

# *Programming and Planning with Recovery Based Training*

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Recovery based training is a new way of looking at training for swimming. It is based on the principle of recovery and is sensitive to each individual athlete's ability to deal with the stresses and loads of training and preparation for competition. In comparison, more traditional training methods rely on a philosophy of "work based training" which subjects athletes to predetermined training loads which must be completed regardless of the athlete's recovery level, leaving them open to illness and injury through over training.

The focus of RBT is on the individual athlete's unique ability to respond and adapt to the stresses of training for sporting competition. This recovery ability can change from day to day – session to session and should be the fundamental consideration when planning training activities.

Whilst planning is an essential aspect of successful sports performance, coaches need to be mindful of the variations in each individual's ability to respond, recover and adapt to training loads.

## **The key factors in RECOVERY BASED TRAINING are:**

The training program is designed around the athlete's ability to recover.

An athlete with an effective recovery program in place can actually train harder and train more often as the natural process of recovery is enhanced.

By basing training on recovery rather than work, training variables such as technique and speed development can be incorporated into the program at times which allow the maximum possible opportunity for them to make an impact.

## **The key to this approach is the philosophy is –**

**THE INTELLIGENT COACH BASES THEIR TRAINING AND COMPETITION PROGRAM AROUND THEIR ATHLETE'S ABILITY TO RECOVER.**

This article expands on the RBT concept and looks at the practical application of RBT in planning and programming of training.

## **Periodisation Revisited (briefly):**

Periodisation is the process of breaking down training programs into units or blocks called "cycles" and "phases" and considers the volume, intensity and frequency of training and competition activities over a season, a year or longer period of time.

This process allows a coach and athlete to focus on specific elements of training at specific times relative to the needs of the key competition/s.

Traditionally, this has meant analysing the demands of the targeted competition and then planning the process of developing the skills, abilities and techniques necessary for the athlete to perform successfully at the specific event.

For example, a coach and athlete determine to target a 100 metre freestyle event at their national championships. An analysis of the event suggests they need to work on speed, endurance, power, strength, flexibility, tactical and technical skills, mental skills, turns, dives, finishes, breathing control and relaxation skills.

As it is not possible to develop all these qualities at the same time, the coach then plans a program where the qualities are developed in a logical, systematic manner over a given period of time.

However it is important to consider that Periodisation and planning is not a process of **EXCLUSION** – it is an **EMPHASIS** – a focus on specific elements of training at key times in the program.

The difference between **DEVELOPMENT** of a performance factor and **MAINTENANCE** of a performance factor needs to be understood.

For example, athletes may be in a phase of training where aerobic endurance is **EMPHASISED**, but the athlete will also be maintaining **SPEED**, **SKILLS**, **ANAEROBIC THRESHOLD** and other performance factors with specific training activities. The athlete is **DEVELOPING** aerobic factors but **MAINTAINING** other ones.

The basic training principle of **REVERSIBILITY** suggests that training adaptations will be lost if they are not maintained.

In speed athletes for example, it has often been the practice to complete several weeks or even months of non specific aerobic work as a “base” for the specific high intensity training leading up to competitions. The volume of training prepares the swimmer for training; the intensity of training then prepares the swimmer for competition.

There are numerous reasons for doing this in swimming including increasing oxygen transport and delivery mechanisms, blood buffering capacities and the development of technical elements such as “feel”, rhythm and relaxation.

However, the development of an aerobic base does not mean that aerobic swimming is the **ONLY** performance element to be trained during the training cycle. As speed is such an integral aspect of performance, it does not make sense to neglect it completely for long periods, then rely on luck and genetics for it to come back as the target competition draws nearer.

Whilst there are numerous factors in every competition performance that need to be considered (speed, endurance, mental skills, technique etc) it is unlikely that any program designed to **DEVELOP** all performance factors at the same time will succeed. This is largely due to the limitations in time available to train and importantly **limitations in the athlete’s ability to recover**.

In some instances trying to develop performance factors concurrently, e.g. trying to develop maximum strength and optimal endurance at the same time may compromise the effectiveness of the development of both factors.

### **RBT – The Simplicity of the Planning Process**

**There are three key steps to effective planning for sports performance:**

**STEP ONE:** Decide what you are trying to achieve – set clear, achievable but challenging **GOALS** for every workout and every cycle .

**STEP TWO:** Determine what you need to do to achieve it – the “nuts and bolt” – what training activities do you need to do to achieve your goals.

**STEP THREE:** Create the environment that will maximize the opportunity for what you are trying to achieve – how can you set up the training program so that the adaptations you are trying to develop can happen.

## Recovery Based Training Programming Principles

To help make programming with RBT start with the basic layout of the training week.

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM							
PM							

The next step is then complete areas already known and established. For example, write in the known “non training” times.

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM			Off				Off
PM							Off

Then start the actual planning of the program using the three step process outlined above:

### 1. Clearly Establish what you are trying to achieve.

In any program the coach and athlete have goals – targets in training and competition that they are working together to achieve.

For example, a coach determines that this week the focus will be on the development of **AEROBIC ENDURANCE**.

### 2. Determine the best way to achieve the goals

What do we know about the development of aerobic endurance?

- The intensity level needs to be relatively low.
- The volume of the training activity needs to be relatively long – ideally rhythmic and continuous.
- The athlete should try to learn to relax
- The athlete needs to be hydrated and glycogen repleted
- The athlete needs 48-72 hours between long endurance sessions to recover. Generally lighter framed females will require less rest whilst heavier framed males will demand longer rest periods. However, the recovery level of the individual can be determined by using an active recovery measurement such as the ICS (see below).

Therefore the coach determines that the athlete will complete **three AEROBIC ENDURANCE DEVELOPMENT** sessions (approximately 48-72 hours apart) to achieve the goals of the training week. These sessions are called **FOCUS** sessions as they are the key focus for the athlete and coach to achieve this week.

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM	Focus (use ICS)		Off	Focus (use ICS)		Focus (use ICS)	Off
PM							Off

Note that the ICS (Individual Checking Speed swim) is conducted during the warm up for the FOCUS workouts to determine how well the athlete is prepared to complete their key training tasks in this week. (see article Recovery Based Training - An Alternate Method of Athlete Preparation by the same author).

In summary the ICS Concept is an active test of how well the individual athlete is recovered and prepared to do the workout.

### ICS Test overview:

The swimmer swims a 400 metres freestyle when they are relatively fresh and unfatigued. The swim is even paced with a Push start. The target pace is 15 seconds per 100 slower than the swimmer's PB 100 time, e.g. if their best 100 freestyle is 1:00 minute then the ICS pace is 1:15 per 100 or 5:00 minutes for the 400. Coach and athlete measure overall time, splits and heart rate and also stroke count and stroke rate between 100 to 150 metres and 350 to 400 metres.

This information called the ICS – (Individual Checking Speed) is then used as the baseline measurement to determine if the swimmer is sufficiently recovered to complete the FOCUS workout as required.

The aim of the test is to ACTIVELY measure the athlete's level of recovery for the specific FOCUS session they are about to attempt. If the ICS indicates the athlete has not sufficiently recovered from the effects of previous workouts or other activities then the coach may chose to re schedule or modify the FOCUS workout.

### 3. Develop an environment to allow the FOCUS sessions to be effective.

Once the coach has determined the nature and positioning of the FOCUS sessions, the key to their success is to create an environment which allows the FOCUS sessions to be effective.

In other words, the coach having created the training activity to STIMULATE the athlete to develop a specific performance attribute (in this case endurance) must then put in place a RECOVERY program to enhance the endurance adaptations.

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM	Focus (use ICS)		Off	Focus (use ICS)		Focus (use ICS)	Off
PM	Recovery			Recovery		Recovery	Off

The final step in the process is for the coach to determine the other key performance factors to be maintained over the training week. In this case, the coach has determined that the athlete needs to maintain the training elements of speed, skill and technique.

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM	Focus (use ICS)	Skills and Tech	OFF	Focus (use ICS)	Skills and Tech	Focus (use ICS)	OFF
PM	Recovery	Short Speed	Skills and Tech	Recovery	Easy Swim and club comp.	Recovery	OFF

The important aspect of this model is that the coach determines a clear training goal for the week – the **DEVELOPMENT** of aerobic endurance. The coach then sets about ensuring the aerobic endurance adaptations can occur by creating a training environment conducive to allowing those adaptations to occur.

Once the FOCUS sessions have been determined, the coach schedules a recovery workout immediately following to give the athlete the opportunity to adapt to the training loads of the FOCUS workout. Recovery level is measured by using the ICS as an active measure of how the athlete is managing their recovery over the training week.

### RBT and Speed Development

Research suggests that to **develop** speed several factors need to be considered:

- Speed development training should be completed at or above maximum speed, ie above competition speed.
- Speed development training should also focus on **TECHNIQUE** at speed so that the athlete learns to maintain technical excellence at maximum speed.
- Speed development training should be completed with the athlete **glycogen REPLETED**, ie with full glycogen muscle stores and well **HYDRATED**.
- Speed development training should be completed when the athlete is not fatigued owing to the importance of **NEURAL** factors in speed development.
- Speed development training should be completed when the athlete is **MOTIVATED** and interested and focused on speed development.
- Speed development training should focus on **RELAXATION** at maximum **SPEED** – the faster you want to go, the more relaxed you have to be.
- It takes between 48 and 72 hours for some athletes to recover from speed development / neural stimulation work.

(Note the interaction of **PHYSICAL, PHYSIOLOGICAL, NUTRITIONAL, BIOMECHANICAL, TECHNICAL AND PSYCHOLOGICAL FACTORS** in speed development training. Speed development is multi dimensional – not just physiological).

### Using the RBT process: Thinking it through.

Step One: What am I trying to achieve?:

**ANSWER: SPEED DEVELOPMENT**

Step Two: How can I achieve it?:

**ANSWER: SHORT ACTIVITIES AT MAXIMUM SPEED WITH A RECOVERED AND MOTIVATED ATHLETE.**

Step Three: How can I maximize the chances for the session to be effective?:

**ANSWER: DO THE SPRINT DEVELOPMENT SESSIONS WHEN THE ATHLETE IS RECOVERED AND ENSURE ADEQUATE RECOVERY BETWEEN FOCUS SESSIONS.**

Time	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
AM	Focus (Speed)	Skills Aerobic	Off	Recovery	Aerobic	Focus (Speed)	Off
PM	Recovery	Aerobic	Focus (Speed)	Skills Aerobic	Skills Aerobic	Recovery	Off

### Example of Recovery Based Training for Sprint Development

In this example, the FOCUS sessions are **MONDAY AM** (after a day off), **WEDNESDAY AFTERNOON** (after a recovery period and a morning off) and **SATURDAY MORNING** (after a recovery period and with the prospect of a full day off).

The athlete works hard in the focus sessions to achieve the goals of the program. In the session immediately following the focus session, the athlete completes a recovery session of easy, relaxed, aerobic based training and aims to minimize stress on their neuro- muscular system while it is recovering from and adapting to the training stimulus of the speed development session.

### Training Programs that Do Not Work and Why.

A coach determines that the training goal for this week will be **speed development**. He then plans the following workout schedule:

	Mon.	Tues	Wed.	Thurs	Fri.	Sat.
AM	Hard Endurance	AT	Hard Endurance	SD	Hard Endurance	SD
PM	Speed Development (SD)	SD	VO2	Hard Endurance	AT	Hard Endurance

An example of a poorly planned SPRINT program – note inappropriate training activities without sufficient recovery time or restoration activities.

There is no question that successful athletes – and successful people - need to work hard to achieve their goals. However, the coach must determine what is the most appropriate way of working hard. There are occasions when working hard just for the sake of it is counter productive to the overall program goals.

In the above example, the athlete has limited time to recover between workouts. The number of high intensity (fatigue developing) workouts in a seven day period will also limit the athlete's ability to recover.

If **speed development** was the goal for the weekly program but the speed development workouts are relatively close together and are surrounded by high intensity or hard endurance workouts, the athlete is likely to be carrying residual fatigue from workout to workout. This means that the ability of the athlete to develop maximum speed (the goal of the program) will be compromised.

The result is likely to be that the athlete will be completing speed development training at sub maximal speed, and that the residual fatigue carried over the week is also likely to impact on a range of other factors, e.g. technique, attitude, health status etc.

#### Summary:

Recovery is a key element in training. The traditional way of looking at recovery has been in assisting athletes to adapt to training stress after workouts and periods of hard work through a range of measures such as massage, stretching, hydrotherapies and other techniques.

Recovery based training proposes that the athlete's recovery ability is the limiting factor in establishing training programs and protocols and recovery is a central factor to training prescription rather than a peripheral one.

Using this principle for establishing training loads and developing training programs relies on a simple three step approach:

**STEP ONE: WHAT DO YOU WANT TO ACHIEVE?**

**STEP TWO: HOW CAN YOU ACHIEVE IT?**

**STEP THREE: HOW CAN YOU SET UP THE TRAINING ENVIRONMENT TO ALLOW WHAT YOU ARE TRYING TO ACHIEVE HAPPEN?**

It is unlikely that any athlete could develop all performance factors in a single week owing to the limited ability of the body to respond, adapt and recover from the training that would be required to achieve such a goal.

It is unlikely for example that an athlete, regardless of talent can improve SPEED and STRENGTH and ENDURANCE and THRESHOLD and VO2 and TECHNIQUE and SKILLS all in one week of training. It is more likely that an intelligently planned program targets the development of one aspect of performance at a time whilst maintaining skills and abilities in others.

The challenge is to ensure that the program provides the opportunity for the athlete to develop each specific performance element to the optimal level.

RBT asks that coaches clearly identify a training goal and set about it achieving it logically and intelligently by establishing an environment where the likelihood of achieving that goal is very high.

From these three steps and by using the Recovery Based Training principle, coaches and athletes can establish effective, individualized training programs that focus on each athlete's unique ability to respond and adapt to exercise prescription.

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