Laps to London:
A Deep Dive on Optimizing Post-Workout Recovery
Introducing Nick Folker,
Trainer to Select U.S. National Team Swimmers

• Nick is currently the Director of Aquatic Performance for the University of California, Berkeley – the only position of its kind in the US collegiate system.

• In charge of Cal's elite Swimming & Diving, and Water Polo programs, overseeing the teams’ weightlifting and dry land programs.

• A South Africa native, he represented his country in Sydney at the 2000 Sydney Summer Games.

• In addition to coaching duties, Nick manages the his professional/elite athletes’ nutritional requirements and assists them in making educated choices regarding refueling their bodies.
What We’ll Cover TODAY

The important of recovery, focus on the role of post-exercise nutrition and recovery techniques

An overview of good “post-game” nutrition

Chocolate milk and post-exercise recovery research

Top techniques for physical recovery

Tips to create a post-game recovery action plan
Recovery Is…

The time it takes the body to repair itself from the damage caused by training.

During recovery a complex process takes place which includes:

- Refueling the muscle and liver glycogen stores (carbohydrates)
- Replacing fluids and nutrients lost through sweat
- Developing new muscle proteins required for growth
POST-GAME Nutrition

2-HOUR RECOVERY WINDOW

✓ Can affect performance at the next game/practice
✓ Can help reduce the chances of injury
✓ Boost the health, well-being of athletes

IT’S JUST AS IMPORTANT AS PRE-GAME NUTRITION!
DO YOUR ATHLETES ALREADY KNOW ABOUT RECOVERY?
BEFORE THE WORKOUT  AFTER THE WORKOUT
Endurance Athletes May Recognize The Importance, But Know Little According To A Recent Study…

88% of endurance athletes say that RECOVERY is an important part of their training.

Yet, only one out of three recognized the importance of the 2-hour RECOVERY window.

How Do Athletes RECOVER?

- Water: 56%
- A Recovery Beverage: 25%
- Rest: 11%

Only 1 in 4 athletes opted for a RECOVERY BEVERAGE.

After Exercise, **YOU NEED**…

- **PROTEIN**
  to reduce muscle breakdown, stimulate growth

- **CARBOHYDRATES**
  to refuel muscle glycogen

- **FLUID and ELECTROLYTES**
  to replenish what is lost in sweat and to rehydrate the body
## Post-Exercise NUTRITION GUIDELINES

### What The Experts Say

<table>
<thead>
<tr>
<th>Carbohydrate</th>
<th>Protein</th>
<th>Fluids</th>
<th>Electrolytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5g of carbs/kg body weight during the first 30 minutes and again every 2 hours for 4 to 6 hours</td>
<td>Ratio of about 3:1 or 4:1 carbohydrate to protein</td>
<td>16-24 fl. oz. for each pound of body weight lost during exercise helps restore fluid balance</td>
<td>Based on extent of sweat loss (if sweat water and electrolytes are not replaced, then the person will dehydrate)</td>
</tr>
</tbody>
</table>

For Example, WITHIN 2 HOURS AFTER EXERCISE

120 Pound Athlete May Need...

<table>
<thead>
<tr>
<th>Carbohydrate</th>
<th>Protein</th>
<th>Fluids</th>
<th>Electrolytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>82 grams (amount in about 24 ounces of chocolate milk)</td>
<td>20 to 27 grams</td>
<td>24 ounces (depending on exercise intensity, weight loss)</td>
<td>Sodium to aid hydration, other minerals (depending on sweat losses)</td>
</tr>
</tbody>
</table>
And, a 190 Pound Athlete May Need...

<table>
<thead>
<tr>
<th>Carbohydrate</th>
<th>Protein</th>
<th>Fluids</th>
<th>Electrolytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 grams</td>
<td>32 to 43 grams</td>
<td>24 ounces</td>
<td>Sodium to aid hydration, other minerals</td>
</tr>
<tr>
<td>(amount in about 40 ounces of chocolate milk)</td>
<td></td>
<td>(depending on exercise intensity, weight loss)</td>
<td>(depending on sweat losses)</td>
</tr>
</tbody>
</table>
Choosing An Effective Post-Exercise Drink

What The Research Says About CHOCOLATE MILK
# Chocolate Milk’s Liquid Assets

<table>
<thead>
<tr>
<th>Protein</th>
<th>Carbohydrates</th>
<th>Electrolytes</th>
<th>Fluids</th>
<th>Calcium and vitamin D</th>
<th>B vitamins</th>
<th>9 essential nutrients</th>
</tr>
</thead>
<tbody>
<tr>
<td>To help <strong>build muscle</strong>, reduce muscle breakdown and work with carbohydrates to restore muscle glycogen</td>
<td>To <strong>refuel muscles</strong> (restore muscle glycogen)</td>
<td>To help <strong>replenish</strong> what’s lost in sweat (sodium, calcium, potassium and magnesium)</td>
<td>To help <strong>rehydrate</strong> the body</td>
<td>To <strong>strengthen bones</strong> and help reduce the risk of stress failure</td>
<td>To help convert food to <strong>energy</strong></td>
<td>Offers <strong>additional nutrients</strong> not typically found in traditional sports drinks</td>
</tr>
</tbody>
</table>
The RESEARCH

1. Perform
2. Refuel
3. Rebuild
4. Rehydrate and replenish
AIDS PERFORMANCE For The Next Bout Of Exercise

After recovering with chocolate milk, athletes:

• Exercised **LONGER** and with **MORE POWER** during a second workout

• Cycled **51% LONGER**

• Had significantly **MORE POWER** and **RODE FASTER**, shaving about six minutes from their ride time

• Had **TWICE THE IMPROVEMENT** in VO2max (measure of aerobic fitness)

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New Study Finds Recovering With Chocolate Milk Gave Runners A Performance Edge

Recreational runners ran 23 percent longer in a follow-up run after drinking fat free chocolate milk compared to a typical sports drink.

Chocolate Milk HELPS REPLACE MUSCLE GLYCOGEN

The Right Mix of Carbohydrates and Protein

3.25:1

16 ounces of fat free chocolate milk after exercise led to greater concentration of glycogen in muscles at 30 and 60 minutes post-exercise, compared to a carb only sports drink with the same calories.

REBUILD
A Muscle Building ADVANTAGE

- In a study of moderately trained male runners those who drank fat free chocolate milk after exercise had enhanced skeletal muscle protein synthesis – a sign that muscles were able to repair and rebuild – compared to a fluid replacement drink (with just carbohydrates).

- Athletic men and women who drank milk one hour after a “leg resistance exercise routine” experienced a significant increase in two measured amino acids

Reduced EXERCISE-INDUCED MUSCLE DAMAGE

Athletes who drank regular or flavored milk after a rigorous workout had less exercise-induced muscle damage than those who drank water or typical sports drinks, according to several studies.

EXERCISE-INDUCED MUSCLE DAMAGE can lead to future impairments in muscle performance, which could affect future exercise bouts.

• Compared to other electrolyte beverages lacking protein:
  
  • Canadian researchers found that active adults who drank milk after resistance exercise experienced greater support for muscle gain.
  
  • Other studies found that untrained men and women who drank fat free milk after exercise gained more muscle and lost more body fat at the end of a 12-week training program.

Researchers suggest MILK’S ADVANTAGE may be due to unique properties of milk proteins that may cause differences in speed of digestion and absorption.

McCleave EL et al. ACSM, 2011.
REHYDRATE AND REPLENISH
Milk HELPS REPLACE ESSENTIAL ELECTROLYTES Lost In Sweat

<table>
<thead>
<tr>
<th>Potassium</th>
<th>Magnesium</th>
<th>Calcium</th>
<th>Sodium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk provide 360mg: 12% of the daily value</td>
<td>Milk provides 27mg: 8% of the daily value</td>
<td>Milk provides 300mg: 30% of the daily value</td>
<td>Milk provides 100mg: 4% of the daily value</td>
</tr>
</tbody>
</table>

8 ounce serving of lowfat milk; USDA National Nutrient Database for Standard Reference, Release 24
Milk HELPED RESTORE HYDRATION BETTER Than Other Popular Post-Exercise Beverages

4 hours

Significantly more urine excretion after drinking water or sports drink compared to milk

Researchers believe milk’s natural electrolyte content and energy density may help restore and maintain hydration after exercise

Scientific Evidence Continues to Build...

• Read more about the research and find all the references at www.gotchocolatemilk.com
Top TECHNIQUES and TIPS
For Exercise RECOVERY
1. COOL DOWN!
2. Stretch immediately following exercise
3. Foam Roll ("aka" self-massage)
4. ...Get a massage!
5. Ice within two hours
6. Hot/cold water immersion therapy
Putting It All Together

Creating A Recovery Plan For Your Athletes
Our Recovery **MUST-DO’s**

1. Pay attention to the 2-hour recovery window
2. Emphasize fluids, protein and carbohydrates
3. Make recovery easy and convenient
4. Follow recovery techniques that are right for YOU
Post-Workout SNACK IDEAS

• **Chocolate Milk**
  – Nature’s recovery drink. Chocolate milk has the added bonus of bone-building nutrients (not found in traditional sports drinks) to help maintain strong bones.

• **Turkey and Cheese with Apple Slices and Pretzels**
  – If you're not in the mood for a sandwich, skip the bread and eat the fillings on their own!

• **Tuna on Whole Wheat**
  – Tuna over a slice of whole wheat bread is a great protein/carb mini-meal.

• **Banana and Peanut Butter**
  – Provides a good source of protein and vitamin E, while the banana provides the carbohydrates you need to get re-energized.
How YOUR ATHLETES Can GET IN THE GAME

Log onto gotchocolatemilk.com for tips and tools to help you get the best out of your athletes.

Stay up to speed on the refuel science and interact with the coach community at:

- Facebook.com/gotchocolatemilk
- Twitter.com/GotChocoMilk

Talk to your dairy or State and Regional representative about where chocolate milk is sold; see if you can partner with the dairy to get chocolate milk delivered directly to your training facility.
How Do Your Athletes Recover?

QUESTIONS?
THANK YOU!