Highly Proficient Golfers Exhibit Greater Consistency In Driving Ball Flight Characteristics Than Less Proficient Golfers.

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It is believed that consistency of golf ball flight characteristics (BFC) is more indicative of golf proficiency than traditional measures of golf performance such as club velocity (CV) and total driving distance (TD). Highly proficient golfers are believed to have more consistent BFC between swings than less proficient golfers.
PURPOSE: To determine whether BFC consistency differs between highly proficient golfers and less proficient golfers. **METHODS:** Ninety male golfers (43.5 ± 14.4 years) performed ten golf swings with their own driver. A golf launch monitor was used to measure BFC. The mean and standard deviations (SD) of CV, ball velocity (BV), vertical launch angle (VLA), horizontal launch angle (HLA), backspin (BS), carry distance (CD), and TD were calculated for each subject using the five drives with the greatest TD. The SD of BV, CD, and TD were normalized (SDN) to their respective mean values. Lower SD and SDN were interpreted to represent greater consistency. Golfers were grouped based on proficiency by USGA handicap: low (L: <8, n=56), mid (M: 8-14.9, n=25), and high handicap (H: ≥15, n=9). One-way analysis of variance and Tukey's *post hoc* procedure were used to determine differences between groups. Statistical significance was set *a priori* at $p<0.05$. **RESULTS:** There were no significant differences between groups for BS or CV consistency. Statistically significant differences are italicized in the table below.

Differences in Consistency of Ball Flight Characteristics

Consistency	High	Mid	Low	High vs. Mid	High vs. Low	Mid vs. Low
SD VLA	2.31 ± 0.69°	2.16 ± 0.83°	1.67 ± 0.55°	p=0.831	***p=0.021***	***p=0.006***
SD HLA	2.83 ± 0.96°	2.59 ± 0.96°	2.00 ± 0.95°	p=0.794	***p=0.045***	***p=0.031***
SDN CD	0.047 ± 0.021	0.033 ± 0.012	0.025 ± 0.012	***p=0.030***	***p<0.001***	***p=0.041***
SDN TD	0.048 ± 0.020	0.034 ± 0.012	0.025 ± 0.013	***p=0.018***	***p<0.001***	***p=0.030***
SDN BV	0.029 ± 0.011	0.018 ± 0.007	0.013 ± 0.006	***p<0.001***	***p<0.001***	***p=0.038***

CONCLUSION: Lack of significant differences between groups in SD or SDN of CV indicates that golfers generate power with similar consistency. Significantly lower SD for VLA and HLA and SDN for BV, CD, and TD in L compared with M and H indicate that proficient golfers are more consistent in transferring the generated power to the ball, resulting in more consistent BFC. The relationship between consistency and proficiency is further demonstrated by significantly lower SDN for CD, TD, and BV for M compared to H. Though not significant, there is a trend for lower SD of VLA and HLA in M compared to H. Together, these data suggest that consistent BFC are a key contributor to golf proficiency.