What is Periodization?

It is the basis of most modern athletic training programme

The periodization theory was established by a Russian L Matveyev in 1965

Periodization is a process that divides an annual training plan into a number of smaller and more manageable phases of training (Pyne and Goldsmith, 2005)

The concept was greatly facilitated by the success of East Europeans during 60s to 80s

It is essentially based on:
an adaptation process = overload + recovery + peaking

Periodization

- Strategy to promote long-term training and performance improvements with preplanned, systematic variations in training specificity, intensity, and volume organized in periods or cycles within an overall program

Periodization

- Periodization involves shifting training priorities *from* non-sport-specific activities of high volume and low intensity *to* sport-specific activities of low volume and high intensity over a period of many weeks to prevent overtraining and optimize performance

Periodizing Your Training Plan

- Dividing up your long-term training program into discreet blocks of time and varying both training intensity and skill set from one block to the next
- Working at different levels of intensity over time improves your overall fitness, teaches you to cope with fatigue both physically and mentally, makes training more enjoyable, lowers your risk of injury and helps you to avoid the dangers of overtraining.

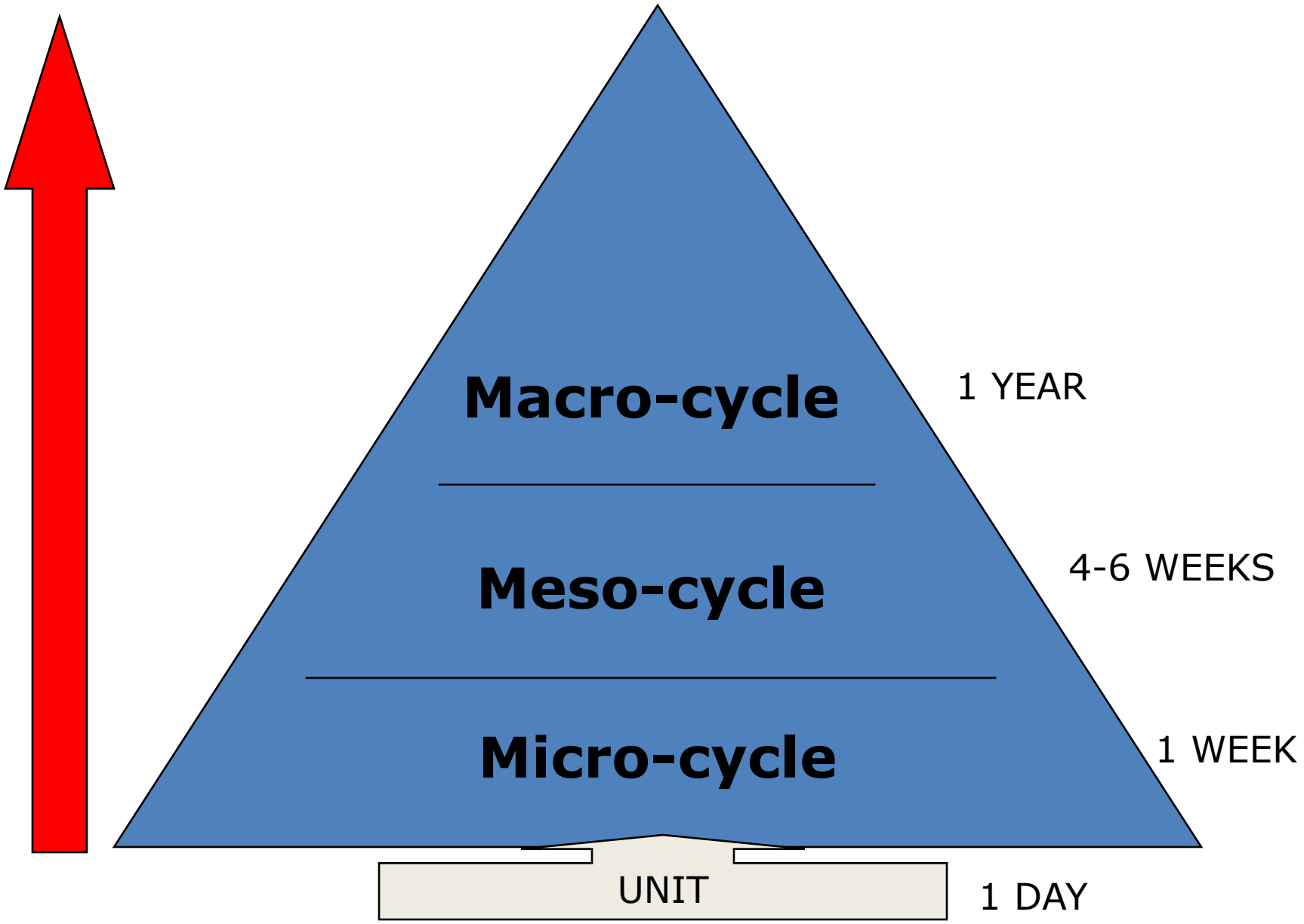
Periodizing Your Training Plan

- Periodization introduces structure and efficiency to your training plan, allowing you to make the most of each workout session
- There's no wasting time on sessions that don't help you to reach your goal, which translates to better performance on event day

Periodizing Your Training Plan

- Periodizing your training plan involves two concepts:
  - Figuring out a workable timetable that fits you and your schedule
  - Selecting the appropriate workouts for each time period that will help you achieve your fitness goals

PERIODISATION



General Framework of Periodization

Meso Cycle	The Annual Plan (eg Peaking for National Championships)				
Macro Cycle	Preparatory		Competition		Transition
Sub-phases	General Preparation	Specific Preparation	Pre-comp	Competition	Transition
Micro Cycle					

3 key questions:

How to achieve peak performance?

How to maintain peak performance?

How to transit after peak performance?

Periodization Cycles

- Three time divisions of a periodized training plan:
  - –Macrocycle
  - –Mesocycle
  - –Microcycle

Macrocycle

- Macro = large
- Typically an entire training year but may also be a period of many months up to four years (for Olympic athletes).

Mesocycle

- Meso = middle
- It is the intermediate increment of time between the largest and the smallest
- There are several mesocycles in a macrocycle
- Each mesocycle lasts anywhere from several weeks to several months

Microcycle

- Micro = small
- The smallest increment of time in the training plan, usually lasting from seven to 14 days (could last as long as four weeks)
- Two or more microcycles make up a mesocycle

Training Period	Typical Length of Time	Characteristics
Macrocycle	One training year	General plan Overall goals
Mesocycle	6-8 weeks	Detailed plan Specific goals
Training Phases	1-3 weeks	Endurance, Hypertrophy, Strength, Power
Microcycles	Daily	Fine adjustments for maintaining goals

Periodization Cycles

- Think of a workout session as the basic building block of the training plan; several workout sessions occur in each microcycle
- Mapping out a periodized training plan involves:
  - Put your goal or event on the calendar and work backward
  - Determine your macrocycle
  - Divide your macrocycle into mesocycles
  - Divide your mesocycles into microcycles
  - Plug workout details into your microcycles

Training Phases Within Cycles

- Preparatory Period
- Transitional Phase
- Hypertrophy/Endurance Phase
- Basic Strength Phase
- Strength/Power Phase
- Competition or Peaking Phase
- Active Rest Phase

Preparatory Period

- Longest phase (up to four months)
- Occurs when there are no competitions
- Emphasis of this period is to establish a base level of conditioning to increase the individuals tolerance for more intense training
- Conditioning activities begin at low intensities and high volumes; **long slow distance running, low-intensity plyometrics, and high-repetition resistance training with moderate loads**

PERIODISATION OF TRAINING

Phases 1 & 2 – PREPARATION

- Phase 1 – General Preparation
  - General fitness work
  - This phase is usually known as “training to train”
- Phase 2 – Specific Preparation
  - Specific fitness, ex. Speed, strength, skills and techniques
  - Intensity of training increases significantly
  - “training to compete”

PERIODISATION OF TRAINING

Phases 3, 4 & 5 - COMPETITION

- Phase 3 (pre-competition/ comp)
  - Beginning of competition season
  - Lots of fine tuning
  - Low level competitions
  - General training is reduced
  - Training is competition specific
- Phase 4 – Competition
  - Competitions will occur every week
  - Leagues are in full flow, races, galas, etc
- Phase 5 – Peak
  - The championship final (nationals, olympics,etc.)

What do you need to think about?

- Establish current year and long term priorities for athlete preparation.
- Consider
    - Physical preparation
    - Technical preparation
    - Tactical preparation
    - Mental preparation
    - Competitions
    - Other

What do you need to think about?

- Evaluate the previous year's plan and actual achievements (Strengths & Weaknesses).
- Consider the following
  - *Physical preparation*;
    - energy systems
    - strength/speed/power
    - flexibility
    - recovery & regeneration
    - peaking
    - others

PERIODISATION OF TRAINING

Phases 3, 4 & 5 - COMPETITION

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Transitional Phase

- This phase is typically the first week of a mesocycle and is characterized by low-intensity and low-volume training
- It is common to place these weeks following mesocycles that end with high-intensity strength or power phases
- During this week assessments to measure progress should be performed to measure progress and identify adaptations achieved in the previous mesocycle

Preseason

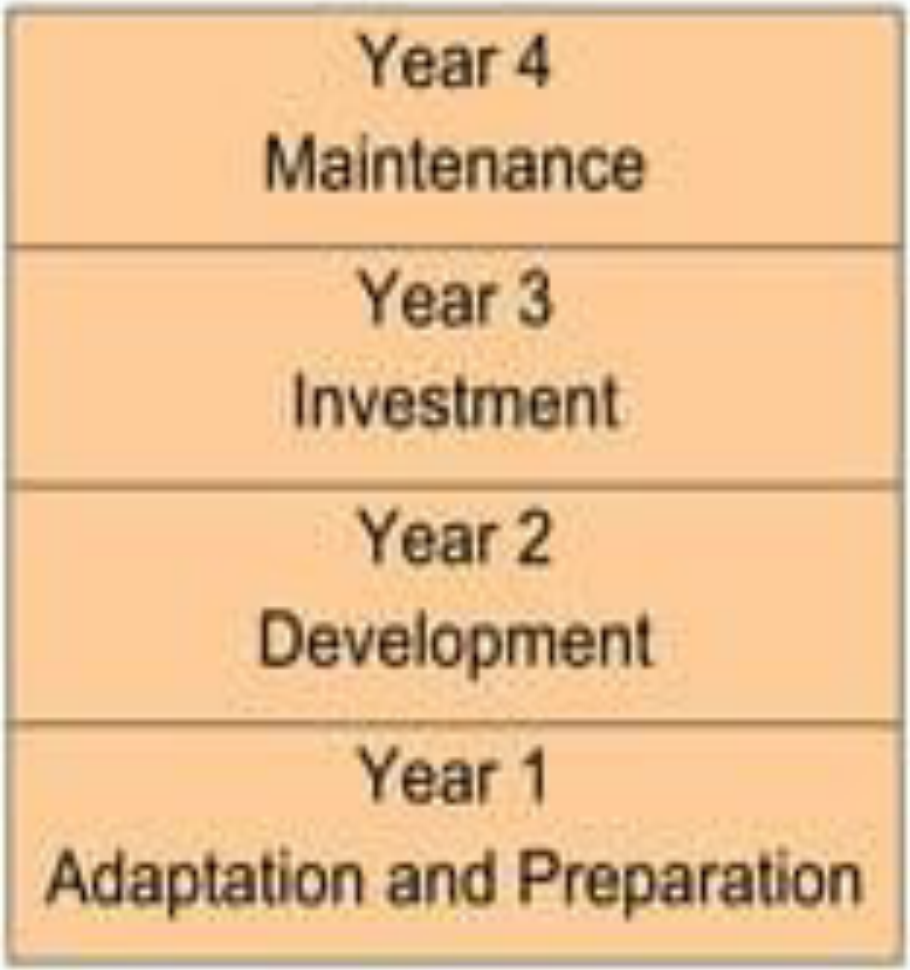
- Leads up to the first event
- Later stages of the preparatory period and first transition period

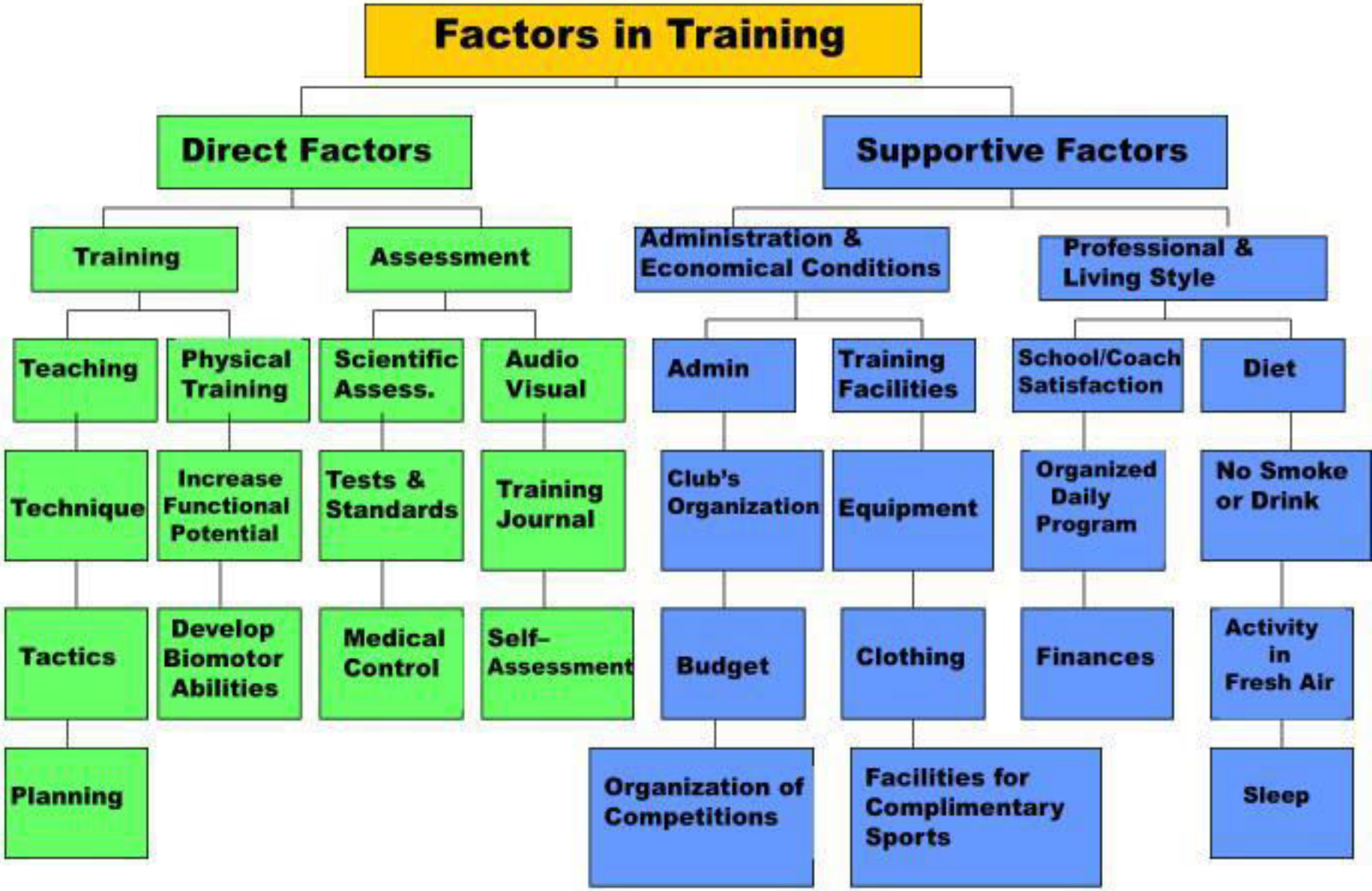
Off-Season

Period between the last event and six weeks (varies) prior to the first event of next year's season

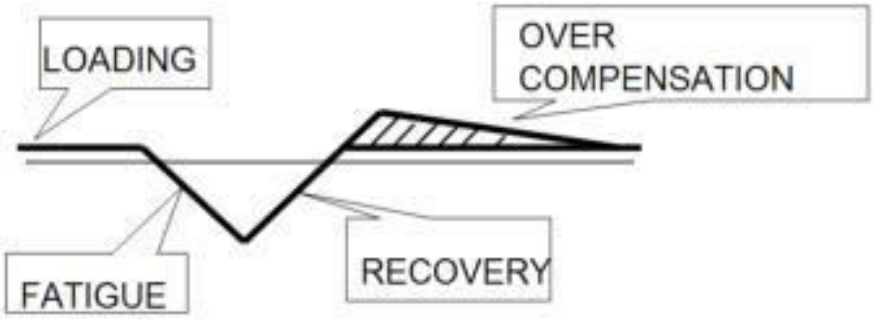
Includes most of the preparatory period

4 Year Plan


Year 4
Maintenance
Year 3
Investment
Year 2
Development
Year 1
Adaptation and Preparation

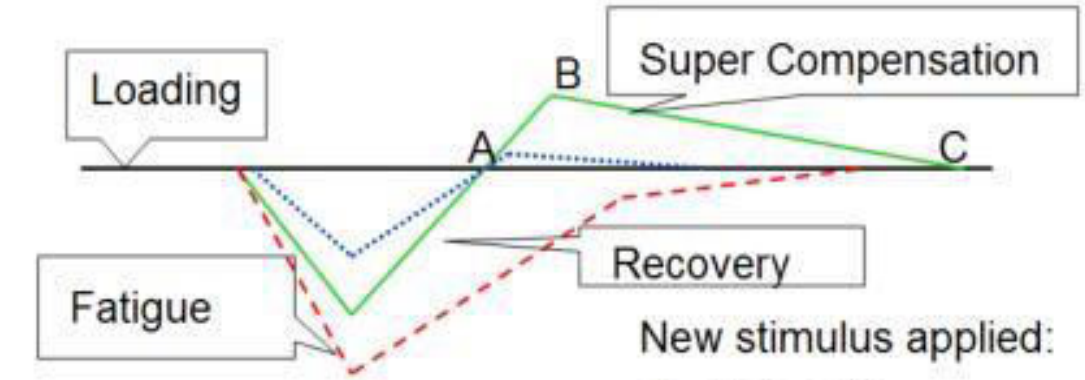

Factors in Training
Direct Factors
Supportive Factors
Training
Assessment
Administration & Economical Conditions
Professional & Living Style
Teaching
Physical Training
Scientific Assess.
Audio Visual
Admin
Training Facilities
School/Coach Satisfaction
Diet
Technique
Increase Functional Potential
Tests & Standards
Training Journal
Club's Organization
Equipment
Organized Daily Program
No Smoke or Drink
Tactics
Develop Biomotor Abilities
Medical Control
Self-Assessment
Budget
Clothing
Finances
Activity in Fresh Air
Planning
Organization of Competitions
Facilities for Complimentary Sports
Sleep

Basic Concepts



Over-Compensation is what training is all about-

- The athlete loads and recovers and you can take training to a higher level due to improved fitness.



New stimulus applied:

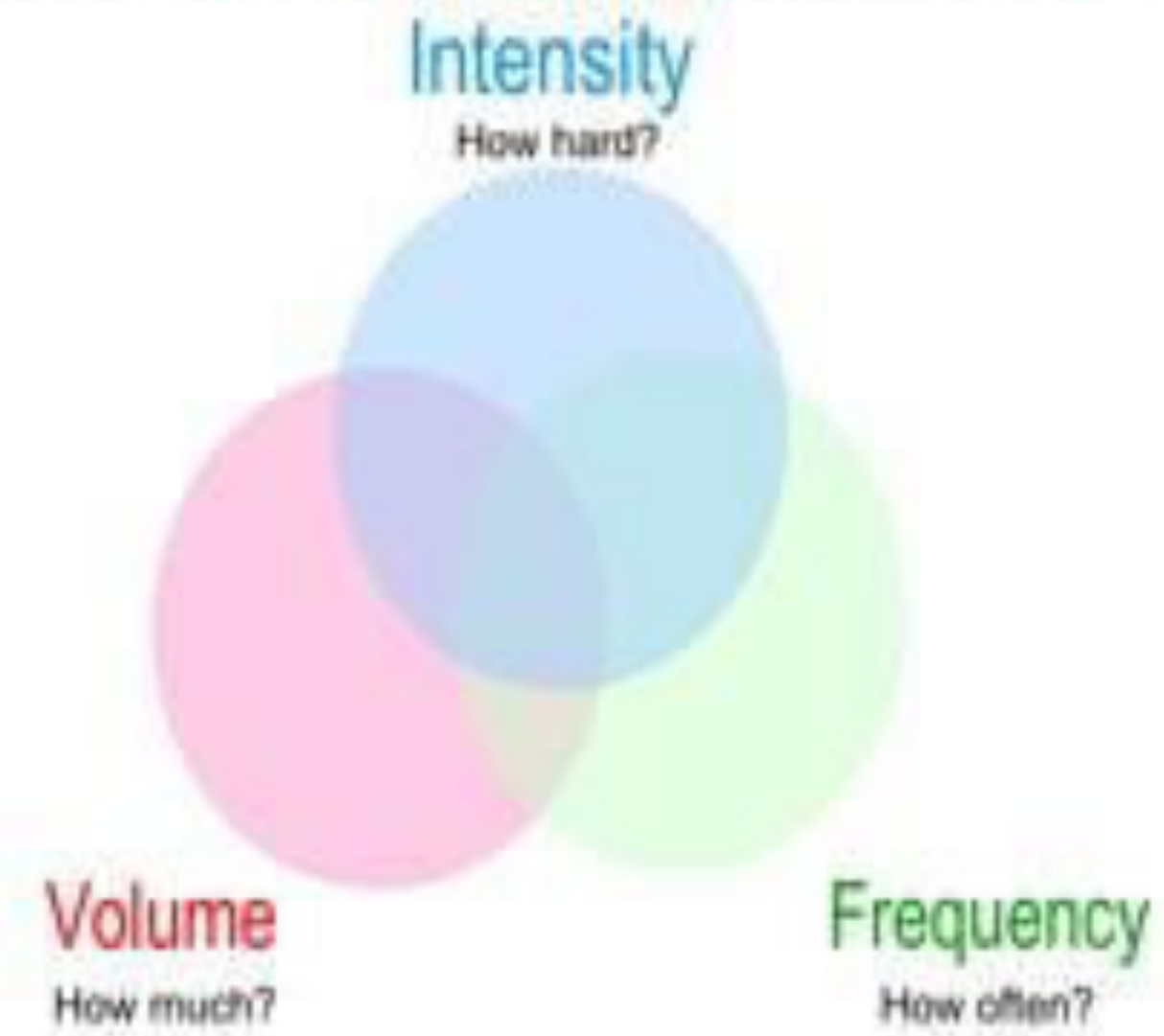
A– too early
B– on time
C– too late

Training too easy

Training adequate

Training too hard

What is Training Load?



Adaptation Process

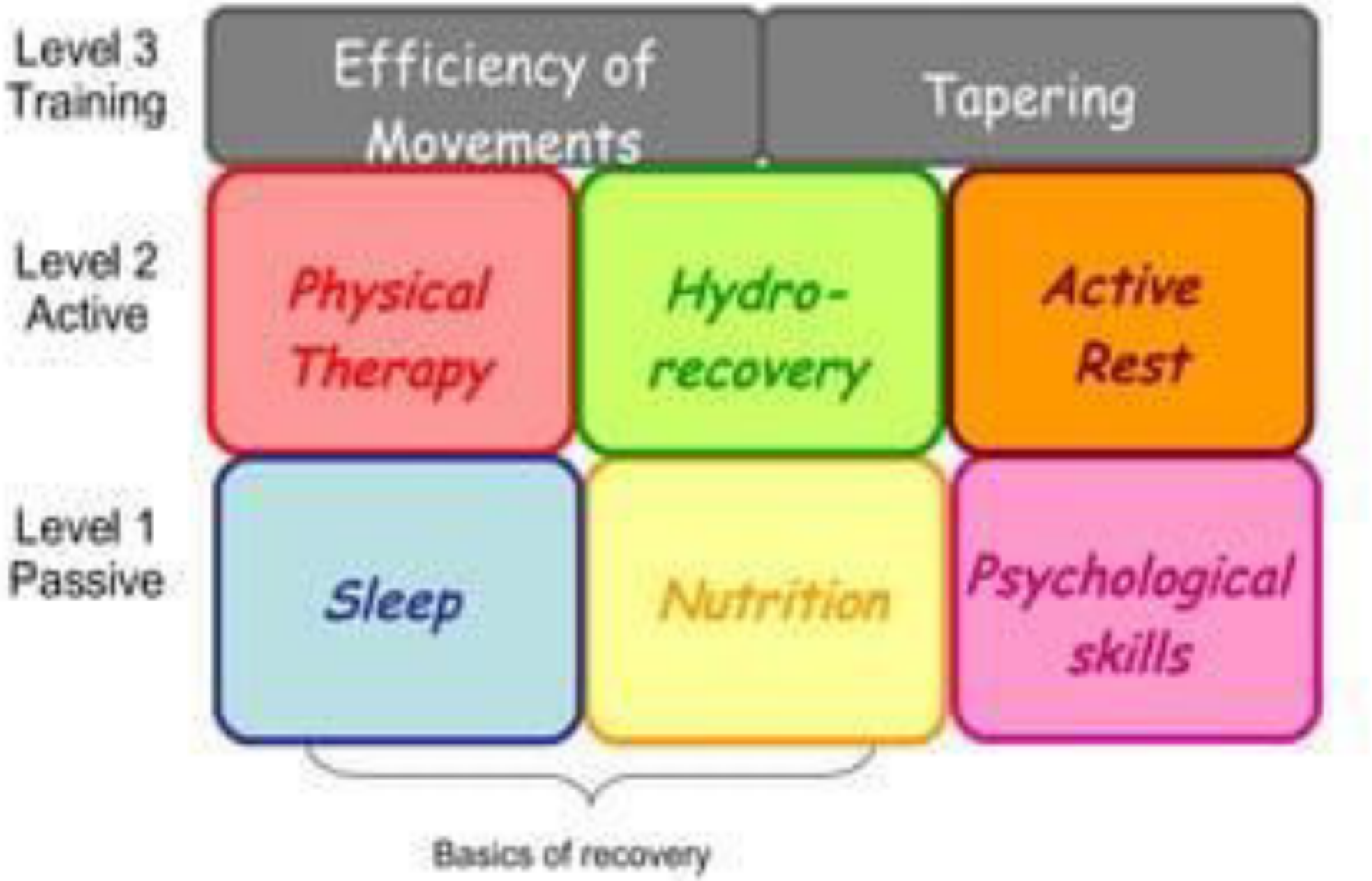
sufficient recovery leads to performance improvement

Mal-adaptation Process

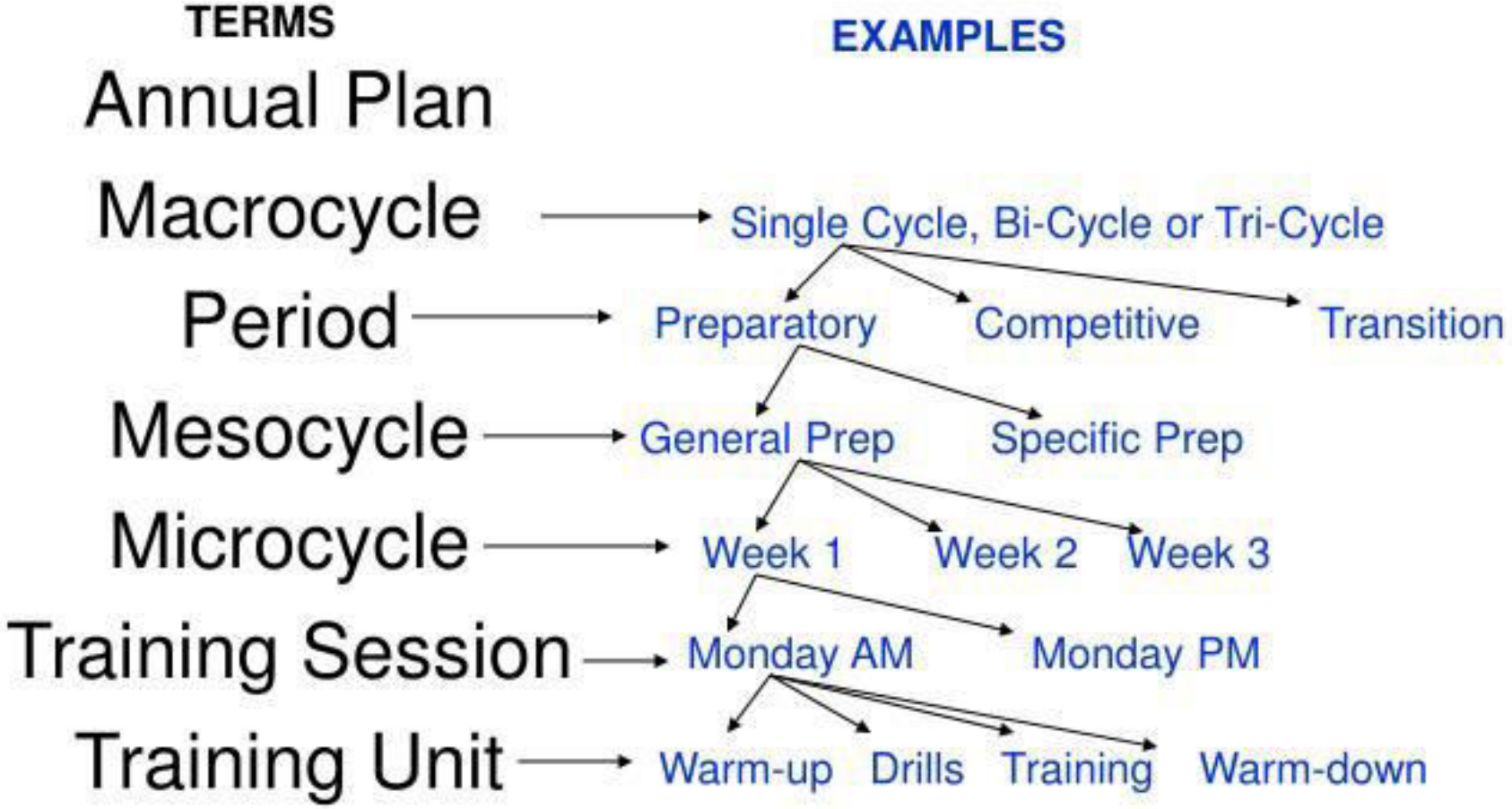
insufficient recovery may lead to chronic fatigue (eg overtraining syndrome, overuse)

The Continuum of Training

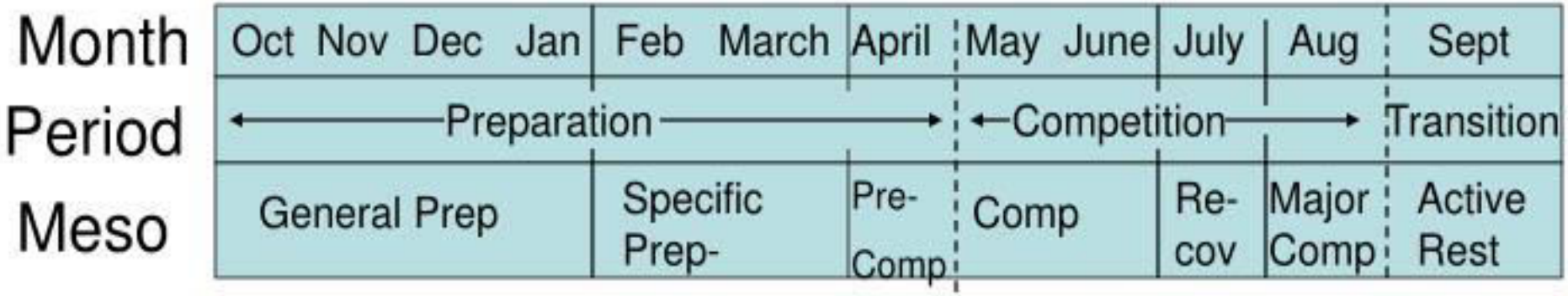
Recovery Strategies



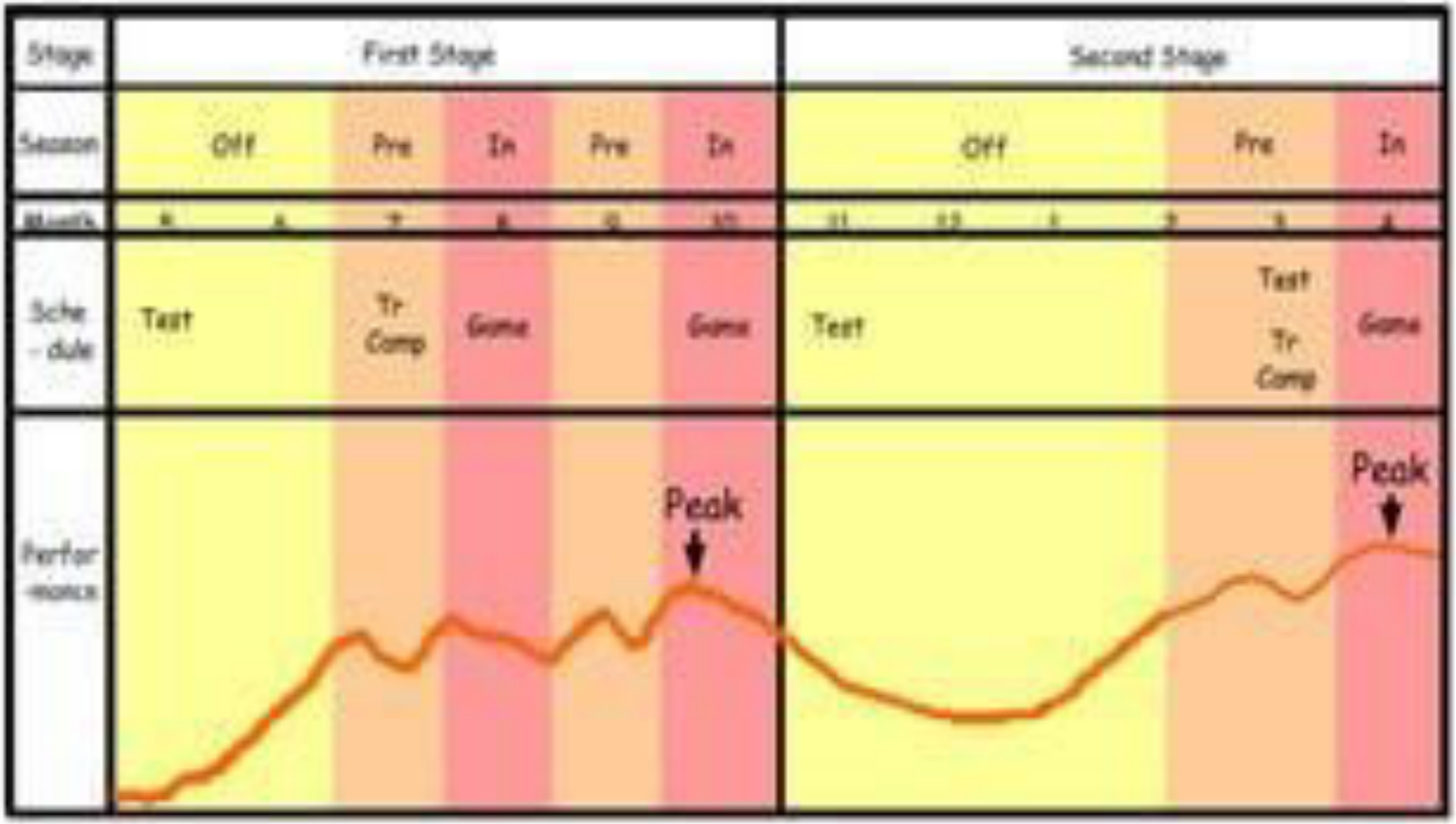
Periodization Flow



Single Cycle, Bi- Cycle or Tri- Cycles?



Yearly Plan


Stage
First Stage
Second Stage
Season
Off
Pre
In
Pre
In
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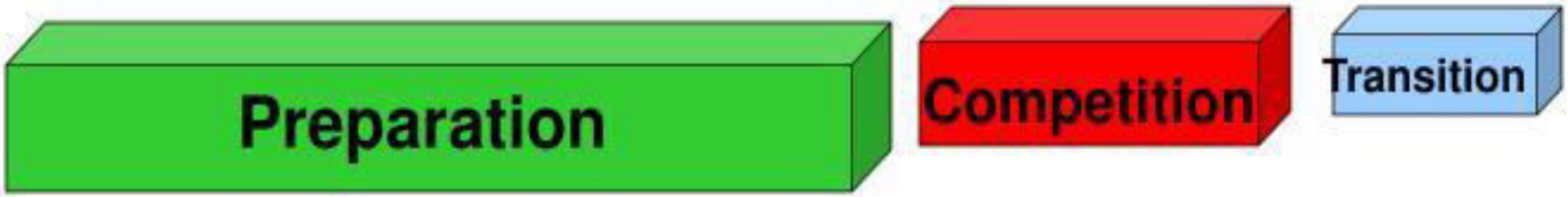
Peak

PERIODS



1) **PREPARATION**

(Adaptation--- Training to train)

2) **COMPETITION**

(Application--- Training to win)

3) **TRANSITION**

(Regeneration/Recovery)

GENERAL PREPARATION

- Dominates the schedule
- General- 50%: related-30%: specific-20%
- VOLUME HIGH ↑ INTENSITY LOW ↓
- Fitness before skills
- Improving weaknesses
- Develop max strength and endurance
- Major changes in technique or using new equipment
- Weight loss
- NO Competitions

SPECIFIC PREPARATION

- General: Related: Specific
- VOLUME HIGH ↑ INTENSITY INCREASING ↗
- Hardest working mesocycle
- Technique must be schooled and stabilized as athlete has become stronger & quicker.
- 2 a days might begin here
- Testing occurs before, during and after mesocycle.

PRE-COMPETITION

- VOLUME DECREASES ↘ INTENSITY INCREASES ↑
- Develop and stabilize competition performance
- Maintain strength & fitness levels
- Avoid imprecise patterns due to fatigue
- Mimic time schedule & nutrition plan for major comp

Pre-Competition Phase

Training Strategy	Training Programme
Intense training: training camp Tapering Simulation: environment (climate, altitude, jet lag)	Skill: specific (quick steps, change of direction); dynamic stretching Speed and Power: specific (ballistic and plyometrics); SAQ Stamina: anaerobic (interval and repetition)

- VOLUME LOW ↓ INTENSITY HIGH ↑
- General-20%: Related-30%: Specific-50%
- All physical capabilities should be at their highest levels
- Unloading occurs before competition
- Avoid panic and changing loads or intensities- sudden shifts are harmful to athlete.

Competition Phase

Training Strategy	Training Programme
Peaking: performance analysis Recovery: Sleep; nutrition; hydro-recovery; compression Review: adjustment	Skill: specific (quickness); dynamic stretching Speed and Power: overspeed; overload Stamina: (anaerobic)

TRANSITION

- Gentle reduction of all loading
- Must be active– you do not want to lose all previous work
- Lots of cross-training
- Gets the athlete prepared for General Prep phase.

Daily Plan

6.00	AM	Rise and Shine
6.30	AM	Morning training
8.00	AM	Change / Breakfast
8.45	AM	Assembly
9.00	AM	School
11.55	PM	Lunch and School
2.00	PM	Free time / Rest
4.00	PM	Evening training
6.30	PM	Change / Dinner
7.30	PM	Supervised study time
9.00	PM	Free time
10.30	PM	Sleep

Sports Life Management

THE CHART OF THE ANNUAL PLAN

TYPE:

YEAR: COACH:

DATES	MONTHS	
	WEEKENDS	
CALENDAR OF COMPETITIONS	DOMESTIC	
	INTERNATIONAL	
	LOCATION	
PERIODI-ZATION	TRAINING PHASE	
	STRENGTH	
	ENDURANCE	
	SPEED	
	MÁCRO-CYCLES	
	MICRO-CYCLES	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

TRAINING FACTORS

——— VOLUME

– – – – INTENSITY

• • • • • PEAKING

■ PHYS. PREP.

▥ TECH. PREP.

▤ TACT. PREP.

▨ PSYCH. PREP.

%		
100	1	
90	2	
80	3	
70	4	
60	5	
50		PEAKING
40		
30		
20		
10		

5 Principles of Training

1. Progressive Overload

2. Reversibility (Use/Disuse)

3. Specificity

4. Individuality

5. Variability (Hard/Easy or Recovery)