Two distinct types of dehydration occur when body water loss is accompanied by small or large solute losses. Small solute losses result in shared water losses between the intracellular (ICF) and extracellular (ECF) spaces (intracellular dehydration, ID) while large solute losses primarily reduce volume of the ECF (extracellular dehydration, ED). The distinction between the two has therapeutic implications for rehydration. Enterade® is a commercial beverage blend of amino acids and electrolytes designed to improve gut function and enhance body water restoration. PURPOSE: To compare the rehydration kinetics of Enterade® following two types of dehydration. METHODS: Thirteen healthy, non-heat acclimatized volunteers participated in this study (mean ± SD; 23 ± 8 yr, 78.5 ± 14.2 kg, 1.8 ± 0.1 m, total body water (TBW); 41 ± 7.1 L). A dehydration baseline was established over three days using standardized fluid intakes (≥ 3 L/d). On day four volunteers were dehydrated using 80 mg furosemide (ED; n = 6) or exercise-heat stress (ID; n = 7). Volunteers were then rehydrated by replacing 100% of TBW losses with Enterade® over 90 minutes. Blood, urine, and sweat were sampled throughout. Rehydration kinetics were assessed over 4 hours, including plasma volume (PV) restoration, compartmental fluid shifts and drink volume retention. RESULTS: ID (-4.1 ± 0.5% body mass) produced a hyper-osmotic (0 ± 2 mmol/kg) hypovolemia (-11 ± 4% PV). TBW (-2.4 ± 0.2 L) and solute (-583 ± 120 mmol) were shared between the ICF (25%) and ECF (75%). ED (-3.0 ± 0.2% body mass) produced an iso-osmotic (0 ± 2 mmol/kg) hypovolemia (-10 ± 5% PV). Losses in TBW (-3.0 ± 0.6 L) and solute (-98 mmol) came primarily from the ECF (98%). PV was restored to baseline by 1.5 hours in ID and by 2.5 hours in ED. The distinction between the two has therapeutic implications for rehydration. Enterade® is a proprietary commercial beverage blend of amino acids and electrolytes designed to improve gut function and enhance body water restoration.