# Eating Competence, Cardiovascular Disease Risk Factors and Diet Quality in Young Adults

Bailey A. Weirens & Alexa L. Evenson, PhD, MS, RDN, CFS

## RESEARCH OBJECTIVE

To examine how eating competence (EC) is related to dietary intake of certain food groups and cardiovascular risk factors including lipid profiles, blood pressure, and fasting blood glucose.

## METHODS

Participants (n=68) were enrolled in an introductory nutrition course for non-majors. Participants' lipid profiles, (Total cholesterol, LDL, HDL, and TG), blood pressure, and fasting blood glucose levels were collected as part of a laboratory exercise for the course. Lipid profiles were analyzed via Cholestec machine. Food group intakes were measured by a self-reported 3-day food record and analyzed using SuperTracker website. EC was assessed by the ecSatter Inventory (EcSI). T-tests were used to analyze differences in EC between males and females, and between EC and non-EC groups. Pearson correlation analysis was used to determine associations between EC, cardiovascular risk factors, and food group intakes.

## RESULTS

Of the total sample, 52.9% were classified as EC (EcSI $\geq$ 32). Males and female percentages that were EC were 57.1% and 46.9% respectively. Overall, the mean total EC score was higher for males than females at 33.3 and 30.6 respectively, although not statistically significant (p=.09). EC was significantly correlated with HDL (r=-.299; p=0.01) and DBP levels (r=-.285, p=.02). Females were significantly different in the EcSI subscale of food regulation compared to males (p=.014). There were no significant differences found between EC and non-EC groups for any variable.

Table 1. Correlations of Eating Competence, Cardiovascular Disease Risk Factors and Food Groups

| | Total Eating Competence | | Eating Attitudes | | Food Acceptance | | Food Regulation | | Contextual Skills | |
|---|---|---|---|---|---|---|---|---|---|---|
| | r | *P* | r | *P* | r | *P* | r | *P* | r | *P* |
| Age (years) | -.007 | .955 | .061 | .624 | -.157 | .202 | -.004 | .977 | .041 | .740 |
| BMI (kg/m²) | -.188 | .126 | -.187 | .127 | .039 | .749 | -.076 | .537 | -.230 | .060 |
| Total Chol (mg/dL) | -.086 | .487 | -.124 | .313 | .118 | .336 | -.104 | .398 | -.093 | .449 |
| HDL (mg/dL) | -.299 | .013* | -.351 | .003* | -.092 | .455 | -.210 | .085 | -.124 | .315 |
| LDL (mg/dL) | .028 | .822 | .028 | .821 | -.088 | .476 | .150 | .223 | .003 | .980 |
| Triglycerides (mg/dL) | -.141 | .251 | -.260 | .032 | .067 | .589 | -.166 | .177 | .006 | .963 |
| Blood Glucose (mg/dL) | -.007 | .953 | -.191 | .120 | .040 | .747 | -.023 | .850 | .180 | .142 |
| SBP(mm Hg) | -.024 | .846 | -.145 | .239 | -.019 | .879 | -.078 | .527 | .171 | .163 |
| DBP (mm Hg) | -.285 | .019* | -.305 | .012* | -.164 | .181 | -.106 | .389 | -.156 | .205 |
| Whole Grains (ounces) | .126 | .306 | .231 | .058 | .140 | .125 | .134 | .274 | -.014 | .911 |
| Vegetables (cups) | .197 | .107 | .146 | .235 | .208 | .088 | .093 | .449 | .091 | .460 |
| Fruit (cups) | .120 | .328 | .100 | .417 | .105 | .393 | -.042 | .732 | .129 | .293 |
| Dairy (cups) | .131 | .258 | .095 | .439 | .028 | .818 | .221 | .070 | .041 | .738 |

*Statistically significant p<0.05
r=Pearson product-moment correlation coefficient

Table 2. Eating Competence, Cardiovascular Disease Risk Factors, and Food Groups by Sex

| | Sex | | |
|---|---|---|---|
| **Score** | **Males (n=35)** | **Females (n= 32)** | ***p*** |
| Total eating competence (0-48) | 33.3 ± 5.5 | 30.6 ± 7 | 0.090 |
| Eating attitudes (0-15) | 11.9 ± 2.4 | 10.6 ± 3.2 | 0.067 |
| Food acceptance (0-9) | 4.7 ± 1.9 | 5 ± 2.2 | 0.609 |
| Food regulation (0-9) | 6.7 ± 1.7 | 5.7 ±1.7 | 0.014* |
| Contextual skills (0-15) | 9.9 ± 2.2 | 9.3 ± 3 | 0.394 |
| BMI (kg/m²) | 26 ± 5.2 | 23.6 ± 4 | 0.045* |
| Total cholesterol (mg/dL) | 157 ± 33.4 | 165 ± 33.8 | 0.330 |
| HDL (mg/dL) | 45.2 ± 10.4 | 68.9 ± 61.9 | 0.029* |
| LDL (mg/dL) | 87.3 ± 23.5 | 85.2 ± 23.9 | 0.719 |
| Triglycerides (mg/dL) | 102.6 ± 73.5 | 100.1 ± 44.6 | 0.869 |
| Blood Glucose (mg/dL) | 82.2 ± 11.8 | 86.8 ±10.1 | 0.091 |
| Resting SBP (mm Hg) | 111.9 ± 9.2 | 106.8 ± 12.2 | 0.520 |
| Resting DBP (mm Hg) | 70.4 ± 8.5 | 72.3 ± 9.6 | 0.411 |
| Whole grains (ounces) | 2.4 ± 2 | 1.8 ±1.5 | 0.187 |
| Vegetables (cups) | 2.4 ± 1.2 | 1.9 ± 1 | 0.054 |
| Fruits (cups) | 1.3 ± 1.2 | 1.1 ± 0.7 | 0.517 |
| Dairy (cups) | 2.5 ± 1.9 | 1.7 ± 0.9 | 0.030* |

*Statistically significant p<0.05

## RESULTS CONTINUED

Percentages of males not meeting the requirements for whole grains, fruits, vegetables, and dairy were 63%, 71.4%, 74.3% and 65.7% respectively. Percentages of females not meeting requirements for whole grains, fruits, vegetables, and dairy were 81.3%, 59.4%, 71.9%, and 81.3% respectively. Overall, the sample means for TC, LDL, HDL, and TG were 160.9 mg/dL, 86.3 mg/dL, 56.5 mg/dL, and 101.4 mg/dL respectively.

## CONCLUSIONS

Although males had higher EcSI scores than females, they were not significantly different (p=.09). Significant differences in food group intake may be due to males consuming more kcalories in general. The majority of the sample did not meet requirements for any of the food groups measured. The majority of the sample had normal or optimal cutoff levels for CVD risk factors. Strengths of this study include this being the first study to examine healthy young adults (ages 18-23) in regards to a combination of EC, CVD risk factors, and food group intake analysis. Limitations of the study include the homogenous sample and small sample size although this study had a sample size larger than similar studies. Dietary intake was self-reported, and exercise was not included which may have other implications on CVD risk factors. More research is needed to fully understand EC and young adult dietary intake and CVD risk factors to potentially decrease the risk for CVD as one ages. Overall, nutrition education could be tailored to increase eating competence especially focused on food regulation components for females. Nutrition education in general could focus on meeting food group recommendations in this age group for CVD prevention.