Psychological Loading within Periodization Perspective: Practical Tips for Professional Practice

Jolly Roy\(^1\)*, Oleksandr Krasilshchikov\(^2\), Nor Azhar\(^3\)

\(^1\)National Sports Institute of Malaysia, Bukit Jalil, 57000 Kuala Lumpur, Malaysia, \(^2\)Sports Science Unit, School of Medical Sciences, 16150 Kubang Kerian, Kelantan, Malaysia, \(^3\)Universiti Malaya, 50603 Kuala Lumpur, Malaysia

Abstract

The purpose of this article is to examine the guidelines of psychological loading within three major periods of training: preparatory, competition and transition. The article briefly provides the fundamentals of periodization and emphasizes the importance of providing psychological intervention, concurrent to the training aims of each critical phase. The article demonstrates how a weekly training plan can be designed in ‘preparatory period’ with two basic techniques: a) breathing technique and b) relaxation technique. In addition, the article focuses on how to integrate different psychological techniques, relevant to each individual athlete, in the ‘competition period’, and concludes with the guidelines of psychological loading in ‘transition period’. The key issue is the urgent need for practitioners / psychologists, to be sensitive to the training objective, and to practice on the athletes, the psychological intervention which reflects the aims of the critical phase.

Key words: psychological loading, critical phase, periodization

* Corresponding author
Jolly Roy, PhD
Sports Psychology Centre
National Sports Institute of Malaysia
Bukit Jalil, Sri Petaling
57000, Kuala Lumpur, Malaysia
E-mail: jolroy@hotmail.com
Psychological intervention is an integral part of an athlete’s training regime as training program for elite athlete consists of different support systems from sport sciences. Although full recognition of the concept of psychological preparation is yet to ingrain among all coaches and athletes, the fact remains that psychological preparation is imperative. Psychological preparation has been documented in literature, as beneficial to elite athletes in both individual and team events [1, 2, 3, 4, 5].

This article addresses the principles of psychological load, described as psychological intervention components, and discusses the guidelines to use it in different training phases. This article also provides an example of general guidelines for planning of psychological loading.

The Fundamentals of Periodization

Periodization was first used by ancient Greeks in their preparations for the Olympics. It was further developed (more logically rather than scientifically) as training application in Russia [6]; was later made more scientific and applicable in East Germany[7], Romania – Canada [8] and China; and was finally reframed into a scientific approach by the West [9]. Nowadays periodization is widely accepted as a powerful tool in planning and enhancing athletes’ various abilities [10, 11].

Periodization Applications in Different Sports

Basic periodization commonly operates with macrocycle as the longest periodization unit. It can vary in duration from 10 weeks up to one year and is usually divided into three distinctive periods such as Preparatory, Competitive and Transitional.

Preparatory period is meant for the development of performance contributing factors and improvement of performance. Main goal of Competitive period is the realization of athlete’s potential during participation in competitions. By some definitions this period is meant for maintenance of performance [6]. Transitional period provides an athlete with active rest, recovery and is meant for rehabilitation and treatment, if required. In other words transitional period is meant for controlled detraining.

Macrocycle as such is planned with an ultimate aim of successfully performing in the major competition or number of competitions which are grouped together, within reasonably short period of time, which is good to maintain top performance within it. In case major competitions of the season are scheduled with considerable gap in-between, coaches might need to plan two or even more macrocycles in a year, so that each macrocycle is dedicated to successful preparation to one major competition.

Since various sports differ in number of competitions athletes participate in, difference would come in the periodization patterns as well. For instance, **endurance events** such as marathon and long distance running limit participation of the athletes to few competitions within a year/season, resulting in planning long macrocycles of training often equaling to a year in duration. In such cases we follow single periodization pattern of an annual cycle (when macrocycle duration is one year), or double periodization of the year at the most (when one year comprises of two about 6-months’ macrocycles) with one macrocycle meant for one major competition and the other one – for another major competition.

Power sports, like sprints, jumps, weightlifting etc., can have their representatives participating in larger number of competitions a year and their planning pattern could be pretty different with three to five major competitions covered in triple or multiple periodization patterns. It means calendar year can consist of three to five macrocycles of only 12 to 15 weeks duration each.

Such periodization patterns, on the contrary to the endurance sports would have short but very intensive
preparatory periods (at times as short as 8 to 10 weeks), competitive periods of 2 to 3 weeks and rather brief transitional periods (usually not longer than 2 weeks each).

**Team games** like football, basketball, hockey and others, with traditionally long competitive periods when they play league matches for four to five months or even longer, plan their macrocycle in a completely different manner. In other words they change the ratio of periods within a macrocycle. Preparatory period would be quite short for them – three to four months, when they predominantly care of general physical fitness, followed by six to eight months of competitive period with plenty of individual, group and team tactics and skills involved and with all the commitments to the National leagues and Continental Cups, and then up-to two to three months of transition, meant for the rehabilitation, treatment of injuries etc.

**Individual/group games** like tennis and badminton follow more or less the multi-peaking patterns with very brief and precisely planned training periods. The reason being, besides participation in the four Grand Slam tournaments and year finale in the form of ATP/WTA world championships (top eight only) they need to play at least four warming up tournaments at various surfaces and good number of ranking tournaments to ensure the maintenance of the high ranking and good chances for better seeding in the major tournaments. So in this case, the possibility of dividing fitness from skills would be rather distant and professional training requires kind of merger of the above two into specifically designed drills covering fitness, skills and tactics altogether.

**Psychological Loading:**

Given to understand the complexity of periodization, it is natural that psychological interventions to be successful need to be well adjusted not only to the needs of particular sports, but also to the necessities of the particular training phases. Each intervention has its distinct features and targets, therefore psychological interventions have to address the same issues as training phases are. Only such combination of interventions could well suit the training and competitions programme of elite athletes and subsequently address not only the basic needs of sports but the whole idea of periodized training towards major competitions.

**Why do we need to follow some guidelines for psychological loading?**

Often coaches and the athletes choose individual psychological services that best fit them. Not many coaches, athletes and psychologist follow the systematic principles of psychological loading. While different psychologists follow different types of psychological loading pattern, very often the programs are not congruent with the training phase, thus ending up with ineffective results. Therefore, we propose a general guideline in this article within a broad spectrum of macrocycle. For the purpose of psychological loading, we have designed the psychological intensity on a horizontal continuum starting with a preparatory period, (which includes a general phase and a specific phase), a competitive period (which includes early competitions and main competitions phases), and a transition period.

**Why should the psychological load balance with training load?**

One of the reasons to balance psychological load with physical training load in each training phase is to enhance the benefits of the psychological support services. More specifically, the psychological load placed on any athlete should match the objective of each training phase that can best facilitate in achieving the main goal. For instance, we believe that the technical and tactical preparation in ‘preparatory - specific phase’ needs to be connected to the psychological preparation of an athlete.

To cite some examples:

- A technique correction in an athlete can be hastened, by using a cognitive technique-imagery or
ideomotor training using video assisted biomechanical results.
• A video assisted simulated training, can be helpful for formulating strategies as part of a tactical preparation

How to proceed with the guidelines?

Preparatory Period

Firstly it is important to gather information about the athlete e.g. athlete’s background, his/her achievements, injuries if any, family, training history, etc. After this, the psychologist should discuss with the coach and the athlete their training plan; conduct the necessary tests and design the required interventions to be an integral part of psychological assistance plan. If the athlete is new to the psychological program, then the offered components of the psychological preparation should focus on teaching the psychological skills in the preparatory period.

The focus in such case would be to create awareness in the athlete. The emphasis of the assessment could be on psychological diagnosis; for example, the basic psychomotor abilities, the anxiety levels, motivations etc, and the knowledge of management strategies. The intervention components can then be planned and psychological loading gradually increased.

Once the athlete is able to choose the most appropriate program for himself/herself, the volume of psychological loading can be reduced and made ‘specific’ towards competitive period.

In the case of an experienced athlete, who has undergone psychological skill training earlier, the psychological loading should be designed specifically suited the athlete’s level. In other words, the program should be such that the athletes can use the appropriate techniques corresponding to the psychological states and game situations.

Competitive Period

The objective of this period is to focus on immediate preparation of the athlete for competing in specific events. Therefore, the psychological preparation should be congruent to cope with additional load and stress the athletes might encounter. We assume that athletes have developed awareness, and have tried out the best fit interventions individually suited for them. Some athletes may even be regularly practicing it in their free time. Usually, in competitive period, only specific psychological techniques are selected and practiced, which corresponds to the objective of the phase. For example, if an athlete wants to practice a tactical move, or practice executing a technique within a game situation, he or she may use imagery training. If the athlete needs to learn to develop arousal control, then the choice may be to use biofeedback assisted regulation.

It would be realistic to expect some amount of disturbance in the psychological training program during this phase. For instance, if a team has different venues to play in a competition, it may involve travel. Therefore, athletes should be encouraged to practice the psychological skills independently, and have flexibility in adjusting their psychological load.

Transitional period

In transition phase, the psychological load can be reduced considerably and should be aimed mainly at effective recovery. Thus strategies for relaxation are ideal. However, it is important to encourage the athletes to maintain reasonable levels of proficiency in the psychological skills that they have learnt, and adhere to practicing certain mental skill like breathing exercises, relaxation exercises, meditation, etc. The athlete can also evaluate the effectiveness of the program so that he or she can suggest the necessary modification to suit individual needs in the following days.

Can athletes follow every intervention?

We would like to state that it may be difficult to follow, at one time, every single psychological technique documented in the literature. In fact,
it may even have debilitating effects, by confusing the athlete. Besides, the intervention techniques may not correspond with the training objectives at all. Therefore, the individual resources, educational background, experience, and knowledge of the psychologist is a crucial factor while preparing the psychological loading for the elite athletes.

A general guideline is provided in Figure 1 and readers as well as potential users are advised to consult the concerned coaches and support staff before designing the psychological loading for themselves or their athletes. Table 1-a and Table 1-b are examples of Breathing Techniques and Progressive Relaxation Techniques learning programme within weekly training plan in the course of “Preparatory Period”. The number of techniques to be taught during the preparatory period may differ for individual athletes. For example, if breathing techniques are taught, variations in breathing techniques can be taught in three different environments viz: laboratory (L), training (T) and residence (R). The black ‘dot’ mark in the table represent that the technique is taught in a particular situation (example: In Table 1a, “complete breathing” on day 1, is taught in laboratory situation and the athlete can train the same in residence also) Table 2 provides an example of Integrating Psychological Regulations within weekly training plan in the course of “Competitive Period”. Table 3 shows an example of Maintaining Psychological Regulations within weekly training plan in the course of “Transition Period”.

Our aim in this article is to provide some guidelines to demonstrate how different intervention techniques should be integrated within the training objectives during an annual training programme. The effectiveness of adhering to this model of program would be best available through athlete’s and coach’s feedback.

1. The loading pattern should be based on each game individually and modified according to the training.
2. The different shades in the figure only represent that different types of psychological interventions (psychological load) can be provided during different training phases.

GP: GENERAL PREPARATION
SP: SPECIFIC PREPARATION
PC: PRECOMPETITION
MC: MAIN COMPETITION
TR: TRANSITION

Figure 1. Guidelines of psychology loading for psychology preparation.
Table 1a. An example of Breathing Techniques learning Programme within weekly training plan in the course of ‘Preparatory Period’

<table>
<thead>
<tr>
<th>Breathing exercises</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Breathing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Rhythmic Breathing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Ratio Breathing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Breathing in count</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Sighing with breathing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Concentration</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

L- Laboratory; T- Training; R- Residence

Note: Provided guideline plan should be individually designed/modified according to the sport, athlete’s abilities and experience, various psychological techniques etc. It should also fit the type of microcycle with its pre-planned levels of volume and intensity of training load.

Table 1b. An example of Relaxation Techniques learning Programme within weekly training plan in the course of ‘Preparatory Period’

<table>
<thead>
<tr>
<th>Relaxation Exercises</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressive relaxation (PR)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active PR</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential PR</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abbreviated Active PR</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passive PR</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Abbreviated Passive PR (quick body scan)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Neck &amp; Shoulder check</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Table 2 An example of Integrating Psychological Regulations within weekly training plan in the course of ‘Competitive Period’

<table>
<thead>
<tr>
<th>Psychological regulation</th>
<th>Day 1 (Mon)</th>
<th>Day 2 (Tues)</th>
<th>Day 3 (Wed)</th>
<th>Day 4 (Thurs)</th>
<th>Day 5 (Fri)</th>
<th>Day 6 (Sat)</th>
<th>Day 7 (Sun)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>T</td>
<td>R</td>
<td>L</td>
<td>T</td>
<td>R</td>
<td>L</td>
</tr>
<tr>
<td>Breathing &amp; Relaxation</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Imagery</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Emotion Regulation</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Self talk</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Thought control</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

L- Laboratory; T- Training; R- Residence

Note: All Psycho regulatory measures are not shown in the table. Individual psychologist may choose the appropriate intervention for each athlete.
Table 3. An example of Maintaining Psychological Regulations within weekly training plan in the course of ‘Transition Period’

<table>
<thead>
<tr>
<th>Psychological regulation</th>
<th>Day 1 (Mon)</th>
<th>Day 2 (Tues)</th>
<th>Day 3 (Wed)</th>
<th>Day 4 (Thurs)</th>
<th>Day 5 (Fri)</th>
<th>Day 6 (Sat)</th>
<th>Day 7 (Sun)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing Exercises</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Relaxation</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meditation</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>√</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Individually Preferred Light activities</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>

References
