Science with a Little Altitude | QS18
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Data Collection

- Activities (elevation gain, step, calories) using *Fitbit Charge HR*
- Peripheral capillary oxygen saturation (spO2) using *iHealth Oximeter*
  - Frequency: >5 times / day
    - Morning (wakeup)
    - At tea houses
    - On arrival at lodges
    - Before bed
  - Replicates: 3-5 replicates per measurement
Data
Distance
Vertical climb
Calories
Effect of altitude on inhaled O2 (% of sea-level)
Effect of altitude on spO2
Altitude sickness was experienced when spO2 < 80%

- Headache
- Blurry vision
- Restless sleep
Effect of altitude on resting heart rate
Exercise decreases spO2

- High altitude exercise has long been observed to dramatically decrease spO2 [West et al 1962, West et al 1983, Pandolf and Burr 2002]
Rest, even a short one, can improve SpO2
Acclimatization markedly improves SpO2
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Sherpas have higher spO2

Sherpa 89 vs Fah 85

Sherpa 88 vs Fah 85

Sherpa 96 vs Fah 93
Gut Microbiome at Genus Level

1 Week Before

Wellness Match Score

95.2%

SUMMARY

HEALTHY WEIGHT SCORE
10 out of 10

DIVERSITY OF YOUR SAMPLE
53rd percentile

The overlap between your sample and the average microbiome among Selected Samples.
Selected Samples are samples from individuals who report no ailments and high levels of wellness.
Gut Microbiome at Genus Level

1 Week Before

- Bacteroides: 1.37%

At Everest BC

- Bacteroides: 86.66%

SUMMARY

HEALTHY WEIGHT SCORE
0.9 out of 10

DIVERSITY OF YOUR SAMPLE
0th percentile
Gut Microbiome at Genus Level

1 Week Before: Bacteroides: 1.37%
At Everest BC: Bacteroides: 86.66%
3 Months After: Bacteroides: 1.47%
Practical Advice

- Oximeter is unreliable on cold fingers or in bright light.
  - Difficult to measure during the daytime
- Best time to measure is before bed and right after waking up.
- Would be interesting to systematically measure SpO2 of Sherpa and other travellers for comparison.

read more at
https://blog.23andme.com/health-traits/science-little-altitude/
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