Recovery & Periodisation

SLEEP.EAT.TRAIN.REPEAT

Trevor Lee | Principal Physiotherapist | Physioconnect@Lakeside Pte Ltd

SCHOOL

CLUB

NATIONAL

HOW MANY TRAINING SESSIONS IN A WEEK?

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.

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.

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)

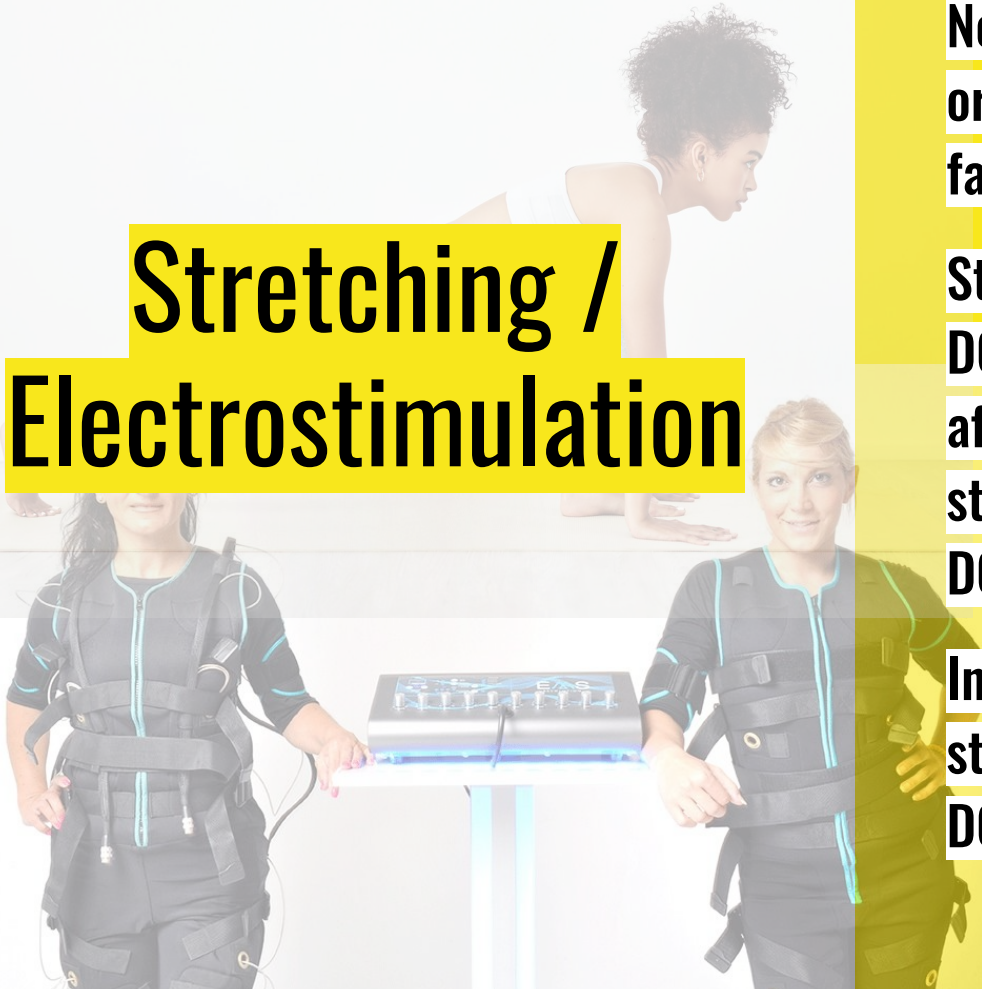
An exposure of 11–15◦C over 11–15 min was considered to be the optimal circumstance to obtain a positive impact of CWI after exercise to reduce DOMS

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.

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 … …?

	Before	During	After
Compressive garments	☐	☑	☑
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.

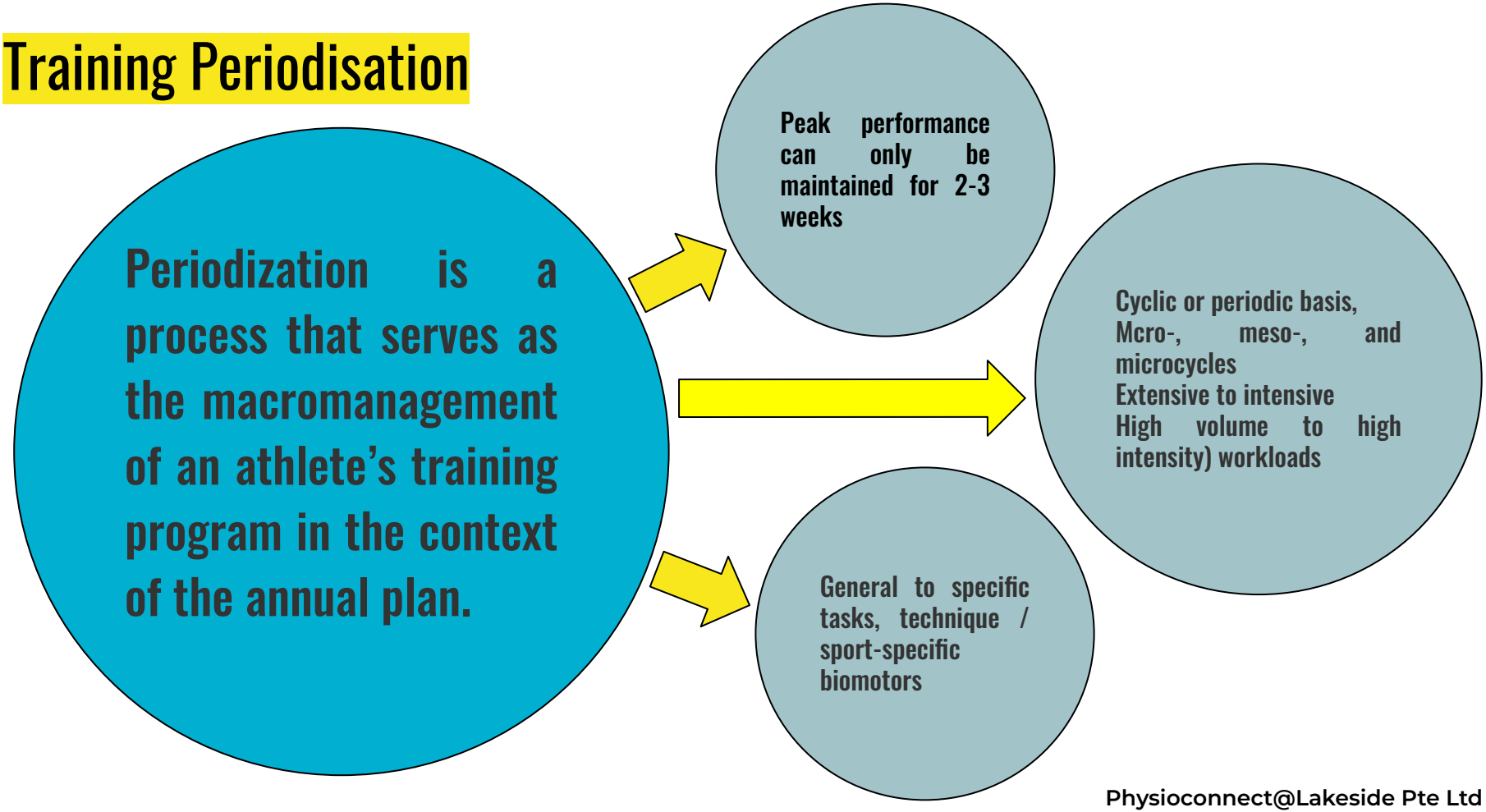
How many competitions/races did you participate last year?

What was the average duration of each competition period?

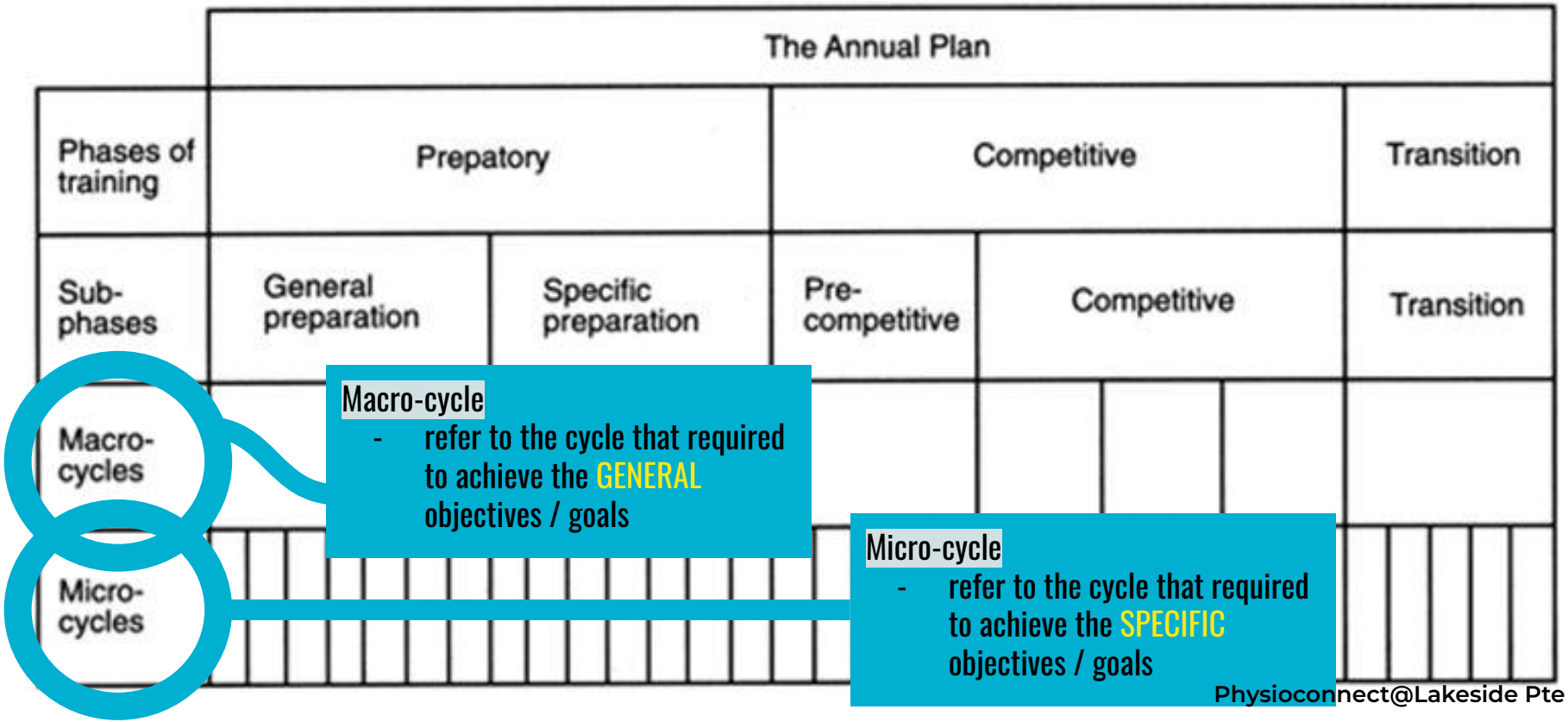
When did you start to prepare for the competition/race?

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

Training Periodisation



Phases of Periodisation



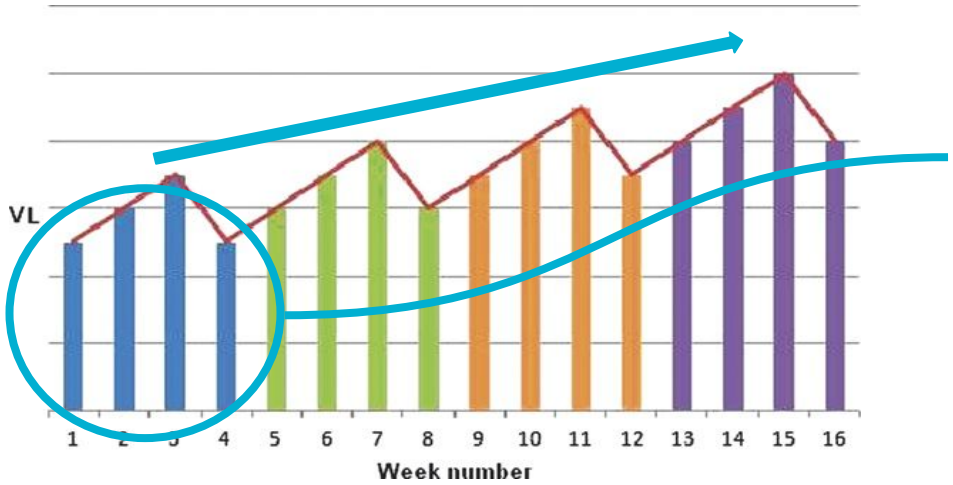
Macro-cycle

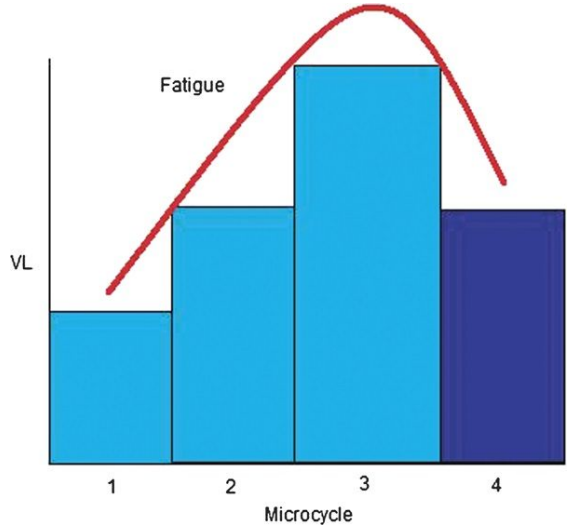
- refer to the cycle that required to achieve the GENERAL objectives / goals

Micro-cycle

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

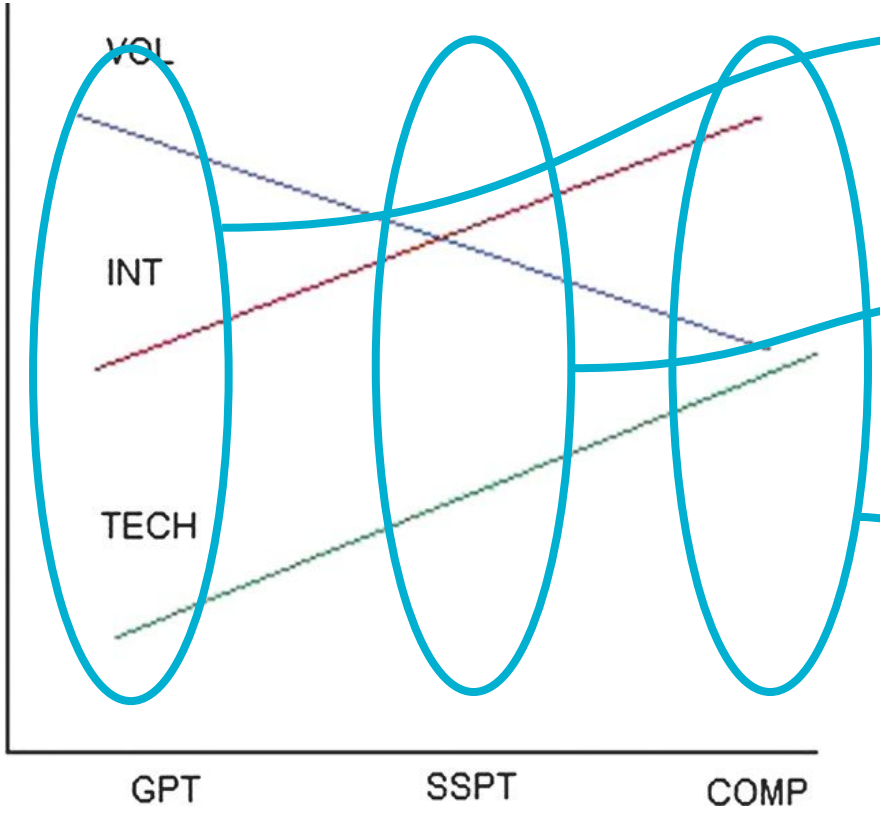
Traditional Approach to periodisation of training





4th week:
Rest and reduce load ↠ To prepare for the next block of training

Loading and Volume Principles

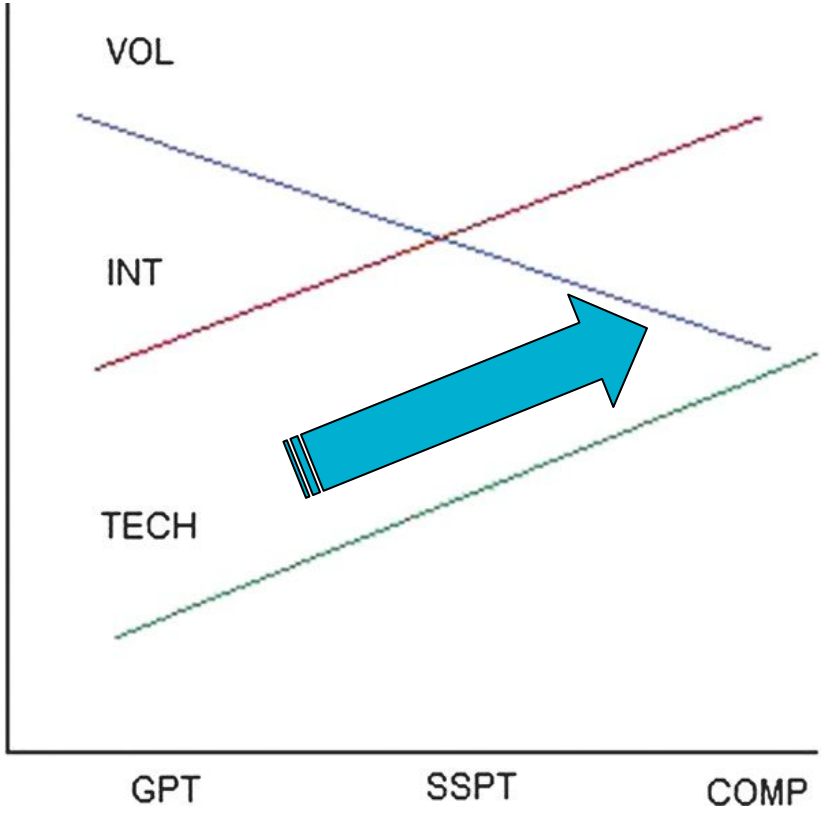


During general preparation training (GPT), the **VOLUME** should be high at the start while begins with lower **INTENSITY**.

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

During competition (COMP), the **VOLUME** should be 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	Gym 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
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
Team Tactical High intensity Game - Played for 40 minutes Cold Water Immersion + Compressive garments	Gym 8 exercises; 12 reps x 5 sets; Heavy load Active Recovery	National Training 2 hours' Drills High intensity 2 hours' team play Stretching + Compressive garments	Club Training 2 hours' Drills; High intensity 2 hours' team play Massage + Stretching + Compressive garments	School Training 2 hours' Drills High intensity 2 hours' team play Cold Water Immersion + Compressive garments	National Training 2 hours' Drills High intensity 2 hours' team play Active recovery	School Training 3 hours' Drills + set pieces + mini games. Club training 2 hours' Drills 2 [illegible] e play Cold Water Immersion + Compressive garments

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.**