Benjamin Klein

Test Report
Training Program

July 2015

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Sport Science Consultants Limited
UCS Active
University College School
Hampstead, LONDON,
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Functional Threshold Power (FTP)

Your score: 230 Watts

During the final climb of stage 10 2015 Tour de France Chris Froome averaged 414W. You are over halfway to Froomey!

The highest power output that a cyclist can maintain in a quasi-steady state without fatiguing for 1 hour.
This score can be expressed as an absolute figure in Watts (W) or relative to your body mass Watts per kilogram (W · kg)
Test your FTP 6 times a year.

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Absolute FTP (W):	**230**
Previous Test:	N/A
Untrained Cyclist (80kgs)	148+
Cat. 3 Racer (80kgs)	277+
World-Class Pro: (80kgs)	455+

To improve your absolute score follow workout 1.

Relative FTP (W · kg):	**2.61**
Previous Test:	N/A
Untrained Cyclist:	1.86-2.58
Cat. 3 Racer:	3.47-4.80
World-Class Pro.:	5.69-6.40

You score in the Cat. V Racer range

To improve your relative score reduce body-fat and maintain skeletal muscle mass.

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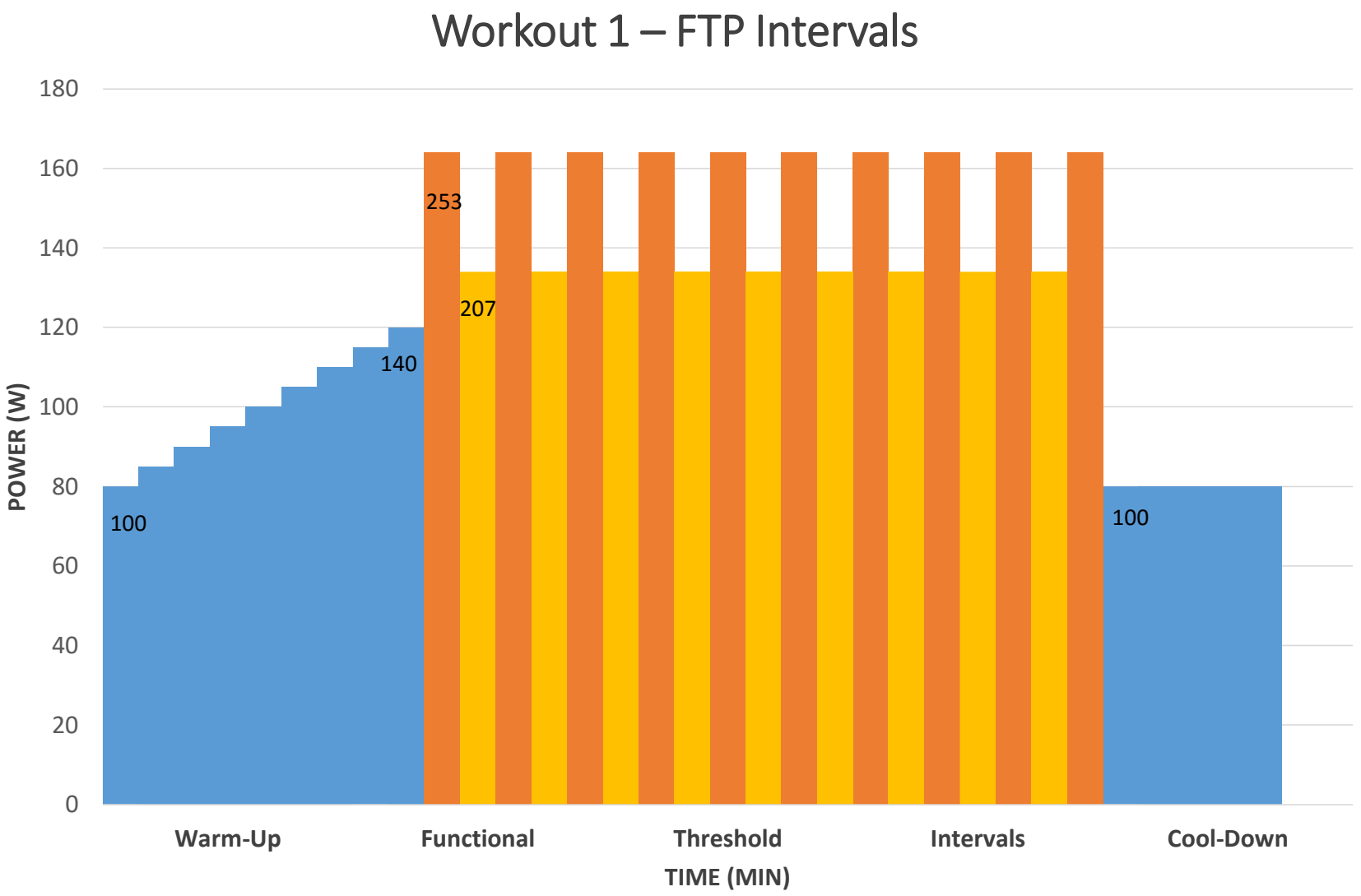

Functional Threshold Intervals

Warm-Up	9 minutes	100-140W
Interval 1	10 x 1 min	253W
Interval 2	9 x 1 min	207W
Cool-Down	5 minutes	80W

Ben, These FTP intervals will improve your overall cruising speed. These are very tough, much harder than your VO2 max or Lactate Intervals. Don't attempt these more than once a week.

The best way to perform these is on a Wattbike or Turbo at home where you can precisely measure time and effort without distraction. IF you do want to attempt these outside I recommend anti-clockwise laps of Richmond Park with 1 minute of harder effort followed by 1 minute of harder effort. If you find traffic getting in the way too much add extra intervals.

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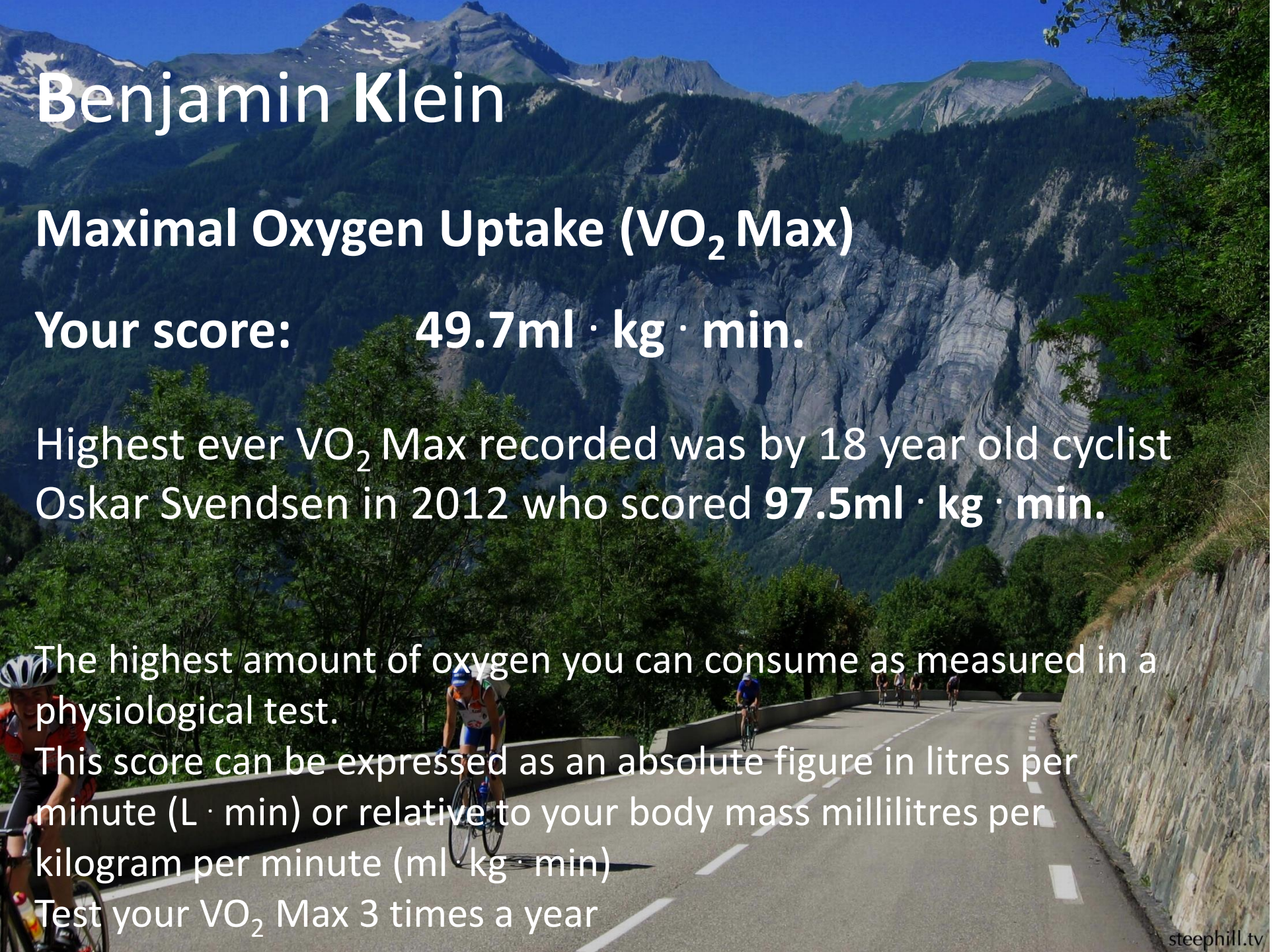

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Maximal Oxygen Uptake (VO_2 Max)

Your score: 49.7ml · kg · min.

Highest ever VO_2 Max recorded was by 18 year old cyclist Oskar Svendsen in 2012 who scored **97.5ml · kg · min.**

The highest amount of oxygen you can consume as measured in a physiological test.
This score can be expressed as an absolute figure in litres per minute (L · min) or relative to your body mass millilitres per kilogram per minute (ml · kg · min)
Test your VO_2 Max 3 times a year

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Absolute VO_2 (L · min):	**4.41**
Previous Test:	N/A
Untrained Cyclist	1.2-1.6
Cat. 3 Racer (60kgs)	2.4-2.7
World-Class Pro:	3.6

To improve your absolute score follow workout 2.

Relative VO_2 (ml · kg · min):	**49.7**
Previous Test:	N/A
Untrained Cyclist (M40+):	20-26.9
Cat. 3 Racer:	40-45
World-Class Pro.:	>60

To improve your relative score reduce body-fat and/or improve aerobic fitness.

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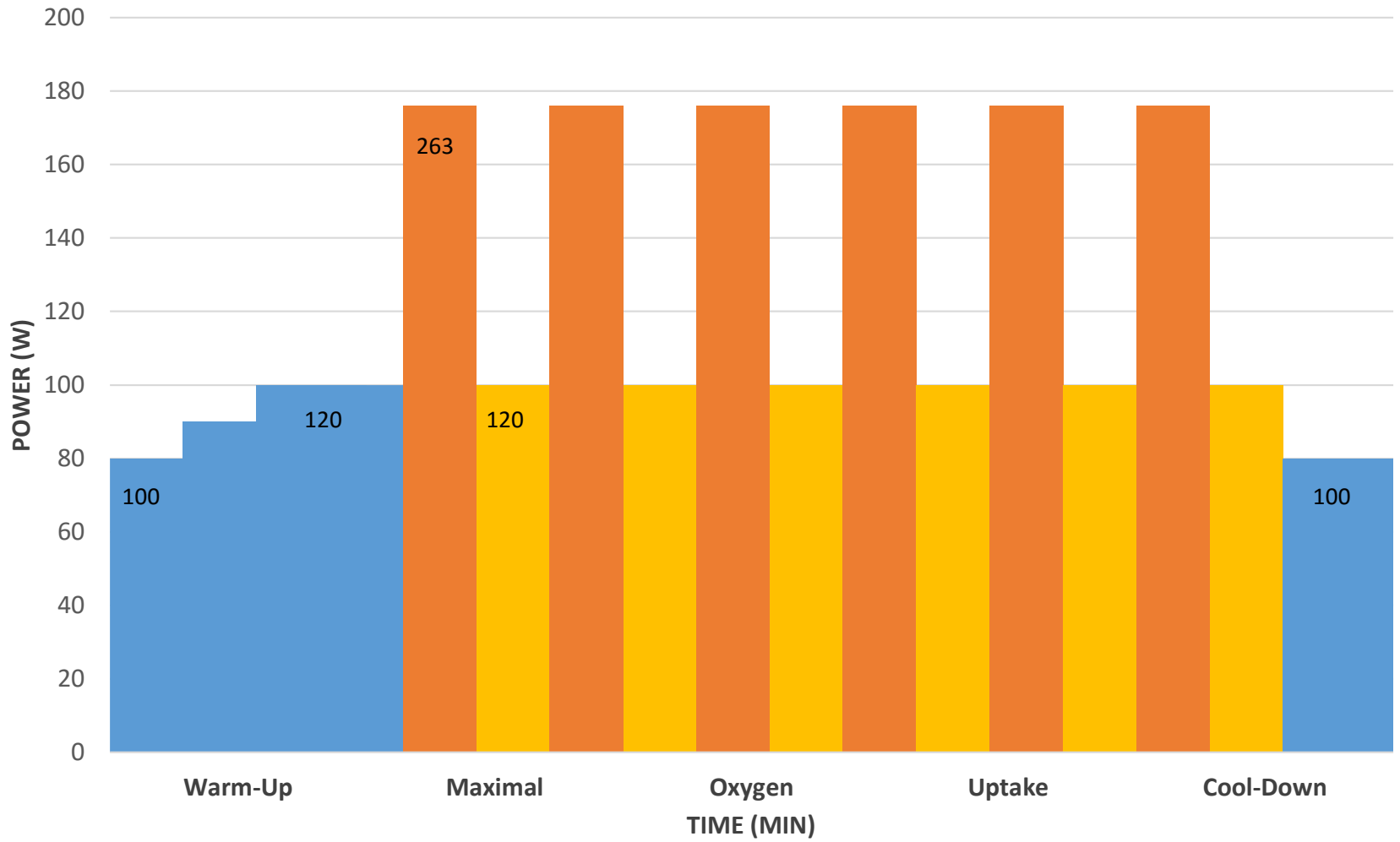
Workout 2 – VO_2 Intervals



Maximal oxygen Uptake Intervals

Warm-Up	8 minutes	100-120W
Interval 1	6 x 2 min	263W
Interval 2	6 x 2 min	120W
Cool-Down	3 minutes	100W

Ben, 6 intervals is the minimum here but you could can go up to 8. Remember not to smash these as hard as your lactate intervals. Please try and maintain a steady pace for the 2 minute push and DO NOT miss a rest interval.

I suggest you go from the roundabout by Kingston Gate to White Lodge with a slow descent as a recovery. Rest a moment then repeat.

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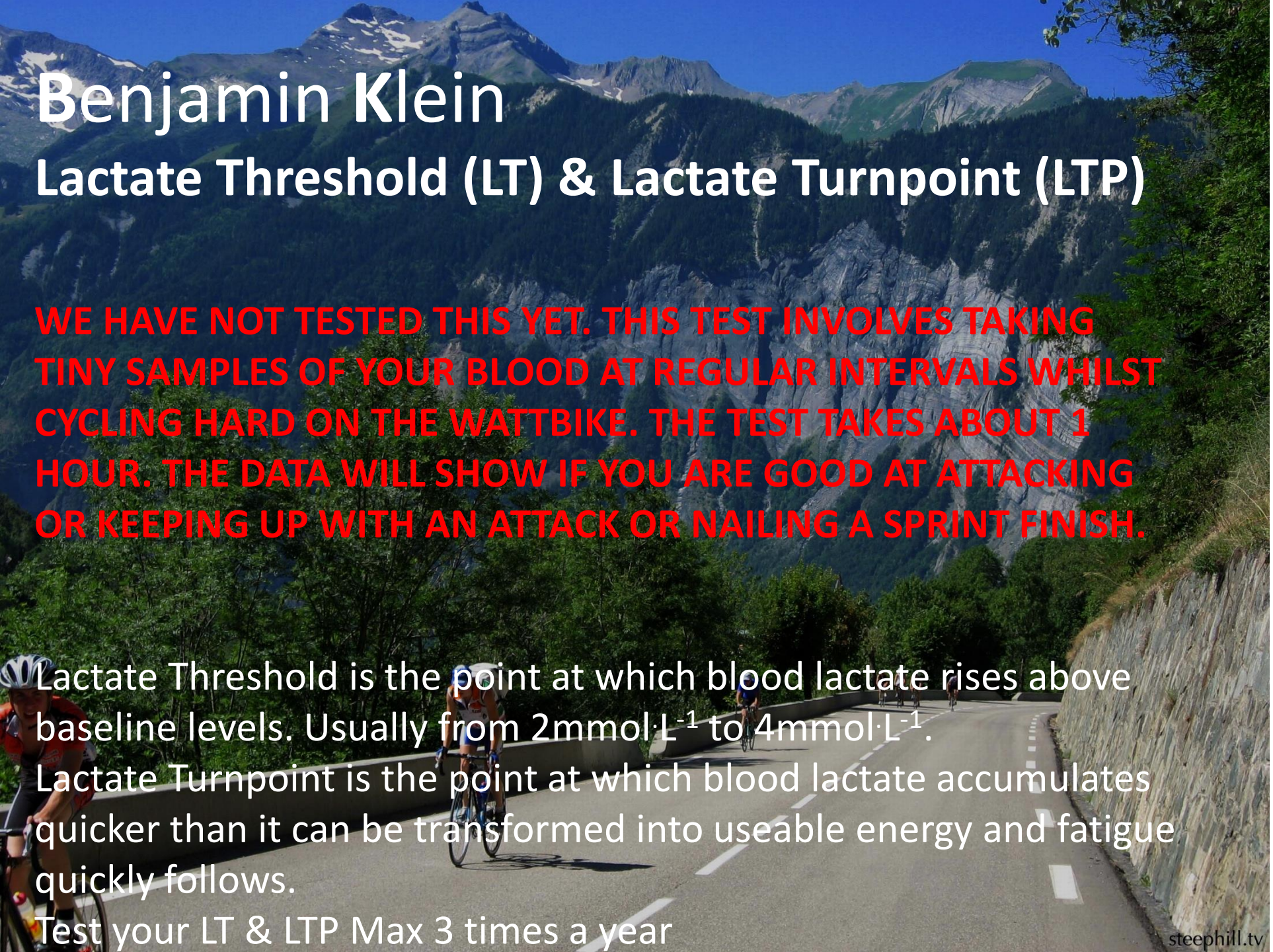

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Lactate Threshold (LT) & Lactate Turnpoint (LTP)

WE HAVE NOT TESTED THIS YET. THIS TEST INVOLVES TAKING TINY SAMPLES OF YOUR BLOOD AT REGULAR INTERVALS WHILST CYCLING HARD ON THE WATTBIKE. THE TEST TAKES ABOUT 1 HOUR. THE DATA WILL SHOW IF YOU ARE GOOD AT ATTACKING OR KEEPING UP WITH AN ATTACK OR NAILING A SPRINT FINISH.

Lactate Threshold is the point at which blood lactate rises above baseline levels. Usually from 2mmol·L^{-1} to 4mmol·L^{-1}.
Lactate Turnpoint is the point at which blood lactate accumulates quicker than it can be transformed into useable energy and fatigue quickly follows.
Test your LT & LTP Max 3 times a year

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LT % of VO_2 max:
Previous Test: N/A
HR @ LT:
Previous Test: N/A
W @ LT:
Previous Test: N/A

LTP % of VO_2 max
Previous Test: N/A
HR @ LTP:
Previous Test: N/A
W @ LTP:
Previous Test: N/A

To improve your LT & LTP score follow workout 3.

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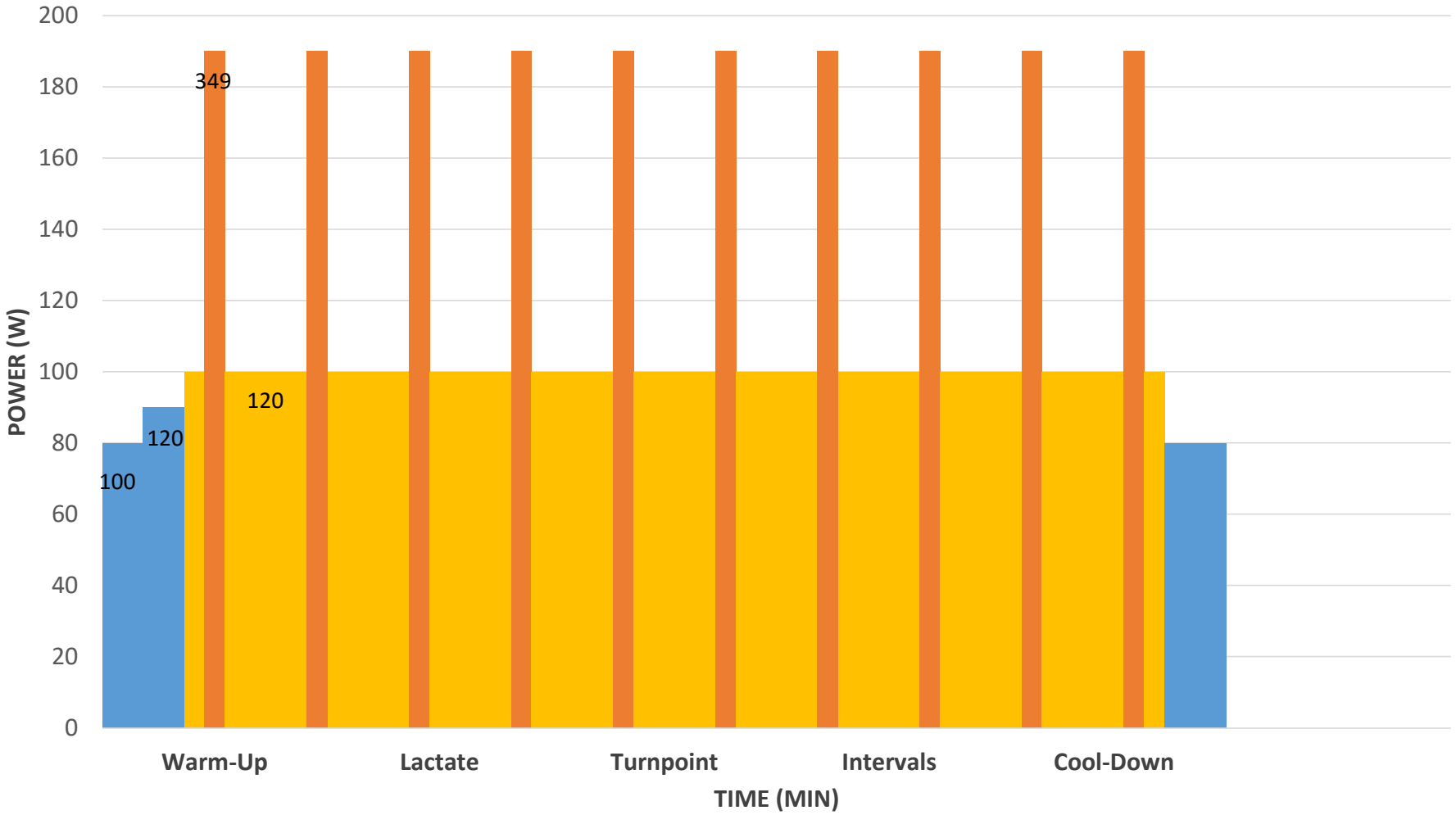
Workout 3 – Lactate Intervals



Lactate Turnpoint Intervals

Warm-Up	10 minutes	100-120W
Interval 1	10 x 10 sec	349W
Interval 2	10 x 50 sec	120W
Cool-Down	10 minutes	100-80W

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Training Zones

Training Zone	Purpose	Physical Adaptations	Race Fitness
Recovery	Regeneration and recovery	Increase blood flow to muscles to flush out waste products and provide nutrients	Promotes recovery and therefore traing response
Zone 1	Establish base endurance	Improves fat metabolism, gets muscles/ tendons/ligaments/nerves used to cycing. Improves economy.	More efficient use of energy. Prepares body for harder training, works on technique skill
Zone 2	Improve efficiency	Improves the ability to use oxygen, produce power and increases efficiency	Able to produce more power with the same level of effort, works on technique skill
Zone 3	Improve sustainable power	Improves carbohydrate metabolism, changes some	Improved sustainable power, good for all cycling events
Zone 4	Push threshold up	Improves carbohydrate metabolism, develops lactate threshold, changes some fast twitch muscle to slow twitch	Improved sustainable race pace, useful during tapering or pre-competition periods, too much time in zone 4 can cause staleness
Zone 5	Sustain a high percentage of maximal aerobic power	Develops cardiovascular system and VO2max, improves anaerobic energy production and speeds turnover of waste products	Improved time-trialling ability and resistance to short-term fatigue
Zone 6	Increase maximum power output		
Supra-Maximal	Increase sprint power output	Increases maximal muscle power, develops neural control of pedalling at specific cadence	Develop race-specific skills at race pace, starting power sprint speed and the ability to jump away from the bunch

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ZONE	HR (bpm)	Power (W)
Recovery:	**<111**	**<122**
1 Basic:	**112-120**	**123-157**
2 Basic:	**121-139**	**158-192**
3 Intensive:	**140-152**	**193-227**
4 Intensive:	**153-165**	**228-262**
5 Maximal:	**166-174**	**263-297**
6 Maximal:	**175-185**	**298-349**
Supra-Max:	**----------**	**>349**

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Anthropometric Data

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Weight (kg):	**89.3**
Height (cm):	**191**
SMM (kg): Skeletal Muscle Mass	**43.5**
BFM (kg): Body Fat Mass	**12.3**
PBF (%): Percent Body Fat	**13.8**
BMI (kg/cm²): Body Mass INdex	**24.5**
WHR (Wast/Hip): Waist Hip Ratio	**0.84**
VFA (cm²) Visceral Fat Analysis	**83.8**

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