Building A Yearly Training Plan: The High Performance Process

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Canadian Sport Centre Atlantic
About Me

• Master’s Degree in Exercise Physiology – University of Calgary
  – **Canadian Sport Centre – Atlantic**
    • Lead, Strength & Conditioning / Physiologist
      – Planning and monitoring
      – Testing
      – Strength program design and implementation
      – Sports include: Canoe/Kayak, Sailing, Women’s Hockey, Gymnastics, snowboard, basketball, volleyball, boxing,
  
  – **Dalhousie University**
    • Lecturer, School of Health and Human Performance
Know what matters, measure what matters, improve what matters

- Matt Jordan
High Performance Process

Pillars of Performance (*Know what matters*)

- Technical
- Tactical
- Physical
- Mental
- Health / Lifestyle

Gap Analysis (*Measure what matters*)

- Results Comparison
- Gap Identification
- Gap Mitigation Strategy
- Data Collection

Performance Pathway (*Improve what matters*)

- Deliberate Practice
- Yearly Training Plan
Pillars of Performance – Gymnastics example

**Technical**
- Beam upgrade
- Bars upgrade
- Vault Consistency
- Floor Routine

**Tactical**
- Pre Competition
- Warm UP
- Skill difficulty vs probability of success

**Physical**
- Speed
- Strength
- LB Power
- Specific Endurance

**Mental**
- Mental Skills
- Compete level
- Arousal Control
- Self Belief
- Performance State

**Health / Lifestyle**
- Injury Status
- Sleep
- Nutrition
- Life balance
- Healthy behaviors
High Performance Process

### Pillars of Performance *(Know what matters)*

<table>
<thead>
<tr>
<th>Technical</th>
<th>Tactical</th>
<th>Physical</th>
<th>Mental</th>
<th>Health / Lifestyle</th>
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</table>

### Gap Analysis *(Measure what matters)*

| Results Comparison | Gap Identification | Gap Mitigation Strategy | Data Collection |

### Performance Pathway *(Improve what matters)*

| Deliberate Practice | Yearly Training Plan |
## Gap Analysis and Mitigation

<table>
<thead>
<tr>
<th>Gap</th>
<th>Focus Area</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top End Speed</strong></td>
<td>• Increase number and quality of speed sessions</td>
<td>• Periodized strength and speed plan</td>
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<tr>
<td>• Identified gap based on literature with European champ data, consultation</td>
<td>• Increase maximal strength (carryover to speed)</td>
<td>• Weekly speed monitoring (in and out of gymnastics club)</td>
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![Image of an athlete running with a resistance sled in a gym setting.](attachment:image.png)
Results Comparison

Difficulty Score = 6.3

Difficulty Score = 5.8
Top End Speed

5 m Peak Velocity

New Baseline
Baseline
Top End Speed

![Graph showing Top End Speed with Vault Score and Speed plots. The graph includes data points from November 22 to January 31, with peaks and troughs indicating variation in performance.](image-url)
High Performance Process

Pillars of Performance *(Know what matters)*

- Technical
- Tactical
- Physical
- Mental
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Gap Analysis *(Measure what matters)*

- Results Comparison
- Gap Identification
- Gap Mitigation Strategy
- Data Collection

Performance Pathway *(Improve what matters)*

- Deliberate Practice
- Yearly Training Plan
Pillars of Performance – Canoe/Kayak example

Technical
- Achieving the block
- Rotation
- Locking the blade
- Distance per stroke

Tactical
- Race Plan
- Warm Up
- Crew Boat
- Stroke Rate

Physical
- Aerobic Capacity
- Strength
- Power
- Power Endurance

Mental
- Attention Focus
- Distraction Control
- Arousal Control
- Resilience

Health / Lifestyle
- Injury Status
- Sleep
- Nutrition
- Life balance
- Healthy behaviors
## High Performance Process

### Pillars of Performance (*Know what matters*)

<table>
<thead>
<tr>
<th>Technical</th>
<th>Tactical</th>
<th>Physical</th>
<th>Mental</th>
<th>Health / Lifestyle</th>
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### Gap Analysis (*Measure what matters*)

- Results Comparison
- Gap Identification
- Gap Mitigation Strategy
- Data Collection

### Performance Pathway (*Improve what matters*)

<table>
<thead>
<tr>
<th>Deliberate Practice</th>
<th>Yearly Training Plan</th>
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Gap Analysis and Mitigation

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<th>Focus Area</th>
<th>Strategies</th>
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<tbody>
<tr>
<td>• <strong>Aerobic Capacity</strong></td>
<td>• Increase number and quality of km paddled in specific training zones</td>
<td>• Polarized periodization</td>
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<tr>
<td>• Gap identified based on German Data and known association with 1000m performance</td>
<td></td>
<td>• Frequent monitoring of “GA1” practices</td>
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**Strategies**

- Polarized periodization
- Frequent monitoring of “GA1” practices
Gap Mitigation

Mens Kayak - v at 3 mmol/L

\[
y = -113.1x + 6.6497
\]

\[R^2 = 0.5758\]
Gap Mitigation

• PLANNING

• Polarized Training Model (Yu, 2012; Stoggl, 2014; Seiler, 2009)
  – 80% / 20% intensity distribution (LOW / HIGH)

• Block Training (Issurin, 2008, 2010)
  – Need to focus on relatively few athletic qualities at a time
Specific aerobic capacity
PERIODIZATION
Periodization

• What is training?

• YTP (*Yearly Training Plan*)
• Multi Month / Yearly Plan (*Macrocycle*)
• Monthly Plan (*Mesocycle*)
• Weekly (*Microcycle*)
What is training?

A series of stimulus leading to performance improvement

Figure 3-2. The law of overload.
What is training?

Training load needs to be appropriate to result in change

Figure 3-4. Different training loads have different effects on the athlete’s recovery.
What is training?

Stringing appropriate training loads and recovery periods together result in improvement

Figure 3-3. Principle of progressive overload—optimal improvement.
What is training?

- Each MACRO, MESO, MICRO, and SESSION results in this pattern

![Graph showing the law of overload with axes labeled Stimulus, Fatigue, Overcompensation, and Fitness.](image)

**Figure 3-2. The law of overload.**

*Training is bad for you. It is only after recovery you can reap the benefits*

- Iñigo Mujika, 2011
Deliberate Practice

• No association between time spent and performance – (Ericsson & Lehmann, 1996), (Ericsson, Krampe & Tesch-Römer, 1993)

• Deliberate practice must involve providing feedback using accurate measures against a known standard

— Influencer: The New Science of Leading Change (Grenny et al. 2014)
Yearly Training Plan

- Periodization is a method of alternating training loads to produce peak performance for a **competitive event**. (Siff, 2002)

- Depends on:
  - Age (training & chronological)
  - Training (injury) History
  - Needs of sport
  - Needs of individual
KEY TERMS / PRINCIPLES

• Progressive overload

• Training Load
  – Volume
    • Minutes, reps, attempts, km, etc
  – Intensity
    • Proximity to max effort, density, pressure

• Variation
  – Heavy training, recovery, mainter

• Specificity

• Individuality
Yearly Training Plan

1. Identify IMPORTANT COMPETITIONS & less important
2. Identify the Competition, Preparation and Recovery (time off) periods.
3. Determine the mesocycles and microcycles within those periods, as well as periods of maintenance
4. Gap analysis *(know what matters)*
5. Determine the goals of the cycles
   – What/when
6. Determine how you are going to monitor improvements
Yearly Training Plan

• Identify Competitions
• Plan macro/meso around them

MACROCYCLE

MESOCYCLE

MICROCYCLE

General Prep
Specific Prep
Pre Comp
Main Comp
Transition

Volume (1-10)  Intensity (1-10)
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**Primary Objectives**

**PHYSICAL**

1. Aerobic Fitness
2. Strength
3. Speed

**MENTAL**

1. Improve distraction control
2. Improve positive self talk

**TECHNICAL / TACTICAL**

1. Reduce Walks
2. Improve Velocity

**LIFESTYLE / NUTRITION**

1. Injury Prevention
3. Performance nutrition
2. Monitor recovery and training

**Goal Setting**

1. Improve distraction control
2. Improve positive self talk

**Arousal Control**

1. Improve distraction control
2. Improve positive self talk

**Focus**

1. Improve distraction control
2. Improve positive self talk

**Primary Objectives**

**Primary Objectives**

1. Injury Prevention
3. Performance nutrition
2. Monitor recovery and training
## Macrocycle Plan

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</table>

**Primary Objectives**

1. General Fitness
2. Strength
3. Speed

**Anatomical Adapt**

- General Fitness
- Strength
- Power
- Speed
- Aerobic
- Anaerobic
Mesocycle plan

• Must track items!
  – Volume
    • Minutes, reps, attempts, km, etc
  – Intensity
    • Proximity to max effort, density, pressure

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# Microcycle Plan

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**TOTAL LOAD**

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## MESO2

**TOTAL LOAD**

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Logging

• Collect information
  – Crucial to be able to accurately assess the results of a training program
• Training time
  – How long?
• Sessional RPE
  – How hard?
• Sleep
  – How much?
• Subjective rating of recovery
  – How do you feel?
High Performance Process

Pillars of Performance (Know what matters)

- Technical
- Tactical
- Physical
- Mental
- Health / Lifestyle

Gap Analysis (Measure what matters)

- Results Comparison
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Performance Pathway (Improve what matters)

- Deliberate Practice
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