# PRINCIPLES OF PERIODIZATION

GOAL SETTING AND PLANNING YOUR TRAINING THROUGHOUT THE YEAR

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# OVERVIEW

- Principles of training
- Goal setting
- Devising your training plan to incorporate the above = Periodization

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# PRINCIPLES OF TRAINING

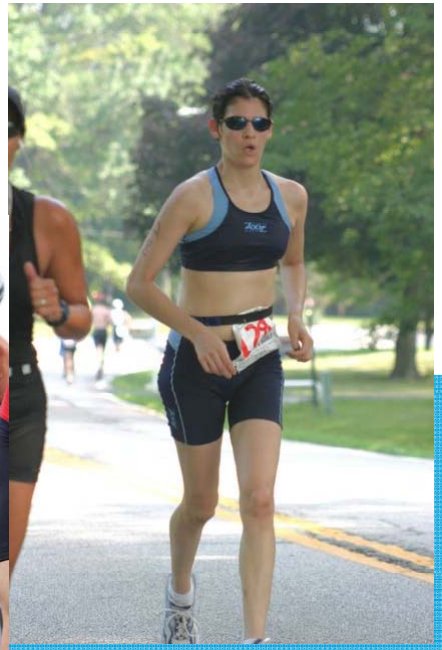
1. Individual Differences
2. Specificity
3. Adaptation
4. Progressive overload
5. Reversibility
6. Recovery

A periodized program applies all of these principles in a structured manner with the aim of optimizing the balance between training stress and recovery

# INDIVIDUAL DIFFERENCES

Each individual has a unique anatomy, physiology, psychology & history

Individual training response



# ADAPTATION

Is the way the body responds to the training program

The parts of the body that are active stressed during exercise adapt to those stresses, leading to an increase in performance

| The main adaptations that occur in response to triathlon specific training are: |
| --- |
| Decreased resting heart rate |
| Increased glycogen stores in the muscle tissue |
| Increased efficiency in oxygen uptake |
| Increased red blood cells and blood volume) |
| Increase in mitochondria |

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# SPECIFICITY

- Is the least complex training principle
- ‘In improve one’s ability to perform a certain task involves working specific muscles or organ systems at an increased resistance’ (Foss et al., 1998)
- We don’t train for triathlon by doing gymnastics
- You are what you train for’
- In order for a training program to be effective it must be specific for the sport and position of the performer.

Examples of specificity related to Triathlon:

- Swimming
- Cycling
- Running

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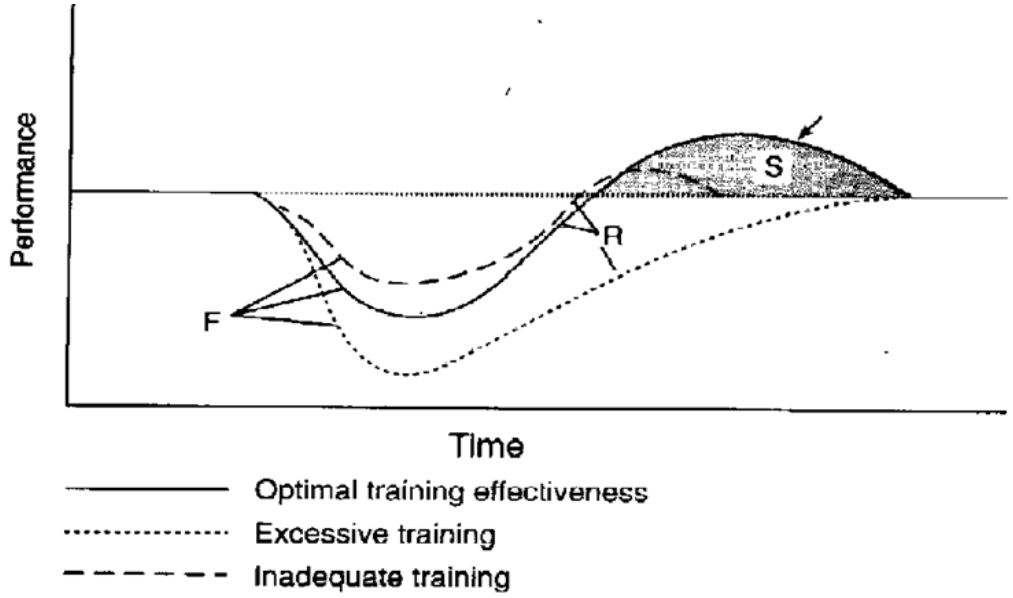
# PROGRESSIVE OVERLOAD

- In order to adapt (or improve) we must overload the system so that it is forced to adapt to the new load
- This makes our body systems stronger/more efficient
- But … if we get it wrong, we breakdown and get performance decreases
- Training gains are maximized up to a critical point where training becomes excessive
- Below the critical point, it's the Under training zone; above it's the overtraining zone.



# REVERSIBILITY

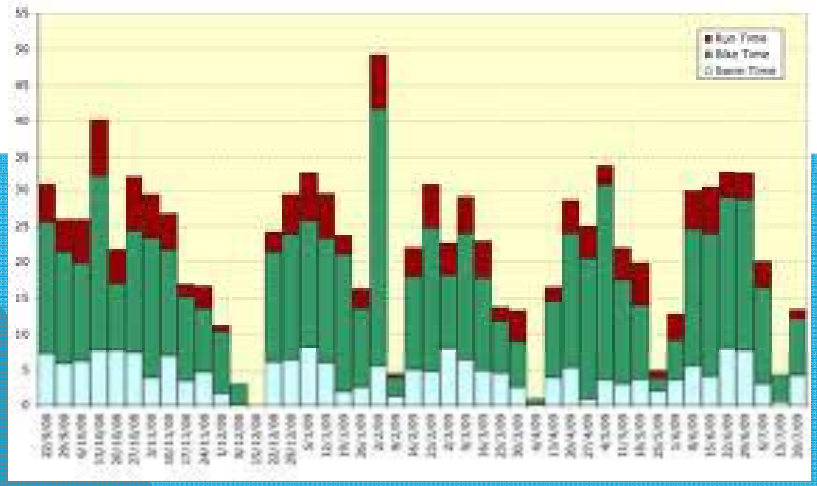
- The adaptations that take place as a result of training are all reversible

- Adaptations to endurance training can be lost more quickly than it takes to achieve them while strength gains are lost more slowly

| Length of time not training (complete stop) | Detraining effects |
|---|---|
| Days 1-2: | Beta-endorphin and adrenaline levels drop. Mood is affected negatively. |
| Days 3-5 | Muscles lose elasticity. Aerobic capabilities drop off 5% by the fifth day off. |
| Days 7-9: | Body's ability to use oxygen (VO2 max) drops by 10%. Less oxygenated blood is pumped with each beat. |
| Day 10: | Body's metabolic rate begins to drop. Eat less or you'll gain weight. |
| Days 11-13: | Maximum heart rate and cardiac output decline by 15%. Muscle tone sees first appreciable loss. |
| Days 14-16: | Mitochondrial activity (energy production) in muscle cells begins to decrease rapidly. Loss of muscle mass, strength and metabolic rate occurs. |
| Days 17-19: | Body becomes less efficient at thermoregulation. You are forced to spend excess energy cooling off. |
| Days 20-21: | VO2 max has dropped by about 20%. |
| Days 22-25: | 10-15% loss of muscle mass and that lost mass is replaced by fat. |
| Days 27-29: | Muscle strength drops by as much as 30%. |

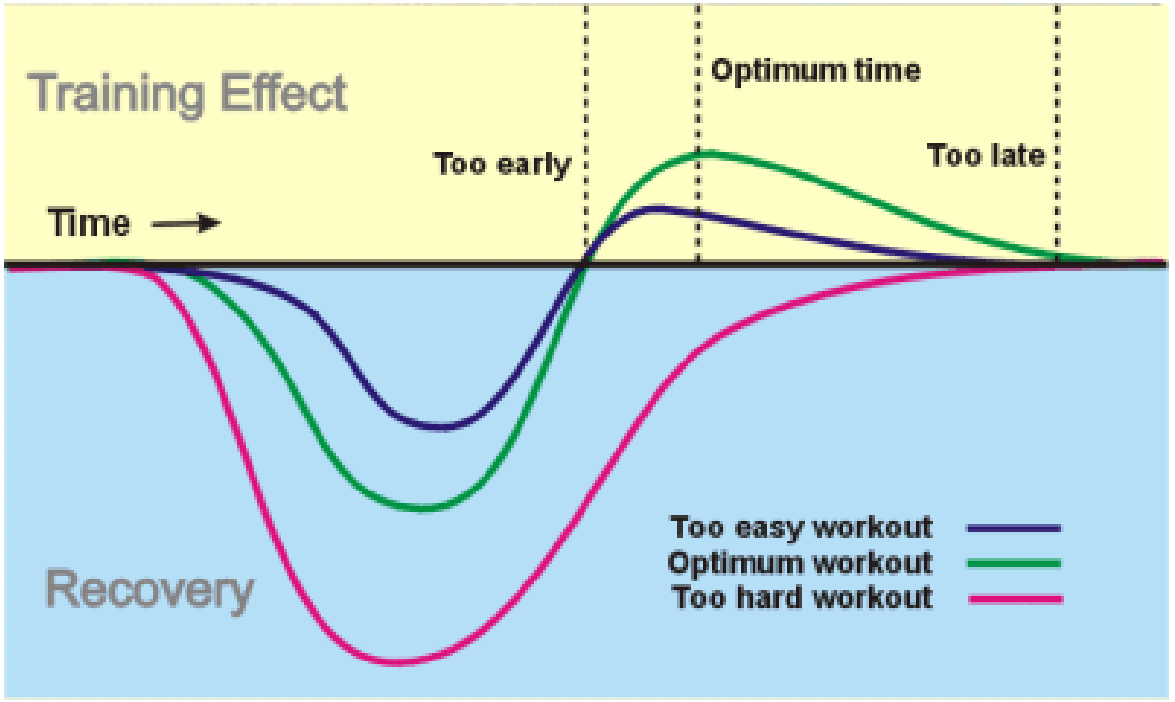
# RECOVERY

- One of the most overlooked principles of training
- It is during the recovery sessions that the adaptations to training take place!
- Recovery sessions may not necessarily mean complete rest
- Periods of lower intensity activity will allow the body to adapt without increasing the stress placed on it. These periods are excellent opportunities for work on technique and tactics.



# SUPER-COMPENSATION

Applying the principles effectively will lead to improved performance

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# GOAL SETTING

Specific
Measurable
Adjustable
Realistic
Time Framed

**Macrocycles**
- Season to years

**Mesocycles**
- Week to months

**Microcycles**
- Session to week

Importance of goal setting:

✓ Focus- Directs your training

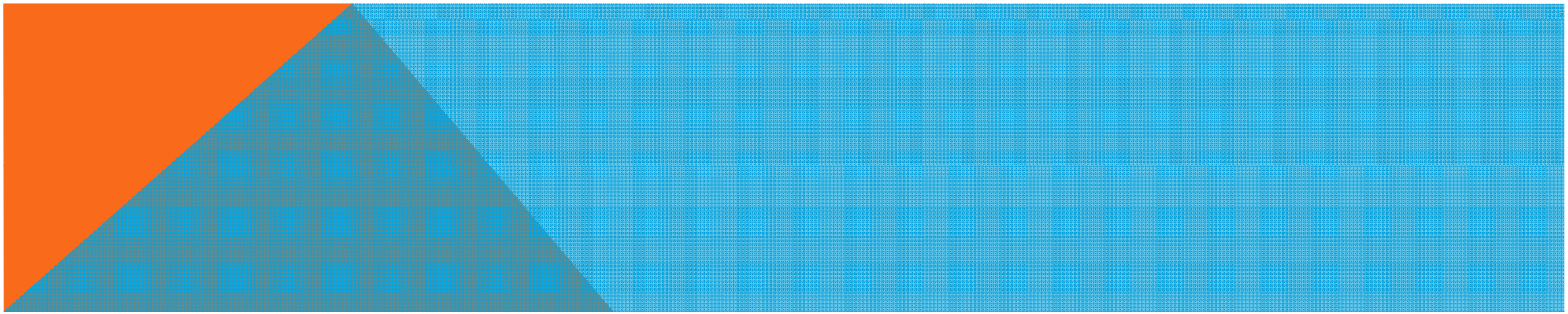
✓ Help you maintain your motivation when training gets stale, when you're hurting or get tired.

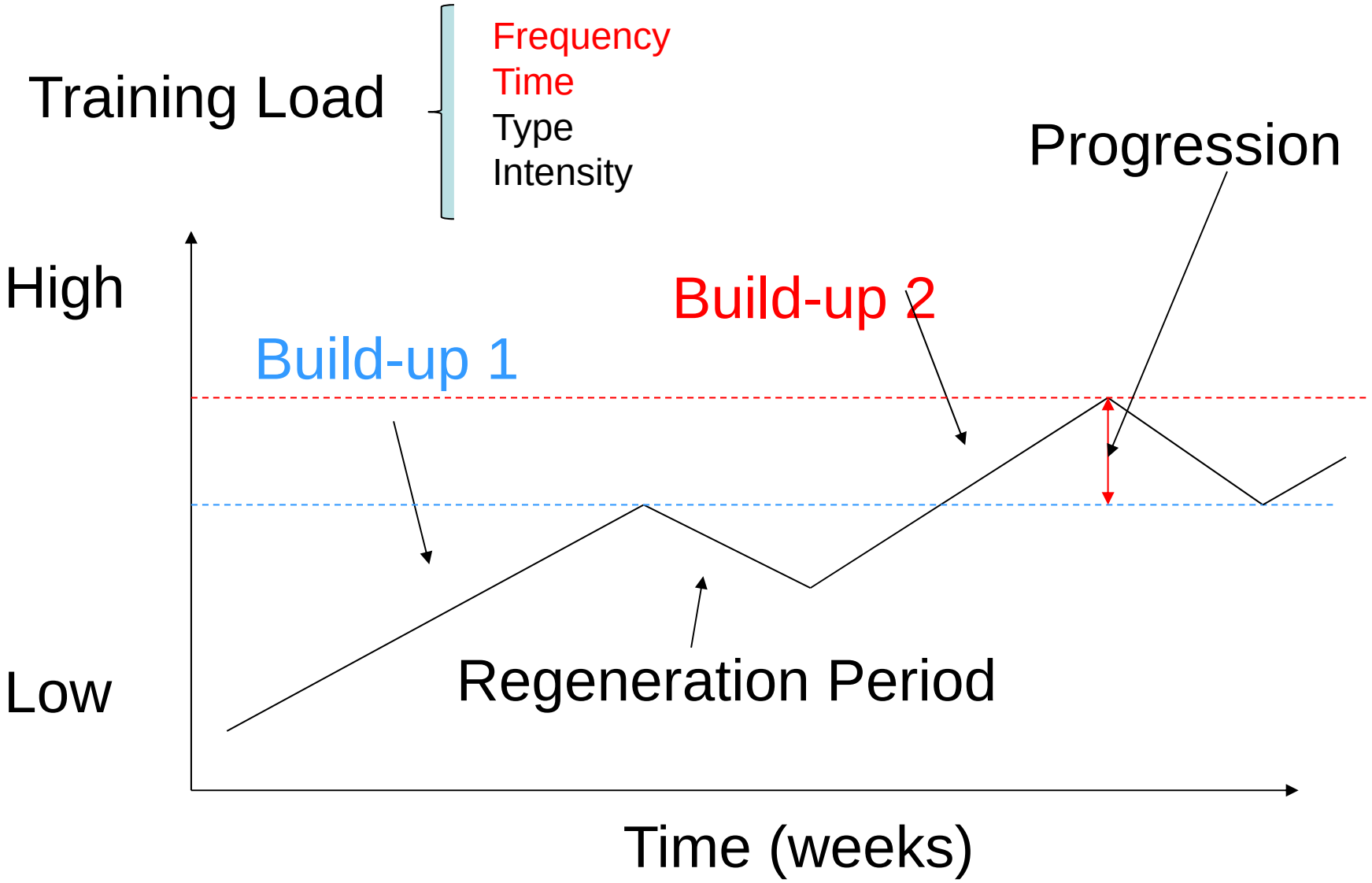
✓ Help increase your confidence. When you have a goal and training goes well, you will go into any race more confident knowing that you've put in the hours on the bike, run and swim and gained fitness.

✓ You are able to plan in advance how to achieve your goal

# PERIODIZATION

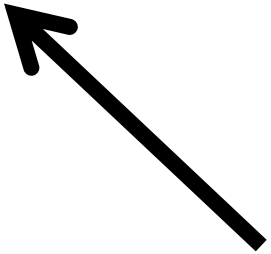
- ✓ Systematic planning of training and competitive activities
- ✓ Peak for particular events
- ✓ Develop and overlap specific components of fitness at different stages of training and competition season
- ✓ Recognizes that a regeneration period after a heavy training load will allow athletes to progress to a higher level at a later training date



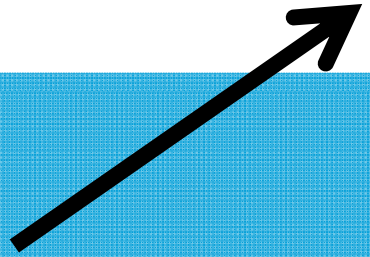

Training Load
Frequency
Time
Type
Intensity
Progression
High
Build-up 2
Build-up 1
Low
Regeneration Period
Time (weeks)

| Mesocycle 1: General preparation phase | Divisions |
|---|---|
| 8 weeks | 2 weeks: Preparation |
| Low Intensity training with a High Volume | 6 weeks: Base Conditioning |
| Non-Specific focus | |
| **Mesocycle 2: Specific preparation phase** | |
| Building phase | Power development |
| 32 weeks | Speed development |
| Increasing Intensity and Decreasing Volume | Hill climbing and sprinting skill development |
| Starting to develop cycling specific skills and fitness components. | |

| Mesocycle 3: Pre-Competition |
|---|
| 2 weeks out from your "A" race. |
| June/July/August - depends on when your race is. |
| Peaking for the race season or specific event. |
| Intensity should be at its highest, with the Volume being reduced, but at a level sufficient enough to keep the engine strong. |
| Specific skills are the focal point here. |
| **Mesocycle 4: Competition:** |
| The duration of this is dependent on your schedule. |
| If you have a 4 month season, you might have to develop a "mini' periodized progression within the main program to facilitate the length of your competitive season. |
| Race season is all about maintaining the fitness you have developed through the year, remaining injury free and honing your racing skills |
| Racing will result in you becoming "racing fit". |



| Mesocycle 5: Transition |
|---|
| 4 - 6 weeks |
| Post racing season. |
| A time for regeneration and restoration. |
| Cut both the Volume and Intensity down noticeably. |
| Focus on maintaining a good body weight, doing activities other than cycling (perhaps some mountain biking or Hiking). |
| If you have injuries or other issues, this is the time to deal with them, before moving back into the **Preparation Mesocycle.** |



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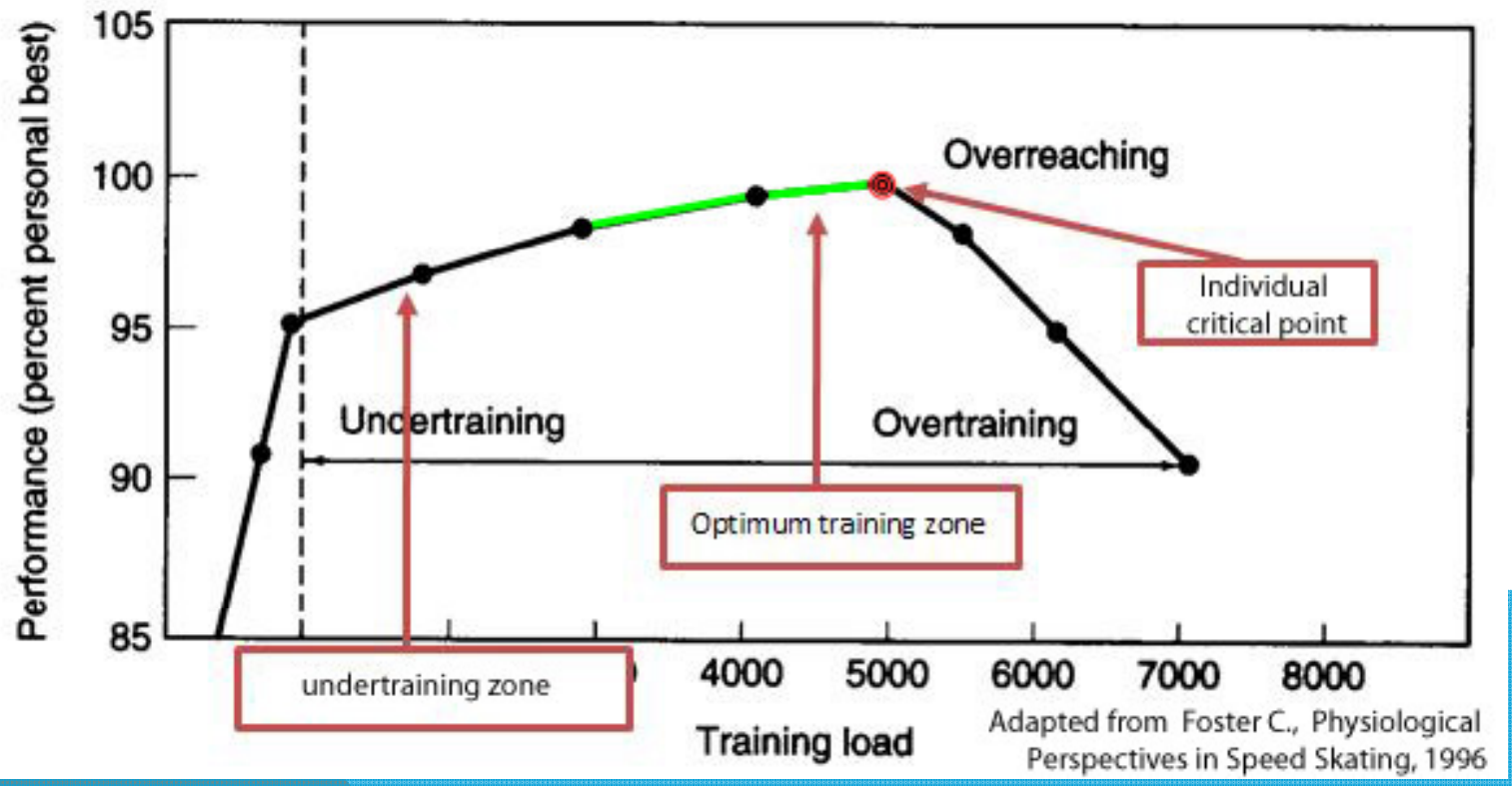
# INCORPORATING REST

Long, medium and short term



# Periodized program

| Months | Sept-Nov | Dec-Jan | Feb-March | April-May | June-July | August |
|---|---|---|---|---|---|---|
| Phases | **TRANSITION** | **PREPARATION** | | | **COMPETITION** | |
| | | General | Specific | | Pre-Competition | Competition |
| Macro-cycle | 1 | 4 | 2 | 2 | 2 | 6 |
| Number of Micro-cycles | 4 | 12 | 4 | 4 | 4 | 3 |
| Goals | **Active rest, Psychological regeneration, Attend to chronic medical problems, Analysis of past performances & planning for next training year.** | **Endurance (high volume), Technique changes** | **No competition, Sport-specific technique increased, More Variety, Energy output peaks at end of phase, Intensity increases towards end of phase, Flexibility, mental skills, nutrition** | | **Specialised training, Emphasis on intensity, Speed & Power, Sport-specific development at end of phase, Competition schedule starts to dictate training** | **Maintain fitness capacities through intensity, Competition schedule starts dictating training, Taper, Tactical and mental focus.** |

# VOLUNTEER…

- Set goal
- Work backwards
- How can you use the club sessions?


Suggestions
Questions
Problems