

# Training of David Storl

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# When we started in Nov. 2017

- Special and highly talented athlete
- Very successful at young age
- Still just 27 years old, not yet at the end of his potential

## **But:**

- Weakpoints / injuries
  - left knee (since 2010)
  - lower back
- No good results in 2016/17
  - no peaking at main competition
- Regression in his physical strengths

# Goals

- Get back to performances of 22 m+ (PB)
- To peak when it counts
- Longterm development: Tokyo 2020 & Paris 2024

# Needs & changes

- Creation of a professional environment
- Promote strengths - eliminate weaknesses
- New stimuli in training
  - Planning
  - Methods & exercises

# Training base

Additional Facilities:

- Weightroom / Gym
- Sports hall
- Ergo-centre
- sauna, ice bath

Indoor track



Outdoor stadion



Throwing house (normally...)



# Team

## Scientific support



- Diagnostic
- Training science

## Federation



## Nutritionist

- Nutrition
- supplements

## Medical team

- 2 Doctors
- 2 Physiotherapists
- 1 Osteopath

## Club



## Psychologist

- Mental training
- Support coaching

# Changes in Training

## **Aim:**

- Create new or potenter stimulus to develop performance
- Individualize & optimize recovery phases
- Peak performace at main competition

# Blocktraining

## Accumulation

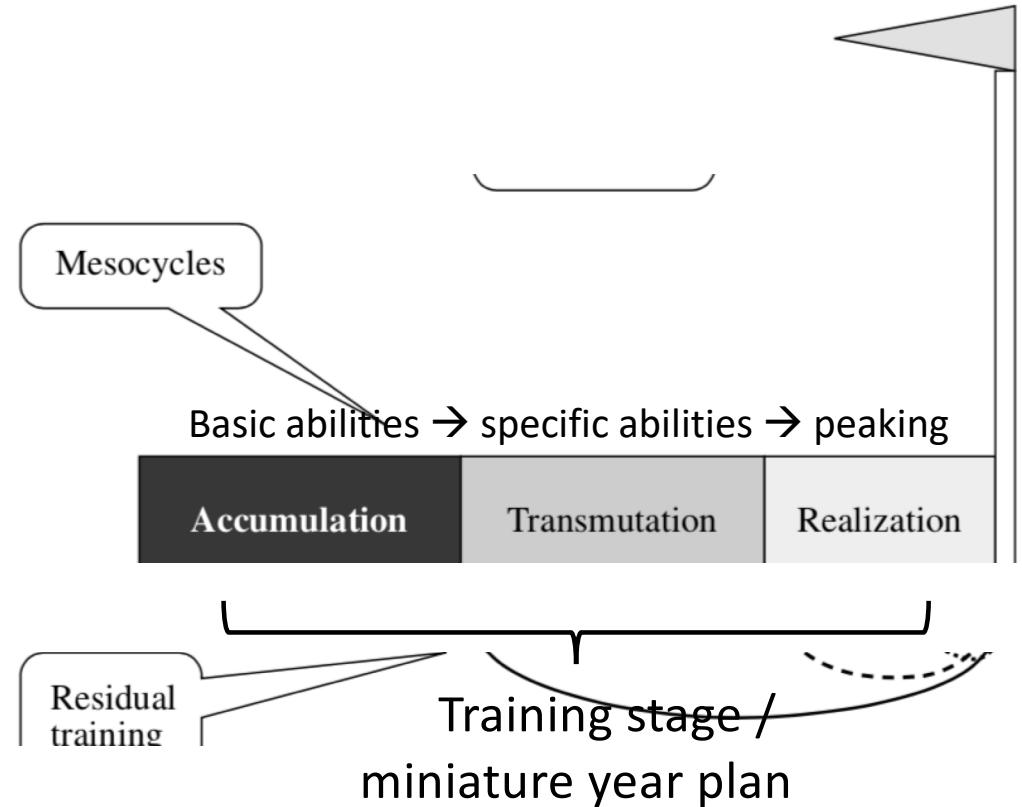
- Maximum strength
- Basic technique

## Transmutation

- Power
- Specific strength / technique

## Realization

- Maximum speed
- Technical perfection
- Full restoration / readiness



- Duration of stages and block depends on residual effects!



# Residual training effect

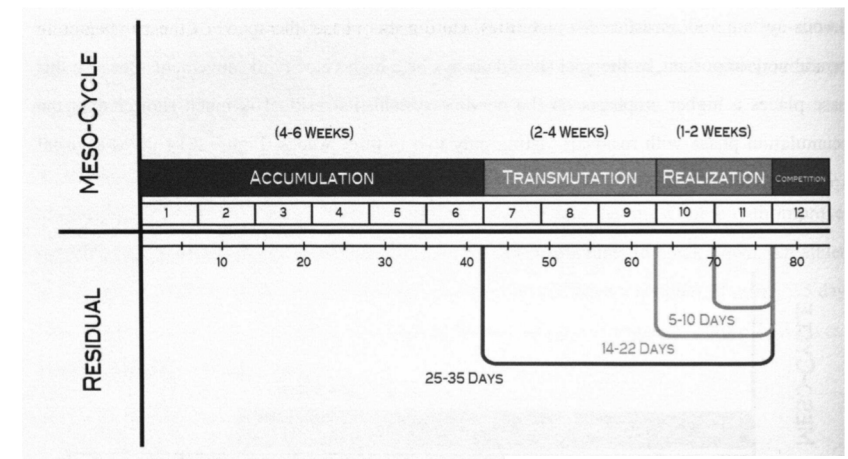
„the retention of changes induced by systematic workloads beyond a certain time period after the cessation of training“

Issurin, 2010

- Allows to fokus on one ability without lost of performance in other abilities
- Correct sequencing leads to Superposition of residual`s  
→maximizing performance
- Reduced overall training load

Motor ability	Residual duration, days	Physiological background
Aerobic endurance	30 ± 5	Increased amount of aerobic enzymes, number of mitochondria, muscle capillaries, hemoglobin capacity, glycogen storage and higher rate of fat metabolism
Maximum strength	30 ± 5	Improvement of neural mechanism and muscle hypertrophy due mainly to muscle fiber enlargement
Anaerobic glycolitic endurance	18 ± 4	Increased amount of anaerobic enzymes, buffering capacity and glycogen storage and higher possibility of lactate accumulation
Strength endurance	15 ± 5	Muscle hypertrophy mainly in slow-twitch fibers, improved aerobic/anaerobic enzymes, better local blood circulation and lactic acid tolerance
Maximum speed (alactic)	5 ± 3	Improved neuro-muscular interactions and motor control, increased phosphocreatine storage

Issurin, 2008



Dietz & Patterson 2012

# Structure of the Annual Plan

- sequence of 6 - 8 training stages
- Each stage ends with a Diagnostic/competition (Evaluation)
- Use of general, specific and competition prep. stages during the year
- Gradually specialization of to prepare for the main competitions
  - Change of methods, means & exercises to develop target abilities
  - Effectivest training programs before main competitions

# Different training stages

Type	Emphasize	Characteristics	Transfer	Duration
General	<ul style="list-style-type: none"> <li>- Build base (Strength-power-speed)</li> <li>- General methods</li> <li>- Primary directed to morph. adaptations</li> </ul>	<ul style="list-style-type: none"> <li>- Versatile training</li> <li>- diversity of exercises</li> <li>- Athlete specific training</li> <li>- Highest general training volume</li> <li>- trains muscles &amp; phys. systems</li> </ul>	low	8 - 10 weeks
Specific	<ul style="list-style-type: none"> <li>- Develop throwing performance</li> <li>- specific methods</li> <li>- More directed to neural adaptations</li> </ul>	<ul style="list-style-type: none"> <li>- Restricted exercise variety</li> <li>- most specialized exercises</li> <li>- Highest specific training volume</li> <li>- trains movement pattern</li> </ul>	medium	3 - 6 weeks
Competition / Peaking	<ul style="list-style-type: none"> <li>- Peaking throwing performance</li> <li>- Highest specificity</li> <li>- Only directed to neural adaptations</li> </ul>	<ul style="list-style-type: none"> <li>- Low exercise variety</li> <li>- Competition exercise dominates</li> <li>- Highest specific intensity, low volume</li> <li>- Perfection of movement pattern</li> </ul>	high	1 - 4 weeks

## Methodical Principles:

General → specific  
 Slow → fast  
 Simple → complex

# Types of Blocks - Example

Type	Target ability	Fokus	Methods	Intensity	Volume	Duration
Preparation	Maximum strength	Development	Hypertrophie Basic strength eccentric strength	70 – 80 % 80 – 90% 105 – 120 %	High to medium	4 - 8 weeks
Specific		Peaking	Maximum strength Eccentric strength	85 – 100 % 110 - 130%	Medium to low	1 - 3 weeks
Competition Peaking		Maintenance / Transfer	Max. Strength Eccentric strength	90 – 100 %	Very low	1 - 7 days



# Microcycle

- Typically 7 days, up to 14 days in TC
- 3 - 6 main sessions to address training target abilities
- 9 - 10 total sessions
- Adequate time interval between main sessions
  - active recovery & compensation sessions
- Double days (Preparation & loading)

	Stand	Glide	Overhead throw forward	Overhead throw backward
8,0	18,20	20,10		
7,26	19,80	21,40	20,10	22,80
6,0		23,80	23,50	24,80
5,0		-		
4,0		28,20		29,50

Trapbar Deadlift	260
Clean pull, floor	190
Bench press	200 / 4 x 2 x 195
Overheadpress, strict	2 x 110
Jerk	200
Split squat	180
Vertical jump (cm)	71
Drop jump, 44 cm drop height	45 cm / 175 / RI 3,46



# Future?

- We are on our way
- Stay consistent and be confident → long-term run
- Learn & improve
- Have fun ;-)