The Need to Have a Good Plan for Regeneration and Recovery

Coach Ralph Perez
The Need to Have a Good Plan for Regeneration and Recovery

- Introduction
- Building a Plan: Individualize a plan for each player for optimal performance and recovery
- Understanding the dynamics and processes for Recovery in sports – muscle and tissue repair/regeneration process
- Mental Recovery
- Physical Recovery
- Nutrition is Critical: Where does the role of nutrition fit in Pre-workout, During-workout, and Post-workout?
- Case study – University of Redlands experience
- Q&A
- Science & Research
A Recovery Plan is KEY

• Know your athletes: Every athlete is different physically and mentally, and therefore their body’s tolerances are different – Age and body types are factors to remember.

• Try to develop a plan that works for the team, but it’s important to keep the individual athlete in mind too.

• Routine: Customize a routine for each player that includes physical training, mental conditioning and nutritional planning.

• Periodization: Important to consider when you want your athletes/team to peak.

• Proper pre, during and post workout nutrition is critical.

• Give each athlete their own written training plan that includes what and when to eat/drink and how to properly recover.

• Coaches must take the lead in helping to not only build the plan for each athlete, but also help implement it by continuous reminders and discussions.
Mental Recovery:

Mental fatigue impacts decision making and intensity, but also can impact physical performance

- Focus on the next game
- Don’t dwell on mistakes/ don’t expect every game to be the same
- Look at what worked/didn’t work from previous games
- Focus on the positive
- Mental relaxation – mediation skills may help
- Mental conditioning pre-game and during practice sessions can relieve stress and therefore assist with overall mental recovery
- Think short term, AND long term mental conditioning
- Remember: Every athlete has his/her mental tolerances – what works for one, may not work for another
Physical Recovery

• Icing – reduces inflammation and therefore allows for repair of micro tears more easily
• Muscle Massage – helps to relax muscles and joints, and therefore promote quicker recovery – also helps to circulate blood flow to and from muscle fibers
• Rest – allows for muscles and tissues to rebuild
• Proper Nutrition is critical – Pre-workout, during-workout, and Post-workout
  – Chocolate Milk!
Guiding Principles of Sports Nutrition

• Exercise promotes cellular regeneration, and nutrition serves as building blocks for cellular reconstruction
  – Therefore, quality of nutrition is of even greater importance for highly active people
  – Proper eating

• Nutritional Timing:
  – Timing of nutrition is critical for peak performance. “When” you nourish is just as important as “what” you nourish with. The three critical intake times are “pre”, “during”, and “post” – all having unique optimal intake requirements.

• Recovery Speed:
  – Speed of recovery is a great determining factor for athletic success, and the reduction of recovery time impacts performance

• Quality of Nutrition:
  – Avoid preservatives, artificial colors, and corn syrup whenever possible.
Athletes use food to fuel their bodies

- Athletes break down muscle and cell tissue every time they workout (micro-tears) – they are in perpetual regeneration mode
- Proper Nutrition is critical for rebuilding that tissue quickly and efficiently
- Nutrient-rich and protein-rich foods are the best for rebuilding and reconstructing strong muscles and tissue
- Athletes have special dietary needs
- Nutrition is NOT just critical at POST-workout! Nutrition for recovery starts pre-workout and continues during the workout!
- Three critical nutritional phases: Pre, During and Post
Pre-workout

• Important to try to nourish with nutrition that helps increase endurance, anaerobic capacity and mental focus, and overall energy
• Ingest primarily high-quality carbohydrates 20-30 minutes prior to training
• Nourish with carbohydrates that can act as both long-term and short term fuels (use a high glycemic index carbs for short term, and low glycemic index for long term fuel)
• Herbal, mineral and vitamin supplements may help improve focus, and training intensity – small amounts of caffeine may help improve workout intensity (be cognizant of age-appropriateness)
During-workout

• Important to nourish with nutrition that helps support healthy muscle development, endurance, and electrolyte replacement

• Nourish with quality carbohydrates that can act as instant and sustained energy – sports gels, cubes, and bars that are easy to digest and are specific to sustaining high level performance during workouts are good

• Hydrate – electrolyte and mineral replacement – critical for performance especially during hot and humid conditions

• Protein – small amounts of simple-to-digest protein during workouts can help with recovery and muscle repair
Post-workout

• Factors include: muscle glycogen and protein replacement for tissue repair, hormonal support, soft tissue repair, immune support, inflammation reduction, rehydration

• To recovery optimally requires the right combination of **carbs**, **proteins**, healthy fats, vitamins and minerals.

• A **3:1 carbs to protein ratio** is optimal for post-workouts, and to ingest as quickly as possible after the workout is critical (**within 30 minutes maximum**)

• Every intense workout results in micro tears of muscle and other tissues – the body’s normal physiological healing response includes inflammation, which temporarily reduces peak functionality of muscles and joints – diets which include high omega-3s and turmeric (a natural anti-inflammatory) are very helpful to reduce inflammation and promote quicker recovery
An Ideal Recovery Session

• Preforming Light Physical Activities
  – Stretching
  – Jogging
  – Low-intensity small sided games
• Recover Physically = Rest Mentally
• Stay at about 65% of the Maximum Heart Rate
  – Avoid over-working players
• Low Physical Contact
• 60-Minute Max Session - Exceeding 60-mins may risk diminishing efficient regeneration
• Post-workout Nutrition
  – Low-Fat Chocolate Milk – why?
What Most Soccer Players are Drinking now

• Sports drinks
  – What’s in many leading sports drinks
    • Positive: Electrolytes and carbs (not all carbs are equal though)
    • But, many are missing protein, calcium, other vitamins (A, D) which are necessary for optimal recovery
    • Negative: Artificial colors, preservatives, high-fructose corn syrup, high amounts of sodium
  – What should we give them?
    • Quality Low Fat Chocolate Milk
      – Carbs AND Protein in the suggested 3:1 ratio
      – Calcium and other essential nutrients
What to drink during Recovery

• NESQUIK Low-Fat chocolate milk
  – 3:1 ratio of carbohydrates to protein
  – Has more vitamins (A, D, C), proteins, carbs, sodium, potassium, & calcium than leading sports drinks, without the high fructose corn syrup & artificial sweeteners
  – Tastes good and players love it
  – Noticeable differences in the standard of training/games when using NESQUIK as a post-practice beverage
  – Research suggests that the optimal time to drink chocolate milk is within 30 minutes after intense workout and/or training activity
  – No high-fructose corn syrup
  – No preservatives
  – No artificial colors
# Comparing Recovery Options

**Nesquik® Contains**

- The ideal ratio of carbohydrates-to-protein that may help refuel and restore exhausted muscles.

<table>
<thead>
<tr>
<th>IDEAL RATIO IS 3:1</th>
<th>Carbohydrates</th>
<th>Protein</th>
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<td></td>
<td>25g</td>
<td>8g</td>
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<table>
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<tr>
<th>Low-Fat Nesquik® Chocolate Milk (8 fl. oz.)</th>
<th>Leading Hydrating Sports Drink (8 fl. oz.)*</th>
<th>Leading Juice Drink for Kids (8 fl. oz.)**</th>
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<tr>
<td>25g</td>
<td>14g</td>
<td>23g</td>
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<table>
<thead>
<tr>
<th>% OF DAILY VALUE***</th>
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<tr>
<td>Sodium</td>
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<tr>
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<td>Vitamin D</td>
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<tr>
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</tr>
<tr>
<td>Artificial Sweeteners</td>
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<tr>
<td>Dye/Color Additives</td>
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<td>High Fructose Corn Syrup</td>
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*Standard serving size is 12 fl. oz.
**Standard serving size is 6 fl. oz. (177mL)
***Daily Value based on recommended dietary allowance.
University of Redlands – Case Study and Experience

• 2 Week Trial using Nesquik Low-Fat Chocolate Milk after practices
  – Players felt more rested the next day
  – Players felt less soreness the next day
  – Players were able to work harder the next day
  – Players LOVE drinking chocolate milk after a workout!
Q&A Session
Science and Research Sources
Research Overview

• Southern Connecticut State University
  – Background
    • This study examined effects of fat-free chocolate milk consumption on kinetic and cellular markers of protein turnover, muscle glycogen, and performance during recovery from endurance exercise.
  – Methods
    • Male runners participated in two trials separated by 1 week and consumed either MILK or a isocaloric carbohydrate (CHO) control beverage after a 45-min run at 65%. Post exercise muscle protein fractional synthetic rate and whole-body protein turnover were determined during 3 hours of recovery using muscle biopsies.
  – Conclusion
    • The effects of consumption of chocolate milk after endurance exercise and performance measures suggest unique benefits of milk compared with a CHO-only beverage, such as increased skeletal muscle protein turnover, leucine kinetics, and performance

Research Overview

• University of Texas
  – Background
    • This study examined 32 healthy, untrained male and female cyclists who completed a 4 ½ week cycling regimen and were placed into one of three randomized categories. Chocolate Milk, Isocaloric Carbohydrate Drink, or Calorie-Free Placebo.
  – Methods
    • Cycling for 1 hour, 5 days a week for 4 ½ weeks at 75%-80% of maximal oxygen consumption. Participants drank their assigned beverage immediately and 1-hour after each session.
  – Conclusion
    • Improvements in body composition were greater in the chocolate milk group. They had 3 pounds more whole body lean muscle (vs. fat) compared to the carbohydrate drink group and a 2 pound higher differential in trunk fat.
Research Overview

• School of Psychology and Sports Sciences, Northumbria University
  – Background
    • Nine trained male cyclists performed 3 experimental trials, in a randomized counterbalanced order, consisting of a glycogen-depleting trial, a 4-hour recovery period, and a cycle to exhaustion at 70% power at maximal oxygen uptake.
  – Methods
    • At 0 and 2 hours into the recovery period, participants consumed chocolate milk (CM), a carbohydrate replacement drink (CR), or a fluid replacement drink (FR)
  – Conclusion
    • Participants cycled 51% and 43% longer after ingesting CM (32 ± 11 min) than after ingesting CR (21 ± 8 min) or FR (23 ± 8 min).
    • Chocolate Milk is an effective recovery aid after prolonged endurance exercise for subsequent exercise at low-moderate intensities.

Source: http://www.nrcresearchpress.com/doi/abs/10.1139/H08-137#.Urikv-Kf-Vo
Other Research

- Health Canada (2011) Compendium of Monographs
- Negro, M (2008) Amino Acid supplementation