

# Training Models in a club environment

## NxT Generation Conference November 2018

Ryan Livingstone

Head Performance Coach

Newcastle Swim Team

# Newcastle Swim Team

- 2014: Merger - City of Newcastle ASC & Newburn ASC
- 300 Members / 220 in competitive squads / 12 squads
- Use of four pools around the city and NCL University for S&C
- 2xFull Time coaches
- No local authority, private sector, county sports partnership, county association, University, Private school or leisure trust link/support,
- No learn to swim programme, feeder clubs,
- No competition pool, No S&C facility at our sites

# Facilities





3x25m, 1.0m deep, no blocks, narrow lanes.

Poorly ventilated

Up to 27 swimmers at a time in age group squads.

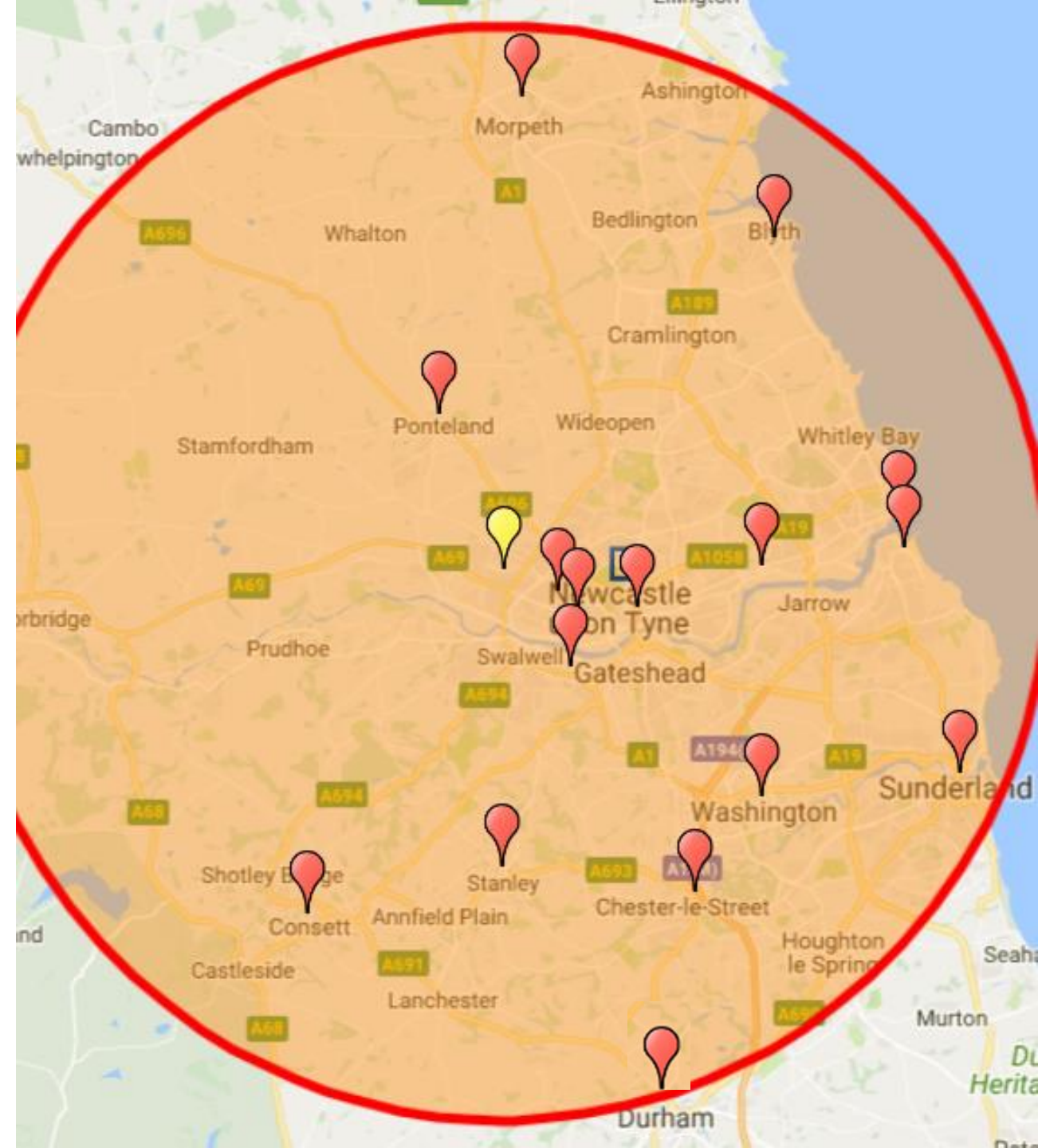
Has been used for over 50% of the clubs sessions.

Performance A – Training Times up until Oct 2018						
	MON	TUE	WED	THU	FRI	SAT
Swim AM	0530-0730 90 mins in 3x33m then 30 mins in 3x25 (WD)	0530-0730 90 mins in 3x33m then 30 mins in 3x25 (WD)	OFF	0530-0730 90 mins in 3x33m then 30 mins in 3x25 (WD)	0530-0730 90 mins in 6x33m then 30 mins in 3x25 (WD)	0800-1000 In 4x50m (SAQ)
Swim PM	1830-2030 in 3x33m (WD)	1900-2100 in 3x25m (GOS)	1400-1600 in 3x50m (SAQ)	1730-1930 in 3x25m (WD)	1830-2030 in 3x25m (WD)	
S&C	0800-0900 (NCL) Or 1715-1815 (WD)		1630-1800 (NCL)		0800-0900 (NCL) <i>Or</i> 1715-1815 (WD)	



# Local Competitors

- 16 Clubs in 15 mile radius
- 8 of those have a 'performance' or 'elite squad' that can offer 14-20 hours of training per week with full time coaches
- Most have better facilities, better training times and lower training fees
- Everyone wants to be a performance programme
- We are not 'City of Newcastle'



Sep 2014

2xMedals at ASA  
National Youth  
Championships in  
July 2014

2xSwimmers with  
QT's for the 2015  
April British  
Championships

# Athletes Achievements since 2015

- 2xEuropean Championship Gold medals
- 1xCommonwealth Games Final, 1xEuropean Short Course Final
- World Juniors: 1xGold / 5 Finals
- European Juniors: 5xGolds / 8xMedals
- EYOF: 2xMedals
- Commonwealth Youth: 1xGold / 4xMedals
- World Schools Games: 2xMedals
- British Age/Junior Records set on 20+ occasions by 3 different athletes
- 6xSenior National Medals
- Nearly 100 National medals (British Champs/British Summer/Winter Nats)
- Athletes at CW games, Euro SC, Euro LC, WJC, EJC, EYOF, CWYG, EJ OW, WSG.
- 4 British/English Senior Team selections for major Games/Events in 2017-2018 season



# NST Performance 'A' Squad

- Athlete 'Buckets' – Training Groups. Individualise as much as possible:
  - ➊ Emily Large, ➋ Nick Pyle, ➌ Medley, ➍ 100-200, ➎ Distance
- 11x2 Hour sessions / 2-4xS&C sessions per week
- S&C delivered by Ross Drummond at Newcastle University
- Emily Large/Nick Pyle – Support services through BS/EIS/NCL Uni
- Support services for other athletes through NCL Uni
- **Younger athletes are not exposed to significant access to support services**



# Communication > Planning

- ‘Communication is oxygen to relationships. The inability to express your thoughts, moods, concerns, boundaries and desires create a slow death in any relationship you are involved in.’ (Pfaff)
- ‘People won’t care how much you know until they know how much you care’ (Attributed to many)
- ‘You cannot continuously improve interdependent systems and processes until you progressively perfect interdependent, interpersonal relationships.’ (Stephen Covey)

# Planned Performance Training

- Deviation from the pre-planned path is desirable, should be actively sought, and the training management system designed to facilitate, rather than suppress, consistent modulation
- Individual athletes will respond differently, to one another, to identical training sessions.
- Identical sessions performed by an individual will always elicit a unique training response, for that athlete, depending on transient functional state of component subsystem

(Kiely 2012).

# Planned Performance Training





# Same person, same day in the week, same time in the block, same athlete?

60 bpm Resting Heart Rate	
Body weight	-
Energy	High
Sleep quality	Excellent
Time asleep	21:30
Time awake	04:45
Soreness	No soreness
Soreness	
Stress	None at all
Do you feel ill?	Not at all
Sore throat	-
Cough	-
Head congestion	-
Chest congestion	-
Fever	-
Muscle ache	-
Diarrhoea	-
Vomiting	-
Other	-

90 bpm Resting Heart Rate	
Body weight	-
Energy	6
Sleep quality	Excellent
Time asleep	22:15
Time awake	08:00
Soreness	4
Soreness - Left Thigh - Front	3
Soreness - Right Thigh - Front	3
Stress	None at all
Do you feel ill?	Mildly
Sore throat	Mildly
Cough	Moderately
Head congestion	Not at all
Chest congestion	Not at all
Fever	Not at all
Muscle ache	Not at all
Diarrhoea	Not at all

66 bpm Resting Heart Rate	
Body weight	-
Energy	Moderate
Sleep quality	Excellent
Time asleep	22:35
Time awake	04:40
Soreness	4
Soreness - Left Shoulder - Front	4
Soreness - Left Shoulder - Back	5
Soreness - Right Shoulder - Front	4
Soreness - Right Shoulder - Back	5
Soreness - Left Thoracic / Ribs - Back	5
Soreness - Right Thoracic / Ribs - Back	5
Stress	None at all
Do you feel ill?	Not at all



# Emily Large Profile & Character

- Charismatic, likeable, funny
- Focused, driven, ambitious, coachable
- Great commitment
- Emotionally - likes variety, fun,
- Physiologically responds better to concentrated loading and high volume of repetitive work
- Great family and school support
- Coach-athlete relationship
- Not many people know the 'real' Emily

# Emily Large: Age Group Programme

- As an age group swimmer
  - Technique, Medley, Kick (20-25%) and Aerobic focused
  - Always elements of speed
  - 800m SC: 8.50 at 14yrs, 400 IM SC 4.37 at 15 / LC: 4.47 at 15.
  - Age 14: 7-8 Sessions, 2xLand, 40-45km
  - Very long accumulation phases with a lot of extensive aerobic swimming
  - Special Strength introduced as strength endurance pull sets at 14
  - S&C: Exercise Technique, bodyweight, core, mobility
  - Multi Sport

# Emily Large: Sample Accumulation week at 14

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Fly & BK Speed (15-20m)  Fly: 2k set: e.g. 80x25 @ 30  Extensive Aerobic BK	Stroke Skills  Race Skills  Extensive Aerobic  1.5km Kick Set	OFF	BR & FR Speed (15-20m)  BR: 2K set e.g. 10x200 @ 3.30  Extensive Aerobic FR	OFF	Start Skills  IM 4KM Set: 20x200@ 3.20  Extensive Kick- Swim set	OFF
BK: 4K Set: e.g. 20x200 @ 3.00  Extensive Aerobic FR  Strength Endurance Pull	Major Kick Set e.g. 8x200 @ 3.45	OFF	FR: 4K e.g. 10x400 @ 5.00  Extensive Aerobic Fly Set  Strength Endurance Pull	Stroke Skills  Race Skills  Extensive Aerobic  1.5km Kick Set	OFF	OFF



# Emily Large - Now

- Vertical Integration periodization scheme (my preferred model)
- Pre-taper volumes range from 50-65km (Average of 55km)
- 9-10 Pool sessions / 2-3xS&C Sessions
- Training is mostly polarized (Seiler) in nature.
- Extensive training (50bbm or easier) = c.70-80% of total volume
- Intensive training (30bbm or faster) = c. 20-30% Total Volume.
- Limited volumes of training done in the 35-45bbm 'sweet spot' area.
- Weekly training retrospective and feed forward with Emily
- Sport Psychology: Support from British session and weekly session with me

# Vertical Integration (Francis)

- All types of training included all phases, it's the proportion of each that varies
- Allows for the concentrated loading required to develop high level athletes that is normally characteristic of a block model
- But also allows for simultaneous exposure to all types of training normally characteristic of a complex (concurrent) model
- This ensures that the athlete can maintain levels of non-targeted qualities in all phases through 'micro loading'.
- Biggest challenge: Moderating the potential interference effect of exposing the athlete to many different stimulus



CE	SDE	SPE	GPE
Perfection	Development	Preparation	
Perfect competitive technique & <u>develop</u> the specific conditioning requirements for the event		<u>Prepare</u> the athlete's body to handle the demands of the training in their event	

<http://ucoach.com/document/uka-exercise-classification-hierarchy-v1.0-document/from-filter/>

## Complex Model

CE

SDE

SPE

GPE

## Vertical Integration Model

CE

CE

CE

CE

SDE

SDE

SDE

SDE

SPE

SPE

SPE

SPE

GPE

GPE

GPE

GPE

## Block Model

CE


SDE

SPE

GPE



# Emily Microcycle Plan Example 5<sup>th</sup>-13<sup>th</sup> Nov

Athlete(s)		Emily Large					Microcycle 11 (5 <sup>th</sup> Nov – 13 <sup>th</sup> Nov): 9 Days			
Periodization		Year: 3/4, Stage: 1/3, Meso: Accumulation, Meso Block: 3/5, Microcycle: 11-12								
Mental Skills		Arrange to meet with Lotti, Develop pre-competition self-talk habits								
Ergogenesis		↑ FES/BES 100, ↑ FES/BES 200, Alactic Power, ↔ AEC, ↔ ANC								
Special Strength		↑ Speed-Strength, ↔ Strength Endurance								
Technique		Fly: Maximal DPS @ Race SR, stroke length on recovery / FR: High elbow recovery at race pace								
Skills		Fly: Maintenance of speed through U/water phase, Approach to wall / FR: Approach to wall								
S&C		Maximal Strength and begin transfer to power								
Restoration		Medium → High: 1xMaintenance massage, 1xEpsom bath, Daily SMR/Mobility								
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	
	↑ NEURAL	↑ METABOLIC	↑ NEURAL	REGENERATIVE	↑ NEURAL	↑ METABOLIC	REGENERATIVE	↑ NEURAL	↑ METABOLIC	
AM	FEP100 2x33 + 6x25	Stroke Skills	OFF	Stroke Skills	Spec. Str Swim (Spe-Str) 60%/20%/20%	Start Skills	OFF	FEP100 2x33 + 6x25	Stroke Skills	
	Spec. Str Dol. (Spe-Str) 60%/20%/20%	Turn Skills		Turn Skills	BEP100: 2(12x33 @ 40)	AEC (Int) FR 'Threshold' 4K set		Spec. Str Dol. (Spe-Str) 40%/30%/30%	Turn Skills	
	AEC FR (Ext-Int): 2K set: 80%/20%	Regeneration		Regeneration	RP200 IM 25/50m Repeats (Some Switch)	AEC Kick Ext/Int): 75%/25%		AEC FR (Ext-Int): 2K set: 80%/20%	Regeneration	
PM	BEP100: 2(12x33 @ 40)	AEP → BEP200 Fly: 20x100 @ 2 + 8x50 @ 65	FEP200 40/35/30 x4 6 Fly/6 FR	AEC (Ext) Swim	OFF	OFF	OFF	Race Warm-Up	AEP → BEP200 Fly: 50x50 Fly BEP200 @ 60	
	Removal Kick to include fatigued race turns	RP200 FR: 25m & 50m repeats	AEC (Int) Kick: 2.4KM Set	AEC (Ext) Kick				RP200 FR 33m and/or 66m Repeats	RP200 FR: 25m & 50m Repeats	
	Very Extensive Kick-Swim Set	Regeneration	Regeneration	Spec. Str Strength End				Very Extensive Kick-Swim Set	Regeneration	
S&C	S&C @ NCL		S&C @ NCL							
Restoration	SMR & Mobility	SMR & Mobility	SMR & Mobility Epsom bath	SMR & Mobility Maintenance Massage	SMR & Mobility	SMR & Mobility Epsom Bath	SMR & Mobility	SMR & Mobility	SMR & Mobility	
MST								1-1 with RL Retrospective & Positive self-talk strategies		



# Nick Pyle Profile & Character

---

- Typical 17 year old boy in terms of maturity
- Self Aware in regard to his swimming
- Coachable
- Great family support network & supportive school
- Coach-athlete relationship
- Much later in making a full commitment to the sport (last 18 months)
- Confident, Goal Orientated
- Learning to perform in high pressure environments

# Nick Pyle: Age Group Programme

- As an age group swimmer
  - Very similar programme to Emily, however;
    - Frequent illness and injury issues
    - Age 14: 5 pool sessions per week on a good week
    - S&C: He wasn't very good and struggled to buy into this initially
    - Multi sport to a degree
    - Relied on in his 'talent'

# Nick Pyle - Now

- I would prefer to use a vertical integration scheme – when reviewing his training documentation this has rarely occurred
- High degree of modulation and adaptation. risk management of illness becomes an integral part of the planning process.
- 14 day Microcycles: 10 Days loading – 4 Days Adaptation
- 6-7 Pool Sessions / 2-4 S&C Sessions
- Last season: Glandular fever - Returned to training 11 weeks before EJC
- In a vertical integration model you can target many different variables – but the adaptation takes time, 11 weeks is insufficient for a model with so many variables.
- Decided to use an 11 week block periodization model leading into EJC



# Block Periodization (Issurin 2012)

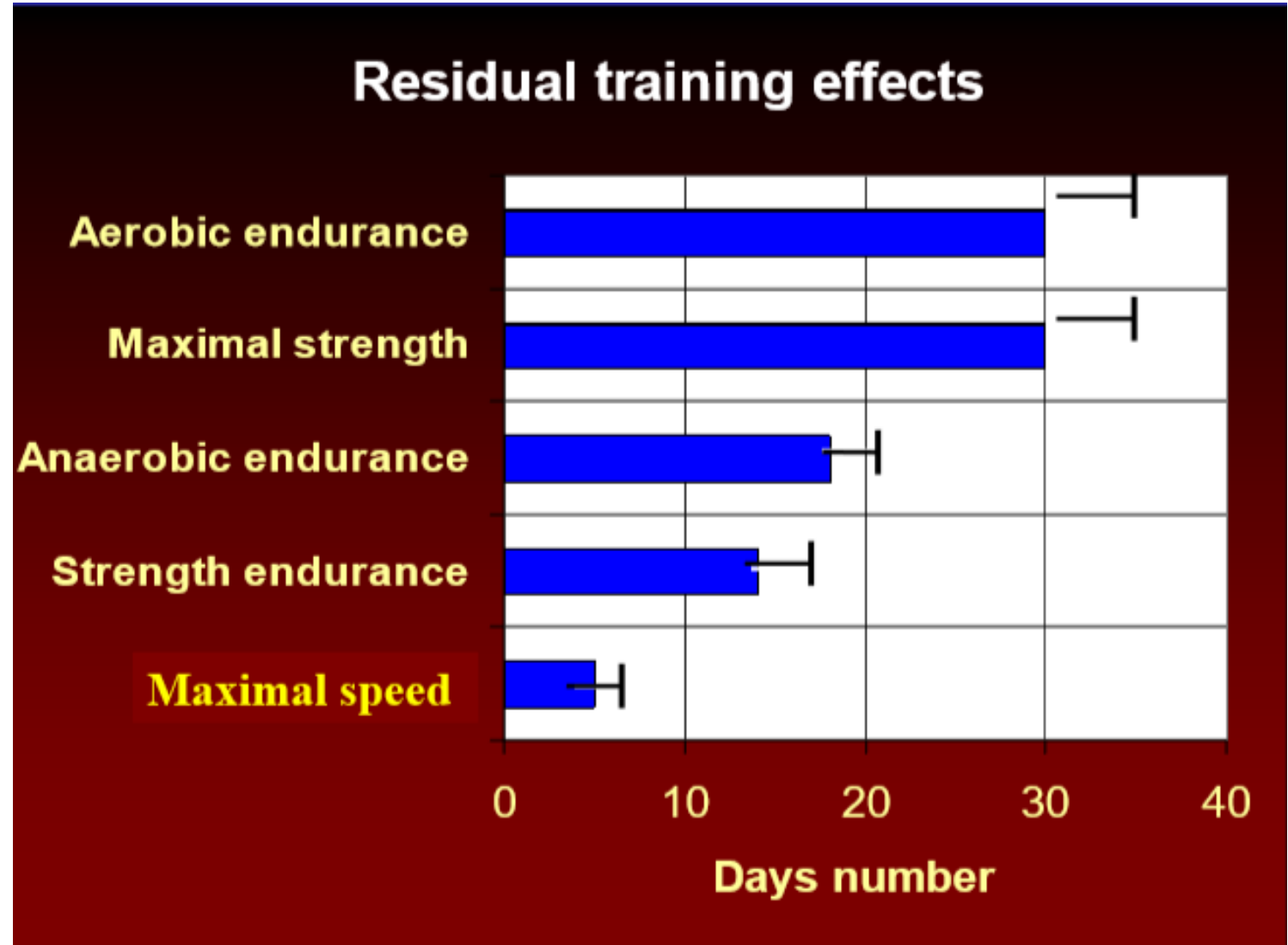
- Originally used as a means to allow athletes to peak more frequently in sports where this required
- High concentration of loading on a few targeted areas of development within each block
- Utilises the concept of training residuals.
- Minimises the interference effect of non-compatible training modalities

## Training Residuals (Issurin 2010)

- Aerobic & maximal strength block should finish no more than 30 days before major meet
- Anaerobic/Specific Strength Block should finish no more than 18 days before major meet
- Maximal Speed block should finish no more than 5 days before a major meet

This creates 3 Clear Mesocycles

- I. Accumulation (Aerobic Endurance & Maximal Strength)
- II. Transmutation (Anaerobic Endurance & Specific Strength Endurance)
- III. Realisation (Speed & Peak)



# Nick Pyle: Summer 2018 Basic Overview

## European Junior & European Championships Preparation

	Block	Length	Training Focus
	Return to Training Plan	4 Weeks	Gradual build up to 'normal' training load
Stage 1	Accumulation	4 Weeks	Aerobic Endurance, Maximal Strength
	Transmutation	2 Weeks	Race Specific End (Anaerobic), Specific Strength
	Realisation	1 Week	Maximal Speed, Peaking
	Regeneration	2 Days	OFF
Stage 2	Accumulation	10 Days	Aerobic Endurance, Maximal Strength
	Transmutation	7 Days	Race Specific End (Anaerobic), Specific Strength
	Realisation	7 Days	Maximal Speed, Peaking

- 11 Weeks after glandular fever – lifetime best 50m and 100 backstroke. EJC Individual Bronze & Relay Gold
- 4 Weeks later – lifetime best 50m and 100m backstroke. EC Relay Gold

# Athlete Monitoring with Emily/Nick


## Both

- Informal daily discussion
- PDMS via British Swimming (Training load data, acute: chronic workload, mood, energy, DOMS, sleep, injury, illness, etc.)
- Twice weekly weight, twice weekly CMJ, Daily grip strength, skinfolds every 2-6 weeks

## Emily

- Moving forward – Greater consideration for training optimisation aligned to hormonal profile (menstrual cycle)

# Training Session Individualisation

Year: 3/4(2018-2019)	Stage: 1/3	Mesocycle: Accumulation 3	Meso Block: 3/5	Microcycle: 11/16 (Stabilisation)	Session: Tue PM
Session Focus: Group Specific					
Segment	Content				Zone Volume
Warm-Up	3x400 FR Descend 1-3 with 5+ Sec Descends @ 5.20 16x25 @ 35 1-6 Kick or Stroke Imp / 7-8 RP200 in Minimum SC x2				AEC Skill 1600/1600 26/26
EL (?) <b>Either FES200 or AEP</b> 	EL (?), JB,, RT, TH, CW, NPa	AW, CT, LD, JB	AK, JM, SN, LC	NPY, SC	NPa, KP
<u>FEP200</u> 4x 40m FEP200 + easy to 200 @ 5 35m FEP200 + easy to 150 @ 4 25m FEP200 + easy to 100 @ 3 • Sets 1-3 Fly, Set 4. FR 50/76 1800/3400 <u>AEC Ext-Int Kick</u> 24x100 Kick @ 1.45 3 RPE 6 2 RPE 7 } x4 1 RPE 8 1x200 BK Easy (Fins) 44/120 2600/6000 40 FEP200 = 22.07 35 FEP200 = 19.10 25 FEP200 = 13.19	<u>AEP → BEP200</u> 20x100 1 <sup>st</sup> Best Average @ 2.00 8x50 BEP200 @ 60 50/76 2400/4000  <u>Regeneration</u> 1x800 (Fins) as 150 FR-50 Social Kick x4  <u>BEP200 + AEC (Ext)</u> 50 BEP200 + 150 FR DPS (Choice Equip I 150) @ 3.15 • Non-Medley = 50 BEP on 2 <sup>nd</sup> Stroke • Medley = 50 BEP on 3 <sup>rd</sup> or 4 <sup>th</sup> Stroke	<u>RP800 FR + STR-END</u> 32x75 FR RP800 @ 75 1x600 Pull (Paddles/Chute/Snorkel)	<u>RP400 IM BK + AEC BR</u> 32x75 BK RP400 IM @ 75 20x25 BR @ 30 • 5 Swim SC 6/5 Kick/5 2K-1P/5 Swim SC 6	<u>Special Str (Speed-Str)</u> 10x11 Power Kicks-3 Cycles @ 60 • 6 with Chute • 2 No Equip • 2 Fins 1x200 Choice (Fins) 900/2500 30/56  <u>BEP100+ AEC (Ext)</u> 8x50 Stroke Imp @ 60 12x50 @ 90 • Odd BEP100 • Even FR easy  12x200 FR or BK RPE 5/50bbm @ 2.50 3400/5900 64/120	<u>AEC (Ext)</u> 8x400 FR +30secs Do not exceed RPE 5 • 2 No Equip • 2 Paddles • 2 Pull Paddles • 2 Swim Fins



A dark blue, irregular, ink-splattered shape on a white background. The shape has a rough, hand-painted appearance with various shades of blue and black ink splatters around its edges. In the center of this shape, the word "Questions" is written in a white, serif font, and a large white question mark is positioned directly below it.

Questions

?