



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1st – 2nd, 2019
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



Changes in Vertical Jump and Sprint Momentum at the NFL Scouting Combine since 2000

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PURPOSE: To assess the changes by position in vertical jump and sprint momentum at the NFL Scouting Combine since the year 2000. **METHODS:** Data for 2388 athletes who participated in the NFL Scouting Combine from the years 2000-2003 (00-03; n=1169) and years 2016-2019 (16-19; n=1219) were obtained. Athletes were grouped according to their position at the NFL Scouting Combine into offensive line (OL), defensive line (DL), running back (RB), tight end (TE), linebacker (LB), wide receiver (WR), and defensive back (DB). Athletes not included in one of these categories were excluded from the analysis. Velocity during the vertical jump and 40-yard dash tests was calculated from jump height and sprint time, respectively. Velocity measures were multiplied by the athletes recorded body mass to determine linear momentum during the vertical jump (VJM) and 40-yard dash (40M). Athletes who did not participate in the vertical jump or sprint were excluded from each analysis. Yearly differences in momentum across each position were assessed via 2×7 between-subject ANOVA with Bonferroni-adjusted post hoc tests. The alpha level was set at $p \leq 0.05$, and all data are presented as mean±standard deviation. **RESULTS:** Significant year×position interactions were observed for VJM ($p=0.023$) and 40M ($p=0.003$). Post hoc tests revealed a significantly lower VJM in 16-19 when compared to 00-03 for the OL ($p=0.003$, 521.4 ± 28.7 kgm/s vs 535.1 ± 52.7 kgm/s) and RB ($p=0.005$, 401.6 ± 29.9 kgm/s vs 414.8 ± 37.8 kgm/s). Furthermore, a similar trend ($p=0.056$) was noted for TE, who had a lower VJM in 16-19 (454.4 ± 64.1 kgm/s) than 00-03 (470.9 ± 25.9 kgm/s). For 40M, WR ($p=0.001$) had significantly greater 40M in 16-19 (746.4 ± 49.4 kgm/s) when compared to 00-03 (727.8 ± 53.2 kgm/s). Furthermore, trends for greater 40M in 16-19 were noted for DL ($p=0.071$) and OL ($p=0.090$). Also, RB ($p=0.043$) had significantly lower 40M in 16-19 (785.2 ± 48.5 kgm/s) when compared to 00-03 (799.3 ± 62.7 kgm/s). No other yearly differences were noted for VJM or 40M. **CONCLUSION:** Momentum during the vertical jump and sprint at the NFL Scouting Combine have changed for some positions in the last 20 years. RB have experienced a decrease in both VJM and 40M; while WR, OL, and DL may have increased 40M. Changes in momentum may be indicative of the changing demands of each position in the sport of American football.