

High Intensity Interval Training

What is High Intensity Interval Training (HIIT)?

Rather than traditional aerobic (cardio) training that is done at constant steady pace, Interval training is any training where is a 'work' phase and 'rest' phase. As the name implies High Intensity Interval Training involves going very hard in the work phase. Also the rest phase doesn't necessary mean complete rest – you are likely to continue very light activity (e.g. walking on the sport, very gentle paddling)

Why is it good?

There is a significant amount of scientific research highlighting the benefits of HIIT as well as the practical benefits. These including:

- **Motivation** - it not monotonous as you are changing pace or activity rather than plodding along.
- **Time efficient** – as you'll see in the examples a session is short – up to 30mins including warm up and cool down.. (There some evidence that even very short sessions can be effective). Much quicker than a long run, yet a short HIIT session is more beneficial.
- **Improved fat burning capacity / Weight Loss:**
 - Firstly, HIIT is better at increasing the number and size of Mitochondria in your cells – those are the ones that burn calories.
 - Secondly, with HIIT you work much harder, and calorie expenditure increases exponentially – so you burn more energy overall in a shorter time.
 - Thirdly, Excess Post-exercise Oxygen Consumption - with traditional aerobic training you are working at a level where you only burn energy at the rate your body can replenish it at, so you only burn calories during the activity. With HIIT your body goes into oxygen debt and has to keeps burning energy to replenish stores in your muscles after the activity (for up to 24hrs after).
- **Improved Anaerobic Threshold** – basically as this improves it means you'll be better at working harder and keeping this going for longer before lactic acid build up kick in.
- **Improved VO2Max** – most simply our heart and lungs become more efficient at using a transporting oxygen around the body to the muscles that also become more efficient at using it.
- **Increased Endorphins** – Endorphins are a natural response to pain, so working harder means more 'feel-good' chemicals are released into the body.
- **Athletic performance** – it better replicates and trains us for the activity we want to do (ie slalom) Slalom racing is in effect a series of high intensity efforts – so HIIT sessions get you used to going as hard as you can, repeating it numerous times, can builds explosive power, develops the right energy systems for slalom, but also prepares paddlers mentally for working at high intensity in a race.

Formats and activities?

The great thing about HIIT is that there are various formats and activities that you can use in a session. You could do a HIIT session running, cycling or in your boat. If you have access to a rowing machine, exercise bike, or kayak ergo you use those. You could also do a HIIT session at home with simple bodyweight exercises or just a few weights – see the example sheets.

There are various 'intervals' you could use – again see the example sheets. Common sessions include:

- 30 sec work and 30 rest on 5 different exercises, repeated 3 times through
- Tabata format – select 5 or 6 exercises and do the first for 20 sec work, 10 sec rest x 8 before a minutes rest, then repeat for each of the following exercises.

- Progressive format: 10sec work then 50 sec rest x 2, then 20 sec work and 40 sec rest x 2, then 30 work and 30 rest x 2, then 40 work and 20 rest x 2, then 50 work and 10 rest x 2 (this get really hard so for advanced only!)

How intense is 'High Intensity'?

For a HIIT session you are going as hard as you can for the duration of the work period. These are relatively short so you can work at a very high level (at or close to maximal).

Importantly:

1. Everyone is different – so 'as hard as you can' for one person will be different to 'as hard as you can' for another, depending on each person's fitness, the exercise or activity.
2. As you get fitter, you have to work harder to still be working 'as hard as you can'.

How often?

It depends on what you want to achieve and what other training you are doing (remember you need so rest/easy days).

Paddlers might only do one 'dry' HIIT session a week, and do some other sprint intervals in their boat.

Or perhaps you substitute a HIIT session when you can't get in a boat (away, river is too high etc)

If you were doing HIIT to lose weight I'd suggest 3 times per week.

Adaptions and Progressions

Start with say a programme of 30 sec work, 30 sec rest and aim to work through 5 exercises 3 times i.e. 15 work interval (that's only 7.5 mins total). Try to pick exercises that work different parts of your body (see example sheets).

Initially you may only do 2 sets of each exercise, if so build up to the full 5 x 3 format. If that starts to become easy, you could look at increasing things to 6 exercises x 3, or 5 exercises x 4. I wouldn't change the work/rest intervals.

Also remember that your body adapts to the exercise – so changing the 5 exercises can make a big difference, also simply changing the order can make a difference.

Another progression is to make the exercise harder as you adapt (add more weight/resistance e.g. so you may start with a press up on a box or chair, and lower your hand height as you get stronger, eventually moving to clap press ups or with feet raised. If you are on an exercise machine increase the resistance (or incline). Outside you can run up hills, drag something behind your boat etc.

Safety

- **Make sure you do a good warm up before a HIIT session**
- **As with any exercise programme if you are sedentary it recommended you check with a doctor that you are fit enough to take part. If you don't exercise regularly you should check with your GP if you are ok to start, then build up steadily.**

Tips

- It is hard – it's supposed to be! But you will start adapting to it after a few sessions! So bare with it for a few weeks.
- You need to use a timer – a countdown stopwatch or possibly your phone's timer will work if they have a repeat function and you can programme it for the desired work and rest phase. There are various free and paid for app that will do this for you. I use the paid version of Tabata Stopwatch Pro [£5ish] as I can save various different intervals rather than having to set them up each time.
- Try to count and then record how many of each exercise you do in each work phase – it helps you track whether you are working as hard in each set, and highlights when you are making progress
- When it begins to feel easy change things up (different exercises, make the exercise more difficult, change work and rest times)