Program Results: Biomarkers

Blood Pressure changes in patients with elevated risk

<table>
<thead>
<tr>
<th>Variable</th>
<th>% Elevated</th>
<th>Baseline</th>
<th>Follow Up</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP (&gt;120 mmHg)</td>
<td>30%</td>
<td>128.4</td>
<td>126.5</td>
<td>-1.9</td>
</tr>
<tr>
<td>Diastolic BP (&gt;80 mmHg)</td>
<td>10%</td>
<td>84.3</td>
<td>76.9</td>
<td>-7.4</td>
</tr>
</tbody>
</table>
22% of patients had elevated blood glucose (>100 mg/dL)

On average, blood glucose levels of prediabetics were reduced to normal (20 mg/dL reduction).
Program Results: Biomarkers

Blood lipid changes in patients with elevated risk

- Total Cholesterol
- Triglycerides

Baseline vs Follow Up
Program Results: Biomarkers

Blood lipid changes in patients with elevated risk

Mean HDL/LDL ratio among those with elevated risk changed from 0.28 to 0.35
Outline

I. Program Overview
   a. Demographic Characteristics
   b. Baseline Measures

II. Program Results
   a. Behaviors
   b. Anthropometry
   c. Biomarkers

III. NEW ME Results
Nutrition Exercise Weight Management Education (NEW ME)

• Voluntary program in conjunction with Healthy Weight Center
• Focused on long-term lifestyles changes through a family-centered approach

• 2 sessions per week for 14 weeks
• 1.5-hour sessions include:
  – Classroom-based education
  – Structured workouts

• To date, 61/80 (76%) patients participated in NEW ME
Program Results: NEW ME

Changes in fitness by NEW ME participation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>V02-max (ml/kg/min)</td>
<td>1.79</td>
<td>-0.09</td>
<td>1.88</td>
</tr>
<tr>
<td>HR-submax (bpm)</td>
<td>-7.34</td>
<td>3.27</td>
<td>-10.61</td>
</tr>
</tbody>
</table>
Program Results: NEW ME

Changes in anthropometry by NEW ME participation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI (kg/m²)</td>
<td>-0.15</td>
<td>0.15</td>
<td>-0.30</td>
</tr>
<tr>
<td>Waist Circumference (cm)</td>
<td>-0.05</td>
<td>1.61</td>
<td>-1.66</td>
</tr>
<tr>
<td>Percent Body Fat (%)</td>
<td>-1.98</td>
<td>-1.38</td>
<td>-0.60</td>
</tr>
<tr>
<td>Fat Mass (kg)</td>
<td>-0.44</td>
<td>1.51</td>
<td>-1.95</td>
</tr>
<tr>
<td>Fat-Free Mass (kg)</td>
<td>3.41</td>
<td>4.05</td>
<td>-0.64</td>
</tr>
</tbody>
</table>
Changes in Biomarkers by NEW ME participation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>-4.62</td>
<td>-0.40</td>
<td>-4.22</td>
</tr>
<tr>
<td>HDL</td>
<td>3.83</td>
<td>2.50</td>
<td>1.33</td>
</tr>
<tr>
<td>LDL</td>
<td>-8.07</td>
<td>-9.18</td>
<td>-0.91</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>-1.62</td>
<td>14.60</td>
<td>-16.22</td>
</tr>
<tr>
<td>Insulin</td>
<td>-3.49</td>
<td>15.29</td>
<td>-18.78</td>
</tr>
</tbody>
</table>
Summary: Patient Characteristics

• Patients are 64% female with race/ethnicities representative of Grand Rapids (~60% White, ~20% Black, ~20% Hispanic)

• Unhealthy lifestyle behaviors are the norm
  – Excessive screen time – 5 hours
  – Low physical activity – 18 min/d
  – Poor nutrition and health habits – 3% with healthy FNPA

• Various co-morbidities – low HDL; insulin resistance; unhealthy cholesterol profile; low aerobic capacity
Summary: Behavior Change

• >1 hour reduction in TV

• 50% reduction in video games

• Physical activity levels doubled – increased ~20 min/d

• Substantial increase in aerobic fitness capacity

• 86% improved FNPA score (healthy home environment)
Summary: Health Improvement

- Mean BMI was maintained and BMI percentile was reduced
- 71% improved BMI percentile/z-score
- Significant reduction in mean body fat percent
- Significant reduction in LDL & increase in HDL cholesterol
Summary: NEW ME

• NEW ME participants substantially increased aerobic capacity, while those who did not participate in NEW ME did not.

• NEW ME participants had larger reductions in percent body fat due to ~2kg greater fat mass reduction than non-NEW ME

• Total cholesterol was reduced more in NEW ME participants despite larger increases in HDL (good) cholesterol
Healthy Weight Center

Our Healthy Weight Center provides a medically focused, research-based approach to prevention and treatment of childhood obesity in West Michigan. We use best practice treatment and outcomes-based clinical research to help children and teens reach and maintain a healthy weight.

Learn More

Fitness & Nutrition
- For Kids
- For Parents
- For Teens

About Overweight and Obesity
- Articles
  - The Role Relationships Play in Obesity
  - Overweight and Obesity
  - Children’s Health issues

www.helendevoschildreens.org/healthyweightcenter
Future Academic Directions

• Research database collaboration
• Clinical trials and national network collaboration
• Stage 1, 2 and 4 effectiveness
• Area clinician and referral coordinator training
• Curriculum for medical students/residents
• Cross-MSU campus collaborations
Beyond The Center
The role of professional advocacy

- Develop additional community partners
- Community Pediatric Obesity Collaborative
- Work with schools
- Advocate for local policy change
- Become resource for other local advocates
- Sponsor/support healthy nutrition and activity community events
Thank you
and
Questions