A Novel Physical Activity Intervention Using Wii-Fit In Older Prostate Cancer Patients on Androgen Deprivation Therapy: A RCT

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BACKGROUND

• Prostate cancer affects 1 in 6 men
• Older men disproportionately affected
• First line treatment for metastatic disease is Androgen Deprivation Therapy (ADT)
• ADT has many toxicities including:
  – Sarcopenia
  – Osteoporosis
  – Falls/Fractures

K Bylow, W Dale, S Mohile et al. Vol 77, No 4, April 2011, pp 934-940 Urology
S Sajid, S Mohile, W Dale, Vol 38, No 2, April 2011, pp 309-325 Seminars in Oncology

OBJECTIVE

• A pilot study testing the feasibility and efficacy of either a:
  1. tailored, multi-component exercise intervention of a home-based exercise program (EXCAP)
  2. home-based computer-generated exercise program for PC patients utilizing Nintendo’s Wii fit technology (Wii)

METHODS – Inclusion Criteria

1. Men 70+
2. Recurrent, asymptomatic PC
3. Received primary therapy for PC (surgery, XRT)
4. On ADT for ≥ 3 months (Mean time = 64.8 ± 63 mo)
5. Clinical response to ADT
   – declining or stable PSA
   – no progression of clinical symptoms
   – asymptomatic metastatic disease
6. Able to walk at least 4m without assistive device
OUTCOMES

- **Primary outcome:** Change in Short Physical Performance Battery (SPPB; 0-12, <9 is impaired)
  - Gait speed (0 - 4)
  - Chair stands (0 - 4)
  - Balance (0 - 4)

- **Secondary outcomes:** Change in scores:
  - Lean muscle mass (DEXA)
  - Maximum chest press repetitions
  - Handgrip strength on dynamometer
  - Body Mass Index (BMI)

Patient Characteristics & Baseline Measures

<table>
<thead>
<tr>
<th></th>
<th>Wii (n=10)</th>
<th>EXCAP (n=8)</th>
<th>Control (n=9)</th>
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<tbody>
<tr>
<td><strong>Patient Characteristics</strong></td>
<td></td>
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<tr>
<td>Age (years)</td>
<td>78.5</td>
<td>78.1</td>
<td>75.4</td>
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<tr>
<td>Total body weight (kg)</td>
<td>80.4</td>
<td>92.9</td>
<td>99.5</td>
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<tr>
<td>BMI (kg/m²)</td>
<td>22.6</td>
<td>30.7</td>
<td>32.4</td>
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<tr>
<td>Fat (%) adiposity</td>
<td>28.8</td>
<td>35.1</td>
<td>36.4</td>
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<td><strong>Baseline Outcomes</strong></td>
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<tr>
<td>SPPB (0-12)</td>
<td>9.1</td>
<td>8.0</td>
<td>8.3</td>
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<tr>
<td># of steps/day</td>
<td>2,941</td>
<td>2,384</td>
<td>2,680</td>
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<tr>
<td>Lean muscle mass (kg)</td>
<td>49.1</td>
<td>55.7</td>
<td>62.2</td>
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<tr>
<td>Chest press reps max (kg)</td>
<td>65.5</td>
<td>69.1</td>
<td>69.0</td>
</tr>
<tr>
<td>Handgrip strength (kg)</td>
<td>28.1</td>
<td>32.3</td>
<td>37.5</td>
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Change in scores and ANCOVA, 6 & 12 weeks

SPPB score over time

CONCLUSIONS

1. Exercise interventions were feasible and safe in this patient population.
   - Patients participated as noted by increased steps
   - There were no adverse events noted
2. Exercise interventions showed improved SPPB scores vs. UC, but the improvement was not statistically significant.
3. Participants in the Wii arm had the lowest drop-out rate and most positive patient reports.

Patient perspective

- **Wii:** Participants stated that Wii “makes exercise fun”. Several Wii participants requested to keep their Wii at study end

- **EXCAP:** Patients in EXCAP arm commented that “the exercise was great, but bands became a chore”
Acknowledgements

• Mentors:  
  William Dale, MD, PhD  
  Supriya Mohile, MD, MS  
  Karen Mustian, PhD, MPH  

• Co-authors:  
  Charles Heckler, PhD, MS  
  Lin Fan/Chintan Pandya  

• Patients  
• CTSA from University of Chicago and University of Rochester

• Research team:  
  Project manager:  
    Randi Rothman  
  Research assistants:  
    Eva Melstrom  
    Shawn Wilson  
    Coty Steenmetz