



We are looking for athletes!

Dear Participants of the Alaska Mountain Wilderness Ski Classic,

The organizers of the Alaska Mountain Wilderness Ski Classic (AMWSC) and Dr. Robert Coker (former Professor Biology at UAF) of the Montana Center for Work Physiology and Exercise Metabolism (WPEM) at the University of Montana continue their collaboration and plan to conduct measurements related to energy expenditure in the spring of 2023.

WPEM is a world class research center which is dedicated to the study of human physiology in response to nutrient, physical and/or environmental stress. We have worked with athletes competing in events such as Ironman, Badwater 100, Yukon Arctic Ultra and even the AMWSC! WPEM represents a collective collaboration of research scientists, including Drs. Brent Ruby (Director), Robert Coker (Deputy Director), Melynda Coker (Assistant Professor) and Dustin Slivka (Associate Professor).

We recognize that the AMWSC with its high level of physiological demands in a largely self-supported environment represents a great opportunity to study total energy expenditure, and its potential relationship to fat free mass (ie., muscle) in males and females.

Who We Are Looking For

The participants in the study must already be registered to participate in the AMWSC. They should be experienced and may have participated in the event previously. There are no age restrictions, but only adult (ie., at least 18-year-old or older) men and women will be recruited.

Measured Parameters

We will utilize the doubly labeled water (stable isotope; non-radioactive) method for the determination of energy expenditure during the event. This method allows us to use inherent and naturally occurring variations in the hydrogen and oxygen that make up water so that we can calculate energy expenditure. Simply, you will be asked to drink a small amount (~100 ml or 3 ounces) of doubly labeled water prior to the event and collect four small urine samples. Two samples will be collected the day before and the day after isotope ingestion. One urine sample will be collected during the event and another one immediately after completion. We will use urine specimen cups commonly utilized in medical care, and a REI Freshette pee funnel or other system specifically selected by study participants.

This methodology enables us to measure total energy expenditure, including resting energy expenditure, thermic effect of feeding (ie., increased energy expenditure associated with eating and digestion), and energy expenditure from physical activity. Briefly, the labeled oxygen leaves the body as carbon dioxide and water (urine). The labeled hydrogen leaves the body as water (urine). By measuring the differences in hydrogen and oxygen elimination from the body, we can determine total energy expenditure with an extremely high level of precision compared to wearable biometrics like a FitBit or Apple watch.

We will also measure height and weight, and body composition pre-event and post-event using the portable Tanita DC-430U Dual Frequency Total Body Composition Body Composition Analyzer (Arlington Heights, IL).

Initial isotope consumption and body composition data will be collected at Arctic Getaway Bed and Breakfast in Wiseman, AK. This facility has private bathroom access. Dr. Robert and/or Melynda Coker will be there on-site for pre-event and post-event data collection. It should not take more than 20 minutes for the consent process and pre-event procedures and no more than 5 minutes for the post-event procedures.

Your Benefit

Participants who decide to partake in this study will receive detailed information of the investigated parameters, which may be valuable with respect to their health and performance. This information may also be utilized in their future training and planning for expeditions.

Contact

Please contact Dr. Robert Coker directly at 501 358-9827 or Melynda Coker at 501 499-4349 if you are interested in participation and/or if you have any questions about the study. We are looking forward to hearing from you.