

Can Disc Golf Par be Set According to the Disc Golf Definition

While Producing Winning-Under-Par Scores Which are Similar to Golf?

(While Also Offering Enough Birdies.)

By Steve West Disc Golf, LLC

July 31, 2023

The goal is to find out whether disc golf could have the same kind of winning under-par numbers as golf; while still offering enough birdies.

So, I set out to find how the Preserve could to be adjusted to get either 10% or 25% birdies for a 1000-rated player on every hole. I used the Preserve because it is notoriously birdie-able, and because it has the physical room to actually make radical adjustments to hole lengths.

The chart below shows the results as they were recorded at the event. I picked a round rating of 1060 to represent what a winning score might be. The scores for 1060 are extrapolations from the scores of the highest-rated players.

Event Par and Length					
Hole	Par	Length	Birdies	1000 Ave	1060 Ave
1	4	708	50%	3.61	3.24
2	3	318	28%	2.88	2.57
3	3	408	42%	2.63	2.48
4	4	746	18%	4.07	3.67
5	3	275	36%	2.73	2.51
6	4	695	7%	4.40	4.09
7	3	390	46%	2.58	2.30
8	5	1,111	40%	5.06	4.52
9	3	406	66%	2.46	2.16
10	5	1,158	52%	4.61	4.17
11	3	375	47%	2.80	2.72
12	4	760	15%	4.13	3.68
13	3	348	33%	2.84	2.52
14	5	1,058	14%	5.50	4.88
15	4	738	31%	3.80	3.41
16	3	402	39%	2.72	2.36
17	3	243	50%	2.61	2.43
18	5	942	54%	4.54	4.04
Total	67	11,081	37%	63.96	57.76
To Par				-3.04	-9.24

Obviously, experts should not be expected to score 3 throws better than errorless play per round. And, these pars do produce winning-under-par scores much bigger than would be seen in big golf events.

But, we are trying to find out if correct disc golf pars *can* produce winning-under-par numbers like golf's. It tells us nothing to see that inflated pars will not produce winning-under-par scores like golf's. So, rather than super-size the course to justify the inflated pars which were set for the event, we should first take the easier step of adjusting pars to be equal to the PDGA Guidelines.

The chart below shows what would have happened if par had been set according to the Guidelines.

Guideline Par with Event Lengths					
Hole	Par	Length	Birdies	1000 Ave	1060 Ave
1	3	708	0%	3.61	3.24
2	3	318	28%	2.88	2.57
3	3	408	42%	2.63	2.48
4	4	746	18%	4.07	3.67
5	3	275	36%	2.73	2.51
6	4	695	7%	4.40	4.09
7	3	390	46%	2.58	2.30
8	4	1,111	0%	5.06	4.52
9	2	406	0%	2.46	2.16
10	4	1,158	0%	4.61	4.17
11	3	375	47%	2.80	2.72
12	4	760	15%	4.13	3.68
13	3	348	33%	2.84	2.52
14	5	1,058	14%	5.50	4.88
15	4	738	31%	3.80	3.41
16	3	402	39%	2.72	2.36
17	3	243	50%	2.61	2.43
18	4	942	13%	4.54	4.04
Total	62	11,081	23%	63.96	57.76
To Par				1.96	-4.24

This simple step *by itself* brings the winning-under-par score within the typical range of golf winning scores of about 4 or 5 under par per round.

One issue is that there is a par 2. Even if we call #9 a par 3, the winning score relative to par still looks like a golf score. However, as par 2s can never be birdie-able enough, in the next step I'll solve for the adjustments needed to hole #9 which will create enough birdies *as a par 3*.

Next, we adjust each hole to generate a targeted percentage of birdies - within the bounds of Guideline pars.

To figure out how much to adjust each hole, we look at the scoring distributions across all player ratings. Find which player rating had scores which correspond to the targeted percent of birdies. Then we look at how the average score at that rating compares to the 1000-rated average. We can then use the fact that average score is pretty much a linear function of both player rating and length of hole to compute how much to adjust the hole. At The Preserve the average score of a 1000-rated player goes up by one throw for every additional 327 feet in length.

The chart below shows the hole lengths that would result in 25% birdies for each hole. (Or as close as possible if the adjustment needed is larger in magnitude than what can be reasonably extrapolated.) The scores for 1060 are the scores from the first table, plus (or minus) one throw for every 354 feet of added (or subtracted) distance.

Guideline Par (no 2) Lengths set for 25% Birdies					
Hole	Par	Length	Birdies	1000 Ave	1060 Ave
1	3	475	19%	2.90	2.58
2	3	346	25%	2.97	2.65
3	3	482	25%	2.86	2.69
4	4	695	25%	3.92	3.53
5	3	327	25%	2.89	2.65
6	4	564	25%	4.00	3.72
7	3	482	25%	2.86	2.56
8	4	817	13%	4.16	3.69
9	3	597	25%	3.04	2.70
10	4	905	25%	3.84	3.46
11	3	514	25%	3.22	3.11
12	4	705	25%	3.96	3.52
13	3	405	25%	3.01	2.68
14	5	969	25%	5.23	4.63
15	4	773	25%	3.91	3.51
16	3	467	25%	2.92	2.55
17	3	355	25%	2.95	2.75
18	4	843	25%	4.23	3.76
Total	63	10,720	24%	62.85	56.74
To Par				-0.15	-6.26

Note that this does not change the total length by much, and it produces about the same overall percent of birdies as merely setting par according to the Guidelines.

One wonders if there is an advantage to spreading the birdies evenly over all the holes; or is it more interesting to have a variety of holes where it is easier or harder to get a birdie?

When all the holes offer about a 25% chance of birdie, the resulting 1060 score of more than 6 under par per round may be too much under. The chart below shows how far we could push the course to produce less-far-under winning scores, but with each hole still offering some chance to birdie. The target was to have each hole offer a 10% chance of birdie.

Guideline Par (no 2) Lengths set for 10% Birdies					
Hole	Par	Length	Birdies	1000 Ave	1060 Ave
1	3	522	10%	3.05	2.71
2	3	496	10%	3.43	3.07
3	3	580	10%	3.16	2.96
4	4	806	10%	4.25	3.84
5	3	433	10%	3.21	2.95
6	4	672	10%	4.33	4.03
7	3	581	10%	3.17	2.84
8	4	842	10%	4.23	3.76
9	3	751	13%	3.52	3.14
10	4	1,026	10%	4.21	3.80
11	3	606	20%	3.50	3.37
12	4	821	10%	4.31	3.85
13	3	599	11%	3.61	3.23
14	5	1,102	10%	5.63	5.00
15	4	888	10%	4.26	3.84
16	3	588	10%	3.29	2.89
17	3	501	10%	3.40	3.16
18	4	1,035	10%	4.82	4.31
Total	63	12,849	11%	69.36	62.75
To Par				6.36	-0.25

This shows that a course can have pars compatible with the PDGA guidelines and have a range of winning-under-par scores. All the way from about zero under to more than 6 under. That brackets what is typically seen in golf.

Thus, the answer is Yes, a course can use the disc golf definition of par and can be fine-tuned to generate winning scores relative to par which are similar to golf. In fact, merely using the disc golf definition of par will produce winning scores about as much under par as is seen in golf.