Hydration is a process that starts with the ingestion of fluid, followed by emptying from the stomach and absorption through the intestines, then distribution of the fluid throughout the body and finally retention or excretion of the fluid by the kidneys. We will discuss these four segments of hydration science as well as offer practical recommendations for improved hydration amongst an athletic population.

I. Introduction
   a. Body Water
   b. Thermoregulatory Sweating
      i. Practical Recommendation #1

II. Phases of the Hydration Process
   a. Fluid Intake
      i. Factors Governing Thirst and Fluid Intake
      ii. Dehydration
      iii. Practical Recommendation #2
   b. Fluid Absorption
      i. Control of Gastric Emptying
      ii. Intestinal Water Absorption
      iii. Impact of Carbohydrate
      iv. Practical Recommendation #3
   c. Fluid/Electrolyte Distribution
   d. Fluid Retention
      i. Role of sodium
      ii. Practical Recommendation #4

Three Take-Away Points:

1) Since sweat rate is so variable, it is important that athletes determine their individual sweat rates. A planned hydration strategy based on sweat rate can help prevent excessive under- and/or over-drinking.

2) Fluid absorption can be enhanced with a fluid replacement beverage that strikes the right balance among carbohydrate type and carbohydrate content. Both of these factors are important for the rapid delivery of fluid and energy.

3) Sodium within a fluid replacement beverage plays a significant role in replacing sweat sodium losses, stimulating thirst, and supporting fluid retention. Therefore, the combination of fluid with sodium can improve overall hydration.
Additional References:

1) Hydration Recommendations for Athletes (session handout)
2) http://data.gssiweb.com/fluidLoss
3) http://www.gssiweb.org/en/sports-science-exchange/all/hydration
4) http://www.gssiweb.org/en/ask-the-expert/all/hydration