in blood lactate concentration and lifting velocity during and after the application of the two protocols for strength gain and muscle hypertrophy. However, blood lactate concentration was significantly higher in men than in women.

B-64 Free Communication/Poster - Running

Wednesday, May 27, 2020, 1:30 PM - 4:00 PM
Room: CC-Exhibit Hall

895 Board #21 May 27 1:30 PM - 3:00 PM Distance Runners’ Perceptions Of A Strength Training Intervention Danielle Trowell1, Aaron Fox1, Natalie Saunders1, Bill Vicenzino2, Jason Bonacchi1, 1Deakin University, Melbourne, Australia. 2University of Queensland, Brisbane, Australia. Email: danielle.trowell@ausport.gov.au

(Please note: No relationships reported)

PURPOSE: This study is one part of a Randomised Controlled Trial investigating the effect of strength training on distance runners’ mechanics and performance. The aim of this study was to examine runners’ perceptions of the strength training intervention.

METHODS: Thirty distance runners (18 male, 12 female) were recruited for this study. In addition to their normal running training, the experimental group undertook strength training two days per week for 10 weeks. Total training time was matched, with the control group performing additional low-intensity running and body-weight exercises. Running performance and biomechanics during submaximal running (3.8 m/s) and maximal sprinting were assessed immediately before and after the intervention period. At the completion of the 10 week intervention period, the strength training group were also surveyed on their perceptions of the strength training intervention using an online questionnaire in Qualtrics.

RESULTS: Twenty-eight participants completed follow-up testing. Strength training significantly improved two kilometre running performance (F(1,26) = 10.497, p = .003, partial η² = .288) more than running training alone. The mean (95% CI) difference between groups was 11.31 (3.73 to 18.98) seconds. However, strength training did not change maximal aerobic capacity, running economy (3.3 m/s) or lower-limb joint kinematics or kinetics during running. Survey responses showed 64% (n = 9 of 14) of the experimental group believed the strength training program improved their running performance and 79% (n = 11) reported they would continue using strength training. Half (n = 7) of the experimental group believed strength training had a considerable effect on their running technique.

CONCLUSIONS: Strength training appears to improve runners’ physical and task-specific self-efficacy, and increased confidence may facilitate faster running performance. This study also demonstrated a discrepancy between measured and perceived effects of strength training on running technique.

896 Board #22 May 27 1:30 PM - 3:00 PM Setting A New World Record: The Demands Of Running 833km On Treadmill In 7 Days Nicholas John Alexander Berger1, Russ Best2, Daniel Cooley3, Michael Graham4, Claire Harrison5, Matthew Wright1. 1Teesside University, Middlesbrough, United Kingdom. 2WINTEC, Hamilton, New Zealand. 3The Newcastle Upon Tyne Hospitals NHS Foundation Trust, Newcastle, United Kingdom. Email: n.berger@tees.ac.uk

(Please note: No relationships reported)

Ultra-running (UR) comprises running events longer than a marathon (>42.2km). Due to the prolonged duration of UR, decrements in most or all physiological parameters are to be expected, and include a decrease in body mass and dehydration, loss of skeletal muscle mass and increased total body water. Psychological perturbations, as well as nutritional strategies throughout a successful UR, are to be expected, and include a decrease in body mass and dehydration, loss of skeletal muscle mass and increased total body water.

The purpose of this study was to examine the physiological and psychological demands of completing 833km on a treadmill, as well as the nutritional strategies undertaken by the athletes. The experimental group consisted of 2 female (21.8±1.0 yr; 57.4±6.7 kg; 1.6±0.09 m) and 2 male (25.7±3.8 yr; 70.1±8.1 kg; 1.72±0.07 m) university students of similar age. DEXA was used to measure BMD at the lumbar spine (LS-BMD), femur (RF-BMD) and total body (TB-BMD). Ultra-running (UR) can be attributed to a combination of physiological and psychological factors, as well as the nutritional strategies undertaken by the athletes.

There were no differences in LS-BMD Z-score, RF-BMD Z-score and TB-BMD Z-score frequency count in the range of -1 to -2 and below -2 is shown in table 1.

Table 1. Number of participants with Z-scores in the range of -1 to -2 and below -2.

<table>
<thead>
<tr>
<th></th>
<th>F Athletes (n=26)</th>
<th>M Athletes (n=30)</th>
<th>F control (n=29)</th>
<th>M control (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS-BMD Z -1 to -2</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>LS-BMD Z &lt; -2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>RF-BMD Z -1 to -2</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>RF-BMD Z &lt; -2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>TB-BMD Z -1 to -2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>TB-BMD Z &lt; -2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

* - sample size for these values was 20; F = female, M = male

CONCLUSION

There was high prevalence of low BMD (Z-score < -1) in high level male and female Kenyan distance runners and somewhat unexpectedly for control groups too; but, no statistical differences in bone health indices between female-male athletes and corresponding control groups. These findings warrant additional investigation be conducted into the energy balance, eating disorders, disordered eating and hormonal markers to further explain causality, both among Kenyan athletes and controls.

898 Board #24 May 27 1:30 PM - 3:00 PM May The Force Be With You: Acceleration-based Estimates Of Vertical Ground Reaction Forces During Running Dovin Kiernan, David Hawkins. University of California, Davis, Davis, CA.

(No relevant relationships reported)

Running-related injury (RRI) may be caused by combinations of load magnitudes and numbers exceeding muscle-skeletal structure capacity. Few methods exist, however,