

Event Summary

AF0115

Title: The metabolic and body temperature response of men exposed to an acute cold stress before and following an Arctic bivouac

Event Classification:

Dates: Undetermined-1958

Lead Sponsor: Arctic Aero-Medical Laboratory

Investigators: Donald W. Rennie
Thomas Adams
Gisle Bang

Location of Records: DTIC

Type of Records: Technical Report 57-37

Subject Characteristics:	All Names Identified	Healthy Individuals
	Active Duty Military	Tracer Studies

Facility Where Event Took Place: Ladd AFB

Abstract: From a presently undetermined date until 1958, researchers from the Arctic Aeromedical Laboratory at Ladd Air Force Base studied the metabolism and body temperatures of subjects during a standardized cold test before and after a twenty-four day Arctic winter bivouac to determine if any changes that took place could be attributed to living in a cold environment. Six volunteers from among Ladd AFB personnel participated. Researchers studied body heat debt, total body heat loss, tissue and environmental insulation and the vascular reactivity of certain skin areas. Basal metabolism and thyroid function using iodine-131 (I-131) uptake were also determined in each subject before and after the bivouac exposure. Thyroidal uptake was measured six, twelve, twenty-four and forty-eight hours after ingestion of a capsule of fifteen microcuries of carrier-free I-131. Following the field exercise, a capsule of ten microcuries of I-131 was administered. Urinary elimination of I-131 was determined at the same intervals as uptake, by comparing the activity of a prepared urine sample with a standard solution of I-131 in a well-type scintillation counter. In addition, protein-bound I-131 was determined using a venous blood sample drawn twenty-four hours after I-131 ingestion. No significant change in basal metabolism or I-131 uptake was noted in any subject following the field exposure. Overall, no evidence was found for any generalized acclimatization involving altered metabolism.

Radiation: One dose of 15 microcuries I-131
One dose of 10 microcuries of I-131