Use of a Standardized Handout to Improve Patient Compliance with High Intensity Interval Training in a Family Medicine Clinic

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What is High Intensity Interval Training?

- Short bursts (30-60 seconds) of vigorous exercise interspersed with recovery periods
- Uses perceived exertion to determine intervals:
  - Perceived exertion of 8-9/10 for high intensity portion of exercise
  - Perceived exertion of 5-6/10 for recovery periods
- Participants perform 5-6 intervals for beginners or 10-12 intervals for experienced exercisers in 30 minute exercise periods 2-3 times per week
- Multiple modalities can be used including cardiovascular equipment, battle ropes, jump ropes, and body weight exercises
HIIT has been found to have a number of potential benefits including:
- Weight loss/reduction in body fat percentage including visceral fat
- Lower blood pressure
- Improved glycemic control
- Improved cardiovascular outcomes
- Improved muscle mitochondrial function
- Safe for people of all ages after appropriate screening including elderly patients with a history of previous cardiovascular events
Methods

- A HIIT handout was developed by Dr. Ortega at the accepted standard 5th grade reading level.
- Overweight and obese patients were recruited to participate in the study during routine office visits occurring in January and February 2018.
- Height, weight, BMI, waist circumference, and exercise frequency were recorded for each participant.
- The handout was given to participants and explained in detail by a medical assistant using a standardized script.
- Patients returned in approximately 6 weeks for repeat measurements and assessment of exercise frequency.
- Paired t-test and Wilcoxon signed-rank sum test were performed to determine the difference in BMI, weight, waist circumference, and exercise frequency before and after the intervention.
- P-values less than 0.05 were considered statistically significant.
HIGH INTENSITY INTERVAL TRAINING

**Step 1:** Start with a 5-minute warm up (for example, a slow walk)

**Step 2:** Time to pick up the pace! Increase speed or incline and work at an effort of 9 or 10 (working hard, breathless, but not light headed or dizzy). Continue this pace for 10-20 seconds.

**Step 3:** Slow your pace but do not stop moving for AT LEAST 60 seconds or until you feel you have recovered enough to work hard again. Go back to step 2. You have completed 1 interval.

**Step 4:** Cool down and stretch for 5 minutes.

BEginners: Perform 4-6 intervals per 30 minute session (not including warm up/cool down)

Experienced exercisers: Perform 10-12 intervals per 30 minute session (not including warm up/cool down)

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**What can I use do to my intervals?**

At the Gym: Elliptical Machine-Treadmill-Stationary Bike-Battle Ropes-Jump Rope-Rowing Machine

At home/outdoors: Jumping Jacks-Speed Squats-Jog/Run in Place-High School Track-Hill Climbing-Burpees-Mountain Climbers

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**Stay hydrated! Drink at least 16 ounces of water during/after workout.**

**Stop immediately if you experience chest pain, severe shortness of breath, or dizziness.**
## Results

<table>
<thead>
<tr>
<th>Patients (n=16)</th>
<th>Before intervention</th>
<th>After intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, Median (IQR)</td>
<td>58 (53,63)</td>
<td>58 (53,63)</td>
</tr>
<tr>
<td>Female, Frequency (%)</td>
<td>11 (69)</td>
<td>11 (69)</td>
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<tr>
<td><strong>Physical Measurements</strong></td>
<td>Median (IQR)</td>
<td></td>
</tr>
<tr>
<td>Height (cm)</td>
<td>163.8 (158.7, 175.6)</td>
<td>163.8</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>84.3 (73.4, 92.2)</td>
<td>80.6 (70.0, 91.1)</td>
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<tr>
<td>Waist circumference (In)</td>
<td>42.5 (38.9, 46.0)</td>
<td>40.0 (37.0, 43.0)</td>
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<tr>
<td>BMI</td>
<td>29.2 (28.4, 32.6)</td>
<td>28.5 (27.7, 31.8)</td>
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<tr>
<td><strong>Outcome variable</strong></td>
<td></td>
<td></td>
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<tr>
<td>Frequency of exercise</td>
<td>0 (0, 3)</td>
<td>3 (2.75, 3)</td>
</tr>
</tbody>
</table>
After 6 weeks, there were 3 statistically significant findings:

- BMI decreased by 0.7 points (p=0.001)
- Waist circumference decreased by 2.5 inches (p=0.0009)
- Weight decreased by 3.7 kg (p=0.002)

There was a trend toward increased exercise frequency but this was not statistically significant.

Many patients indicated that they enjoyed their workouts and planned to continue after the completion of the study.
Discussion

- This 6 week non-blinded interventional study demonstrates the effectiveness of a standardized handout to improve compliance with a HIIT program resulting in significant weight loss/BMI and decreased waist circumference in overweight and obese patients.

- Further studies are planned to evaluate the same handout in a randomized controlled trial to determine if the handout produces superior results compared to standard care.

- In residency training, this can serve as a model for the development of effective and inexpensive patient education tools that improve patient compliance with desired behavior change.
Questions???