



HIIT Practical Application Part 1

Alex Dowson & Paul Bailey

Finding the right intensity

HIIT training is all about intensity – the higher the better! To find the right intensity, ideally, a maximum heartrate/ VO_2 max test should be completed so that you can guage your client's effort level accurately:

- Maximal VO_2 testing Incremental test
 - Depending upon the exercise activity, workload should increase by a set amount each minute
 - Workload measured in Watts (using Watts takes away technique variables)
- Approx 12-15 minutes in length
 - Aiming for voluntary exhaustion
- Ideally HR and other variables recorded each minute and at exhaustion point (note that HR values are often specific to activity)
- In a gym setting, Max HR and Watts are the most useful measurements
- You can find a comprehensive list of VO_2 max test protocols [here](#)

Finding the right intensity cont.

Or, more likely...

- Work from client's existing knowledge of Max HR
- Work from RPE (rate of perceived exertion)

Once you have your client's intensity levels noted, you should then start to consider the session objective and how best to go about achieving this. The session objective of a HIIT session should be to create the highest magnitude of intensity over the given time period, therefore consideration should be given to how best measure this

Understanding 'work done' in a session

In order that long-term progress can be measured, it is essential that a measure of 'work done' is recorded for each client in each session

- The 'work done' can be represented a number of ways, for example:
 - Average heart rate x duration of exercise
 - KGs lifted / session duration

= 'Suffer-score'

Understanding progression

How 'work done' progress is shown:

- Completion of all intervals at required intensity
- Reduced RPE/HR during intervals
- Increased work output (Watts / Kcals / KGs) during intervals

When to progress:

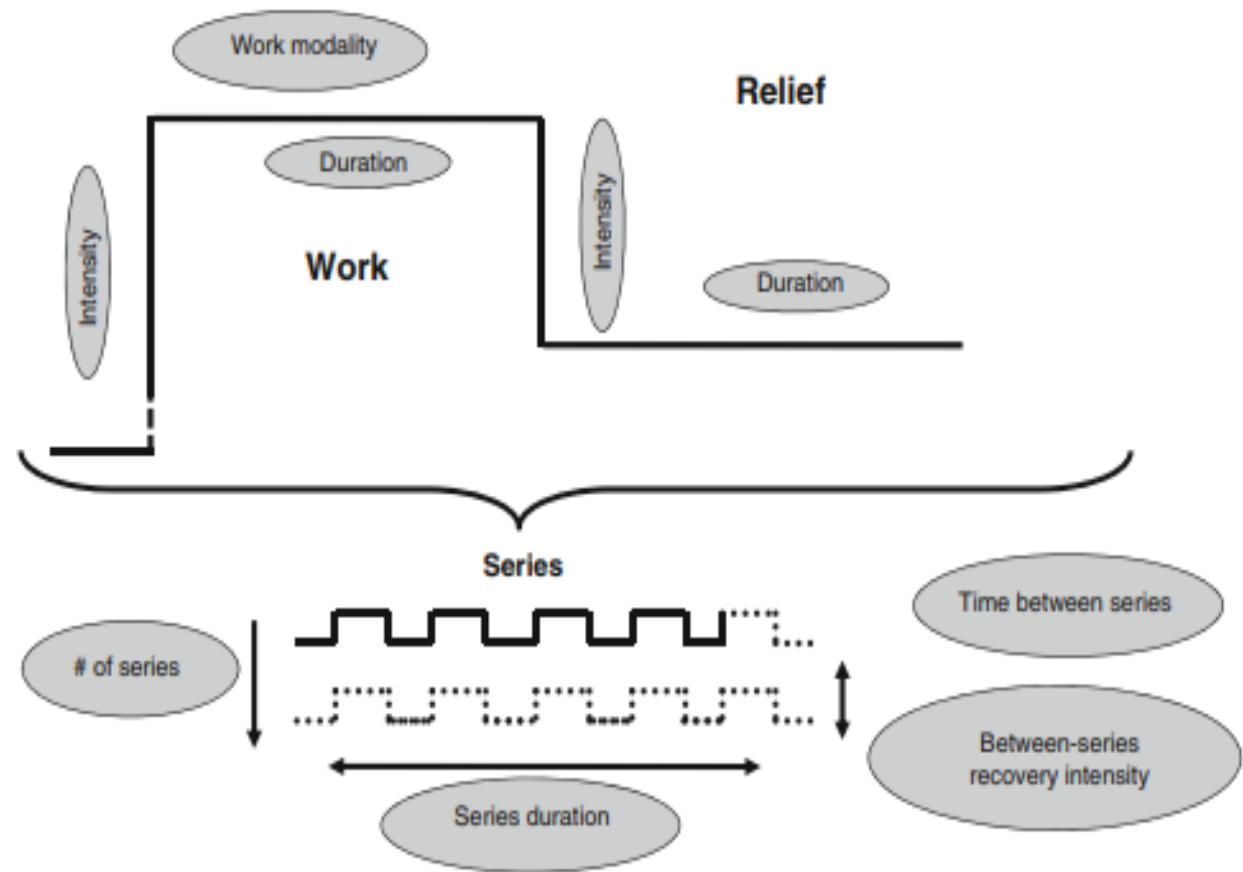
- Progress in one or more variables can be made once all intervals can be completed at the initially prescribed intensity

Basic HIIT session structure

- Objectives
- Health and Safety
 - PARQ/Verbal PARQ, RA, written/verbal consent
- Warm up (RAMP)
 - Pulseraiser
 - Activation
 - Mobility
 - Preparation - Mechanics of movements
- Main session
 - Series of single or multiple exercise intervals activities (see following slides)
- Challenge or game or other fun activity
- Cool down
 - Pulse lowering activity
 - Static stretch
- Feedback and participant check

HIIT variables

Any of the variables listed here can be manipulated in an attempt to create the highest intensity/min possible



HIIT exercise modality

Cardio

- Whole body, rhythmical movement
- 'True' HIIT
- Most research available uses this modality

Bodyweight

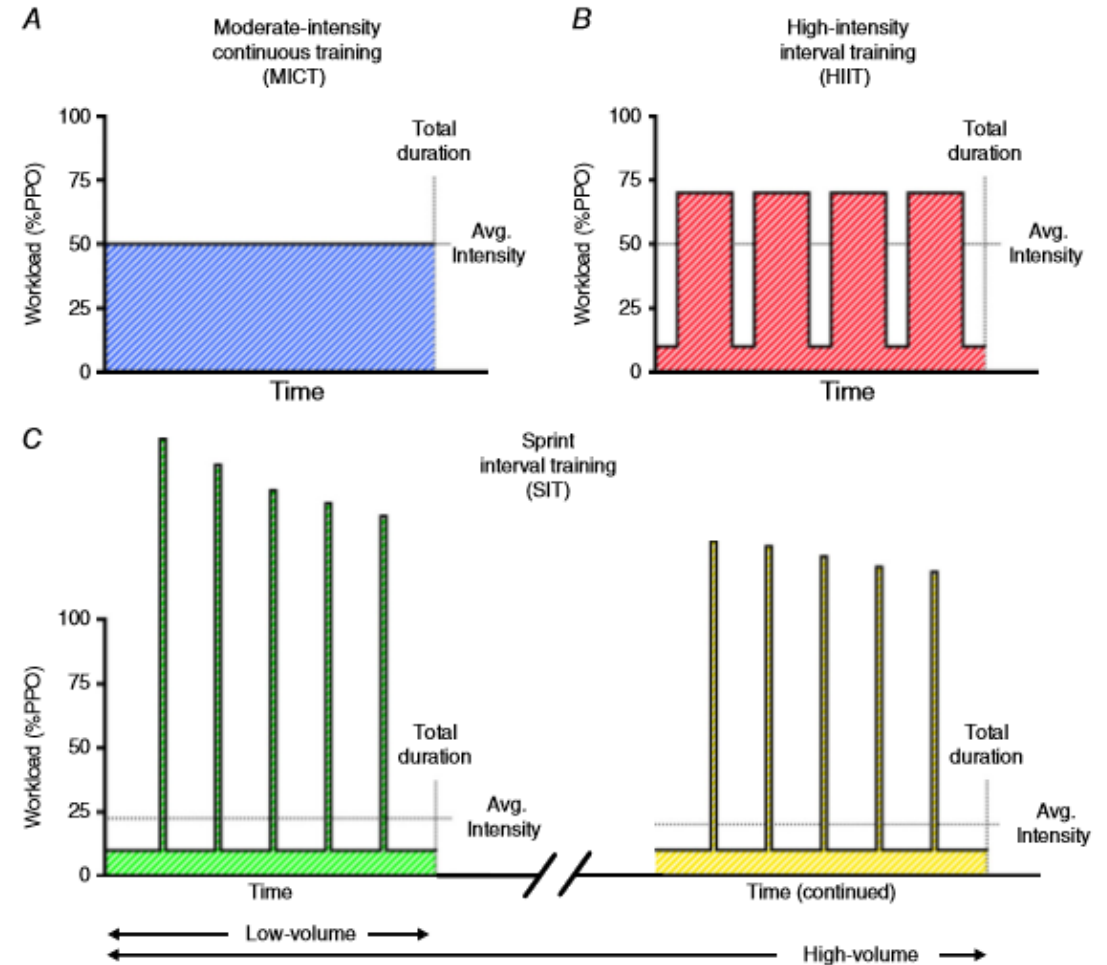
- Whole body, rhythmical movement
- Some exercises potentially do not elicit a big enough O₂ demand

Resistance

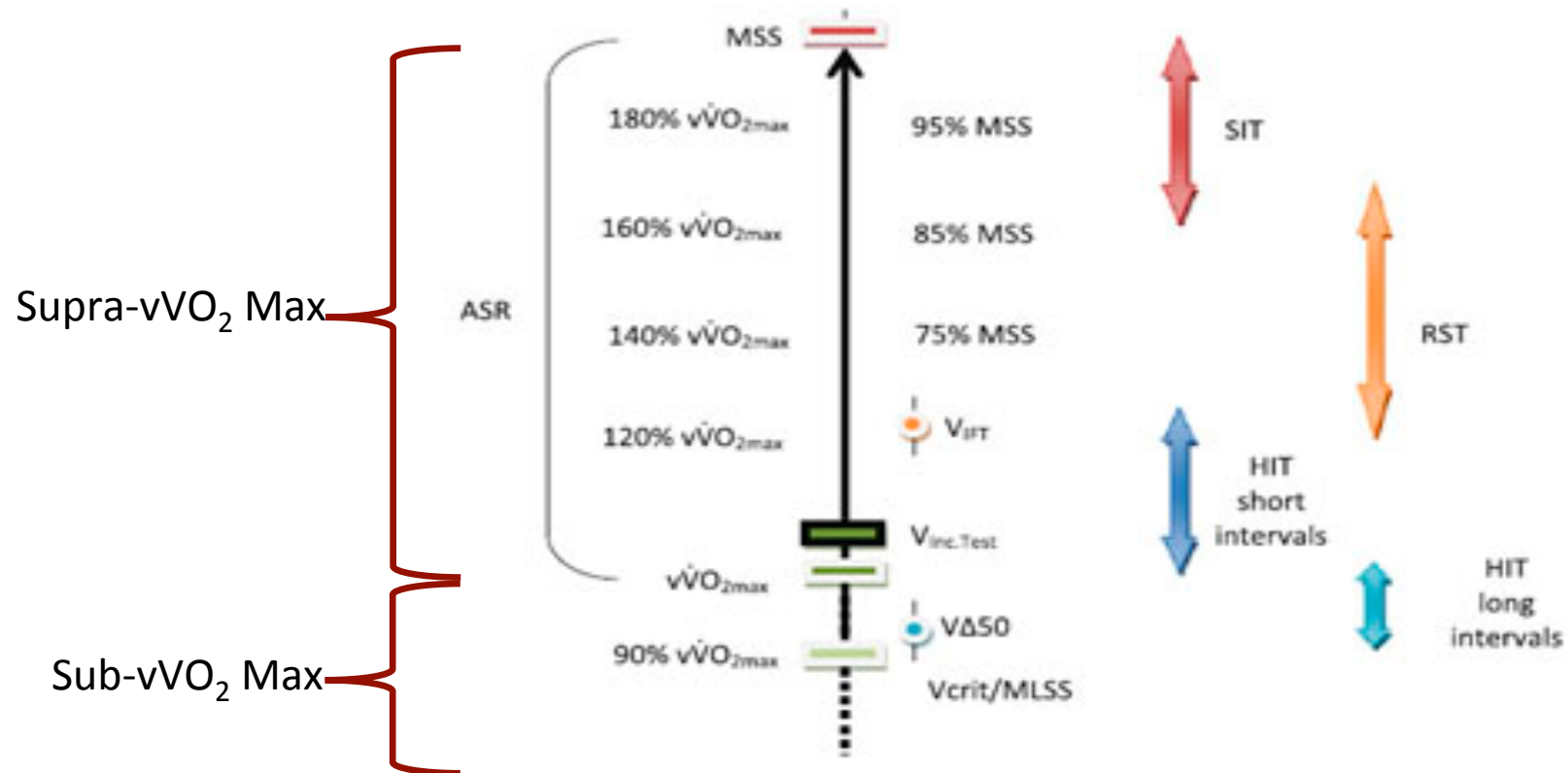
- Whole body, rhythmical movement
- Technique issues
- Cardio-respiratory response impaired by muscular fatigue

HIIT training method variations

- MICT – Moderate-intensity continuous training
- HIIT – High Intensity Interval Training
- SIT – Sprint Interval Training
- IT – Interval Training
- RSA – Repeated Sprint Training
- FT* – Fartlek Training



HIIT variables cont.



MSS – Maximal Spring Speed
 SIT – Sprint Interval Training
 RST – Repeated Sprint Training

ASR – Anaerobic Speed Reserve
 $v\dot{V}O_2$ – Velocity at $\dot{V}O_2$ Max

Cardiovascular exercise selection

The CV exercises you select will largely be determined by space and equipment, but may include variations of:

- Running
- Jumping
- Skipping
- Punching

Ergometers may also be used

- Rower
- Ski
- X-Trainer
- Treadmill
- Bike (Standard, Spin, Assault/Air bike)

Resistance exercise selection

For variety and a 'whole body' approach to planning your HIIT class, you should consider the movement patterns that you will be using in your resistance exercises:

- Squat (simultaneous knee and hip flexion/extension)
- Hinge (predominant hip flexion/extension)
- Push (Elbow extension and shoulder horizontal flexion)
- Pull (Elbow flexion and shoulder horizontal extension)
- Rotation (rotation around midline)
- Anti-Rotation (isometric resistance to rotation)
- Locomotion (movement under load)

Additionally, a variety of equipment can be used:

- Barbell
- Kettlebell
- Dumbbell
- Resistance band

Resistance exercise selection cont.

You should also consider planes of motion:

- Sagittal
- Frontal
- Transverse

And then choose appropriate progressions for your clients:

- Uni-planar (one plane of motion in use)
- Bi planar (two planes of motion in use)
- Tri planar (three planes of motion in use)

Resistance exercise selection cont.

Finally, you should choose an appropriate repetition velocity for each exercise:

- Static (no movement – isometric contraction)
- Slow (2-10 second controlled contraction –eccentric/concentric)
- Moderate (1-2 second eccentric/concentric contraction)
- Fast (< 1 second eccentric/concentric contraction)
- Maximal (Full intention to move quickly)

Main session

There are many different styles of HIIT circuit available to you. Whichever you choose, practice the circuit (or elements of it) before delivering it for the first time, to be sure that it 'works'. Styles of HIIT circuit include:

- Single exercise
- Traditional station circuit
- Layering
- 'You go I go'
- EMOM
- PHA
- EDT

*See HIIT Practical Application Part 2 ppt for examples of these circuits