Recovery Techniques to Improve Fitness, Drill Execution, Focus, and Contest Performance

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The research and anecdotal evidence is overwhelming that simple recovery techniques help overall training and performance (and may be good for injury prevention and heat related issues).

Methods BEFORE/BEGINNING Practice/Contest

- Have a cue/purpose/statement/quote/focal point/emphasis set for that practice
  - Keeps the mind off of extraneous factors that can increase fatigue
- Snack and fluids toward end of school day or immediately after school
  - Honey, Fruit, Lara Bar, Clif Bar, - something easily digested and not filling
- Warm up complementary to the purpose of that practice
  - Pre-practice static stretching may actually be detrimental to power related activities (plenty of research on this)
  - Utilize various multi-joint, "dynamic" or movement oriented exercises that increase core temperature, go through a full range of motion, and progressively mimic the segments of the workout or contest.
    - Skips, gallop, shuffle, crossover, carioca, bear crawl, crab walk, hop, bound, jump, jump rope going forward, backward, sideways, or at angles progressively for motor control, skips: height, distance, speed, or rhythm. Can progressively be done barefoot
    - Add movements like multi-directional lunges with an upper body movement (reach), various body weight squats, or yoga type movements or stabilization exercises or transformers
    - Accelerate and/or running progression appropriate for the next practice activity
  - Massage (stick) roller, foam roller, and/or muscle blaster may increase blood flow to the area and break up knots and enhance tense areas
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Recovery Methods DURING Practice/Contest

- Fluids: Water, Electrolyte/Sports drinks (NEVER energy drinks)
  - PowerAde (cold and diluted), Hammer HEED, Shaklee Performance, Ultima Replenisher, VegaSport Electrolyte Hydrator. Can be diluted to taste.
- Ice towels/mist-spray bottle/head in cold water/cold water on face or head or ice in hand(s)
- Massage rollers
- Foam Rollers
- Change shirts or socks ½ way through practice
- Introduce a cue, a visual, a word/phrase/concept/feeling to better focus
  - "Feel the breeze" is a good cue when hot (when an athlete keeps walking/moving, it is easier to "feel" a breeze which cools them)
- Take off shoes…walk barefoot…
- Put feet, head, or hands in ice bucket
- Feet up above head (allows blood flow back to heart and may help reduce waste product buildup)
- Rest, whether active (walking) or sedentary (standing, feet up, in front of fan, etc)

Recovery Methods AFTER practice/contest

- Massage rollers, Foam Rollers
- Stretching (Achilles, calves, hams, glutes, low back, groin, IT band, hip flexors, quads, shoulders, upper back). Some studies/anecdotes show stretching up to 1-2 minutes as beneficial
- Take off shoes…walk barefoot
- Cryotherapy/ice water baths – temperature 50-60 degrees
- Fluids
  - Water and/or sports drink (NEVER energy drinks)
  - Simple 4:1 carb:protein type recovery drinks such as chocolate milk w/n 30 minutes after practice
- Snacks – nutrient bars

- Those with truly whole or natural or non-process or fewer ingredients (Lara, Cliff, other or foods w/ few ingredients)

During exercise glycogen is broken down to adenosine triphosphate (ATP) and used to supply energy to the body. Hypoglycemia (low blood sugar) can result if glycogen uptake exceeds the body's glycogen production. Beverages are quickest and easiest to aid in the resynthesis of glycogen as well as rehydrate.

Summary of research in the review:

- Athletes can maximize glycogen resynthesis during the 30-60 minutes following a workout, when the body can do so independently of insulin.
- Glycogen resynthesis is highest when post workout carbohydrate intake is 1.0-1.5g per kilogram of bodyweight.
- Carbohydrates with a higher glycemic index increased glycogen storage in the muscles, compared to lower glycemic carbohydrates (i.e. fruits, juices…)
- Glucose and sucrose enable a higher rate of muscle glycogen storage than fructose.
- Branched-chain amino acids may have an anabolic effect during recovery.
- **A combination of protein and carbohydrates post workout is more effective at restoring glycogen than a carbohydrate only drink.**
- The addition of antioxidants to post workout beverages could reduce muscle soreness by lessening oxidative stress and muscle damage.
- **Low fat chocolate milk was found to be more effective than a standard carbohydrate-protein drink as a post workout recovery drink, possibly due to the combination of proteins, carbohydrates, and the antioxidant properties of cocoa.**
- **Cyclists consuming low-fat milk after training were found to retain more fluid and be better hydrated than those drinking a standard carbohydrate-electrolyte drink.**

In summary, the review determined that in order to maximize restoration of glycogen stores endurance and team athletes should consume 0.8 grams of carbohydrates per 1 kilogram of bodyweight and .04 grams of amino acids or proteins per 1 kilogram of bodyweight every hour for 4-6 hours following a workout. In addition, post workout beverages should include potassium, chloride, and 0.3-0.7 grams of sodium per liter of fluid to restore electrolytes.

According to a Runner's World article lauding the benefits of Ice Baths:

"Cryotherapy ("cold therapy") constricts blood vessels and decreases metabolic activity,which reduces swelling and tissue breakdown. Once the skin is no longer in contact with the cold source, the underlying tissues warm up, causing a return of faster blood flow, which helps return the byproducts of cellular breakdown to the lymph system for efficient recycling by the body. "Ice baths don't only suppress inflammation, but help to flush harmful metabolic debris out of your muscles," says David Terry, M.D., an ultrarunner who has finished both the Western States 100-Mile Endurance Run and the Wasatch Front 100-Mile Endurance Run 10 consecutive times."Read more:
http://www.sweatonceaday.com/2011/07/how-to-take-an-ice-bath.html#ixzz39ffGx0nv

http://ghsa.net/there-are-2-rs-recovery

Recommendation of "cool first, transport second": from NATA June 27 new position statement…

http://www.athleticbusiness.com/industry-press-room/nata-issues-new-heat-guidelines-and-research-at-conference.html

The current document now states that a patient suspected of having exertional heat stroke must be cooled via cold water immersion for the full treatment time prior to being transported to a hospital; and that this must be stated in the school's emergency action plan.

Always follow the required heat/humidity/hydration policy!