WAIT LIFT

In my last Uniblog I began a refresher course in darting rocket science with an apology that I would be recycling bits from my early blogs.

This time around, however, before diving into any aerodynamic theory, first I'm going to try and establish why dart players should care – explaining lift will just have to wait!
Given that aim, it might seem surprising that last time I resurrected a bit from my 100th blog which basically said that, if a dart lands at a reasonable angle but misses its target by more than a few millimetres, maybe a centimetre, it's just be thrown in the wrong direction and "no amount of clever aerodynamics short of a guidance system can help".

So does that mean dart aerodynamics is almost irrelevant for the majority of players? Does finding exactly the right set-up from the vast range of flights and shafts on the market actually make very little difference? In fact, is darting rocket science itself (and hence these blogs!) largely a waste of time for all but those elite few players for whom a few millimetres can make a big difference?
To show why I maintain the answer to that question is a very definite no, let's first consider players with a 3-dart scoring average of around 50 when aiming at treble 20, so hardly part of the "elite few". Given normal statistical trends, around 50% of their darts will land within a centimetre of that treble target, so even for them millimetres are important.

In fact, for such players, improving the aerodynamic accuracy of their darts by just 4mm would increase their scoring average by over 10 points. Moreover, using the same type of stats for a better player with a 3-dart scoring average of around 70, just a 2mm improvement would achieve a similar result. Who wouldn't be happy with that?

Thus, even for players whose darts land at reasonable angles, getting the aerodynamics right can make a substantial difference. But it can make even more difference for those whose darts land a little more askew!

As I explained last time, apart from a millimetric deviation due to aerodynamic forces, the centre of gravity (cg) of a dart will follow a parabolic trajectory totally determined by the speed and direction of the throw. But that doesn't mean the point will, and that's the bit that counts. A typical distance of the point from a dart's cg is around 50mm, which means that, if the dart lands in the board at an angle of 30 degrees to its trajectory, the point will be 25mm – nearly an inch – off line.
So, as well as that small but nonetheless potentially important contribution to accuracy which can come from optimising the aerodynamic forces acting on a dart, yet more can be had from optimising how it lands in the board. Even the greatest sceptic of darts science will hopefully concede this is greatly affected by the set-up – more often than not, for example, such extreme angles can be mitigated by simply using bigger flights.

Which brings me to my food-for-thought sign off for this blog.
Bigger flights can obviously increase the deviation due to aerodynamic forces, but whereas that is very hard to observe, the angle at which the dart hits the board is not. So larger flights are an unsurprising choice even for many professionals.

An unsurprising choice, maybe, but necessarily always the best? A topic for the future, maybe!