The Association Between Type-2 Diabetes Pathophysiology & Exercise Adherence

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The Association Between Type-2 Diabetes Pathophysiology & Exercise Adherence
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Background
- The American Diabetes Association estimates that one in three Americans will develop diabetes in their lifetime.
- Currently, ~28 million Americans have Type-2 diabetes
- Exercise is associated with the prevention and management of Type-2 diabetes and related comorbidities
- Increased physical activity is often prescribed as part of the first course of treatment
- Only ~50% of those diagnosed with Type-2 diabetes exercise regularly
- The current exercise prescription guidelines for individuals with Type-2 diabetes are similar to those recommended for healthy adults
- Additional considerations include monitoring of blood glucose and monitoring for complications that could result from diabetes related comorbidities
- This may not be the best approach to exercise prescription for this cohort as Type-2 diabetes can cause physiological changes that could drastically influence a person’s exercise experience.

Purpose
The purpose of the current study was to explore biopsychosocial barriers to exercise in persons with Type 2 diabetes mellitus. This valuable information can be used to better develop intervention and outreach programs geared towards increasing exercise adherence in individuals with Type-2 diabetes.

Methods
- Individuals 18 years and older diagnosed with Type-2 diabetes were eligible for participation
- Qualitative and quantitative data was collected using three following:
  - In-person focus group
  - ~90-minute group lead by trained interviewer
  - Individual phone interviews
  - ~20 minutes with a trained interviewer
  - Electronically distributed self-report survey
- Questions in all formats addressed Type-2 diabetes management, exercise history, and the barriers to exercise, as well as demographics, health history, and COVID-19 pandemic related questions.

Results

<table>
<thead>
<tr>
<th>Format</th>
<th>Participants</th>
<th>Sex and Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group</td>
<td>3</td>
<td>F 100%: 61 – 68 years</td>
</tr>
<tr>
<td>Individual Interviews</td>
<td>5</td>
<td>F 100%: 57 – 64 years</td>
</tr>
<tr>
<td>Self-Report Survey</td>
<td>9</td>
<td>M 67%, F 33%: 52 – 75 years</td>
</tr>
</tbody>
</table>

Figure 1. Self-Report Survey participant’s readiness to engage in regular exercise (any planned physical activity [e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.]) in accordance to the five stages of the Transtheoretical Model of Behavior Change

Figure 2. Self-Report Survey participant’s responses when asked if the COVID-19 pandemic has effected their exercise routines

Figure 3. Collection of commonly used words in open ended questions answered by respondents in the focus group, phone interviews, and self-report survey

Discussion and Conclusion
- There is a wide variability in people's feelings about exercise ranging from extreme dislike to enjoyment
- The results of the present study will be utilized to:
  - Determine a more optimal design of exercise programs for people with Type-2 diabetes
  - Establishing interdisciplinary partnerships within the University of Rhode Island and collaboration with regional diabetes and local health centers.