Nutritional Affects on Athlete Performance
Alexandra Sherrard, DEP Student; Regina Schimek, DPD Student; Katie Pavlicek, DEP Student; Bailey Plutowski, DEP Student; Ardith Brunt, PhD, RD
North Dakota State University

Abstract
The objective was to increase the knowledge of the NDSU baseball team on eating for improved performance. Three main problems suspected were inadequate fruit and vegetable intake, inappropriate replenishment of foods and fluids before and after exercise, and inadequate water intake. Theory from literature review showed that carbohydrate, protein, and fluid intake greatly influence the team’s performance. Initial research showed that carbohydrate intake is most important before exercise while protein consumption is most important post-exercise. Water should be consumed before, during, and after exercise to replace sweat loss. Inadequate intake of any of these sources will cause poor performance. These findings suggested that the NDSU baseball team would have similar nutrition problems. To perform the intervention, survey and observation of 37 men ages 18-24 was assessed. The team practiced 4-6 times each week; about 3-4 hours each time. Survey and observation of the team showed that the team was consuming high amounts of protein and low amounts of fruits, vegetables, and water. Survey and observation results were used to develop an intervention. The information was presented with a PowerPoint and a handout. Evaluation was done by pre- and post- quizzes. These quizzes showed that knowledge of the players increased very little; however, this showed that the team knew more about the intervention topics than initially thought. To conclude, the experiment showed that the team knew more about the intervention content than initially thought. The purpose of this intervention is to inform the NDSU baseball team on proper consumption of carbohydrates and fluids before and after exercise. The intervention was held again to ensure better results.

Context
• Due to busy schedules, players felt they did not have the time to choose healthier options.
• Players felt that their accessibility to certain fruits and vegetables was limited, leading to increased consumption of more unhealthy convenience foods.
• Improper knowledge has lead to confusion on the amount and type of fluid to consume before, during, and after exercise.

Research Purpose
The purpose of this intervention is to inform the NDSU Baseball Team on proper consumption of carbohydrates and protein, water and fluids, and fruits and vegetables at specific times to enhance performance and recovery during exercise.

Participants
• 37 male members of the NDSU Baseball Team
• Between the ages of 18-24; half upperclassmen
• Most Caucasian living off campus

Experimental Measure
• Pre-quizzes and post-quizzes
• Pre-intervention survey
• Pre-intervention practice observation

Hypothesis: Inadequate consumption of fruits, vegetables, and water as replenishment and re-nourishment sources for performance.
• Lack of knowledge of necessary fluid intake.
• Accessibility to fruits and vegetables.
• Taste preference for other foods over fruits and vegetables.

Outcome Objectives
1. Through evaluation with a pre and post quiz, 50% of the baseball players will be able to identify three performance-enhancing benefits from eating a variety of fruits and vegetables.
2. Through evaluation with a pre and post quiz, 50% of the baseball players will be able to identify three specific important replenishment foods and fluids after games and practices for a healthy recovery.

Indicator: Pre-quiz indicates prior knowledge.

Assessment

Participants
• 37 male members of the NDSU Baseball Team
• Between the ages of 18-24; half upperclassmen
• Most Caucasian living off campus

Experimental Measure
• Pre-quizzes and post-quizzes
• Pre-intervention survey
• Pre-intervention practice observation

Hypothesis: Inadequate consumption of fruits, vegetables, and water as replenishment and re-nourishment sources for performance.
• Lack of knowledge of necessary fluid intake.
• Accessibility to fruits and vegetables.
• Taste preference for other foods over fruits and vegetables.

Outcome Objectives
1. Identify the three specific important replenishment foods and fluids after games and practices for a healthy recovery.
2. Identify three performance-enhancing benefits from eating a variety of fruits and vegetables.

Community Intervention
• Handled out pre-quiz and food samples.
• Explained protein and carbohydrate consumption and how timing of these foods affect performance.
• Explained water and fluid intake and the importance of proper hydration before, during, and after exercise.
• Explained the importance of fruit and vegetable consumption for performance.
• Allowed time for questions and discussion.
• Followed up with post-quiz.

Analysis

Results

Weeky Breakdown of Foods Consumed by the Team Compared to MyPlate Recommendations

<table>
<thead>
<tr>
<th>Category</th>
<th>MyPlate Recommendation</th>
<th>Team Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits</td>
<td>11.87%</td>
<td>11.10%</td>
</tr>
<tr>
<td>Vegetables</td>
<td>11.87%</td>
<td>11.87%</td>
</tr>
<tr>
<td>Protein</td>
<td>13.30%</td>
<td>16.07%</td>
</tr>
<tr>
<td>Dairy</td>
<td>13.0%</td>
<td>13.30%</td>
</tr>
<tr>
<td>Grains/Starches</td>
<td>16.07%</td>
<td>16.07%</td>
</tr>
<tr>
<td>Fats/Sugars</td>
<td>11.10%</td>
<td>11.10%</td>
</tr>
</tbody>
</table>

Recommendations

1. Identify the three specific important replenishment foods and fluids after games and practices for a healthy recovery.
2. Identify three performance-enhancing benefits from eating a variety of fruits and vegetables.

Conclusions

• NDSU Baseball Team gained and maintained information presented to them during the intervention.
• Members expressed interest in changing dietary habits that relate to performance based on gained knowledge.
• The team found the information provided to them informative and relevant.

Implications

• Education on appropriate foods and fluids can enhance performance and recovery.
• Engaging the team as a whole can have a positive outcome on dietary changes.
• More research needs to be conducted on how fruits and vegetables positively affect performance.