

DiAthlete

Type 1 Tips in Exercise with the original DiAthlete



Gavin Griffiths ran his first marathon and diabetes fundraiser in 2008, and after finding a love for extreme challenges, started 'DiAthlete' initially as a blog in 2012. This coincided with the *London 2012* Olympics where he was an Olympic Torchbearer. Gavin was keen to share insights about exercise and diabetes, as a Type 1 with a passion for sport. Now, *DiAthlete* has been established as a charitable incorporated organisation and although our founder isn't directly on the trustee team, he still volunteers his time and ideas to support our projects and the diabetes community. We've bulleted a few eye-catching varieties of challenges he has experienced, in a long list of diabetes adventures:

- Running 30 marathons in 30 days from John O'Groats to Land's End;
- 25 marathons in 1 month of travelling UK & Ireland;
- 7 marathons in 7 days, around Long Island, NY;
- Cycling 1500km in 9 days, Brussels - Paris - Geneva;
- Completing ultras & marathons in the Isle of Wight, Costa Rica, Australia, Ghana, India;

- Providing a 5k Running Tour with diabetes communities across 6 continents;
- x4 Ascotid Trail Race Half Marathons in Targu Mures, Romania;
- Trekking 5-days around Hekla Volcano in Iceland, and 3 days across the rainforest in Puntarenas, Costa Rica.
- Semi Professional tier football at Dartford FC, Bromley FC and Phoenix Sport

Here, Gavin writes some quick tips on preparation for exercise with Type 1 diabetes:



- **Know key details of the exercise you're about to do:**

- What's the likely duration of being active (is it a 60 min or 90-minute game; is it a 30 min jog or 1.30 hour jog?)
- are you competing or training?
- consider the types of movements in your activity, is the heart going to be racing or is it more endurance? Aerobic or anaerobic movements?
- Are we talking a team sport at a weekend, such as a football or rugby fixture, or are we planning for an endurance challenge such as a marathon, or a fitness routine from the differing elements of weight

lifting to cardio?

"Of course, in general you are going to know these details about what you are going out to do. Bring diabetes into your prep mindset, don't let it be the other way around."

- **What are the levels saying?** "Perhaps not a rocket science tip, but in all things we must be aware of what our blood sugars are up to. On a sports day, I'm further looking at whether there has been any changes in my levels from when I woke up, to the preparation for exercise. Time depending, for example it could also be an evening session in the gym, look to see what noticeable changes might have occurred in recent hours; whether there's been a slight drop in levels before starting activity. Take that information into consideration when you take onboard any necessary carbs with your activity, or estimate an appropriate quantity of supplies to take with you."
- **Being strict on your timings in advance.** "This applies for both timings of meals and timings of insulin doses. With meals, to start for any athlete, you do not want to be going into a sports game without having had a chance to digest! At the same time, you don't want to go in short of energy. So, finding the balance of having the right meal with having it at the right time is important in general.

More so, you do not want to be getting active with an over-active dose of insulin in your system! This can negatively impact your levels, especially in aerobic movements, potentially causing them to crash low quite rapidly. Making a plan in advance for the types and timings of meals with insulin is important: *if it's a later morning 45-minute to 1-hour jog on a Sunday, did you need the full whack of calculated bolus insulin 1.5 hours before with your Sunday breakfast?* Though you might well have needed some bolus with your pancakes, with



the aerobic exercise to come you might consider reducing the bolus given how active it will be when you begin activity.”

- **Types of meals in advance.** “As a marathoner, I am not just looking at my breakfast in ‘preparation.’ I am also considering the likely duration and level of intensity in my activity – I have taken some challenges where I’ve been out active for up to 12 hours! – and so I am looking at the meals the day / evening before, particularly dinner. To make sure I’m nourished for a challenging endurance exercise like half or full marathons, trail, long hikes, triathlons, ultras etc, a fuelling meal such as a pasta bowl could be recommended, to build the glycogen storage.

For pre-meals in all sports, I do not recommend the higher fat meals in advance as this for one may not respond best in your belly during movements, but furthermore where diabetes is concerned, this can cause an unpredictable outcome and even delayed blood glucose spikes close during or even just after activity (whether aerobic or anaerobic). This makes it a bit uncertain to what the cause of the spike is, or whether or not you’ll crash lower after. I recommend for pre meals to have a more ‘faster acting’ but substantial carb meal, such as porridge or eggs and beans on toast, timed 3 hours beforehand.”



- **Starting in range.** “Easier said than done! But I don’t aim to start higher in levels, despite the potential of levels dropping in many forms of activity. I want to do my best to start in a positive blood glucose range – perhaps aiming to steer above the 5 mmol/l mark as a safety net, and targeting around 6.0 to 9.0 mmol/l as a strong start point. Simply put: being in range is when you’re at your best mentally and feeling that way physically, in order to perform your best. So starting there makes total sense, as opposed to a high blood sugar level. Then its about keeping it there!

Be mindful, it is not about the number that the level is, it is about what that number is doing!”

- **Making insulin decisions.** “Timing of insulin is one thing, but also consider the duration and type of activity you are to take on in thinking whether or not to take any insulin reductions. On an insulin pump, for example, you have an added flexibility in not only being able to suspend insulin, but to set a temp basal dose for the duration of your exercise.

If it is 30 mins of aerobic activity, where levels are far more likely to drop – and even more so, if there’s a bit of active bolus in the background – then sure, maybe the best option could be to suspend the insulin completely for the duration of your activity. Keep in mind there, if there is an active bolus still in the system, you still might find levels to drop, so that comes back to the ‘timing of insulin and meals’ mentioned before. However, if it is a longer duration of aerobic exercise, you’re out for a couple of hours, cycling, running or rowing, you absolutely want less bolus active from the start – but in that longer duration, your body might still require some background insulin, so a temp basal on a pump set to a much reduced amount, going on your levels and what you usually find works best (encouraging you here to trial it out to find your best insulin regime in activity) is likely the stronger option.



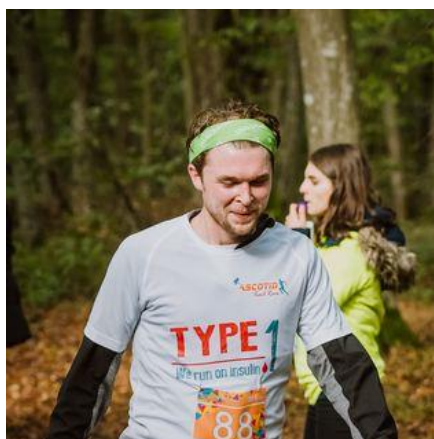
On multiple daily injections (MDI) it is a bit different to a pump in regards to this basal dose, I found one useful method that worked in flexibility was having a split basal dose – 50% of my insulin in the morning, 50 % 12 hours later thereabouts in the evening. Talk to your diabetes team about that. What this meant with exercise was that I could tweak those doses a little more on the exercise day, if I am starting in the morning with aerobic exercise that's quite high intensity, maybe it is that evening dose I need to consider lowering, then I can go with a slightly reduced amount in the evening due to the impact of the exercise of that day, but not too reduced to negatively impact the next morning / day when I'm not doing that activity.

You could also potentially 'fast' for the morning exercise, in being active early enough to not have had a meal and therefore a required bolus dose. This for both MDI and Pump, usually has a strong result of levels not decreasing so rapidly, though with a Pump, as your basal insulin is essential a form of rapid insulin, you might find you're not quite 'fasting' in the insulin sense and can still find those levels lowering more than a person on MDI would in doing this. The key with this is, when you come back after that early morning activity, remember to have a good meal... and that you probably don't need the fully calculated dose of bolus with it with a slight reduction."



- **Hydration and preparing the body.** "It isn't just about the diabetes, to be at your best you have to treat your body in the best way. A lack of sleep, for example, gives stress to the body when you wake up and you both mentally and physically will feel the impact, even find those levels might have shot up a bit higher when you wake, and this will potentially interfere in how you perform.

Hydration is similar; the body depends on it! So a key tip in prep is to keep hydrated and get a solid amount of sleep to be at your best.



Warm ups and cool downs are also important. This goes again for any athlete. With diabetes, you want to consider what is going on with the levels with this too – if you're doing an aerobic activity like a long run again, well you need to consider a warm up might also be aerobic too and might mean you need some more glucose from the start. I look at this also from the anaerobic lens with even greater importance. Particularly team sports, like football. Warm ups are good, get light movements going, a feel for the ball too. This is you getting in the zone!

With the adrenaline of a game, and movements to come, you might find blood sugars climbing up higher on game day. Therefore, you're not in need of reducing your insulin. In some occasions, it may even be the opposite to consider. But a nice, calm, aerobic warm up, jogging, walking, light stretches... that can help prevent the levels from going too high in that first half for example.

More so... after the game. You've been sprinting on and off in that rugby, football, basketball encounter. It has been physical. Emotional. And you've found those levels go higher... cool it down. Aerobic movements again. Lactate has built up in your muscles and this produces

glucose that gets transferred to your liver. You can reduce the lactate by cooling those muscles down. The aerobic movements can also help get levels down a little sooner... because you know what's coming after a 60, 70, 90 minute etc game of intense sports. A crash in blood sugar levels later on. The cool down can be a positive benefit after activity to balance levels out, remove the stress from your muscles and also to help prevent a later night time hypo occurring. Have your solid meal in the hour or so after the game with less bolus calculated, even if you're still a little higher in levels at that time."



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