

Recovery & Periodisation

SLEEP.EAT.TRAIN.REPEAT

Trevor Lee | Principal Physiotherapist

Physioconnect@Lakeside Pte Ltd

**SCHOOL
CLUB**

**HOW MANY TRAINING
SESSIONS IN A
WEEK?**

NATIONAL

**HOW MANY HOURS
PER SESSION?**

**What happened to
the body during
competition and
training?**

**Induce repeated
eccentric
contractions**

Tissue vibration

Muscle Damage

Leads to

**Temporary reduction
in muscular force**

**Decreased physical
performance**

**Increased risk
of injury**

**Disturbed sense of
joint position**

**Poor concentration
/ focus**

RECOVERY

**Maximize the
performance capacity**



**Optimal balance
between Training and
Recovery**

RECOVERY INTERVENTIONS

Compressive garments

Massage

Cold Water Immersion

Stretching /

Electrostimulation

Cryotherapy

Active recovery



Compressive Garments

For recovery after sports or improvement of sports performance, over 80% perceived faster recovery and over 70% perceived sports performance improvement respectively.

the use of CGs were reducing symptoms of a current sports injury (14.5%), post-exercise recovery (14.3%), primary prevention (13.6%), and sports performance improvement (8.8%).

Compression garments are used more during than after sports participation.

A person is lying on a massage table, covered with a grey towel. A therapist is performing a massage on their back. The background is a bright, yellowish-green color.

Massage

A 20–30 min massage that is performed immediately following or up to 2 h after exercise has been shown to effectively reduce DOMS for 24h after exercise

A 16% rise in the concentration of beta-endorphins in the plasma has been reported following a 30-min massage after exercise.

A man is shown from the chest up, submerged in a cold water immersion tank. He has a heart rate monitor on his chest. The water is dark and bubbling. The background is a bright, overexposed area with a green circular light fixture visible at the top left. The right side of the image has a yellow overlay containing text.

Cold Water Immersion

The improvement in overall fatigue through the use of CWI has been reported in several circumstances after training and competition (e.g. soccer tournaments or basketball matches)

An exposure of 11–15°C over 11–15 min was considered to be the optimal circumstance to obtain a positive impact of CWI after exercise to reduce DOMS

A person is shown from the chest up, standing inside a cryotherapy chamber. The chamber's interior is blue, and a digital display on the wall shows the temperature as -24.3. The person's eyes are closed, and they appear to be in a relaxed state.

Cryotherapy

Cryotherapy/cryostimulation was effective in reducing DOMS after exercise but had a rather low effect size.

There is a positive effect <6 h after exercise. However, this effect is not present after 24 h or later. Thus, cryotherapy performed 24 h after the end of exercise is ineffective in alleviating DOMS.

The background of the slide features three images. At the top, a woman with dark hair is shown in profile, leaning forward in a stretching pose. Below this, two women are standing side-by-side, each wearing a black electrostimulation suit with blue accents and various straps. They are positioned around a table that holds a piece of electronic equipment with several knobs and buttons. The overall background is a gradient of yellow and white.

Stretching / Electrostimulation

No significant influence of stretching or electrostimulation on DOMS and fatigue.

Stretching had no positive impact on DOMS. Moreover, our results at <6 h after exercise indicated that stretching might even produce DOMS,

In terms of electrostimulation, some studies showed positive effects on DOMS



Active Recovery

After a rugby contest, 1 h of low-intensity aquatic exercise had no impact on the circulating CK concentration whereas 7 min of low-intensity exercise enhanced CK clearance.

Enhanced blood flow in muscle tissue, which facilitates the removal of metabolic waste, and may contribute to a reduction in muscle lesions and pain.

When should you do/use?

Compressive garments

Before

During

After

Massage

Cold Water Immersion

Stretching /

Electrostimulation

Cryotherapy

Active recovery



Sleep

50–78% of elite athletes experienced sleep disturbances and 22–26% had highly disturbed sleep schedules

Several barriers to optimal sleep practices for athletes, such as living situations, travel, practice schedules and poor sleep hygiene, an athlete's sleep schedule is often not prioritized when training and practice schedules are developed.

There was a positive relationship between total sleep time and next-day recovery status

Recommended rest period is 8 hours.

How many competitions/races did you participate last year?

What was the average duration of each competition period?

When did you start to prepare for the competition/race?

How many competitions/races are you planning / being planned to participate?

Training Periodisation

Periodization is a process that serves as the macromanagement of an athlete's training program in the context of the annual plan.



Peak performance can only be maintained for 2-3 weeks



**Cyclic or periodic basis, Micro-, meso-, and microcycles
Extensive to intensive
High volume to high intensity) workloads**



General to specific tasks, technique / sport-specific biomotors

Phases of Periodisation

The Annual Plan						
Phases of training	Preparatory		Competitive			Transition
Sub-phases	General preparation	Specific preparation	Pre-competitive	Competitive		Transition
Macro-cycles						
Micro-cycles						

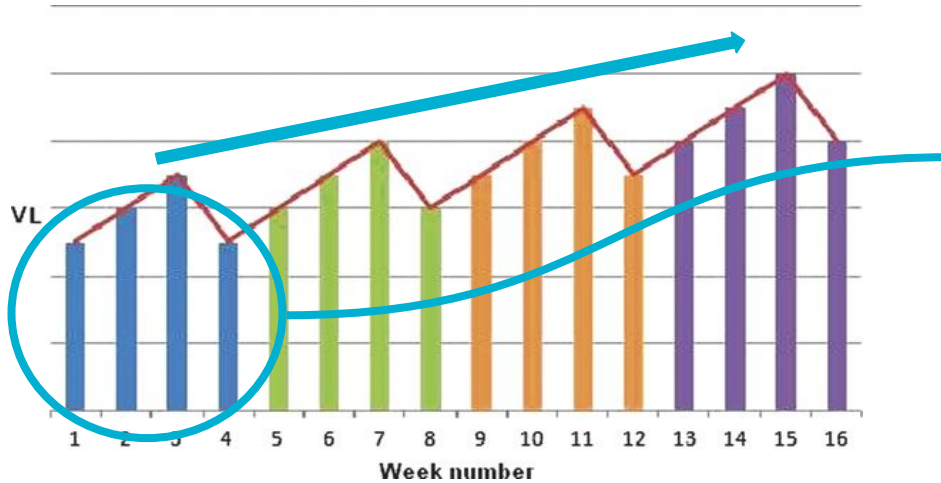
Macro-cycle

- refer to the cycle that required to achieve the **GENERAL** objectives / goals

Micro-cycle

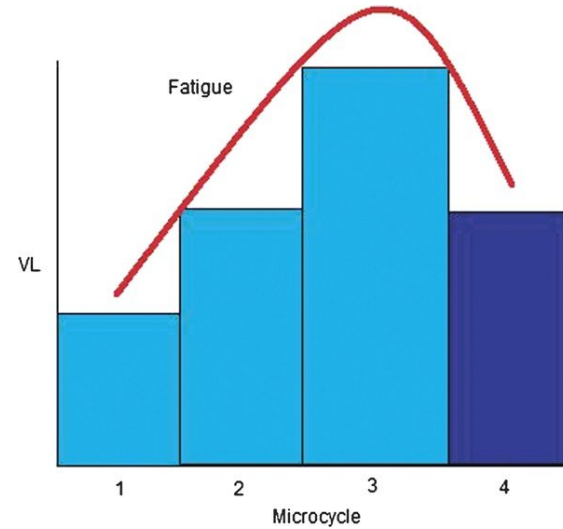
- refer to the cycle that required to achieve the **SPECIFIC** objectives / goals

Traditional Approach to periodisation of training

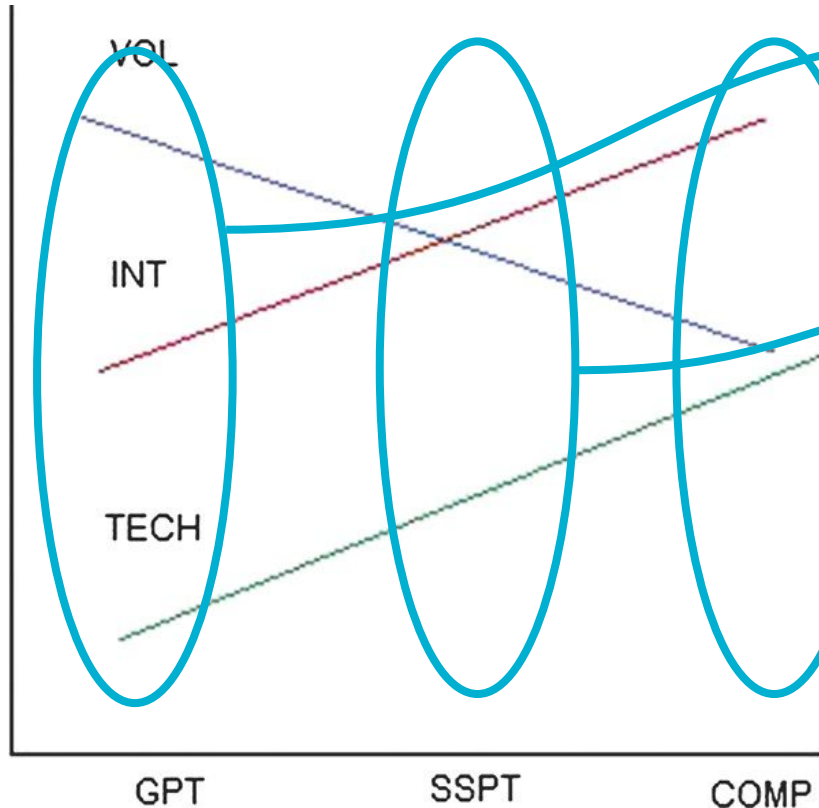


4th week:

Rest and reduce load » To prepare for the next block of training



Loading and Volume Principles

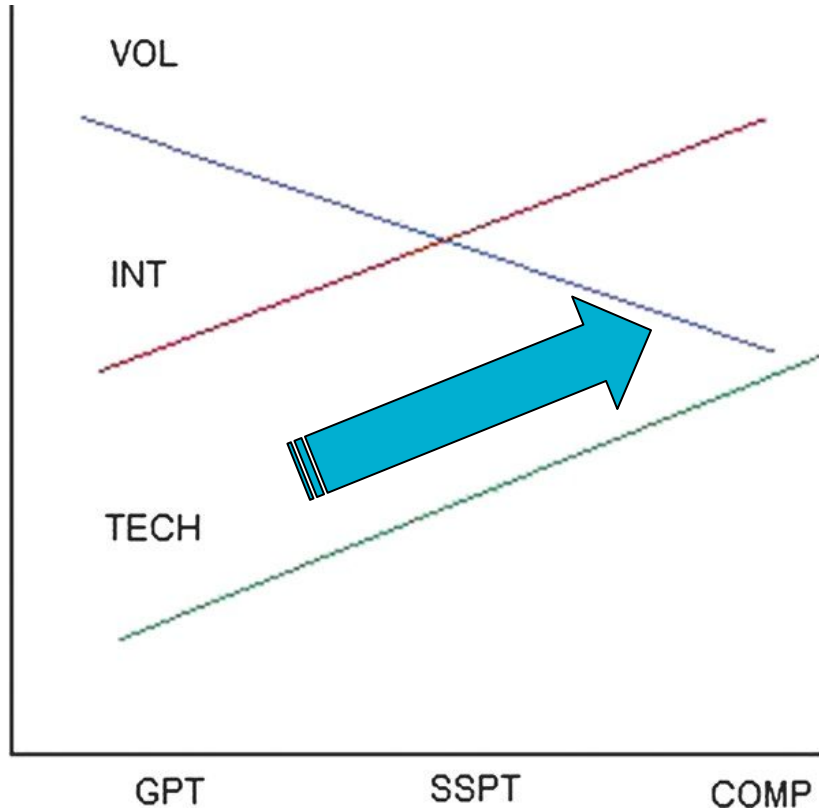


During general preparation training (GPT), the **VOLUME** should be high at the start while begins with lower **INTENSITY**.

During sports specific preparation training (SSPT), the **VOLUME** should be reduced gradually while **INTENSITY** increases .

During competition (COMP), the **VOLUME** should be reduced to the lowest while **INTENSITY** should at the max.

Loading and Volume Principles



TECHNICAL SKILLS improve over the period of training preparation.

What does **VOLUME** refer to?

- DURATION (HOURS)
- REPETITIONS / SETS

What does **INTENSITY** refer to?

- NUMBER OF EXPLOSIVE ELEMENTS
- SPEED AND POWER
- REACTION

Does this schedule look familiar?

School
Club
National

Sun	Mon	Tues	Wed	Thu	Fri	Sat
Rest	Gym Training 6pm to 8pm	Team Training 6pm to 10pm	Rest	Team Training 6pm to 10pm	Rest	Team Training 8am to 11am
*Game 2pm to 6pm	Rest	Rest	Team Training 6pm to 10pm	Rest	Rest	Team Training 2pm to 6pm
Team Training 8am to 11am	Rest	Team Training 6pm to 10pm	Rest	Gym Training 6pm to 10pm	Team Training 6pm to 10pm	Rest

Elimination

School
Club
National

Sun	Mon	Tues	Wed	Thu	Fri	Sat
Rest	Gym Training 6pm to 8pm	Team Training 6pm to 10pm	Rest	Team Training 6pm to 10pm	Rest	Team Training 8am to 11am
*Game 2pm to 6pm	Rest	Rest	Team Training 6pm to 10pm	Rest	Rest	Team Training 2pm to 6pm
Team Training 8am to 11am	Rest	Team Training 6pm to 10pm	Rest	Team Training 6pm to 10pm	Team Training 6pm to 10pm	Rest

Combination

School
Club
National

Sun	Mon	Tues	Wed	Thu	Fri	Sat
Team Training 8am to 11am *Game 2pm to 6pm	Gym Training 6pm to 8pm	Team Training 6pm to 10pm	Team Training 6pm to 10pm	Team Training 6pm to 10pm	Team Training 6pm to 10pm	Team Training 8am to 11am Team Training 2pm to 6pm
7 hours	2 hours	4 hours	4 hours	4 hours	4 hours	7 hours

Hours in Week = 168 hours
 Total Training Hours = 32 Hours
 Total Hours in Attending School and assignment = 40 Hours
 Total Hours for travelling = 21 hours
 Hours for Daily Activities = 21 hours
 Hours for rest, recovery and sleep = **54 hours (7 hours per day)**

What can you do to maximise recovery?

School
Club
National

Sun	Mon	Tues	Wed	Thu	Fri	Sat
<p>Team Training 8am to 11am</p> <p>*Game 2pm to 6pm</p>	<p>Gym Training 6pm to 8pm</p>	<p>Team Training 6pm to 10pm</p>	<p>Team Training 6pm to 10pm</p>	<p>Team Training 6pm to 10pm</p>	<p>Team Training 6pm to 10pm</p>	<p>Team Training 8am to 11am</p> <p>Team Training 2pm to 6pm</p>
7 hours	2 hours	4 hours	4 hours	4 hours	4 hours	7 hours
<p>Team Tactical High intensity</p> <p>Game - Played for 40 minutes</p> <p>Cold Water Immersion + Compressive garments</p>	<p>Gym</p> <p>8 exercises; 12 reps x 5 sets; Heavy load</p> <p>Active Recovery</p>	<p>National Training</p> <p>2 hours' Drills High intensity 2 hours' team play</p> <p>Stretching + Compressive garments</p>	<p>Club Training</p> <p>2 hours' Drills; High intensity 2 hours' team play</p> <p>Massage + Stretching + Compressive garments</p>	<p>School Training</p> <p>2 hours' Drills High intensity 2 hours' team play</p> <p>Cold Water Immersion + Compressive garments</p>	<p>National Training</p> <p>2 hours' Drills High intensity 2 hours' team play</p> <p>Active recovery</p>	<p>School Training 3 hours' Drills + set pieces + mini games.</p> <p>Club training 2 hours' Drills 2 hours' team play</p> <p>Cold Water Immersion + Compressive garments</p>

How to plan?

Look at the main event / competition

Start low and increase loading gradually

Manage your expectations

Work backwards 8 to 16 weeks with every block of 4 weeks

Have one week of low volume and intensity in every block

Include rest and sleep in the plan

If the loading increased significantly, reduce to avoid potential injuries

The interaction between the training load, subsequent fatigue and adaptation is complex and may be modulated (positively or negatively) by the **RECOVERY STRATEGY**.

Therefore, the choice of recovery techniques is of utmost importance to enable the athlete to perform during the next training session **FEELING RESTED, NOT FATIGUED, HEALTHY, and INJURY FREE.**