

Table S1. Semen quality of rabbit fed control (CNT), High Atherogenic (HA) and High Oxidative (HO) diets.

| | | Volume, mL | concentration, n. x 10E06 | Dead % | Static % | No mobile progressive % | Mobile progressive % | VCL, µm/s | VSL, µm/s | VAP, µm/s | LIN, % | ALH, µm | BCF, Hz |
|----------|-----|---------------|------------------------------|--------|----------|-------------------------------|----------------------------|-----------|-----------|-----------|--------|---------|---------|
| baseline | CNT | 0.33 | 395.31 | 46.55 | 0.3 | 0.45 | 0.25 | 159.86 | 37.5 | 64.69 | 24.38 | 3.62 | 12.44 |
| | HA | 0.13 | 413.67 | 35.83 | 0.15 | 0.58 | 0.26 | 158.89 | 39.17 | 69.12 | 25.73 | 3.51 | 12.6 |
| | HO | 0.46 | 456.33 | 17.33 | 0.09 | 0.55 | 0.37 | 185.3 | 48.19 | 76.79 | 25.32 | 4.45 | 14.24 |
| T0 | CNT | 0.20 | 550.21 | 40.00 | 0.48 | 0.39 | 0.14 | 164.34 | 32.34 | 62.24 | 19.61 | 3.24 | 11.67 |
| | HA | 0.49 | 493.27 | 9.00 | 0.06 | 0.68 | 0.25 | 270.17 | 64.65 | 138.89 | 24.03 | 3.51 | 29 |
| | HO | 0.44 | 492.87 | 12.00 | 0.19 | 0.74 | 0.07 | 212.93 | 39.59 | 102.92 | 18.27 | 3.02 | 17.56 |
| T1 | CNT | 0.15 | 502.41 | 32.60 | 0.38 | 0.49 | 0.14 | 206.02 | 45.48 | 92.76 | 21.95 | 3.47 | 14.85 |
| | HA | 0.33 | 711.42 | 26.88 | 0.31 | 0.55 | 0.14 | 171.12 | 36.69 | 82.45 | 21.74 | 2.03 | 14.43 |
| | HO | 0.53 | 667.88 | 14.38 | 0.08 | 0.78 | 0.13 | 219.97 | 44.16 | 108.13 | 20.36 | 2.70 | 21.11 |
| T2 | CNT | 0.31 | 661.00 | 29.50 | 0.15 | 0.70 | 0.15 | 262.3 | 57.46 | 131.17 | 21.81 | 3.11 | 19.80 |
| | HA | 0.51 | 605.84 | 12.40 | 0.12 | 0.73 | 0.14 | 238.37 | 48.63 | 113.75 | 20.66 | 2.93 | 23.12 |
| | HO | 0.34 | 503.68 | 15.13 | 0.11 | 0.65 | 0.23 | 209.43 | 47.88 | 102.21 | 22.95 | 3.00 | 24.06 |
| T3 | CNT | 0.43 | 550.64 | 21.2 | 0.17 | 0.69 | 0.14 | 256.69 | 51.75 | 123.91 | 20.1 | 3.43 | 18.63 |
| | HA | 0.55 | 459.48 | 15.9 | 0.16 | 0.59 | 0.26 | 219.18 | 52.07 | 103.86 | 23.75 | 3.12 | 26.50 |
| | HO | 0.45 | 638.92 | 20.88 | 0.28 | 0.59 | 0.13 | 190.73 | 39.58 | 93.65 | 20.82 | 2.58 | 21.91 |
| T4 | CNT | 0.26 | 461.38 | 21.50 | 0.50 | 0.42 | 0.08 | 211.34 | 38.26 | 97.87 | 18.04 | 2.62 | 10.58 |
| | HA | 0.28 | 470.77 | 23.10 | 0.19 | 0.67 | 0.14 | 191.90 | 39.12 | 88.95 | 20.33 | 2.51 | 18.60 |
| | HO | 0.50 | 272.22 | 20.50 | 0.35 | 0.47 | 0.18 | 192.67 | 43.29 | 84.04 | 22.53 | 2.48 | 15.46 |
| T5 | CNT | 0.23 | 437.90 | 12.67 | 0.17 | 0.69 | 0.14 | 242.09 | 48.15 | 116.16 | 19.79 | 3.32 | 18.95 |
| | HA | 0.42 | 592.74 | 11.00 | 0.16 | 0.73 | 0.11 | 239.76 | 46.4 | 118.95 | 19.51 | 3.11 | 18.90 |
| | HO | 0.66 | 550.85 | 17.17 | 0.19 | 0.71 | 0.10 | 273.54 | 50.45 | 136.11 | 18.43 | 3.35 | 22.84 |

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|-------|--------------|-------|--------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|
| T6 | CNT | 0.41 | 456.93 | 9.50 | 0.23 | 0.67 | 0.10 | 250.44 | 50.32 | 126.49 | 19.61 | 2.94 | 18.21 |
| | HA | 0.35 | 704.26 | 17.2 | 0.21 | 0.65 | 0.15 | 184.26 | 39.12 | 85.94 | 21.28 | 2.60 | 19.72 |
| | HO | 0.69 | 600.78 | 18.5 | 0.14 | 0.70 | 0.16 | 225.54 | 48.20 | 118.76 | 21.27 | 2.80 | 23.94 |
| T7 | CNT | 0.53 | 536.59 | 10 | 0.15 | 0.78 | 0.07 | 307.33 | 54.05 | 162.09 | 17.81 | 3.62 | 14.42 |
| | HA | 0.35 | 470.77 | 23.00 | 0.26 | 0.63 | 0.12 | 212.61 | 46.08 | 106.29 | 21.70 | 2.68 | 20.21 |
| | HO | 0.40 | 709.84 | 17.5 | 0.1 | 0.75 | 0.15 | 228.49 | 52.72 | 123.08 | 22.47 | 2.98 | 24.09 |
| T8 | CNT | 0.53 | 447.22 | 18.50 | 0.18 | 0.74 | 0.09 | 244.85 | 45.23 | 118.88 | 18.52 | 3.03 | 17.05 |
| | HA | 0.34 | 670.53 | 25.00 | 0.44 | 0.49 | 0.07 | 188.64 | 35.88 | 96.74 | 19.22 | 2.64 | 10.81 |
| | HO | 0.67 | 634.00 | 21.50 | 0.28 | 0.61 | 0.11 | 248.21 | 43.35 | 127.85 | 17.33 | 3.1 | 22.97 |
| RMSE | | 0.147 | 4.355 | 1.044 | 0.119 | 0.116 | 0.097 | 2.047 | 1.02 | 1.558 | 0.588 | 0.272 | 0.794 |
| Sign. | Group | 0.003 | 0.410 | 0.011 | 0.012 | 0.157 | 0.208 | 0.016 | 0.851 | 0.053 | 0.143 | 0.110 | 0.001 |
| | Time | 0.330 | 0.240 | <0.001 | 0.005 | 0.001 | <0.001 | <0.001 | 0.121 | <0.001 | 0.010 | 0.026 | 0.004 |
| | Group x Time | 0.196 | 0.674 | <0.001 | <0.001 | <0.001 | 0.312 | <0.001 | 0.019 | <0.001 | 0.766 | 0.763 | 0.059 |

VCL: curvilinear velocity; VSL: Linear Velocity; VAP: Average Path Velocity; LIN: linearity; ALH: amplitude of lateral head displacement; BCF: beat cross frequency; RMSE: Root Mean Standard Error