Advances in Cardiac Rehab

“The struggle you are in today is the strength you need for tomorrow.”

-John Assaraf

John Shannon BS, CCEP
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San Antonio, Texas
Updates

• Mindful Movement > Sternal Precautions
• Research
• Intensive Cardiac Rehab
• Peripheral Artery Disease Supervised Exercise Training
Our Goal as Providers

• To restore and maintain an individual’s optimal physiological, psychological, social, and vocational status (AACVPR).
Your Goal(s)?

• Return to work
• Improve confidence
• Improve balance
• Back onto the golf course
• Cooking
• Play with grandchildren
30 lbs
Are We Still Doing This??

– 6-8 weeks (up to >12 weeks)

– Do Not:
  
  - LIFT
  - PUSH
  - PULL

• More than 5-10 pounds
Individualized Treatment Plans
Implementation of a Boxing Exercise Program for Heart Transplant Patients in a Cardiac Rehabilitation Setting (2017)
Authors: Pasquale Carbone, MS, EP, CSCS, Rey Perez, Tim Bilbrey, MBA, EP, Jenny Adams, PhD

Results
The overall anxiety score decreased from (mean±SD) 37.67±6.81 to 30.33±7.51, resulting with a p-value of 0.0371.
Resistance Training With Spontaneous Coronary Artery Dissection (2017)
Authors: K.D. Brown, J. Adams, T. Bilbrey, P. McCullough

Table 1: Average Change in Pressure Over Change in Time (dP/dT) during Activity.

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Mean dP/dT (mmHg/ms)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough</td>
<td>1.160</td>
<td>.026</td>
</tr>
<tr>
<td>Valsalva Maneuver</td>
<td>1.080</td>
<td>.022</td>
</tr>
<tr>
<td>Sneeze</td>
<td>1.078</td>
<td>.50</td>
</tr>
<tr>
<td>Plank</td>
<td>1.033</td>
<td>.16</td>
</tr>
<tr>
<td>Push-Up</td>
<td>1.016</td>
<td>.26</td>
</tr>
<tr>
<td>Sit-Up</td>
<td>1.007</td>
<td>.03</td>
</tr>
<tr>
<td>Mason Twist</td>
<td>0.851</td>
<td>.14</td>
</tr>
<tr>
<td>Abdominal Crunch</td>
<td>0.664</td>
<td>.06</td>
</tr>
</tbody>
</table>

Figure 2. Performance of an abdominal crunch while monitored by the Finometer.
4 Days Post-op
Comparison of Activity Force Recommended by Traditional Sternal Precaution Guidelines with the Load that Sternotomy Patients Lift While Practicing the “Keep Your Move in the Tube”™ Educational Model

John Shannon BS, CCEP; Eric Diaz BS; Susan Triano MS, CCC-SLP; Richard Gach PT, DPT; Tim Bilbrey MBA; Jenny Adkins, PhD

ABSTRACT

Introduction: Due to concerns about sternal dehiscence, sternotomy patients (CARDIAC, transplan, CVAD, valve repair) are generally instructed to not perform upper body resistance exercises or lift more than 5 pounds for 6-12 weeks following surgery. However, if patients practice the “Keep Your Move in the Tube”™ model, a study by Gach et al. (2015) showed that full upper body strength could be achieved with 23 post-sternotomy patients (16 men and 7 women) as they performed the bicyclex while practicing “Keep Your Move in the Tube”™.

Methods: A Chaiton force dynamometer was used to obtain the isometric force measurement for lifting a weighted load (bicyclex). The bicyclex was performed three times by pulling against the force dynamometer. An unpaired t-test was used to compare the average force pounds exerted for the bicyclex force with the recommended 5 pounds from the traditional sternotomy precaution guidelines. Patients also had to complete a pre- and post-activity confidence questionnaire.

Results: The patients exerted an average SD 42.62 ± 14.95 force pounds when lifting a weighted load. The average force exerted by the patients differed significantly from the force recommended by the guidelines (p-value: 0.0001). The adverse events were observed. The patients’ confidence in lifting a weighted load while practicing “Keep Your Move in the Tube”™ improved for 97% of the participants.

Conclusions: While practicing “Keep Your Move in the Tube”™, these post-sternotomy patients were able to lift with full upper body strength force that would be required for the 5-pound restriction recommended by current traditional guidelines. Furthermore, they performed these activities as an average of 9.5 days after surgery (range, 3.44 days; far earlier than the usual 6- to 12-week restriction).

OBJECTIVE

- Demonstrate that patients are able to perform load bearing movements with their upper extremities during the acute phase of recovery utilizing the mindful movement philosophy of “Keep Your Move in the Tube”™.
- Demonstrate that patients have increased confidence in their ability to use their arms to pick up objects using “Keep Your Move in the Tube”™ in the acute phase of recovery.

METHODS

SETTING: This study was performed at Memorial Regional Hospital in Hollywood, Florida with patients from the cardiovascular intensive care unit.

SUBJECTS: Twenty-three patients were studied in the study. There were 16 men and 7 women with a median age of 57 years. Participation in the study occurs from 3 to 44 days after surgery with a mean of 9.5 days. Patients’ surgical procedures included: aortic valve replacement, aortic root repair, CABG, heart transplant, mitral valve repair, ascending aortic aneurysm repair and sternotomy dehiscence.

DESIGN: A Chaiton force dynamometer was used to obtain the isometric force measurement for lifting a weighted load (bicyclex). Patients ambulated 100 meters to the therapy gym accompanied by the acute care exercise physiologist. The bicyclex was performed 3 times by pulling against the handle in the force dynamometer. The heaviest load lifted of the 3 repetitions was recorded. An unpaired t-test was used to compare the recorded force in pounds exerted during a bicyclex in 3, 5 pounds, the typical limitation of traditional sternotomy precautions. Patients were asked to complete a pre and post-test Likert scale questionnaire to assess their confidence level in using their arms to lift an object.

REFERENCE: