



Altitude Illness & Acclimatization Tools

Status

First generation software developed and available to a licensee; Patent application filed

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**Available
For
Licensing or
a CRADA**

The Technology

High altitude exposure can negatively affect mental and physical performance and overall health because it lowers the oxygen supply to body tissues for a significant amount of time. The condition known as hypoxia, which can lead to altitude sickness. Altitude acclimatization allows a person to mitigate the impact of altitude exposure. Currently, no tests can predict or monitor an individual's changing susceptibility to altitude sickness. Developed by the Army, two technologies employ population-based data and an individual's planned or actual altitude exposure to provide useful information for sustaining health and improving performance: the Altitude Illness and Acclimatization Management Decision Aid and the Automated Altitude Acclimatization Monitor. The former predicts the risk of altitude illness and provides altitude acclimatization protocols. The latter is a device that provides portable, real-time altitude acclimatization status outputs in both text and graphical formats.



Application

A modular software system predicts prevalence and severity of altitude stress, including factors such as altitude acclimatization, acute mountain sickness, and physical work performance decrements. The system can be used as a stand-alone software product and/or as a portable device that uses barometric pressure readings to provide the user with a real-time monitoring capability. Software embedded in the monitor could be used to evaluate the impact of "what if" scenarios should the user stay at the same altitude and acclimate, change altitude, or alter their level of physical exertion.

Benefits

- Available technology includes a stand-alone software product and the capability to produce a device version integrated into a wristwatch, GPS, or smart-phone.
- The modular software design allows for expansion to accommodate additional features based on customer needs.
- Existing software includes the factors of work intensity, gender, and acclimatization status in calculating an altitude risk assessment.
- Applicable to high altitude activities such as mountain climbing/hiking, skiing, search and rescue operations, and other activities.

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