

**Abstract**

**Objectives:** This study measured the overall quality of health of individual collegiate athletes by assessing biometrics and specific levels of consumption of nutrient-dense foods. The goals of this study were aimed to improve overall health of college student athletes by assisting them in consuming more nutrient-dense foods.

**Methods:** Baseline screening included a SECA body composition analysis, blood lipid profiling, blood pressure, and 24-hour dietary recall. Aggregate Nutrient Density Index (ANDI) charts were distributed and explained to the athletes to assist in improving their overall dietary quality.

**Results:** Baseline testing shows that division one college athletes have not received the proper education about nutrition, and therefore are at a high risk for potential digestive and chronic inflammatory disorders.

**Conclusion:** Wellness testing athletes is critical for improving their athletic performance and overall health for long periods of time. In conclusion, baseline testing has shown that collegiate athletes need more nutrition education related to consuming nutrient-dense foods to prevent chronic diseases and illnesses.

**Introduction**

Most humans, including athletes, should be consuming a minimum of three servings of vegetables and two servings of fruit per day (Swiss Society for Nutrition, 2005). Deficiency of vitamins and other nutrients can lead to decreased endurance, time to fatigue, work efficiency, work capacity and strength. Further effects include increased ventilation and heart rate, resulting in decreased performance (Lukaski, 2011). Micronutrients are key components of all athletic metabolic processes such as immunity, inflammation and recovery. Long-term outcomes associated with malnourishing dietary practices often result in delayed recovery time, decreased performance and increased risk of disease. Education and guidance on how to develop a plan to regularly consume a micronutrient-dense dietary pattern may assist collegiate athletes in achieving optimal health and athletic performance.

**Methods**

**Participants**

- 89 Division 1 college athletes
- 75% male, 25% female
- Freshman to senior athletes from male football, female swimmers and divers, female volleyball, and male basketball

**Procedures**

- Athletes reported to testing site in a fasting state
- Following measurements were performed: blood lipids, blood pressure, body composition, 24-hour diet recall, and food frequency

**Data Collection Tools and Measures**

- Cholestech for lipid-profile and glucose testing
- Sphygmomanometer for blood pressure
- SECA (mBCA 515) for body composition and phase angle
- Food frequency questionnaire and 24-hour diet recall for diet quality

	Football	Volleyball	Swim & Dive	Men's Basketball
<b>BMI</b>	n=55 28.82 ± 4.41	n=9 23.34±2.36	n=14 22.97±1.82	n=11 22.89±2.36
<b>Phase Angle</b>	n=55 6.74 ± .522	n=9 5.73±.46	n=14 5.61±.544	n=10 6.4±.56
<b>Fat Mass Percentage</b>	n=55 22.38 ± 7.94	n=9 26.89±4.46	n=14 25.64±2.82	n=10 15.5±4.62
<b>Total Cholesterol</b>	n=53 157 ± 28.07	n=9 174.11±38.91	n=11 181.55±29.51	n=11 173.73±56.14
<b>HDL</b>	n=53 47.53 ± 11.71	n=9 59±12.72	n=11 62.27±15.98	n=11 52.64±16.63
<b>LDL</b>	n=46 91.02 ± 26.27	n=9 83.22±29.02	n=8 109.38±20.79	n=7 123±43.20
<b>TC/HDL Ratio</b>	n=49 3.05 ± 1.34	n=9 2.46±.90	n=10 2.97±.68	n=9 3.5±1.3
<b>Triglycerides</b>	n=53 99.55 ± 42.60	n=9 141.44 ± 67.60	n=11 67.91±30.25	n=11 96.09±54.53
<b>Systolic Blood Pressure</b>	n=54 126.70 ± 9.61	n=9 117.67 ± 12.14	n=14 119.07±10.27	n=11 130.27±9.77
<b>Diastolic Blood Pressure</b>	n=54 72.79 ± 10.60	n=9 75.56 ± 9.13	n=14 68.71±9.06	n=11 73±8.09
<b>Heart Rate</b>	n=48 69.21 ± 9.91	n=9 66.44 ± 6.67	n=14 73.07±18.60	n=10 65.9±10.29
<b>Glucose</b>	n=53 98 ± 14.37	n=9 92.78 ± 7.71	n=11 84.91±8.53	n=11 106.55±58.12

**Results**

Baseline testing reveals the average Division 1 College Athlete maintains fairly desirable biometric results with the exception of low-density lipoprotein – desirable levels are under 100 mg/dl and two groups were greater than 100 mg/dl. Additionally, systolic blood pressure for two groups were higher than the desirable level of <120 mm/HG.

Although the aggregate data shows desirable levels there were extreme outliers with elevated results that may indicate individualized nutrition counseling may be beneficial for this population.

**Discussion & Conclusions**

Although initial baseline assessment shows desirable biometrics, preliminary diet quality data shows that athletes have low consumption of micronutrient-dense foods, especially for the energy expenditure levels of this group. This demonstrates that this particular population could benefit from a nutrition education plan that emphasized techniques for improving the consumption of micronutrient-dense foods.

**References**

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