

The Senior Golf Movement Assessment (SGMA) as a predictor of Clubhead Speed in amateur senior male golfers.

Sarah Martin,^{1,2} Vicki Evans,¹ Thomas E. Bright,¹ Dr. Sharon Dixon² and Dr. Genevieve Williams²

¹ Plymouth Marjon University, ² University of Exeter

Introduction

Golf popularity among older adults is driven by its perceived benefits as a low-intensity activity which promotes health [1]. However, the golf swing poses injury risks, especially for those lacking physical conditioning. Ageing golfers experience performance declines, reflected in increased handicap and reduced clubhead speed (CHS) [2], alongside declines in balance, strength, and flexibility [3]. Movement screens, commonly used to predict performance issues or injury risks [4], have shown positive associations with performance in younger golfers (such as the Golf Movement Screen [5] and the Titleist Performance Institute movement screen [6]). However, similar screening tools are unexplored among senior golfers. Therefore, the aim of this study was to investigate the correlation between the Senior Golf Movement Assessment (SGMA) and CHS in older amateur male golfers.

Methods

Following a dynamic warm up [7], CHS was measured from three driver swings for maximum distance (Trackman Launch Monitor - ISG Company, Vedbaek) on 29 right-handed amateur senior male golfers (age = 65.93 ± 5.96 years; handicap = 16.22 ± 6.94 ; CHS = 87.3 ± 8.5 mph). Participants then completed the SGMA which was video recorded for analysis. The SGMA, developed as part of this PhD programme, comprises 10 exercises (trunk inclination, seated hamstring, thoracic rotation, rotation over fixed foot, lunge, overhead squat, balance, golf posture, 90/90 shoulder external rotation and side plank), scored on the right and left sides (0-3 scale). Scores reflect execution quality where 3 = perfect execution, 2 = minor dysfunction, 1 = major dysfunction and 0 = pain present. The relationship between SGMA scores and CHS was assessed using stepwise multiple regression analyses ($p = 0.05$) after normality testing with a Shapiro-Wilk to determine whether Pearson or Spearman rank-order correlation was used (IBM SPSS Statistics 28, Armonk NY). Research ethical approval was obtained, and participants gave their informed consent.

Results

The 51-point SGMA mean composite score was $34.97 (\pm 6.18)$. Best performance was in the side plank (right: 2.59 ± 0.57 , left: 2.59 ± 0.63), thoracic rotation (right: 2.55 ± 0.57) and rotation over fixed foot (left: 2.55 ± 0.57). Poorest performance was in the 90/90 shoulder rotation (right: 1.48 ± 0.63), and balance (right: 1.59 ± 0.73 , left: 1.59 ± 0.78) (figure 1).

SGMA and CHS were positively correlated ($r = 0.40$, $p = 0.03$). Large significant positive correlations were found between CHS and left shoulder 90/90 ($r = 0.50$, $p < 0.01$) and moderate significant positive correlations with CHS were observed with composite score ($r = 0.40$, $p = 0.02$), trunk inclination ($r = 0.39$, $p = 0.04$), golf posture ($r = 0.40$, $p = 0.03$) and left-side side plank ($r = 0.42$, $p = 0.02$). Moderate correlations with the right leg lunge were

reported ($r = 0.36$, $p = 0.05$) although not statistically significant. In the stepwise multiple regression analysis, the left shoulder 90/90 exercise explained 24% of the variance, increasing to 37% when including trunk inclination in the model.

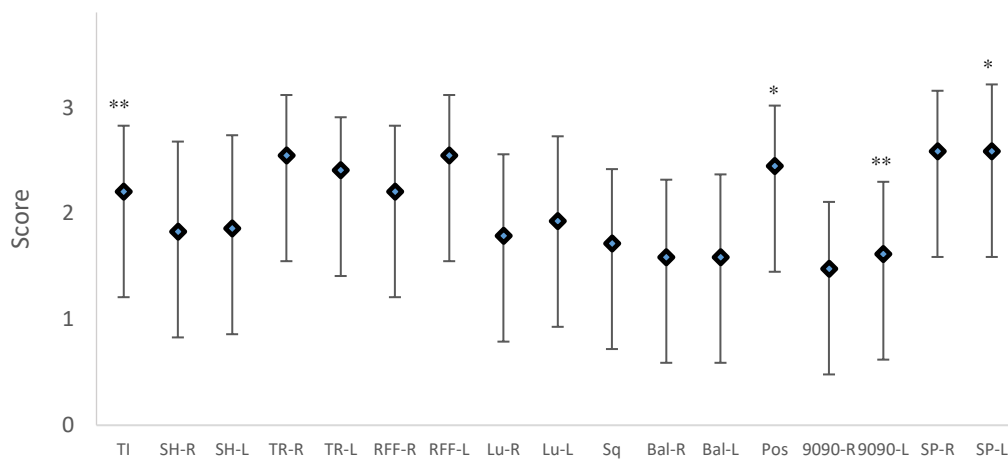


Figure 1. Scores (mean \pm SD) for the SGMA (TI = trunk inclination, SH = seated hamstring, TR = thoracic rotation, RFF = rotation over fixed foot, Lu - Lunge, Sq = Overhead Squat, Bal = Balance, Pos = Golf Posture, 9090 = Shoulder 90/90, SP = Side Plank) in amateur senior male golfers (n=29). * $p < 0.05$, ** $p < 0.01$

Discussion and Conclusions

Positive correlations between CHS and left shoulder 90/90, trunk inclination, golf posture, and left-sided side plank, highlight the importance of shoulder mobility, trunk control, posture, and core strength to influence swing mechanics in senior male golfers. This suggests that the SGMA captures a broader range of movement compensations associated with age-related slowing and increased temporal variability in the swing that influence CHS in this specific demographic [8]. Therefore, this study provides valuable insights into the specific correlates of CHS identified by the SGMA in older, less skilled adult male golfers.

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