

The Need to Have a Good Plan for Regeneration and Recovery

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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 tumeric (a natural anti-inflammatory) are very helpful to reduce inflammation and promote quicker recovery

An Ideal Recovery Session

- Performing 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

<div>IDEAL RATIO IS 3:1</div>		<div>NESQUIK® CONTAINS</div> <div>the ideal ratio of carbohydrates-to-protein that may help refuel and restore exhausted muscles</div>	<div><div><div>SPORTS DRINK</div></div><div>Leading Hydrating Sports Drink (8 fl. oz.)*</div></div>		<div><div>JUICE DRINK</div></div> <div>Leading Juice Drink for Kids (8 fl. oz.)**</div>
		<div>Low-Fat Nesquik® Chocolate Milk (8 fl. oz.)</div>			
		<div>Carbohydrates</div>	25g	14g	23g
		<div>Protein</div>	8g	0g	0g
<div>% OF DAILY VALUE***</div>					
<div>ELECTROLYTES</div>	<div>Sodium</div>	7%	5%	1%	
	<div>Potassium</div>	12%	1%	0%	
	<div>Calcium</div>	40%	0%	0%	
<div>VITAMINS</div>	<div>Vitamin D</div>	25%	0%	0%	
	<div>Vitamin A</div>	10%	0%	0%	
	<div>Artificial Sweeteners</div>	No	No	No	
	<div>Dye/Color Additives</div>	No	Yes	No	
	<div>High Fructose Corn Syrup</div>	No	No	Yes	

*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



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Science and Research Sources



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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

Source: <http://www.ncbi.nlm.nih.gov/pubmed/21904247>



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.

Source: http://www.choosechocolatemilk.com/sites/default/files/acsm_study_details.pdf



Research Overview

- School of Psychology and Sports Sciences, Northumbria University
 - Background
 - Nine trained male cyclists performed 3 experimental trials, in a randomized counter-balanced 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

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