Conference Abstract

**YI 1.2 Ideal Cardiovascular Health Score Declines from Adolescence to Emerging Adulthood**

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**Keywords**

Adolescents; cardiovascular-aging; birth-cohort; sex-differences

**ABSTRACT**

**Purpose:** To define and compare cardiovascular (CV) health scores (CHS) from adolescence (17 yrs) to emerging adulthood (24 yrs) using longitudinal data from a large British birth cohort.

**Methods:** 3142 participants from the Avon Longitudinal Study of Parents and Children (ALSPAC) study attended clinical investigations at 17.8 ± 0.4 yrs and 24.0 ± 0.8 yrs (38% male). CV health was assessed using smoking status, body mass index (BMI), plasma glucose, cholesterol, sitting brachial blood pressure, left ventricle (LV) hypertrophy, arterial stiffness (carotid-to-femoral pulse wave velocity) and atherosclerosis (carotid intima-media thickness) metrics. Prevalence was stratified into poor (0_points), intermediate (1_point) and ideal (2_points) health categories and a composite, individual-level CHS for all 8 metrics was calculated (total range, 0–16 points). Prevalence of ideal health was assessed using ANOVA and linear mixed modelling assessed age##sex modifications.

**Results:** Overall CHS was high at 17 yrs but from 17–24 yrs the proportion of ideal scores decreased for all metrics, in both sexes (Table). The average overall CHS decreased from 14.97 ± 1.1 to 13.99 ± 1.4 in males (p < 0.0001) and 14.82 ± 1.2 to 14.28 ± 1.4 in females (p < 0.0001, age##sex p = 0.0001). Significant sex differences were observed in the proportion of individuals with ideal health at both ages, with males having a higher CHS than females at 17 yrs but a lower CHS at 24 yrs.

**Conclusions:** Despite being relatively early in the life-course, CV health declines from 17 yrs to 24 yrs in both sexes, and more substantially in males. Emerging adulthood is a distinct period of lifestyle change and an important time to control CV risk factors to improve future CV health.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Sex differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>17 yrs</td>
<td>24 yrs</td>
<td>17 yrs</td>
</tr>
<tr>
<td>Score</td>
<td>0 1 2</td>
<td>0 1 2</td>
<td>0 1 2</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.6 19.3 58.1</td>
<td>27.8 24.3 47.9</td>
<td>25.7 36.5 47.8</td>
</tr>
<tr>
<td>BMI</td>
<td>4.9 13.3 82.1</td>
<td>10.4 30.0 59.6</td>
<td>6.7 15.4 77.9</td>
</tr>
<tr>
<td>Glucose</td>
<td>0.4 9.1 90.5</td>
<td>0.6 34.7 64.7</td>
<td>0.3 2.6 97.1</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0.0 1.5 98.5</td>
<td>2.1 11.7 86.2</td>
<td>0.1 4.5 95.4</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>0.2 0.5 99.3</td>
<td>0.6 5.4 94.0</td>
<td>0.3 1.7 98.0</td>
</tr>
<tr>
<td>LV hypertrophy</td>
<td>0.6 0.6 98.9</td>
<td>1.4 3.7 94.8</td>
<td>0.5 1.6 97.8</td>
</tr>
<tr>
<td>Arterial stiffness</td>
<td>0.5 0.9 98.6</td>
<td>4.8 6.7 88.5</td>
<td>0.0 0.4 99.6</td>
</tr>
<tr>
<td>Atherosclerosis</td>
<td>0.0 0.9 99.1</td>
<td>0.0 1.2 98.8</td>
<td>0.0 0.3 99.7</td>
</tr>
<tr>
<td>Average CHS</td>
<td>14.97 ± 1.1</td>
<td>13.99 ± 1.4</td>
<td>14.82 ± 1.2</td>
</tr>
</tbody>
</table>

Data are % of participants in each category for each risk factor. 0 = poor, 1 = intermediate and 2 = ideal. Age##sex p value for modification.

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