro cycles. These are typically 1 week long but could last longer. These cycles contain daily and weekly training variation.

Training Unit – One single training session.

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The diagram above shows the relationship between the overall volume of training and the intensity of training. Across the season you can see that there is a shift from high volume low intensity to high intensity to low volume. As the volume decreases technique training increases towards competition.

When this planning is done well it takes into consideration the order of adaptation that occurs within the body to the training stimulus so that each block of training is a pre-requisite for the next. When done incorrectly the intensity of training can lead to injury, overtraining and an inability to cope with the demands placed on the body's systems.

There are many complex methods of planning periodization to optimize response to training stimulus. These are out with the basic concepts that we may wish to explore at this point. When planning training for an athlete it is important to consider their stage of development and how close they are to their ceiling of adaptation.

As time goes by and the athlete progresses towards their genetic potential it becomes important to periodize the programme in more advanced ways. The more trained the athlete the greater the volumes and intensities of stimulus needed to promote adaptation. At this point the balance between greater training loads and optimal recovery between sessions, micro, meso and macrocycles becomes a key consideration. There are guidelines for basic, intermediate and advanced periodization.

In strength training:

$\text{SETS} \times \text{REPS} = \text{VOLUME}$ and $\text{SETS} \times \text{REPS} \times \text{LOAD (KG)} = \text{VOLUME LOAD}$.

We use these two variables to best quantify the work that is done. The things that we need to explore as part of the recovery working group are the interaction between technical, strength, and aerobic/anaerobic conditioning.

You can see that too much stimulus will result in the breakdown of the athlete and too little will result in the athlete not progressing across time.

Periodization is the ultimate method of planning training across the LTAD programme. To ensure recovery across microcycles that may be very intense acute recovery strategies may need to be adopted including sleep, nutrition, regeneration strategies and others.