Abstract

Effects of Incorporating Body Weight as Resistance on Lower Body Strength

Author: Yuri Rivera, KINE 4400

TM Sponsor: Dr. J. R. Wilson, PhD., Dr. P. Cacola, PhD. Cardiovascular Research Laboratory, The University of Texas at Arlington, Arlington, TX, 76019

Methods (cont’d)

- Participants were allowed to rest and repeated at a higher load if they felt like they had not reached the maximum weight they can lift once. Then 75% of that load was calculated from their 1RM for the back squat and the leg extension individually.
- Then participants were to lift their 75% of 1RM as many repetitions as possible until they reached fatigue for the back squat and then for the leg extension.
- Four weeks of training intervention took place. The two programs met three times per week for a 30 minutes training.
- Program 1, started with 5 minutes of dynamic warm-up: walking over, walking knee lift, and airplanes. 20 of training exercise: calf raises and forward walk lunges. 5 minutes of cool-down doing static stretching: sitting toe reach, side quadriceps stretch, and the butterfly.
- Program 2, started with 5 minutes of dynamic warm-up: walking over, walking knee lift, and airplanes. 20 of training exercise: step raises and forward walk lunges. 5 minutes of cool-down doing static stretching: sitting toe reach, side quadriceps stretch, and the butterfly.
- Week 6, post-test. After warm-up participants were set to previous 1RM for both back squat and leg extension, if they could lift more they strike for a new 1RM. Then participants performed at previous 75% of 1RM from the pre-test for both back squat and leg extension. The purpose of using the same 75% of 1RM was to note if participants were able to complete more repetitions during the post-test.

Results (cont’d)

• The results of this study showed that there was a significant difference in lower body strength gains between the two programs for a back squat and leg extension. It was also found that the increase in repetitions at 75% of 1RM from pre to post-test for both programs was significant. There was no significant difference found between the two training programs.

Methods

• The purpose of this study was to compare the effects of two different exercise programs combinations, using one’s own body weight as resistance, on lower body strength.

Participants

A total of eight moderately active females of the University of Texas at Arlington volunteered to participate in this study.

Measurements

- 1RM back squat
- 75% of 1RM number of repetitions for back squat
- 1RM leg extension
- 75% of 1RM number of repetitions for leg extension

Experimental Design

- Six weeks intervention training exercises (1 week pre-test, 4 weeks of training, and 1 week post-test).
- Week 1, demographic data was recorded (age, weight, and height). Followed by baseline pre-test strength measurements by doing 1RM back squat and 1RM leg extension.

Results

Table 1: Program 1 Subject Data

<table>
<thead>
<tr>
<th></th>
<th>4 Females</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
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<td>21.8</td>
<td>0.66</td>
<td>23</td>
<td>21</td>
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<td>Weight (kg)</td>
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<td>Height (m)</td>
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<td>1.64</td>
<td>0.04</td>
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</table>

Table 2: Program 2 Subject Data

<table>
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<tr>
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<th>4 Females</th>
<th>Mean</th>
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<th>Max</th>
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</tr>
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<tbody>
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<td>Weight (kg)</td>
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<tr>
<td>Height (m)</td>
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<td>1.64</td>
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Conclusions

- Significant differences for the number of repetitions were found among the participants of the two programs (Squat 1RM: p<0.006; leg 1RM: p<0.015).
- Significant differences for strength gains were found among the participants of the two programs for a back squat number of repetitions and leg extension 75% of 1RM number of repetitions. Significant differences for the number of repetitions were found among the participants of the two programs for a back squat number of repetitions (75% of 1RM reps: p=0.048). Close to significant difference was found for leg extension number of repetitions (75% of 1RM reps: p=0.069).

Purpose

The purpose of this study was to compare the effects of two different exercise programs combinations, using one’s own body weight as resistance, on lower body strength.

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Methods

PURPOSE: The purpose of this study was to compare the effects of two different exercise programs combinations, using one’s own body weight as resistance, on lower body strength.

Participants: A total of eight partially active females from the University of Texas at Arlington participated in this study. Participants were divided into two programs. Program 1: Starting with 5 minutes of dynamic warm-up (Max: 170.2 kg, Mean: 165.1 kg, SD: 7.5 kg, 80% of 1RM), 1RM back squat and 1RM leg extension. The purpose of using the same 75% of 1RM was to note if participants were able to complete more repetitions during the post-test.

Intervention: Four weeks of training intervention took place. The two programs met three times per week for a 30 minutes training.

Program 1, started with 5 minutes of dynamic warm-up: walking over, walking knee lift, and airplanes. 20 of training exercise: step raises and forward walk lunges. 5 minutes of cool-down doing static stretching: sitting toe reach, side quadriceps stretch, and the butterfly.

Program 2, started with 5 minutes of dynamic warm-up: walking over, walking knee lift, and airplanes. 20 of training exercise: step raises and forward walk lunges. 5 minutes of cool-down doing static stretching: sitting toe reach, side quadriceps stretch, and the butterfly.

Week 6, post-test. After warm-up participants were set to previous 1RM for both back squat and leg extension, if they could lift more they strike for a new 1RM. Then participants performed at previous 75% of 1RM from the pre-test for both back squat and leg extension. The purpose of using the same 75% of 1RM was to note if participants were able to complete more repetitions during the post-test.

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