2005 “Research to Reality”
Douglas J. Casa, PhD, ATC, FACSM
Director, Athletic Training Education
University of Connecticut

Hydration and Heat Physiology:
Maximizing Performance and
Minimizing Health Risks for Athletes

My interest in exercise in the heat stemmed from a personal experience with exertional heatstroke. I collapsed with exertional heatstroke while competing in a high school 10-K track race in Buffalo, NY, while competing in the Empire State Games. This experience stimulated my interest in hydration, exertional heat illnesses, and heat physiology.

In the “Research to Reality” presentation, I will highlight my past and present research, focusing on the findings that certified athletic trainers can use during their daily activities. Additionally, I will briefly discuss possible future avenues of investigation. An ongoing objective of my research is to understand the physiologic mechanisms affecting athletes’ performance of intense exercise in the heat. I hope the information I present will stimulate a healthy dialogue regarding the policies and procedures concerning hydration and exertional heat illnesses. My ultimate goal is to maximize the athletes’ performance while minimizing the health risks associated with exercise in the heat.

I have over 25 peer-reviewed publications that have been published or that have been accepted and are in press. I have also given over 100 national or regional talks. My greatest source of pride stems from the two position statements I have assisted with for the NATA. These include the Fluid Replacement for Athletes Position Statement that was published in 2000 and the Exertional Heat Illnesses Position Statement that was published in the September 2002 Journal of Athletic Training. Additionally, I chaired the Inter-Association task force on Exertional Heat Illnesses Consensus Statement in 2003 that brought together 18 sports medicine/military/governmental organizations. These statements are the truest examples of “Research to Reality” that I know since their aim is to bridge the existing literature into practical advice for the practitioner. In addition, I have

**Specific Research Findings To Be Addressed Include:**
1) Recognition and Treatment of Exertional Heat Stroke
2) Assessing Hydration Status
3) Body Cooling to Enhance Athletic Performance
4) The Influence of Nutritional Ergogenic Aids on Exercise Heat Tolerance (specifically: caffeine, glycerol, creatine)
5) Intravenous Versus Oral Rehydration
6) The Benefits of Partial Rehydration
7) Psychological Factors of Dehydration and Hyperthermia
8) Heat Acclimatization During the Initial Days of Division IA Football Practice
9) Validity of Various Body Temperature Devices
10) Hydration Issues in Youth Soccer and Football Players