Why:
- Applicable to all athletes
- Often overlooked
- Significant effect on athlete’s performance
- Body composition control

Gastin (2001)
Dependent Variables

- Repetitions to failure
- Time under tension

Independent Variables

- Carbohydrate-heavy bar
- Lipid-heavy bar

Hypothesis:
Consumption of carbohydrates before exercise will increase muscular endurance compared to lipids
Biometrics

Height, Weight, Blood pressure

Warm-up

Foam rolling, Light Static Stretching, Dynamic Warm-up, Barbell back squat warm-up

Estimated 1-RM

3 sets of 5 reps with PUSH strength band accelerometer

Cool down

Static stretching, Foam rolling
- PUSH Strength Band Accelerometer
  - Calculated estimated 1-RM using velocity of concentric motion of test sets

- Jovanovic & Flanagan (2014)
- **Carbohydrate:**
  - Chocolate Chip Brownie Larabar
    - 31 g CHO
    - 9 g Fat
    - 4 g Protein

- **Lipid:**
  - Chocolate Peanut Butter Keto Bar
    - 20 g Fat
    - 12 g CHO
    - 9 g Protein

**N=8**

**Avg Age:** 20.55

**Carbohydrate**
- Avg Weight: 77.4 kg
- Avg Height: 1.72 m

**Lipid**
- Avg Weight: 73.1 kg
- Avg Height: 1.65 m
Average Number of Reps to Failure

- CHO: 29.2
- Fat: 11.5
Average Time to Failure

<table>
<thead>
<tr>
<th></th>
<th>Time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHO</td>
<td>109.4</td>
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<tr>
<td>Fat</td>
<td>40.5</td>
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</tbody>
</table>
- Our hypothesis was supported by the data
- A carbohydrate heavy meal is a more beneficial choice to maximize muscular endurance in resistance training
- Sample size
  - Goal: 20 total – 10 per group

- Willingness

- Time commitment

- Facilities

- Injury

- Controlling pace

- Control for outside factors
  - Nutrition
  - Physical Activity
**Application**

- Consumption of carbohydrates within an hour of exercise
- Larabar contains 26 g CHO and 9 g Fat
- Body composition

**Future Research**

- How many grams?
- What kind of carbs?
- Combination of simple and complex?
- Include RPE
- Control pace


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