

Introduction

This article has been written to provide some further insight into the training philosophies that govern theinnergame™.

Our physical training programs are focused on addressing three areas;

- Technique and skills,
- fitness and practice,
- mastery and new goals.

Regardless of the physical training program that you are on, we will have prescribed the training zones and/or intensity that you should use for the specific session that you are undertaking.

This article provides some of the theory and research that has been used to establish these training zones and intensities.

Our programs will also be determined by the training phase that you are in.

There are 4 phases that we use in determining the focus of the training. Base training is phase 1, followed by general preparation, specific preparation and then the race phase. The 5th phase would probably be the transition from one goal to the next.

Finally, we all will be faced, from time to time with interruptions to our training schedules whether they be from injury, work/family commitments, holidays, hangovers of a momentous nature or other illness, etc. The impact of such an interruption need not be devastating, nor does the impact need to be significant.

Toward the end of the article there is some discussion around how you can try and minimize interruption to your schedule and also some discussion around the impact of training on the couch.

I hope that you find the article informative and useful. As always, your feedback is welcomed. paul@theinnergame.com.au

Thanks I hope you do something extraordinary.

Paul Chow



Training Zones

There is a significant difference between exercise and training.

In simple terms, exercise is anything that raises our heart rates. It may be walking around the block, washing the car, playing golf, vacuuming the carpet, going to the gym.

All of these activities would increase your heart rate for a period of time and gets your body moving.

Training is undertaking an activity with a specific purpose in mind.

When we run for example, we may focus on technique, or on endurance and strength or on lactate threshold. These are just some of the areas of focus during training.

It is vital that you are aware of the purpose of the training session that you are undertaking so that you can ensure that your effort is appropriate to the purpose.

The prescribed intensities or training levels, are not an accident nor are they a suggestion, they are prescribed to ensure that you get the desired impact from the whole program.

Doing every session at high intensity will not provide the optimum benefit.

- You will not be adequately recovered when the efforts are required.
- You will not be able to maintain the intensity for the duration of the session.
- You will be at greater risk of injury.

Doing every session at one pace is also suboptimum. The best way to go slow is to train slow.... all the time. If you want to develop speed then we need to incorporate speed into your development.

At theinnergame™ we therefore periodise the training programs based on your stated major goal.

We also adjust the focus of each training session so that we can work on the specific technique, energy, strength and endurance systems required for your goal.

Within each period and session, we will prescribe different intensities so that you can focus on the intent of the session. Please be aware of these intensities and focus on them.

Intensity levels

An important factor of theinnergame™ training programs is the intensity level that is used to for the specific adaptation that we are trying to achieve. At theinnergame™ we use 5 levels to describe the desired intensities.

If you are unsure of the intensity level that you should be training at then you should discuss this with your coach.

Intensity Level	Perceived Effort	Heart Rate Zone	Focus
Level 1	Very Easy	50-60%	Active recovery Base strength Technique Familiarisation
Level 2	Easy light effort, some puffing.	60-75%	Endurance Strength Technique practice Capillarisation and aerobic capacity Fatty acid burn efficiency
Level 3	Hard effort. still hold a conversation and would be able to maintain the pace for the entire distance/time	75-83%	Race Pace Lactate Threshold Endurance Muscular Skeletal adaptation
Level 4	Very Hard effort	83-92%	Excess Lactic acid build up Lactate Tolerance Speed
Level 5	Painful. This is vomit territory.	92-100%	Speed Lactate tolerance ATP metabolism



Training Intensities

As a general rule,

- 70-80% of your training will be done at an intensity that is lower than race pace. (level 1-2-3)
- 15-25 % will be done at race pace (level 3)
- 5 % will be done at faster than race pace. (level 4-5)

Level 1 Recovery/Practise

This is a very comfortable level and is typically used to recover from an effort or to practise a walk through of a drill for technique purposes.

Using Maximum Heart Rate as a guide, we are looking at 50-65% of MHR

When using level 1 for recovery, ensure that you are returning your heart rate to a comfortable level. The idea is to actively recover rather than simply rest.

Level 1 training may also be prescribed as a complete workout in order to actively recover from an intensive day or week.

We use level 1 for technique as we are much more aware of our movement at slower intensities. When learning and practising a technique it is essential that we are aware of the movement and the “feel” of the activity. We cannot achieve an appropriate feel if we are going fast.

Typically in order to maintain speed at a higher level of intensity, we often have developed means of compensating for the technique deficiency. So slow down when doing drills so that there is a greater opportunity to “feel” the difference that correct technique achieves.

Level 2 is the aerobic endurance level.

Using Maximum Heart Rate (MHR) as a guide we are looking at 65-75% MHR.

We use level 2 intensity to build endurance.

At this level of intensity, the risk of injury from biomechanical fault is reduced. There is also the ability to develop endurance strength from the repetitive use of your specific movement.

At this level, it is expected that you will also bring your learned technique into your session. This is the ideal level to practice and focus on your technique development over a longer period.

This level of intensity is very important. At this level the following changes occur in response to low intensity endurance training:

- Increased capillary density around muscle fibres
- Increased aerobic capacity
- Improved fat to fuel processing
- Increased muscular skeletal strength

This level training has a significant impact on your heart rate due to the ability to improve the fat / fuel system and the capillarisation of muscles.



Level 3 is Threshold or race pace training.

This is the pace whereby your production of lactic acid is equivalent to your ability to process that lactic acid (i.e. your lactate threshold)

The actual pace that equates to your lactic threshold pace will differ depending on the distance you are covering.

For example, you may be able to run one km in 4 minutes and not suffer fatigue or soreness that will stop you, however if you were to try and maintain that speed for 10 kms it would result in you cramping after 3 kms or need to slow down considerably.

When you are racing you are trying to keep at this threshold as it equates to the level that optimises your speed while ensuring that you will not succumb to fatigue.

By focusing on technique, we ensure that we are optimising the contribution that each muscle is making to your speed; by ensuring that you have adequate base strength and endurance, we are reducing the risk of injury from your maintained speed, particularly as fatigue sets in.

For an endurance athlete, one of the major objectives of your training is to increase your lactate threshold. We do this by focusing on 2 areas: The speed at which you produce lactic acid and the rate that you can process lactic acid.

Intensity levels 1, 2 and 3 are about processing the lactic acid. Levels 4 and 5 are the speed at which the lactic acid is produced.

Level 4 training is speed training:

This is the intensity that will result in the lactic acid rising above the lactate threshold in 1-2 minutes. It is only done for short intervals and should have adequate rest between repetitions. The purpose behind level 4 training is to increase the lactate threshold by exceeding the anaerobic threshold (lactate threshold) repetitively and thereby causing the bodies systems to adjust to this stimulus.

Due to the increased intensity, there is an increased fatigue and consequently there is a higher risk of injury.

It is essential that this training be done at the right intensity level and for the prescribed period so that the risk of injury can be managed.

IF YOU ARE AT RISK OF INJURY, i.e. you are feeling serious niggles or you are highly fatigued, then you should not undertake training at this intensity.

If in Doubt then don't.

Again, IF IN DOUBT THEN DON'T

The advantages of consistency of training exceed the benefits associated with a single day's efforts.

Level 5 training

This level is performed at very hard levels of effort. This will typically be done over very short distances and used sparingly for endurance type athletes.

It is the type of training that will deliver a significant improvement in VO2 max, however it needs to be scheduled and conducted with caution. A typical level 5 type session may be 400m repeats conducted at your 1k pace. 4 to 5 repeats with 1 minute recovery. (This would be for a well conditioned sprint triathlete) The duration of a level 5 training session would typically be reduced to compensate for the fatigue that has been introduced through the very hard repeats.

In summary, the levels that we use are prescribed levels of intensity so that the training goal is achieved. By training within the prescribed intensities it is anticipated that your physical adaptation will be optimised over the given training period.



Training Phases

There are 4 phases that we use in planning and conducting our training.

Phase 1;	Base Training
Phase 2;	General preparation
Phase 3;	Specific Preparation
Phase 4;	Race Period.

Phase 1 is base training.

This phase may be for up to 16 weeks and is probably **the most important phase** of a training program.

The purpose of this phase is to provide time to recover from a period of competition and to also **develop general aerobic condition, strength and technique**. These are the building blocks that provide us the ability to go faster and longer at a later period. The vast majority of our training is done at a pace that is lower than race pace.

We will take some risks here to address specific issues such as speed and bio mechanic improvement as injury during this phase is not as critical as during other phases. The risk vs reward equation is not impacted as much by the risk of not being able to compete in an upcoming event.

We are always attempting to avoid injury as lengthy, unscheduled time off has an impact on an athletes level of fitness. (See the article on Consistent Training below)

Using our cycle program as an example, we will focus during the base phase on peddle technique, pack riding technique, hill climbing technique, and on providing some general fitness. The volume will not be all that high. Once we are able to master the basic technique of riding safely and properly from a biomechanical perspective we will then move onto the next level from a fitness perspective.



Phase 2; General preparation

is where we now start to build some greater volume and specific strength.

Again the majority of our training is done in the level 1-3 zone, although we do now start introducing some higher intensity work.

We start working less on general strength and technique and start now to work on the specific strength required for your event and advanced technique.

We should have the general technique and some good base conditioning to work from now. So the risk of injury associated with increasing the volume and intensity of the training is lower. Therefore, we challenge the body more from a physical perspective.

Again, using our cycling example, it is now that we would commence the longer rides and faster efforts. The base phase developed an ability to ride in packs and safely. It also provide some general technique to use on the road. With these skills and capabilities, we are now able to go further and faster.

Phase 3 is specific preparation.

Here we increase intensity and decrease volume. We are attempting to emulate aspects of the actual event as much as possible. A higher volume of the work will be done at level 3 or race pace. We also have a higher focus on race type skills. For triathletes we might focus on transition practice and pacing. For cyclists it might be a focus on drafting and timing of your attack, or cornering and bike handling in race situations.

This phase would also typically include the taper to the first event.

Phase 4 is the competition phase.

This phase is typically more situational than the other phases as competition is not always the same. If you are competing every fortnight then you would have a different program focus than someone who was competing weekly or monthly.

The major factors that are taken into consideration are the need to maintain a peak level of fitness, an intensity that keeps the neurological focus on competition, and sufficient volume to ensure that the actual event volume was not too challenging.

The importance of training consistency.

Consistent training is one of the most important factors in the development of any athlete. In the eyes of many coaches it ranks even higher than natural talent.

The major reasons for interruption to training are:

#1 – Injury

In endurance athletes these are often overuse injuries which can occur as a result of building

up the training too quickly or maintaining too high a training volume **without adequate rest**. Injuries can also **result from biomechanical problems** or from a trauma such as a fall or collision. In all cases it is essential that you **take notice of any early warning of problems that could develop into an injury**.

At Theinnergame, we focus on rest, biomechanics through technique and request that you inform us early on of any niggles or risks of injury.

A MAJOR RULE... if in doubt then don't. You are more likely to lose valuable training time due to injury than any increase in fitness you may gain from the added effort right now.

#2 – Lack of Motivation

This can occur when a training program lacks variety or when the athlete is feeling particularly jaded. One sign of potential overtraining is when the athlete starts to feel that training is boring or monotonous. A periodised training schedule is one way of overcoming this. Other factors such as a focus on a specific event, regular time trials and the change of venue are factors that we at theinnergame™ try and use to address the motivation aspect.

#3 – Illnesses –

Minor ailments such as a sore throat or a sniffle do not need to bring your training to a halt. However it is wise to take heed of them and back off the intensity a touch. Failing to recognise a potential problem and attempting to train through it can lead to more serious problems later on.

For instance the sore throat and sniffle can develop into a full-blown cold resulting in several days of missed training and another few days of easy training. There are many athletes who have lost 4-6 weeks from training because they didn't stop soon enough and then just couldn't shake off a cold.



TRAINING ON THE COUCH

The impact of training on the couch is quite significant. The couch is also sport specific, so you will find that if you are only swimming, then your run will suffer.

Changes resulting from 3 weeks of not training.

- A decline in aerobic capacity by 8%
- A decrease in muscle capillary density by 7%
- An increase in blood lactate during exercise by 88%
- A decrease in Individual Anaerobic Threshold by 7%
- A decrease in the ability to metabolise fats during exercise by 52%

Adapted from Wilber, R.L and R.J Moffatt. 1994. Physiological and biomechanical consequences of detraining in aerobically trained individuals. Journal of Strength Conditioning Research 8:110

The LAW of Reversibility

When training consistency is broken (family, illness, work, study etc.) the body's systems revert to their previous level of conditioning. For endurance athletes, noticeable changes in fitness levels will be evident within 2 weeks of the cessation of training. Aerobic fitness declines faster than anaerobic fitness. Strength will decline by week 4.

Minimising the impact.

Everyone will find themselves on the couch from time to time. This really can't be avoided when you explore your potential. You make mistakes because you want to find out what you are capable of.

To minimize the impact of these setbacks, you must tackle the situation with a degree of intelligence.

1. Recover before returning to training. This is difficult to assess however use the golden rule, if in doubt rest.
2. When you return do so slowly, particularly in the first week or so. Build gradually back into the program.
3. Always remain positive. Don't let this be the end but rather a test.

As a great influence on my life said to me after my second bout of surgery in 6 weeks to put limbs back on my body....

“ this is just to see how bad you want it”...

Take the opportunity to find out how bad you want it. Every extraordinary achievement has a price. Training on the couch is just a deposit.

