

STRENGTH AND CONDITIONING OF ELITE ATHLETES

CROATIAN STORY AT THE WORLD CUP

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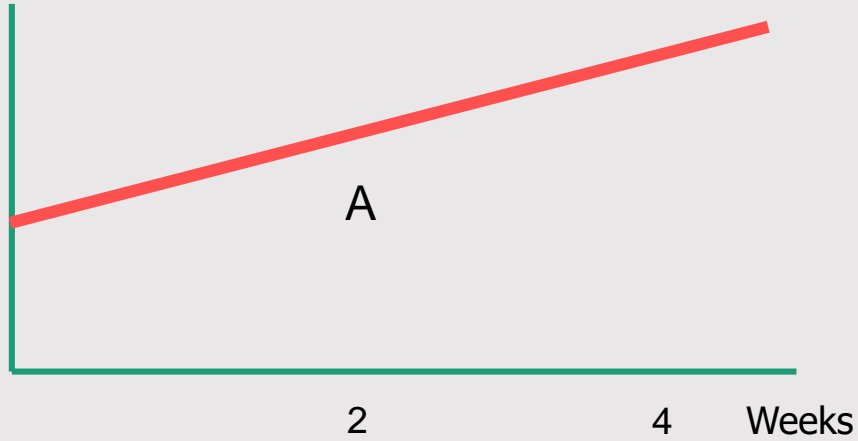
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Which abilities my athlete needs?

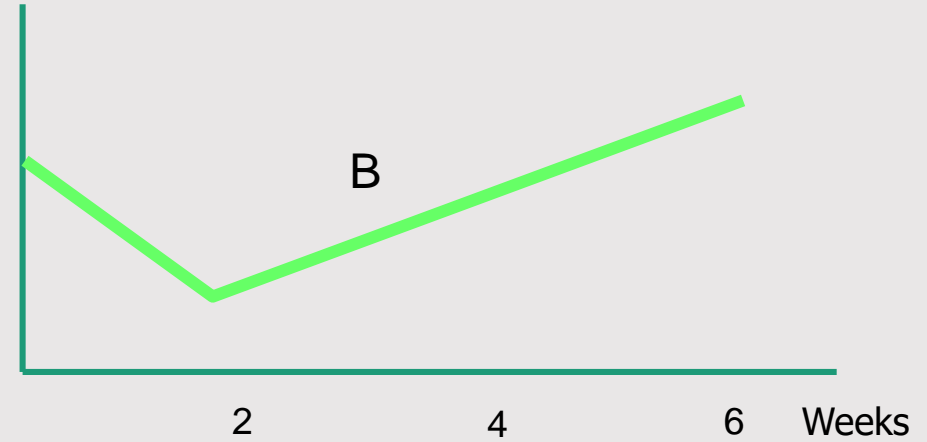


Our job revolves around **STRESS AND ADAPTATION**

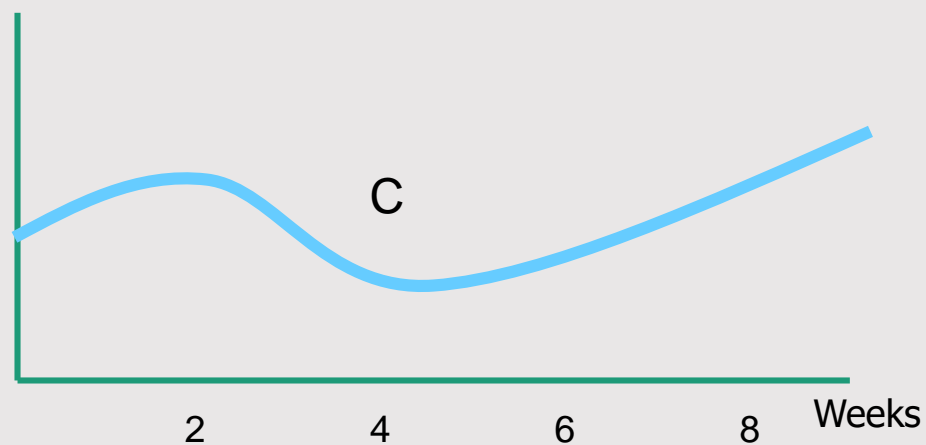
Fitness level



Fitness level



Fitness level



Solutions...

- Individualization
- Selection
- Control



Preparation and tournament

- 52 days
- 2 days off
- 39 team training sessions
- 30 individual morning training sessions
- 9 games (2 friendly and 7 official)
- 13 flights

Testing and training monitoring procedures

- Neuromuscular (FMS+)
- GPS
- **Sport Intelligence System** (performance specialist, personal trainers, club S&C coaches, medical doctor, physiotherapist, assistant football coaches, head coach)

Individual approach

INJURY PREVENTION

LOAD MANAGEMENT

Internal/External
Acute:Chronic
Warm up (prep)

PHYSICAL ABILITIES

Warm up (prep)
Mobility/Stability
Movement mechanics
Endurance
Strength/Power

LIFESTYLE

Rest/Sleep
Recovery protocols
Nutrition
Supplementation

GENETICS

What do we asses?

DEFICITS

Mobility/Stability/Balance



COMPENSATIONS

Lumbar, pelvis, knee,...

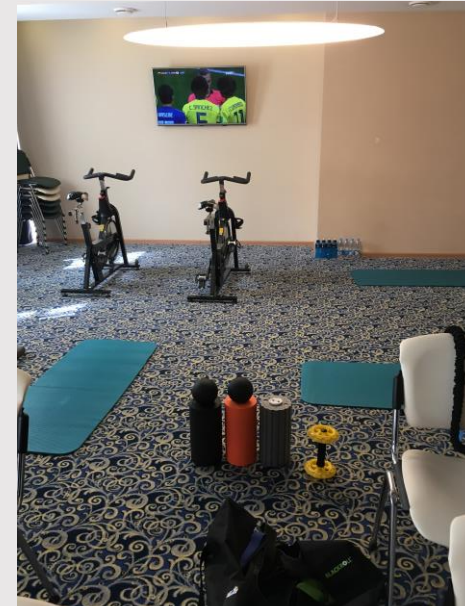
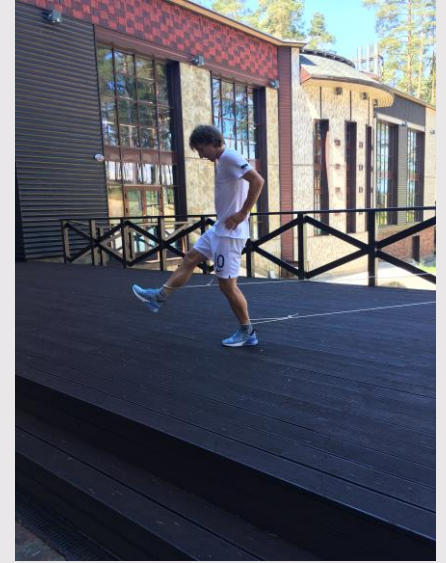


IMBALANCES AND ASSIMETRIES

Front/Back, Left/Right,...



- **INDIVIDUALIZED CORRECTIVE PROGRAM** (training history and diagnostics)
- **TEAM WARM-UP** (everybody gets everything important)



Strength training

- Individual approach!
- Development vs. Maintenance (tournament vs. season)
- Exercise selection based on movement, not muscle
- 10 progressive individual training session
- Creating individual strategies – game day -5, -4,...



Speed and agility training

- Every day except recovery (3-20min)
- During preparation – progression in complexity
- Tournament – choose fixed sets (G -3, -2, -1)
- Control of football session (GPS – sprint distance, HI distance, acc/decc)

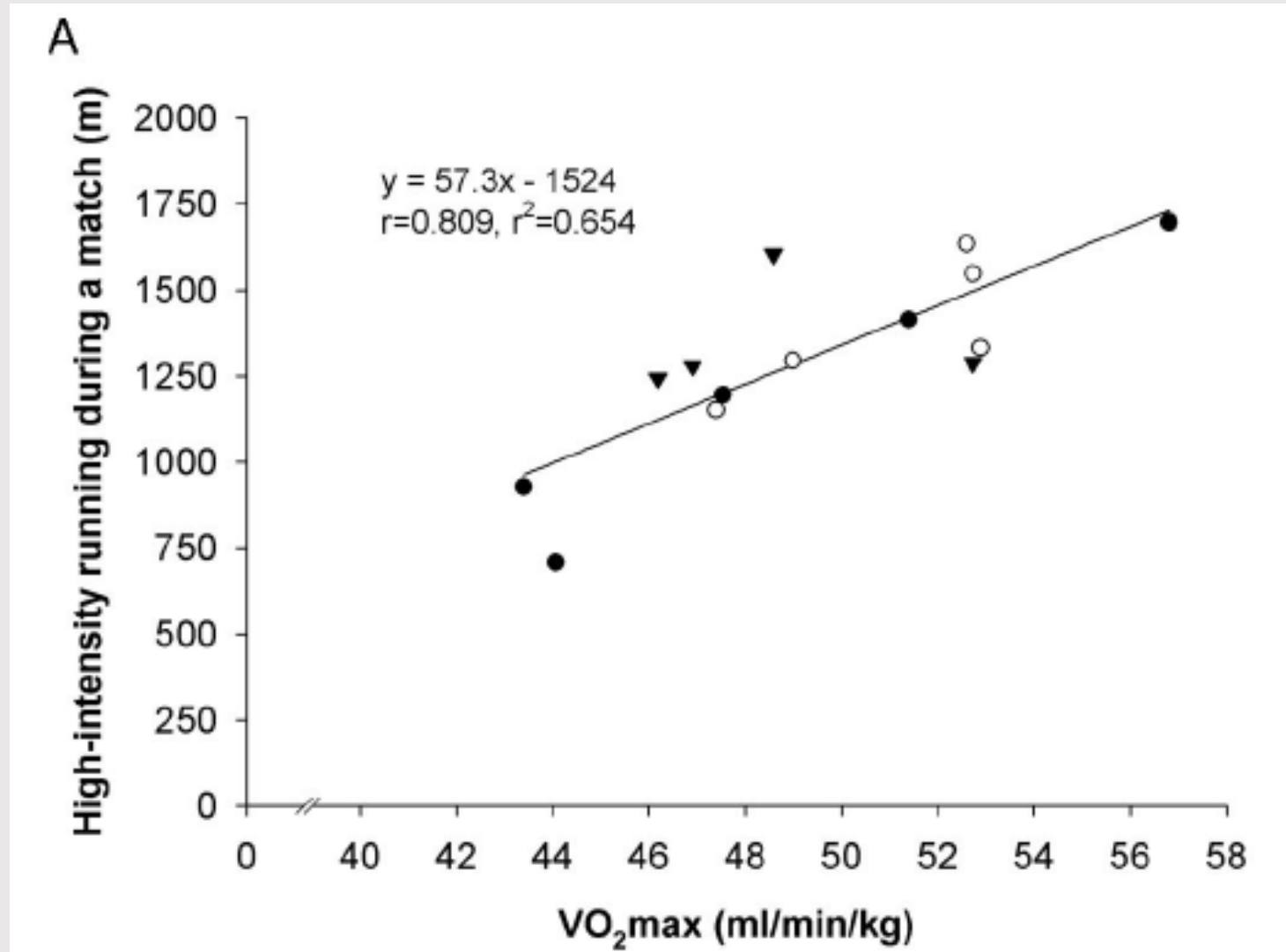
TRAINING ANALYSIS

PHYSICAL ANALYSIS

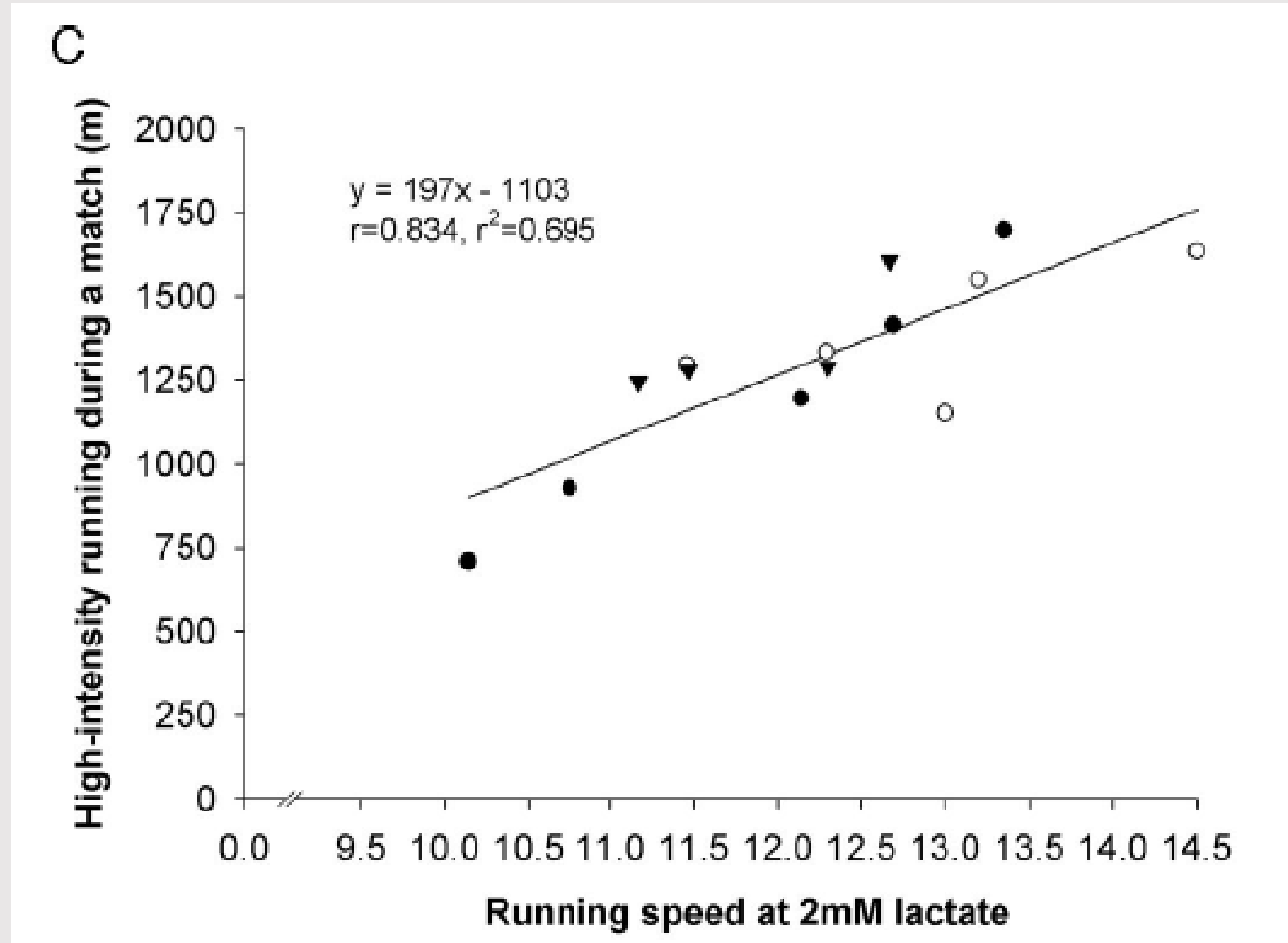


- GPS monitoring of all training session
 - Except Recovery and Game -1
- Reports
 - Total Distance, sprint, HI Distance
 - Accelerations – Decelerations
 - Heart Rate
- Staff Meetings
- Medical Team
 - Injury Clips

Relation between VO_2max and high intensity running during game





























































Relation between aerobic endurance (2mmol) and high intensity running during game



Endurance training

- Individual capillarisation, RSA, short intervals,...
- Specific endurance training
- Optimal loading in tactical work
- Control of tactical training with microtechnology (Catapult) and HR monitoring

Recovery Methods

Method	Research on 32 teams	Science	Practice
Load management		   	   
Hydration and nutrition	97%	   	   
Sleep	95%	   	   
Cold or contrast bath	88%	   	   
Active recovery	81%	 	 
Massage	78%	 	   
Foam rolling		 	  
Stretching	50%	 	
Compression garments	22%	 	 
Electrostimulation	13%	 	 

Recovery topics

Sympathetic-parasympathetic balance
Focus-relaxation variability
Interval training



How did we succeed?

- Rules, roles and responsibilities
- Focus and adaptation
- Simplicity of strategy and methods
(hot air balloon)
- Clear and frequent communication –
attack the problem, not the person
- Individual approach (on and off the
field)
- Sports intelligence system (no-tech)
- Optimism = believing in the program
+ falling forward
- Confidence
- Support – ego vs. goal
- Group rituals and “clicks” on all levels
- Variability (foundation of
development)
- Recovery (biology & psychology)

How we overcame challenges?



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2020

#family

1996 2004 2008 2014 2018

2016 2012 2006 2002 1998