

XINING 2013 EXERCISE

Sample ID code for BGA

Subj. ID Exercise load Altitude A ✓
X1 R S M 22 42 art. ven
rest sub max 2200m 4200m

Hard case code: 198

X1 - 2200m
 Temp: 21
 Humid: 28
 21 Sept 2013 cm kg BP Hb Altitude
 X1 22 yrs. 173 67.5 143/87 2200 Ambient
 Han Male 3 yrs. Student sm: 0 A1: 0
 ECHO - pre From: Hubei

| Time | Comments | |
|-------|---------------------------|--------------------------|
| 0:00 | start rest | Time in Xining: 13:20 |
| | pre ECHO | PER = 0.80 13:27 |
| ① | V Blood @ rest | Blood gas 13:32 |
| | A Blood @ rest | 13:33 wagn |
| 0:00 | start 60 watts | 13:36 :39 |
| 5:00 | start 150 watts | subj paused :38 |
| | | VO ₂ 1850 :42 |
| 7:00 | start 180 watts | :45 |
| 9:50 | blood @ 180 watts | |
| 9:00 | start 200 watts | |
| 9:40 | blood @ 200 watts | |
| 10:40 | (2) venous blood @ recov. | |
| | * No physioflow @ 2200m | ⇒ see page after |
| | ECHO - post | 4200m measurement |

| 100% O ₂ test see PW note book | HR | Sat | |
|---|-----|-----|-----------------------|
| 0:00 Air 60 watts | | | Time in Xining: 17:00 |
| 2:00 Air 180 watts | | | |
| 2:30 O ₂ 180 watts | Hb | Hb | |
| 4:00 O ₂ 210 watts | 166 | 100 | |
| 5:00 O ₂ 225 | Hb | 100 | |
| 5:40 STOP | 168 | 100 | |

X2-2200M

21 Sept 2013 cm kg BP Hb Altitude
X2 20 yrs. 172 54 120/80 2200 ambient
Han Male 3 yrs. Student sm:0 al:0
ECHD-pre From: ~~Hubei~~
Hubei

TIME

| TIME | Comments | 1:58 stopwatch |
|-------|--------------------------|-------------------|
| 0:00 | start rest | 14:36 |
| 2:15 | a blood @rest | R = 0.78 |
| ① | ✓ blood @rest easier | |
| 4:30 | start 60watts | |
| 6:30 | | HR = 160 |
| 8:15 | | R = 1.07 |
| 8:50 | | V02 = 1016 |
| 9:30 | start 120watts | |
| 10:30 | start 150 watts | blood @ 150 |
| 10:45 | start 165 watts | → Submaximal |
| 11:25 | blood @ 165 watts | → Maximal |
| 11:50 | stop | |
| ② | venous | |
| | No submaximal | |

ECHD - post

1001-02 test see PW notebook

Temp: 22 RH: 24%
PB: 58Lx4

X3 - 2200M

21 Sept 2013 cm kg BP Hb Altitude
X3 21 yrs. 170 67 134/80 2200m
Han Male 3 yrs. Student sm:0 al:0
ECG - pre From Henan

① venous blood earlier see HEW notes

| Time | / | Comments |
|-------|-------------------------|----------------------|
| 0:00 | start rest | time in Xining 15:31 |
| 1:30 | blood @ rest | R = 0.91 |
| 5:00 | start 60 watts | R = 0.70 |
| 9:00 | | R = 1.0 |
| | | V̄O₂ = 1336 |
| 10:00 | start 150 watts | |
| 11:00 | blood @ 150 watts | |
| 13:00 | start blood @ 150 watts | |
| | stop | |

② venous

→ 15:45

ECG - post

100% O₂ test

X4-2200m

21 Sept 2013 cm kg BP Hb Altitude
X4 22 yrs. 175 74 116/88 2200m
Han Male 34 yrs. student sm: o al: some
From: Shanxi

① venous sample 16:12

time

0:00 start rest

1:30

3:30 BG @ rest

5:00 start 60 watts

7:00 R=0.98; VO₂=1020

10:00 start 150 watts

11:30 start 165 watts

12:45 blood @ 165 watts — submaximal

13:45 start blood @ 165 — submaximal

13:50 start 180

14:40 blood @ 180 — maximal

stop

② venous

ECHO - post

100% O₂ test

Hypobaric Chamber 21 Sept 13, Daus

| Time | Altitude | PB* | kPa |
|-------|----------|-----|------|
| 19:05 | 2343 | 577 | |
| 19:10 | 2500 | 563 | 73.4 |
| 19:15 | 3160 | 513 | 67.3 |
| 19:20 | 3632 | 488 | 63.4 |
| 19:25 | 4165 | 455 | 59.3 |
| 19:26 | 4200 | 455 | 59.2 |
| 19:30 | 4002 | 462 | 60.1 |
| 19:35 | 4179 | 455 | 59.2 |

X1 - 4200m

21 Sept. 2013

X1

Han Male

Temp : 22 PB: 454
RH: 31

BP

146/88

Altitude
4200m

ECHO - pre

Time

0:00 start rest

4:00 ABG @ rest

5:00 start 60W

6:00

8:00 start 135W

9:00 start 150W

10:30 ABG @ 150W

10:45 start 165W

11:15 ABG @ 165W

11:15 subject stopped

Comments

Time in Xining 20:53

VO₂ = 360; R = 0.86

292 ; 0.82

834 ; 1.01

— submax

— max

ECHO - post

- won't allow Δ in PB

* oxygen mobile hPa limit 500 - 1200 Altitude
Daus' lags 10 mmHg behind chamber kPa monitor

X1 - 2200m REDD - physioflow failed
 25 Sept 2013 BP^{PW} on 1st run
 X1 REDD 13175 21 Sept 2013

Han Male

temp : 24°
 RH% : 12%

Time

| | | <u>Comments</u> | |
|-------|---------------------|------------------------|--------|
| 0:00 | Start rest | Time in Xining 20:26 | |
| 1:00 | | HR Sat | |
| 2:00 | Start 60W | 77 98 | |
| 3:30 | | R = 0.95 | |
| 5:00 | | R = 0.94 | |
| 7:00 | start 150W | R = 0.93 | |
| 8:00 | | R = 1.0 | 143 97 |
| 9:00 | start 180W | | 152 94 |
| 10:00 | | V _{O2} = 2337 | |
| 11:00 | start 200W | R = 1.23 | 168 93 |
| 11:45 | | | 176 93 |
| 12:00 | subject had to stop | | 178 95 |

X2 - 4200m
 21 Sept 2013
 X2
 Han Male

temp: 22 PB: 455
 RH: 29 Altitude
 use 2200m meas.
 4180m

ECHO - pre

TIME

| | <u>Comments</u> | |
|-------|---------------------------|----------------------|
| 0:00 | start rest | Time in Xining 19:49 |
| 2:30 | ADG @ rest | R = 0.95 |
| 4:15 | start 60W | |
| 8:00 | start 105W | |
| 8:30 | start 120W | |
| 10:00 | start ADG @ 120W — submax | |
| 10:20 | ADG @ 120W — max | |
| 10:30 | STOP — subject quit | |

ECHO - post

X3 - 4200m

21 Sept 2013

X3

Han Male

B P
use 2200m
measurement

Altitude
4212

ECHO-pre

time

| time | Comment |
|------|---------------------------------|
| 0:00 | start rest |
| 1:30 | ABG @ rest |
| 3:00 | start bDW |
| 5:00 | VO ₂ = 372; R = 0.96 |
| 7:00 | start 120W |
| 8:30 | ABG @ 120W |
| 9:00 | ABG @ 120W |
| 9:05 | VO ₂ = 940; R = 1.16 |
| | — submax |
| | — submax |
| | subject stopped |

ECHO-post

X4 - 4200m

21 Sept 2013

X4

Han Male

BP

Altitude
4212

ECHO-pre

Time

0:00 start rest

2:30 ABG @ rest

3:30 start b/w

5:00 $\dot{V}O_2 = 5.97$; $R = 0.94$

6:30 start 135W $\dot{V}O_2 = 12.02$; $R = 1.08$

7:30 ABG @ 135W — submax

9:00 ABG @ 150W start 150

9:15 ABG @ 150W — max
subject stopped

Comment

Time in Xining 20:36
 $\dot{V}O_2 = 4.97$; $R = 0.89$

$\dot{V}O_2 = 8.92$ 0.99

$\dot{V}O_2 = 12.02$ 1.08

— submax

— max

Calibration V02 system 22 Sept 2013
 Li CAL BP Altitude
 584 2200m

| <u>Time</u> | <u>Comments</u> | | |
|-------------|-----------------|-----------------|------|
| 0:00 | start rest | Time in Xining | 9:34 |
| | | HR | Sat |
| 2:00 | | 103 | 93 |
| 2:30 | | 80 | 93 |
| 3:30 | | 76 | 94 |
| 4:00 | 30W | | |
| 4:30 | | 125 | 95 |
| 5:00 | | 123 | 95 |
| 5:30 | | 122 | 96 |
| 6:00 | | 126 | 97 |
| 6:30 | | 119 | 94 |
| 7:00 | 60W | 127 | 93 |
| 7:30 | | 135 | 96 |
| 8:00 | | 143 | 92 |
| 9:00 | | 147 | 93 |
| 9:30 | | 152 | 92 |
| 10:00 | 90W | 152 | 92 |
| 10:30 | | 161 | 92 |
| 11:00 | | 170 | 93 |
| 11:30 | | 172 | 93 |
| 12:00 | | 177 | 92 |
| 12:30 | | 183 | 92 |
| 13:00 | | 186 | 92 |
| 13:30 | | 189 | 91 |
| 13:45 | 120W | 190 | 92 |
| 14:00 | | 193 | 92 |
| 14:30 | | 195 | 92 |
| 15:00 | | 196 | 93 |
| | 15:15 | Subject stopped | |

X5 - 2200M *

Temp: 21 PB: 584
Humid: 29

22 Sept 2013 cm kg BP Hb Altitude
X5 23 yrs. 170.5 55 100/80 2200m
Han Male 3 yrs. Student sm: 0 al: 0
ECG - pre From Shandong

| Time | Comments |
|-------|---------------------------------|
| 0:00 | start rest Time in Xining 11:09 |
| 2:30 | Ovenous @ rest |
| 6:00 | ABG @ rest |
| 10:30 | ABG @ rest |
| 13:00 | start bOW |
| 14:00 | Physioflow stopped * |
| 16:45 | Physioflow started |
| 18:00 | start 120W |
| 19:30 | ABG @ 120W — submax |
| 20:00 | ABG @ 120W — max |
| 20:10 | Subject stopped ② venous |

ECG - post

* Physioflow issue - REDD same day
w/o BG
same protocol

Xb - 2200M

27 Sept 2013 cm kg bp Hb Altitude
Xb 23 yrs. 172 55 110/75 2200m
Han Male 4 yrs. student sm:0 al:0
From Hubei

ECHO-pre

Time

- | Time | Comments |
|-------|--|
| 0:00 | start rest |
| 1:00 | ① venous BG |
| 3:30 | ABG @ rest |
| 5:30 | start blow |
| 9:00 | VO ₂ : 1123 R: 92 |
| 10:30 | start 120W |
| 12:00 | ABG @ 120W — submax |
| 12:40 | ABG @ 120W — maximal |
| 12:40 | subject stopped - said could not go ② venous BG another level |

ECHO-post

X7 - 2200m

Temp: 23 PB: 583
RH: 30%

22 Sept 2013 cm kg BP HB Altitude
X7 23 yrs. 166.5 64 120/80' 2200m
Han Male 3 yrs. student sm: 0 al: 0
from Hunan

ECHO-pre ♂ venous

Time

0:00

Comments

Time in Xining 12:30

Sat: 93 BP: 83

Wt/kg = 5.6

R = 0.79

2:00

3:10 ABG@rest

R = 1.01

4:30 start bOW

9:45 start 120W Sat: 95 ; HR: 159

11:30 ABG @ 120W

11:45 start 135W

12:45 ABG @ 135W → BG as quit

12:50 subject stopped → ♂ venous

ECHO-post

X8 - 2200m

22 Sept 2013 Han Male 4 yrs. student from Jilin
171 cm 54 kg BP Hb Altitude
2200m sm: 5 ml: 0

ECHO-pre

~~Time~~ ① VBG

~~Comments~~

Comments

Time

0:00

Time in Xining 13:04

2:00

Sat: 96 HR: 70 R: 0.99

3:15

ABG@rest

4:00

start 60W

6:00

Sat: 94 HR: 115 R: 0.99

8:30

start 90W

9:00

ABG@90W—submax1

9:15

start 105W

10:00

ABG@105W—submax2 R = 1.21

10:40

start 120W

11:30

ABG @120W—max

11:30

subject stopped

② VBG

ECHO-post

Altitude

2200m

sm: 5 ml: 0

* X5 REDO - 2200m (Physiostim issue on 1st run)

22 Sept 2013

Han Male REDO X5 at 2200m

TIME

0:00

3:00

5:00

8:00

9:00

9:30

10:00

start rest

start bow

start 120W

9:00

9:30

10:00

stopped the subject

Comments

Time in Xining 13:33

Sat 95 152

R: 1.15

R: 1.24

Hypobaric chamber 22 Sept 13

Up to 4200m

| Time | Altitude | PB | Davis | KPa |
|------|----------|----|-------|-----|
|------|----------|----|-------|-----|

| | | | |
|-------|------|-----|------|
| 15:53 | 3240 | 517 | 67.3 |
| 15:55 | 3363 | 501 | 65.7 |
| 15:58 | 3940 | 467 | 60.8 |
| 16:01 | 4160 | 457 | 59.4 |

Ambient conditions in VDZ sys. limited

Temp: 22 -

R.H.: 27

BP : 500 hPa - limited

Altitude: 3000m - limited

Return to 2200m

| | | | |
|-------|------|-----|------|
| 16:14 | 4190 | 455 | 59.2 |
| 16:20 | 3602 | 494 | 64.1 |
| 16:25 | 3265 | 515 | 67.0 |
| 16:30 | 2776 | 550 | 71.6 |

Xb - 4200m

22 Sept 2013 0000 BP

Xb use 2200m

Han Male

Altitude

4217

$$kPa \times 7.5 = PB : 439$$

ECHO-pre

Time

0:00

0:30

2:30 ABG@rest

4:00 start bow

5:30

7:00 start 90W

8:30 ABG@90W

9:45 start 105W

10:00 ~~ABG@105W~~ — submax 1

10:30 start 120W

11:00 ABG@120W

11:00 subject stopped - could not continue

ECHO-post

comment

Time in Xining: 16:27

R: 0.89

R: 0.91

R: 1.06

R: 1.20

— submax 1

~~ABG@105W~~ — submax 2

start 120W

ABG@120W

X7 - 4200m

22 Sept 2013

X7
Han Male

Altitude
4203
PB = 443

ECG - pre

time

0:00

0:30

2:10

3:30

5:30

6:30

7:45

8:00

8:15

8:40

ABG @ rest

start 60W R: 0.96

V02/kg: 16.5

start 90W R: 1.1B

ABG @ 90W — submax

start 105W

ABG @ 105W — max

stopped -

Comments

Time in Xining 16:53

R: 0.93

ECG - post

X8 - 4200m

22 Sept 2013

X8

Han Male (smoker)

Altitude
4198
PB: 443

ECHO-pre

Time

0:00

2:30

3:00

4:00

6:00

7:30

8:00

8:30

8:40

ABG @ rest

start bow

start 90W

ABG @ 90W

start 105W

ABG @ 105W

stopped - could not continue

Comments

Time in Xining : 17:14
R: 1.95

R: 0.95 V_{O_2} / kg 9.8

R: 1.20

R: 1.27

R: 1.30

ECHO-post

low V_{O_2} ...
~900?

X5 - 4200m

22 Sept 2013

X5

Han Male

Altitude
4232
PB 441

ECG - pre

Time

0:00

0:30

1:30

2:15 ABG @ rest

3:00 start 60W

4:00

5:00 start 90W

7:30 ABG @ 90W

8:00 start 105W

8:30 start 120W

9:00 ABG @ 120W — max

9:20 subject stopped - could not continue

Comment

Time in Xining: 17:53

R = 0.80 ; v₂/kg = 5.1

R = 0.84

R = 0.8 v₂/kg = 10.4

R = 1.04

R = 1.11 - submax

R = 1.2

— max

Calibration VO₂ system 23 Sept. 2013

| Alt Cal | BP | Altitude |
|----------------------|---------------------------------|----------------------|
| Temp: 18 | 587 mmHg | 2200m |
| Rel. hum: 26% | 778 hPa | Lijiang, China |
| Time in Xining: 9:33 | | Wear + S |
| <u>Time</u> | <u>Comments</u> parameter=3000m | |
| 0:00 | start rest | Time in Xining 9:33 |
| | | HR: 78 Sat: 98 R=.91 |
| 2:00 | | 74 97 |
| 4:00 | start 30W | |
| 5:00 | | 122 96 |
| 6:00 | | 116 97 |
| 7:00 | start 60W | 131 96 |
| 8:00 | | |
| 9:00 | | 147 97 |
| 10:00 | start 90W | 159 98 |
| 12:00 | | 167 98 |

Noisy VO₂ - SBX + Dex taped to cycle ergometer

Completed calibration on another subject (HWE)

calibration VO₂ system 23 Sept 2013

HWE cal

| Time | Comments |
|-------|---------------------------|
| 0:00 | start rest Time in Xining |
| 1:00 | HR: 82 Sat: 95 R: 0.9 |
| 2:00 | 86 97 |
| 3:00 | start 30W 89 95 |
| 4:00 | 105 91 |
| 5:00 | 107 91 |
| 6:00 | start 60W 107 91 |
| 7:00 | 117 91 |
| 7:20 | hold mask |
| 8:00 | 123 97 |
| 9:00 | start 90W 122 99 |
| 10:00 | |
| 11:00 | |
| 12:00 | start 120W 140 90 |
| 13:00 | 153 90 |
| 14:00 | 157 92 |
| 15:00 | start 150W 160 92 |
| 16:00 | we asked 165 90 |
| 17:00 | subject stopped |

X9 - 2200m

23 Sept 2013 cm kg BP Hb Altitude
X9 21 yrs. 157 49 90/65 2200m
Han Female 3 yrs. student sm:D dl:D
from Shan Xi

ECHO-pre ① ~~venous BG~~ unable to get venous BG

Time

| Time | Comments |
|------|----------------------|
| 0:00 | Time in Xining 11:34 |
| 0:30 | R = 0.76 |
| 1:30 | HR: 97 Sat: 93 |
| 3:00 | ABG @ rest R = 0.60 |
| 4:00 | start 45W |
| 7:00 | R = 1.04 |
| 8:00 | start 90W |
| 9:30 | ABG @ 90W — submax |
| 9:45 | ABG @ 90W — max |
| 9:45 | subject stopped |

ECHO-post

1st day of last start of menstruation: 2013-09-10

* venous sample collected post 1001.02 study

~1ml < Standard

O₂ added to second sample
for second data pt.
- used for PSD analysis

X10 - 2200m

23 Sept 2013 cm kg BP Hb Altitude
X10 22 yrs. 159.5 56 90/65 2200m
Han Female 3 yrs. student sm:D dl:D
from Gansu

ECHO-pre ① venous BG

Time

| Time | Comments |
|------|----------------------|
| 0:00 | Time in Xining 12:15 |
| 1:00 | R = 0.99 |
| 1:30 | ABG @ rest |
| 2:30 | start 45W |
| 3:30 | R = 0.85 |
| 4:30 | R = 1.03 |
| 5:30 | R = 1.07 |
| 6:30 | start 90W |
| 7:30 | start 105W |
| 8:15 | ABG @ 105W — submax |
| 8:30 | start 120W |
| 9:15 | ABG @ 120W — max |
| 9:30 | subject stopped |

ECHO-post

1st day of last start: 2013-08-26

X11 - 2200m

23 Sept 2013 cm kg BP Hb Altitude
 X11 23 yrs. 165 54.5 100/70 2200m
 Han Female 3 yrs. student sm:0 al:0
 from shanxi

ECHO-pre ① ven. BG

Time

0:00

1:00

2:30 ABG@rest

4:00 start 45W

5:00

6:00

7:00

8:00

9:30

10:00

10:45

11:00

11:15

Comments

Time in Xining 12:58

R: 0.92

R: 0.82

R: 0.94

R: 0.99

start 90W R: 0.99

ABG @ 90W — submax — subject showed

start 105W max @ 9:15

ABG @ 105W — submax 2

start 120W

ABG @ 120W — max

② venous BG

ECHO-post

1st day of last start: 2013-09-11

PB: 50b

Altitude

2200m

sm:0 al:0

X12 - 2200m

23 Sept 2013 cm kg BP Hb Altitude
 X12 23 yrs. 170 56 100/70 2200m
 Han Female 3 yrs. student sm:0 al:0
 from shanxi

ECHO-pre ① venous BG

Time

0:00

0:30

2:15

3:00

4:00

6:00

7:00

7:30

8:30

9:00

9:30

10:00

10:30

10:45

11:00

11:15

Comments

Time in Xining

R: 0.77

R: 0.80

R: 0.89

$\sqrt{0.89} / \text{kg} = 14.3$

R: 0.93

start 105W R: 0.98 HR: 147

ABG @ 105W — submax 1

start 120W R: 1.09

ABG @ 120W — submax 2

start 135W

ABG @ 135W — max

② venous BG

ECHO-post

1st day of last start: 2013-08-29

Had to use tape @ bottom of mask - poor fit

X13 - 2200m

PB: 584

23 Sept 2013 cm kg BP Hb Altitude
X13 22 yrs. 163 66 100/60 9200m
Han Female 3 yrs. student sm:0 al:0
from Hebei

ECHO - pre * No venous BG at rest

Time Comments

| | |
|-------|-----------------------------|
| 0:00 | Time in Xining 14:54 |
| 1:00 | R: 0.06 HR: 95 Sat: 96 |
| 2:30 | ABG @ rest |
| 4:00 | start 45W |
| 5:30 | R: 0.89 |
| 7:00 | R: 0.93 |
| 8:00 | start 90W |
| 9:00 | ABG @ 90W — submax 1 |
| 9:15 | start 105W |
| 10:00 | ABG @ 105W — submax 2 |
| 10:15 | start 120W |
| 10:30 | ABG @ 120W — max |
| 10:35 | subject stopped |
| | * Trouble getting venous BG |

ECHO - post

1st day of last start : 2013-09-14

* 2 venous BG samples taken

after 100% O₂ study

standard 1+O₂ → used for P50 analysis

~~Return to 2200m~~

Hypobaric Chamber 23 Sept 2013

Up to 4200m

| <u>Time</u> | <u>Altitude</u> | <u>PB (mmHg)</u> | <u>RH %</u> | <u>Temp: 22</u> |
|-----------------|-----------------|------------------|-------------|-----------------|
| 17:20 in Xining | 2272 | 541 | 20 | |
| 17:27 | 2442 | 567 | | 74.4 |
| 17:35 | 3321 | 508 | | 66.2 |
| 17:40 | 3644 | 474 | | 61.7 |
| 17:44 | 4196 | 454 | | 59.1 |

~~Return to 2200m~~

Ambient conditions in V̇O₂ system

Temp 23

RH 8

PB 454 mmHg → 590.2 hPa

Altitude 3000 → limited to 3000
actual: 2193

Return to 2200m

| <u>Time</u> | <u>Altitude</u> | <u>PB</u> | <u>kPa</u> |
|-------------|-----------------|---------------------|------------|
| 20:23 | 3993 | 469 | 60.9 |
| 20:27 | 3881 | 475 | 61.7 |
| 20:32 | 3414 | 504 | 65.7 |
| 20:38 | 2520 | 569 | 74.2 |
| 20:40 | 2230 | 505 4200 3.28 | 96.6 |
| | | | 13776 |

X9 - 4200m

23 Sept 2013

X9
Han Female

ECG D-pre

Time

0:00

1:30

2:00

3:00

4:15

5:00

6:00

7:00

8:00

Comment
Time in Xining: 18:11
 $R = 0.96$

A6B@rest

start 45W

 $R = 0.98$ $R = 1.19$ $R = 1.27$

start 75W

 $R = 1.3$

start 90W

 $R = 1.45$

start 90W

 $R = 1.5$

subject stopped - could not continue

Delay for post-exercise ECGD, so

subject 1 min 45W

1 min 90W,

then completed ECGD-post

20:36 O₂ sat: 96 HR: 91

V̇O₂ MAX: problem
b32

X10 - 4200m

23 Sept 2013

X10

Han Female

ECHO-pre

Time

| Time | Comment | Time in Xining |
|------|-------------------------------------|--------------------|
| 0:00 | start rest | 18:40 |
| 3:00 | ABG @ rest | R: 0.89 |
| 4:00 | Start 45W | R: 0.92 |
| 5:30 | | HR: 126 Sat: 77 |
| 6:30 | | R: 0.98 V̄O₂ = 768 |
| 7:00 | | R: 1.06 V̄O₂ = 855 |
| 7:30 | Start 90W | |
| 8:15 | ABG @ 90W | — max |
| 9:30 | subject stopped - couldn't continue | |
| | NO submax sample | |

ECHO-post

Altitude

4198

PB 454

X11 - 4200m

23 Sept 2013

X11

Han Female

Altitude

4226

PB 452

ECHO-pre

Time

| Time | Comment | Time in Xining |
|------|--------------------------------------|-------------------|
| 0:00 | | 19:? |
| 1:00 | | R: 0.91 |
| 2:45 | ABG @ rest | R: 0.94 V̄O₂: 176 |
| 4:00 | Start 45W | R: 0.92 |
| 5:00 | | R: 0.96 |
| 6:00 | | V̄O₂: 596 |
| 7:00 | Start 90W | R: 1.06 |
| 7:45 | ABG @ 90W | — submax |
| 8:00 | ABG @ 90W | — max |
| 8:05 | subject stopped - could not continue | |

ECHO-post

X12 - 4200m

23 Sept 2013

X12

Han Female

ECHO-pre

Time

| Time | Comment |
|------|---------------------------------|
| 0:00 | start rest |
| 1:00 | Time in Xining 19:40 R: 0.80 |
| 2:30 | ABG @ rest |
| 4:00 | start 45W |
| 5:00 | R: 0.99 |
| 6:45 | start 90W |
| 7:30 | ABG @ 90W — submax |
| 7 | Start 105W |
| 8:30 | ABG @ 105W — max |
| | subject stopped |

ECHO-post

Had to use tape at bottom of mask - poor fit

Altitude

4212

PB 454

X13 - 4200m

23 Sept 2013

X13

Han Female

Altitude

4217

PB 453

ECHO-pre

Time

| Time | Comment |
|------|--|
| 0:00 | Time in Xining 20:02 |
| 2:00 | ABG @ rest |
| 3:00 | start 45W → 5DW |
| 4:10 | ABG @ 45W HR: 154 sat: 100 66 |
| 5:10 | subject stopped - could not continue w/ low saturation |

ECHO-post

Sat HR
5 min post 75-80 100
exercise

20:22 75-80

calibration VD2 system 24 Sept 2013
HEW CAZ

Ambient conditions

Temp: 22 PB: 778 hPa
RH: 71% Altitude: 2200m

| <u>time</u> | <u>Comments</u> | | |
|-------------|-----------------|-----------------|-----------------|
| 0:00 | start rest | Time in Xining: | 9:43 |
| 1:00 | | HR: 80 | Sat: 93 R: 0.94 |
| 3:00 | start 30W | 91 | 93 0.98 |
| 4:00 | | 94 | 97 0.91 |
| 5:00 | | 100 | 95 |
| 6:00 | start 60W | 97 | 94 |
| 7:00 | | 110 | 93 |
| 8:00 | | 116 | 93 0.97 |
| 9:00 | start 90W | 113 | 92 0.99 |
| 10:00 | | 126 | 92 |
| 11:00 | | 127 | 91 1.04 |
| 12:00 | start 120W | 135 | 92 |
| 13:00 | | 141 | 89 1.10 |
| 14:00 | | 149 | 90 1.14 |
| 15:00 | start 150W | 151 | 89 |
| 16:00 | | 160 | 90 1.2 |
| 17:00 | | 164 | 89 1.24 |
| 18:00 | | 166 | 90 1.27 |

Hypobaric Chamber 24 Sept 2013 started day w/
chamber work this day

Up to 4200m RH: 71% 14

| <u>Time</u> | <u>Altitude</u> | <u>PB</u> | <u>kPa</u> | <u>Han females</u> |
|-----------------|-----------------|-----------|------------|--------------------|
| 12:03 in Xining | 2306 | 577 | 73.8 | |
| 12:10 | 3211 | — | 67.2 | |
| 12:13 | 3913 | 467 | 61.2 | |
| 12:16 | 4062 | 461 | 60.0 | |
| 12:17 | 4107 | 453 | 58.9 | |

Ambient conditions in VD2 system

Temp: 21

RH: 71%

PB: 603 hPa

Altitude: 3000m → limited to 3000m

Temp: 24

RH: 71% 15

PB:

Altitude

| <u>Time</u> | <u>Altitude</u> | <u>PB</u> | <u>kPa</u> |
|-------------|-----------------|-----------|------------|
| 15:07 | 3031 | 479 | 62.3 |
| 15:10 | 3239 | 516 | 67.2 |
| 15:12 | 3095 | 526 | 68.5 |
| 15:17 | 2440 | 572 | 74.8 |
| 15:19 | 2262 | 586 | 72.1 |

X16 - 4200m

24 Sept 2013 cm kg BP Hb Altitude
 X16 164 47 100/70 4205
 Han Female 3 yrs. Student PB 454
 from AnHui sm:0 al:0

ECHO - pre ~~after chamber, did 2200m echo~~

Time Comments

0:00 Time in Xining 12:57
 0:00 start rest HR: 133 Sat: 74 R: 0.93
 1:00 VO₂/kg: 3.2
 4:00 HR: 116 Sat: 81
 5:00 Replace Physioflow electrodes
 0:00 Time in Xining 13:21
 * Started @ 3min. on Physioflow
 VO₂: 69 R: 0.93 all data
 4:00 ABG @ rest collected; just
 5:00 3DW start VO₂: 162 R: 0.92 / not on screen
 * Physioflow started collecting data
 6:00 HR: 160 Sat: 78
 7:30 R: 1.07
 9:00 START 75W VO₂: 393 R: 1.12
 9:00 ABG @ 75W — submax 1
 9:15 start 90W
 10:00 ABG @ 90W R: 1.20 — submax 2
 start 105W
 10:30 ABG @ 105W — max
 Subject stopped - could not continue
 ECHO - post
 Pressure error detected - sim. altitude 4200m issue?

Taped subject's mask - poor fit

* poor physioflow signal @ 4200m

X15 - 4200m

24 Sept 2013 cm kg BP Hb Altitude
 X15 155 42.5 115/74 4203
 Han Female 3 yrs. student PB: 454
 from HeBei sm:0 al:0

ECHO - pre

Time Comments

0:00 start rest Time in Xining 13:54
 2:30 ABG @ rest neck
 3:00 start 3DW - problem w/ electrodes
 7:00
 7:30 ~~stopped subject~~ venous O₂ taken at 14:10
 0:00 ~~start rest~~ Time in Xining start @ 6:30
 1:05 start 3DW
 3:00 R: 0.88
 4:30 start 75W R: 0.97
 5:15 ABG @ 90W — submax 1
 5:30 start 90W
 6:00 ABG @ 90W — submax 2
 6:30 ABG @ 90W — max
 6:45 Subject stopped - could not continue
 * Physioflow signals not good
 ECHO - post
 Subject rerun after 7:30

New fetal file "REDO" - BG data
 Asked to redo physioflow collected
 cardiac output see
 next page

X14 - 4200m

24 Sept 2013 cm kg BP Hb Altitude
X14 72 63 90/66 14.203
Han Female 5 yrs. student
from Henan

ECHO - pre

Time

0:00

ABG@rest

3:00

start 30W R: 0.77

4:00 R: 0.81

6:00 START 75W

6:15 START 90W

7:15 ABG @ 90W

7:30 START 105W

8:00 START 120W ABG@105

8:15 ABG @ 120W

8:30 subject stopped

ECHO - post

Comments

Time in Xining 14:36

Noisy VO₂ / VCO₂

— Submax1

→ submax2

— Submax

X15 - 4200m - REDO VO₂ + Physioflow

24 Sept 2013 cm kg BP Hb Altitude
X15 see previous sheet
Han Female

Time

0:00

1:15 start 30W R: 0.82

3:00

Physioflow not working - poor signals

Comments

Time in Xining 14:59

VO₂ System Ambient Conditions @ 2200m
Time in Xining 15:36

Temp 23

RH 15

PB 779 586

Altitude 4200

X15 - 2200m

24 Sept 2013

X15

Han Female

Resting venous Ø (also venous @ 4200m rest)

| Time | Comments | |
|------|--------------------------------------|--|
| 0:00 | timed in Xining 15:52 | |
| 1:30 | ABG @ rest R = 0.75 | |
| 3:00 | start 30W | |
| 5:00 | start 75W R = 0.79 | |
| 7:00 | start 75W V̇O₂ = 4.30 | |
| 8:00 | ABG @ 75W — submax1 | |
| 9:00 | start 90W — submax2 | |
| 9:00 | ABG @ 90W — submax3 | |
| 9:30 | subject failed start 105W | |
| 9:30 | ABG @ 105W — max | |
| | subject stopped - could not continue | |

Physioflow did not work well for 2200m
(failed @ 4200m). Small subject.

Physioflow calibration stalls

- Redid 2200m 28 Sept 2013
- Redid 4200m 29 Sept 2013

X1b - 2200m

24 Sept 2013

X1b

Han Female

Comments

Time in Xining 1b:

Unable to calibrate physioflow.
Called physioflow technician +
sent them log text files.
Unexplainable issue - may be
individual-based (small ♀ subjects?)

X14 - 2200m

24 Sept 2013

X14

Han Female

① venous BG at rest

| Time | Comments |
|-------|-------------------------------------|
| 0:00 | time to Xining 17:19 |
| 3:00 | R: 0.77 |
| 4:00 | start 45W ABG@rest |
| 6:00 | R: 0.76 |
| 8:00 | start 90W R: 0.62 M2: 729 |
| 9:00 | start 105W |
| 10:00 | A BG @ 105W — submax1 start 120W |
| 10:30 | ABG @ 120W — submax2 |
| 11:00 | start 135 |
| 11:30 | start 150 ABG @ 135 — submax3 |
| 12:00 | ABG @ 150 — max |

X1b - 2200m

24 Sept 2013

X1b

Han Female

① venous BG

| Time | Comments |
|-------|--|
| 0:00 | start rest |
| 3:30 | ABG @rest |
| 4:00 | start 30W |
| 5:00 | start 45W |
| 7:30 | HR: 163 R: 1:1:D |
| 8:00 | start 90W R: 1.0b |
| 9:00 | start 105W |
| 10:40 | ABG @ 105W — submax1 start 120W |
| 11:00 | ABG @ 120W — submax2 |
| 11:30 | start 135 |
| 12:00 | ABG @ 135 — max R=1.27 subject stopped - could not continue |

Subject's mask had to be taped @ 2:30

Start 100% O2 studies at 10:52.
See PW notebook.

Calibration VO₂ system 25 Sept 2013

HEW CAL

Ambient conditions

temp: 19 PB: 589

RH%: 25 Altitude: 2200M

Time Comments

| | |
|-------|---------------------------|
| 0:00 | Time in Xining 9:33 |
| 0:30 | HR: 89 Sat: 98 |
| 2:00 | 93 97 |
| 3:00 | start 3DW 95 96 R: 1.01 |
| 4:00 | 100 96 R: 0.90 |
| 5:00 | 100 96 |
| 6:00 | start bDW 99 97 |
| 7:30 | 110 94 R: 0.93 |
| 8:00 | — — |
| 9:00 | start 9DW 115 94 R: 0.96 |
| 10:00 | 124 94 R: 0.98 |
| 11:00 | 129 94 R: 1.01 |
| 12:00 | start 12DW 129 95 |
| 13:00 | 140 93 |
| 14:00 | 145 95 R: 1.09 |
| 15:00 | start 15DW 148 93 R: 1.08 |
| 16:00 | 154 90 R: 1.31 |
| 17:00 | 162 89 R: 1.16 |
| 18:00 | 164 89 R: 1.18 |

X17 - 2200M

25 Sept 2013 cm kg BP^{mm} Hb Altitude
 X17 21 yrs. 164 56 120/66 2200m
 Tibetan Male Born: 4300m PB 589
 Student

ECHO-pre ① venous BG@rest

| <u>Time</u> | <u>Comments</u> | |
|-------------|--------------------------------------|---|
| 0:00 | start rest | Time in Xining 11:09 Sat: 97 HR: 71 |
| 3:00 | | R: 0.87 HR: 65 Sat: 96 |
| 3:40 | ABG@rest | |
| 4:00 | start bDW | |
| 5:00 | | R: 0.75 VO ₂ : 1121 |
| 6:00 | | R: 0.83 VO ₂ : 1174 VO ₂ /kg = 23 |
| 7:30 | | R: 0.92 |
| 9:00 | start 120W R: 0.9 | VO ₂ : 1328 |
| 9:30 | start 135W | |
| 9:00 | start 140W | Sat: 95 HR: 155 R: 1.01 |
| 10:00 | ABG @ 140W | — submax |
| | start 145W | R: 1.17 HR: 173 |
| 10:30 | ABG @ 145W | — max |
| | subject stopped - could not continue | |

ECHO-post

X18 - 2200m

25 Sept 2013 cm kg BP^{PW} Hb Altitude
X18 21 yrs. 167 kg 132/78 2200m
Tibetan Male Born: 3700m PB: 589
Student

ECHO-pre O venous @ rest

Time Comments

0:00 start rest Time in Xining 11:312 HR: 115 Sat: 96
1:00 R: 0.89 VO₂: 342
3:30 ABG@rest
4:00 start bow R: 0.89
5:30 R: 0.88
6:00 R: 0.95 HR: 147 Sat: 96
7:00 VO₂/kg = 16.6 R: 1.02
8:00 start 120W
8:30 start 135W HR: 168
9:00 R: 1.02
9:30 ABG @ 135W — submax1
start 150W
10:00 R: 1.12
10:30 ABG @ 150W — submax2
start 165W HR: 197
11:00 ABG @ 165W — max
11:15 subject stopped - could not continue

ECHO-post

X19 - 2200m

25 Sept 2013 cm kg BP^{PW} Hb Altitude
X19 21 yrs. 165 kg 125/72 2200m
Tibetan Male Born: 3700m PB: 589
Student

ECHO-pre O venous @ rest

Time Comments

0:00 start rest Time in Xining 12:18
R: 0.85 VO₂/kg 6.2
1:00 ABG@rest * Air in resting sample BG
7:00 start bow Delay arterial line difficult
9:00 R: 0.83 HR: 117 Sat: 94
10:00 start 120W important to give heparin
11:00 start 150W R: 0.92
12:30 ABG @ 150W — lot of air submax1
13:10 ABG @ 150W — max HR: 164
subject had (not air)
to stop

ECHO-post O venous post exercise
* air in BG samples

X20 - 2200m

25 Sept 2013 cm kg BP Hb Altitude
 X20 20 yrs. 167 62 120/74 2200m
 Tibetan Male Born: 4300m PB 589
 student

ECHO-pre ♀ venous @ rest

| Time | Comments | HR: b9 Sat:18 |
|-----------|--------------------------------------|---|
| 0:00 | start rest | Time in Xining 12:56 |
| 1:30 | $\dot{V}O_2/\text{kg} = 6.7$ | R: 0.83 |
| 2:30 | A BG @ rest | R: 0.95 |
| 3:00 | start bow | R: 0.86 $\dot{V}O_2 = 3.75$ |
| 5:00 | | R: 0.78 $\dot{V}O_2/\text{kg} = 19.8$ $\dot{V}O_2 = 1247$ |
| 6:00 | start 120W | R: 0.98 HR: 123 |
| 6:30 | start 150W | |
| 7:30 | ABG @ 150W R: 0.97 — submax1 | |
| | start 165W | |
| 8:00 | ABG @ 165W R: 1.05 — HR: 170 submax2 | |
| 8:30 | ABG @ 180W — submax3 | |
| 9:15 | ABG @ 180W — max | |
| ECHO-post | | HR: 174 |
| | ♀ venous post exercise@rest | |

①

X21 - 2200m

25 Sept 2013 cm kg BP^{PW} Hb Altitude
 X21 22 yrs. 166 54 120/70 2200m
 Tibetan Male Born: 3350m PB 589
 student from Qinghai

ECHO-pre ♀ venous @ rest

| Time | Comments | R: .80 $\dot{V}O_2/\text{kg} = 6.8$ |
|-----------|---|---|
| 0:00 | start rest | Time in Xining 13:25 |
| 1:30 | $\dot{V}O_2/\text{kg} = 4.8$ R: 0.78 HR: 76 | |
| 3:00 | ABG @ rest | R: 0.76 arterial line difficult |
| 8:00 | start bow | Sat: 91 HR: 79 R: 0.71 |
| 9:00 | | R: 0.77 $\dot{V}O_2 = 10.96$ |
| 10:00 | | R: 0.92 |
| 11:00 | start 120W | |
| 11:30 | start 150W | submax1 |
| 12:40 | ABG @ 150W — | Sat: 9.6 HR: 168 |
| 13:00 | ABG @ 150W — | submax2 R: 1.04 |
| 13:20 | ABG @ 150W — | max HR: 170 |
| ECHO-post | | (From Qinghai lab) (red face in chamber?) |

Start 100% O₂ experiments @ 14:30.
 See PW notebook.

Hypobaric Chamber 25 Sept 2013

Temp: 22 RH: 1:18

Up to 4200m

| Time | Altitude | PB kPa | CPA PB |
|-------|----------|--------|--------|
| 1b:30 | 2226 | 76.6 | 584 |
| 1b:46 | 2963 | 69.6 | 529 |
| 1b:50 | 3441 | 65.2 | 497 |
| 1b:53 | 3800 | 62.2 | 474 |
| 1b:56 | 4216 | 58.9 | 454 |

Return to 2200m

| | | | |
|-------|------|------|-----|
| 19:40 | 4156 | 59.4 | 458 |
| 19:42 | 3971 | 60.9 | 471 |
| 19:45 | 3798 | 62.4 | 482 |
| 19:48 | 3405 | 65.6 | 504 |

X17 - 4200m

25 Sept 2013

X17

Tibetan Male

BPPW

11/59

Altitude

4203

PB: 454

ECHO-pre

Time

0:00 Start rest

1:00

1:30 ABG@ rect

3:00 Start bow

4:30

5:30

6:00 Start 120W

7:00

7:30 Start 165W

8:30

ABG@165W

Start 180W

9:00

ABG@180W

9:15 Start 195W

ABG @ 195W

ECHO-post

Comments

HR: 87 Sat: 84

Time in Xining 17:21

V2/kg = 8.0 ER: 0.94

R: 0.97

R: 0.94 V2/kg = 17.4

R: 0.99 V2 = 1059

R: 1.0

HR: 159 Sat: 93

R: 1.2

R: 1.3

Submax 1

Start 180W

R: 1.45 — submax 2

Start 195W

ABG @ 195W

Max

Subject had to stop

X18 - 4200m

25 Sept 2013

X18

Tibetan Male

BP^{PM}
121/67

Altitude
4200m
PB 455

ECHO-pre

Time

0:00 Start rest

1:00

2:00 ABG @rest

3:00 start bOW

4:00

5:00

6:00 start 120W

7:00 start 150W

7:45 ABG @ 150W

8:00 start 165W

8:15 ABG @ 165W

8:30 ABG @ 165W

9:00 start 180W

9:10 ABG @ 180W

ECHO-post

Comments

HR: 124 Sat: 66

Time in Xining 17:47

R = 1.0

Air bubble in ABG @ rest samp.

R = 0.97

HR: 159 Sat: 53

R = 1.05

R = 1.08

HR: 1230 R = 1.02

— Submax 1

R = 1.31

R = 1.36

R = 1.37

R = 1.37

HR: 202 Max

X19 - 4200m

25 Sept 2013

X19

Tibetan Male

BP^{PM}
108/67

Altitude
4200
PB 455

ECHO-pre

Time

0:00 Start rest

1:00

2:00

2:45 ABG @rest

3:00

start bOW

5:00

6:00

7:00

8:00

start 135W

start 150W

9:15 ABG @ 150W

9:30 ABG @ 150W

ECHO-post

Comments

HR: 80 Sat: 88

Time in Xining 18:13

R: 1.04 VO2 = 362

R: 1.00 VO2 = 301

R = 0.97

R = 1.02 VO2 = 1010

R = 1.12 HR: 135

— Submax 1

R = 1.33 HR: 160

— 1.37 submax 2

1.40 HR: 167

ABG @ 150W — max

check entered measurements: height /weight

pressure error detected

X20 - 4200m

25 Sept 2013

X20

Tibetan Male

Bp^{PW}
115/70

Altitude
4200
PB 454

ECHO-pre

Time

| | | Comments | Time in Xining | HR | Sat |
|------|------------|----------------------------|---------------------|----------|-----------|
| 0:00 | start rest | Time in Xining | 18:37 | 73 | 90 |
| 1:00 | | R = 0.92 | | 77 | 88 |
| 2:30 | ABG @rest | — rest | | | |
| 3:00 | start bOW | | | 66 | 87 |
| 4:00 | | R = 0.86 | WT 81.8 | QT falls | |
| 5:00 | | R = 0.94 | | | on physip |
| 6:00 | start 150W | R = 0.96 | | 133 | 84 |
| 7:00 | start 165W | R = 1.13 | | | |
| 7:30 | ABG @ 165W | — submax1 | 175 | 80 | |
| 8:00 | start 180W | | | | |
| 7:45 | ABG @ 160W | R = 1.32 | submax ² | 179 | 80 |
| 8:00 | ABG @ 160W | — max | | | |
| | | Subject could not continue | | | |

ECHO-post

X21 - 4200m

25 Sept 2013

X21

Tibetan Male

Bp^{PW}

112/75

Altitude
4200
PB 455

ECHO-pre

Time

| | | Comments | HR | Sat |
|------|------------|---------------------|--------------------|--------|
| 0:00 | Start rest | R = 0.83 | Time in Xining | 19:14 |
| 1:00 | | R = 0.85 | WT 21kg = 5.2 | 84 92 |
| 2:30 | ABG @ rest | — rest | | 80 91 |
| 3:00 | start bOW | | | |
| 4:00 | | | WT = 82.9 R = 0.86 | |
| 5:00 | | | | 129 88 |
| 6:00 | start 120W | | | |
| 7:00 | start 135W | | R = 0.98 | 157 87 |
| 7:45 | ABG @ 135W | — submax1 | | |
| 8:00 | start 150W | | | |
| 8:20 | ABG @ 150W | — max | R = 1.23 | |
| | L | Subject had to stop | | 169 87 |
| | | ECHO-post | | |



25 Sept 2013

Physiowave QT did not seem to ↑ during exercise

Calibration VO₂ system 26 Sept 2013

HEW CAL

Ambient conditions

Temp: 18

RH%: 30%

PB: 781

Altitude: 2200m

Time

0:00 start rest

Comments

Time in Xining 9:51

HR Sat

83 99

1:00

R = 0.91

89 98

2:30

R = 0.94

98 99

3:00 start 30W

R = 0.89

98 99

4:00

R = 0.91

98 99

5:00

R = 0.91

98 100

6:00 start 60W

R = 0.91

110 99

7:30

R = 0.91

110 99

9:00

R = 0.93

110 99

10:00

R = 1.0

123 96

11:00

R = 1.0

126 97

12:00 start 120W

R = 1.10

127 95

13:00

V̄O₂ = 14.99

136 94

14:00

V̄O₂ = 14.99

147 94

15:00 start 150W

R = 1.10

149 93

16:30

R = 1.15

164 91

17:00

R = 1.15

166 91

18:00 Asked subject to stop

166 91

Not feeling as well today.

X22 - 2200m

26 Sept 2013 cm kg BP^{PPW} Hb Altitude
X22 165 59 115/63 2200m
Tibetan Male

ECHO - pre ① venous sample @ rest

Time

0:00 start rest

Comments

Time in Xining 11:35 69 98

1:00

R = 0.99

2:30 ABG @ rest

4:00 start bow

6:00

R = 0.95

7:00 start 120W

8:00

R = 1.06

start 150W

9:00

V̄O₂ = 14.05

start 180W

10:00

R = 1.21

ABG @ 180W

10:30

R = 1.31 — submax

ABG @ 180W

10:45

Max 167 95

subject had to stop

ECHO - post ② venous @ post exercise

Mixed ancestry? From Qinghai 3500m

BG samples

one may be switched based
on lactate ... see PW notebook

X23 - 2200m

26 Sept 2013 cm kg BP^{PW} Hb Altitude
X23 167 58 133/84 2200m
Tibetan Male

ECHO - pre ① venous @ rest

| <u>Time</u> | <u>Comments</u> | <u>HR</u> | <u>Sat</u> |
|-------------|---|-----------|------------|
| 0:00 | start rest Time in Xining 12:07 | 81 | 97 |
| 1:00 | R: 0.98 | | |
| 2:00 | ABG @ rest — | 77 | 96 |
| 3:00 | start bDW R: 0.91 | | |
| 4:00 | R: 0.89 VO ₂ /kg = 20.8 124/95 | | |
| 5:00 | R: 0.98 | | |
| 6:00 | start 120W R: 1.00 VO ₂ /kg = 21.7 | | |
| 7:00 | start 150W | | |
| 7:30 | ABG @ 150W R=1.1 | 168 | 94 |
| 8:00 | — submax 1 | | |
| 8:30 | ABG @ 150W R=1.25 — submax 2 178 96 | | |
| | start 165W | | |
| 9:10 | ABG @ 165W R=1.33 — max 193 95 subject had to stop | | |

ECHO - post

X24 - 2200m

26 Sept 2013 cm kg BP^{PW} Hb Altitude
X24 172 58 139/92 2200m
Tibetan Male

ECHO - pre ① venous in. @ rest

| <u>Time</u> | <u>Comments</u> | <u>HR</u> | <u>Sat</u> |
|-------------|---|-----------|------------|
| 0:00 | start rest time in Xining 12:38 | 86 | 99 |
| 1:30 | R: 1.11 | 87 | 96 |
| 2:30 | ABG @ rest | | |
| 3:00 | start bDW | | 90 95 |
| 4:00 | VO ₂ = 791 VO ₂ /kg = 13.5 | | |
| 5:00 | R = 1.02 | | |
| 6:00 | start 120W | | 131 97 |
| 7:00 | start 135W R=1.2 | 166 | 93 |
| 7:45 | ABG @ 135W R=1.3 — submax 1 177 94 | | |
| 8:00 | start 150W R=1.35 | | |
| 8:30 | ABG @ 150W R=1.36 — submax 2 | | |
| 9:40 | ABG @ 150W — max 196 95 ② venous @ post exercise | | |

X25 - 2200m

26 Sept 2013 cm kg BP^{PW} Hb Altitude
 X25 174 60 107/56 2200m
 Tibetan Male

ECHO-pre O venous h@rest

| <u>Time</u> | <u>Comments</u> | HR Sat |
|-------------|----------------------------------|---|
| 0:00 | start rest | Time in Xining 13:09 74% |
| 2:00 | R = 0.9 B | V _{O2} = 267 |
| 2:45 | ABG @ rest | R = 0.90 — |
| 4:00 | start bow | 80% |
| 5:00 | R = 0.91 | V _{O2} = 924 117% R = 1.03 |
| 5:30 | | V _{O2} = 1156 120% R = 1.03 |
| 6:00 | | V _{O2} = 1156 120% R = 1.03 |
| 7:00 | start 120W | |
| 8:00 | start 150W | V _{O2} = 1554 147% R = 1.03 |
| 8:30 | start 180W | |
| 9:15 | ABG @ 180W — | Submax1 |
| | start 195W R = 1.22 | |
| 9:45 | ABG @ 195W R = 1.27 — | Submax2 |
| 10:15 | ABG @ 195W — | Max |
| | subject stopped; could not cont. | 184% ECHO-post O venous@ post exercise |

X26 - 2200m

26 Sept 2013 cm kg BP^{PW} Hb Altitude
 X26 167 50 126/78 2200m
 Tibetan Male

ECHO-pre O venous h@rest

| <u>Time</u> | <u>Comments</u> | HR Sat |
|-------------|-------------------------------|---------------------------------|
| 0:00 | start rest R = 0.88 | Time in Xining 13:39 83% 98 |
| 2:00 | ABG @ rest — | V _{O2} = 323 |
| 3:00 | start bow | |
| 4:00 | | |
| 5:00 | | R = 0.96 V _{O2} = 1114 |
| 6:00 | start 120W | R = 1.03 |
| 6:30 | start 150W | |
| 7:15 | ABG @ 150W — | Submax1 169% 95 |
| 7:40 | ABG @ 150W R = 1.19 — | Submax2 171% 97 |
| 8:00 | ABG @ 150W — | Max 174% 97 |
| | ECHO-post subject had to stop | |
| | O venous@ post exercise | |

— start 100% O₂ experiments @ 14:19.
 See PW notebook

Hypobaric Chamber 26 Sept 2013
Temp: 23 RH: 19

Up to 4200m

| Time | Altitude | kPa | PB |
|-------|----------|------|-----|
| 15:40 | 2465 | 71.2 | 567 |
| 15:46 | 3415 | 63.4 | 499 |
| 15:51 | 4179 | 59.2 | 455 |

Ambient conditions

Temp: 23

RH: 20

Altitude: set to 3000m (max)

PB: 454

Down to 2200m

| Time | Altitude | kPa | PB |
|-------|----------|------|-----|
| 19:26 | 4142 | 59.5 | 458 |
| 19:30 | 3822 | 62.2 | 480 |
| 19:35 | 3270 | 67.0 | 514 |
| 19:39 | 2919 | 70.1 | 539 |
| 19:46 | 2249 | 76.4 | 584 |

X22-4200m

26 Sept 2013 cm kg BP^{PW} Hb Altitude
X22 165 59 110/67 4200m
tibetan Male

ECHO-pre

Time

| | | |
|------|------------|-----------------------------|
| 0:00 | start rest | Time in Xining 16:19 R:1.01 |
| 1:00 | | HR: 79 Sat: 90 VO2: 295 |
| 2:00 | ABG @ rest | — 84 92 |
| 3:00 | start bow | R: 1.0 |
| 4:00 | | R: 0.95 |
| 5:00 | | VO2: 906 R: 1.05 |
| 6:00 | start 120W | R: 1.14 HR sat |
| 7:00 | start 150W | R: 1.21 157 84 |
| 8:00 | ABG @ 150W | — Submax1 R: 1.32 |

START 165W

167 82

8:15 ABG @ 165W — Submax2

8:30 ABG @ 165W — max 171 81

ECHO-post Subject had to stop

X23 - 4200m

26 Sept 2013

X23

Tibetan Male

B^P PW

143/74

Altitude

4200

PB: 454

X24 - 4200m

26 Sept 2013

X24

Tibetan Male

B^P PW

126/78

Altitude

4200

PB: 454

ECHO-pre

Time

| | | <u>Comments</u> |
|------|------------|--|
| 0:00 | start rest | Time in Xining 1b:40 R: 0.88 HR: 87 Sat: 87 |
| 1:00 | | R: 0.88 VO ₂ = 41b |
| 1:30 | ABG @ rest | — |
| 3:00 | start bow | R: 0.92 HR: 111 Sat: 83 |
| 4:00 | | R: 1.02 VO ₂ = 104b |
| 5:00 | | R: 1.07 |
| 6:00 | start 120W | VO ₂ = 108b R: 1.08 |
| 7:00 | start 150W | HR: 171 Sat: 78 |
| 7:30 | ABG @ 150W | — submax1 R: 1.33 R=1.26 |
| 7:45 | ABG @ 150W | — submax2 |
| 8:00 | start 165W | HR: 189 Sat: 79 |
| 8:15 | ABG @ 165W | — max |
| | | subject had to stop |

ECHO-post

pressure emr - bc 4200m

ECHO-pre

Time

| | | <u>Comments</u> | |
|------|------------|--------------------------------|----------------|
| 0:00 | start rest | Time in Xining 17:10 | R: 0.94 |
| 1:00 | | R: 0.95 VO ₂ = 308 | HR: 93 Sat: 88 |
| 2:00 | ABG @ rest | — | HR Sat |
| 3:00 | start bow | R: 1.09 | |
| 4:30 | | R: 1.06 | 142 Bb |
| 5:30 | | R: 1.12 VO ₂ = 105b | |
| 6:00 | start 120W | VO ₂ = 113b | |
| 7:00 | start 135W | R: 1.23 | 170 82 |
| 7:15 | ABG @ 135W | — submax1 | R: 1.29 |
| 7:30 | start 150W | | |
| 8:00 | ABG @ 150W | — submax2 | R: 1.35 |
| 8:15 | start 165W | ABG @ 150W submax3 | R: 1.38 |
| 8:30 | ABG @ 165W | — mix | HR: 185 |
| | | subject had to stop | |

ECHO-post

X25 - 4200m

26 Sept 2013

X25

Tibetan Male

BP PW
116/66

Altitude
4200m
PB: 454

ECGTO-pre

Time

0:00 start rest

1:00

2:00 ABG @ rest

3:00 start bow

4:00

5:00

6:00 start 120W

7:00 start 150W

7:30 start 160W

8:15 ABG @ 160W — submax1

8:30 start 195W

8:45 ABG @ 195W — Max

9:50 subject had to stop

ECGTO-post

Comments

Time in Xining 17:42 HR Sat

R: 0.92 v̇̄₂ = 448 89 94

v̇̄₂/kg = 5.4 66 66

R = 0.97 v̇̄₂ = 1060

R = 0.99 v̇̄₂ = 133 89

R = 1.03 v̇̄₂/kg = 21.4

v̇̄₂ = 167 87

v̇̄₂ = 1604

R = 1.24

181 86

X26 - 2200m

26 Sept 2013

X26

Tibetan Male

BP PW
102/63

Altitude
4200m
PB: 454

ECGTO-pre

Time

0:00 start rest

0:30

2:30 ABG @ rest

3:00 start bow

4:00

5:00 start 120W

6:00 start 135W

7:00 start 135W

7:15 ABG @ 135W

start 150W

7:30 ABG @ 150W

7:45 ABG @ 150W

7:50 subject had to stop

ECGTO-post

Comments

Time in Xining 18:03 78 90

R: 0.86 — 85 89

v̇̄₂ = 712 R.89 121 85

v̇̄₂ = 1177 R.99 148 82

— submax1

— submax2 164 83

— Max

QT started low ~ 4 problem
reached ~ 10 w/ physiology?

Review Physiflow Excel Files 26 Sept 2013

| | 2200 | 4200 | V̄O₂ |
|-----|----------|----------|---------|
| X1 | ✓ | ✓ | |
| X2 | ✓ | ✓ | |
| X3 | ✓ | ✓ BS-1b | |
| X4 | ✓ 5-15 | ✓ 6-14 | |
| X5 | ? 5-10 | ✓ 5-12 | |
| X6 | ✓ 5-14 | ✓ 5.5-16 | |
| X7 | ✓ 4.5-13 | 5.5-11 | |
| X8 | ✓ 5-14 | ✓ 4-12 | problem |
| X9 | ✓ 3-9 | ✓ 4-8 | problem |
| X10 | 4-10.5 | 4.5-9 | |
| X11 | | | problem |
| X12 | | | problem |
| X13 | | | |
| X14 | | | |
| X15 | | | problem |
| X16 | | | |
| X17 | | | |

See PW notes

- Physiflow files on subjects X17-21 + X15 were replayed onto exercise mode

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- X15 replay gave poor signals for Physiflow and V̄O₂ data are too low

+ one male

- Han Chinese females need to be re-examined on V̄O₂ system - mask leak likely gave very low V̄O₂: X8, X9, X11, X12, X13, X15

calibration V̄O₂ system 27 Sept. 2013

HEWCAL

Ambient conditions

Temp: 23

RH%: 13

* changed pulse oximeter

PB: 506 Sensor to "Z"

Altitude 2200m

Comments

| Time | Time in Xining 10:13 | HR Sat |
|-------|----------------------|-----------------------|
| 0:00 | Start rest | |
| 1:00 | | 87 97 |
| 1:30 | | 96 94 |
| 3:00 | Start 30W | R: 1.02 |
| 4:00 | | 94 93 |
| 5:00 | | 99 95 |
| 6:00 | Start bow | R: 0.9 V̄O₂/kg = 11.1 |
| 7:00 | | 97 93 |
| 8:30 | | |
| 9:00 | Start 90W | R=1.0 |
| 10:00 | | R: 1.04 |
| 11:00 | | |
| 12:00 | Start 120W | |
| 13:00 | | R 1.08 |
| 14:00 | | V̄O₂/kg = 23.2 |
| 15:00 | Start 150W | V̄O₂/kg = 25.1 |
| 15:30 | | R: 1.12 |
| 16:00 | | |
| 17:00 | | |
| 18:00 | Asked | R: 1.22 |

Subject to stop

27 Sept 13

and/or smaller
For CAR and all female subjects forward,
we will use fram Faped to bottom of
mask.

X27 - 2200m

27 Sept 2013 cm kg BP^m Hb Altitude
 X27 21 yrs. 160 59 111/69 2200m
 Tibetan Female 3 yrs. student sm:0 al:0
 from Tibet

ECHO-pre ① venous BG

Time Comments

| | | |
|-------|--|------------------------------------|
| 0:00 | start rest | Time in Xining 11:18 HR sat |
| 1:00 | | V̄O₂/kg = 5.4 98 96 |
| 1:30 | ABG @ rest | |
| 3:00 | start 45W R: 0.88 | |
| 4:00 | start 60W | |
| 4:40 | stopped subject to fix bike - pedalling | |
| 5:30 | start 45W | 158/158 |
| 6:00 | start 90W R: 0.96 | 154 95 |
| 10:00 | start 120W V̄O₂/kg = 20.0 164 96 | subject stalled w/ watt transition |
| 11:00 | subject stopped to tape shoes | |
| 11:45 | restart subject at 60W | |
| 13:00 | start 90W R: 1.0 V̄O₂/kg = 22 | |
| 14:00 | start 120W R: 1.1 176 96 | |
| 14:30 | ABG @ 120W Submax ₂ Submax ₁ | |
| 14:45 | ABG @ 120W — start 135W 180 94 | |
| 15:15 | ABG @ 135W Max R: 1.20 | |
| 15:50 | subject had to stop | |

Subject was not familiar w/ bike riding

- Had to tape pedals
- Reached $\dot{V}O_2 \approx 1.5$ @ max; good at

X28 - 2200m

27 Sept 2013 cm kg BP^m Hb Altitude
 X28 19 yrs. 160 52 99/69 2200m
 Tibetan Female 3 yrs. student sm:0 al:0
 from Tibet

ECHO-pre ① venous BG

Time Comments

| | | |
|------|--|------------------------|
| 0:00 | start rest R=0.79 Time in Xining 12:02 83 96 | HR sat |
| 1:00 | V̄O₂/kg = 5.1 | 78 97 |
| 1:35 | ABG @ rest — | |
| 3:00 | start 45W R: 0.90 | |
| 4:00 | | R: 0.79 up! 128 96 |
| 5:00 | | R: 0.89 V̄O₂/kg = 16.9 |
| 6:00 | start 90W R: 1.01 V̄O₂ = 90g | |
| 7:00 | start 105W R: 1.13 V̄O₂ = 118g | 174 97 |
| 7:30 | ABG @ 105 — submax ₂ 1.27 | |
| 7:45 | ABG @ 105 — max R: 1.29 | |
| 7:50 | subject stopped | 180 |

ECHO-post

Error:

Polar belt is not configured

PB: 596

X29 - 2200m

27 Sept 2013 cm kg BP Hb Altitude
 X29 22 yrs. 163 51 105/59 2200m
 Tibetan Female 3 yrs. student
 from Hainan Amdo sm: 0 al: 0

ECHO-pre @ venous BG

Time

| | | Comments | HR Sat |
|------|--|-------------------------------------|--------|
| 0:00 | start rest | Time in Xining 12:36 64 94 | |
| 1:00 | | VO ₂ /kg = 4.7 R: 0.8 | |
| 1:45 | ABG @ rest | | |
| 3:00 | Start 60W | VO ₂ /kg = 9.4 | |
| 4:00 | | R: 0.71 | |
| 5:00 | | VO ₂ /kg = 16.2 | 107 92 |
| 6:00 | start 90W | R: 0.87 | 112 93 |
| 7:00 | start 105W | R: 0.93 | 135 95 |
| 7:30 | start 120W | R: 1.03 | 153 94 |
| 8:15 | ABG @ 120W | — submax 1 | 158 |
| 8:30 | start 135W | | |
| 8:45 | ABG @ 135W | — submax 2 | 163 |
| 9:00 | ABG @ 135W | — max | 164 |
| 9:10 | subject had to stop -could not continue | | |

ECHO-post @ venous BG

X30 - 2200m

27 Sept 2013 cm kg BP Hb Altitude
 X30 20 yrs. 170 64 111/bb 2200m
 Tibetan Female 3 yrs. student
 from Lhasa, Tibet sm: al:

ECHO-pre

Time

| | | Comments | HR Sat |
|------|----------------------------|--------------------------------------|------------|
| 0:00 | start rest | Time in Xining 13:10 66 95 | |
| 0:30 | | R: 0.78 VO ₂ /kg 4.5 | |
| 1:30 | | R: 0.92 | 64 96 |
| 2:00 | ABG @ rest | — | |
| 3:00 | start 45W | | 73 96 |
| 4:00 | | VO ₂ /kg: 10 R: 73 | |
| 5:00 | | R: 0.81 VO ₂ = 787 100 95 | |
| 6:00 | start 90W | R: 0.88 | |
| 6:30 | start 120W | R: 0.94 | 128 95 |
| 7:30 | ABG @ 120W | R: 1.1 — submax 1 | 155 96 |
| 7:45 | ABG @ 120W | — submax 2 | 1.21 62 92 |
| 8:15 | ABG @ 120W | — max | |
| 8:20 | subject could not continue | | |

ECHO-post

X31 - 2200m

27 Sept 2013 cm kg BP Hb Altitude
 X31 18yrs. 170 59 106/57 2200
 Tibetan female 3 yrs. student
 from Yushu

ECHO - pre ① venous BG

| <u>Time</u> | <u>Comments</u> | <u>HR</u> | <u>Sat</u> |
|-------------|--|-----------|------------|
| 0:00 | start rest Time in Xining | 77 | 94 |
| | V̄O₂/kg = 5.9 | 81 | 94 |
| 1:30 | R: 0.82 | | |
| 2:00 | ABG @ rest — | | |
| 3:00 | start 45W R: 0.72 | 120 | 92 |
| 5:00 | V̄O₂ = 873 | V̄O₂/kg | 131 94 |
| 6:00 | start 90W R: 0.93 | 15.6 | 131 94 |
| 6:30 | start 105W R: 1.01 | 153 | 95 |
| 7:00 | start 120W R: 1.13 | 156 | 97 |
| 7:30 | ABG @ 120W — submax1 | 158 | 97 |
| 8:00 | ABG @ 120W R: 1.20 submax ² | 165 | 98 |
| 8:05 | ABG @ 120W R: 1.28 — max | 166 | |
| | ECHO - post ② venous BG | | |

X32 - 2200m

27 Sept 2013 cm kg BP Hb Altitude
 X32 158 48 2200
 Han Female 3 yrs. Student
 from Henan (100m) sm: D al: 0

ECHO - pre ① venous BG

| <u>Time</u> | <u>Comments</u> | | |
|-------------|---|--|----------------|
| 0:00 | start rest Time in Xining 14:11 / weight miscentered | | |
| | V̄O₂/kg = 2.7 after taping mask | | |
| 0:30 | | | |
| 2:00 | ABG @ rest — | | R: 0.98 |
| 3:00 | start 45W | | R: 0.93 |
| 5:00 | V̄O₂ = 807 | | R: 0.77 118 94 |
| 6:00 | start 90W | | R: 1.06 135 96 |
| 6:30 | start 105W "1" | | |
| 7:00 | start 120W R: 1.16 | | 160 93 |
| 7:30 | ABG @ 120W R: 1.24 — max1 | | 170 95 |
| 8:00 | start 125W R: 1.32 submax2 | | |
| 8:15 | ABG @ 135W — max | | 178 94 |
| 8:40 | subj. could not continue | | |
| | ECHO - post ② venous BG | | |

extra tape on subject's mask

Hypobaric Chamber 27 Sept 2013
Temp: 25 RH: 15

Up to 4200m

| Time | Altitude | KPa | BP |
|-------|----------|------|-----|
| 16:15 | 2383 | 75 | 573 |
| 16:18 | 2590 | 73 | 555 |
| 16:21 | 3156 | 67.8 | 518 |
| 16:23 | 3534 | 64.6 | 493 |
| 16:24 | 3829 | 61.9 | 474 |
| 16:26 | 4116 | 59.6 | 456 |
| 16:28 | 4193 | 59.2 | 454 |

Ambient conditions

Temp: 24
RH: 11
Altitude: 4200
PB: 454

Down to 2200m

| Time | Altitude | KPa | BP |
|-------|----------|------|-----|
| 19:41 | 4203 | 59.0 | 454 |
| 19:48 | 3695 | 63.1 | 488 |
| 19:54 | 3132 | 68.2 | 525 |
| 19:56 | 2650 | 70.7 | 542 |
| 19:59 | 2573 | 73.4 | 563 |
| 20:02 | 2249 | 76.4 | 584 |

X27 - 4200m

27 Sept 2013 cm kg BP Hg Altitude
X27
Tibetan Female
111/69 4200m
from previous 2200m

ECG-pre

Time
0:00 start rest

1:00 245 ABG@rest

3:00 start 45W

4:00

5:00

6:00 start 90W

6:30 start 105W

7:30 ABG @ 105W

start 120W

8:15 ABG @ 120W

8:30 ABG @ 120W

start 135W

8:50 ABG @ 135W

8:55 subject could not continue

Comments

Time in Xining 16:58 110 85 HR Sat

V12/kg = 4.4 R=.93

V12 = 26.9

116 87

R = 1.05

W2 = 679

V12 = 793

W2 = 891

submax1 165 80

R = 1.22 170 75

submax2 R = 1.25 173 77

submax3 177

MAX 178 77

180

X29 - 4200m

27 Sept 2013

X29

Tibetan Female

Time

| | BP | Altitude |
|-----------|---------------------|----------------------------|
| | 92/62 | 4200 |
| ECHO-pre | | BP: 454 |
| Comments | | HR 94 |
| 0:00 | start rest | time in Xining 17:22 97.87 |
| 1:00 | | W2/kg = 5.1 R: 0.96 |
| 2:15 | ABG @ rest | W2 = 26.8 R: 0.92 |
| 3:00 | start bOW | W2 = 55.5 R: 0.89 |
| 4:30 | | R: 0.96 HR: 153 |
| 5:00 | | R: 1.14 W2 = 81.4 |
| 5:30 | start 9DW | R: 1.18 |
| 6:15 | ABG @ 9DW | R: 1.23 |
| 6:30 | start 10S | |
| 6:30 | ABG @ 10S | R: 1.29 |
| 6:35 | Subject had to stop | 173.86 |
| ECHO-post | | |

X29 - 4200m

27 Sept 2013

X29

Tibetan Female

Time

| | BP | Altitude |
|-----------|---------------------------------|--|
| | 101/59 | 2200m |
| Comments | low; used previous 2200m BP 454 | |
| 0:00 | start rest | time in Xining 17:4 95.84 |
| 1:00 | | W2/kg = 6.0 W2 = 33.7 |
| 1:30 | | R: 0.94 87 88 |
| 2:30 | start bOW | 2:15 Subject dizzy at rest 77 90 began pedalling |
| 3:30 | | felt better |
| 4:00 | | |
| 4:30 | | |
| 5:00 | | R: 1.03 114 85 |
| 6:00 | start 9DW | R: 1.04 115 84 |
| 6:45 | ABG @ 9DW | 130 88 |
| 7:00 | start 10SW | |
| | ABG @ 10SW | 131 |
| 7:05 | subject could not continue | |
| ECHO-post | | |

pressure error detected
orange light

subject's Hb = 10 g/dL

X30 - 4200m

27 Sept 2013

X30

Tibetan Female
Time

0:00 Start rest

1:45 ABG @ rest

2:00 Start 45W

3:00

4:00

5:00 Start 90W

6:00 ABG @ 90W

Start 105

6:30 ABG @ 105W

6:35 Subject could not continue

ECG - post

BP

114/61

ECG - pre

Comments

Time in Xining 18:08 91 82

VO₂ = 319 ; R = 0.8798 79

HR Sat

PB: 454

HR Sat

R: 0.95

R: 0.92 VO₂ = 325

R: 0.9 HR: 121 79

R: 1.0 VO₂ = 365R: 1.04 VO₂/kg = 14.5

HR: 163

HR: 168

Sat 74

X31 - 4200m

27 Sept 2013

X31

Tibetan Female

ECG - pre

Time

0:00 Start rest

1:00

2:00

3:00

4:00

5:00

6:00

6:30

7:00

7:30

7:45

7:50

ECG - post

BP

117/79

HR Sat

PB: 454

HR Sat

Comments

Time in Xining 18:53

VO₂/kg = 14.7 VO₂ = 283R: 0.86 VO₂ = 264 79 84

R: 0.85

104 84

R: 0.88 VO₂ = 730 125 82R: 1.0 VO₂ = 904 VO₂ = 137 83VO₂ = 983 153 84

—submax

7:30 ABG @ 105W —submax 2 R: 1.26 161 87

7:45 ABG @ 105W —submax R: 1.21 163 86

7:50 subject had to stop

—could not continue

Pressure error

Extra peak on physiow @ 2200m + 4200m
start of green dz/dt
- same on next subject?

Pressure error

X32 - 4200m

27 Sept 2013

X32

Han Female

ECHO-pre

Time

| | Comments | HR | Sat |
|------|---|--------------------|---------|
| 0:00 | start rest time in Xining 19:18 9:34 | | |
| | R: 0.89 $\dot{V}O_2 = 286$ $\dot{V}O_2/kg = 59$ | | |
| 2:00 | ABG @ rest | | |
| 3:00 | start 45W | 103 | 9% |
| 4:00 | | R: 0.91 | |
| 5:00 | | $\dot{V}O_2 = 761$ | R: 1.1 |
| 6:00 | start 105W | $\dot{V}O_2 = 852$ | R: 1.14 |
| 6:45 | ABG @ 105W — R: 1.22 — | | |
| 7:00 | start 120W ABG @ 105W, 169 79 | | |
| 7:30 | ABG @ 120W — R: 1.37 | | |
| 7:40 | subject could not continue | 173 | |
| | ECHO-post | | |

BP
112/72

Altitude
4200
PB 454

calibration VO₂ system 28 Sept 2013

HEW CAL

Ambient conditions

Temp: 19

RH: 1. 21

PB: 587

Altitude: 2200m

Comments

| Time | Comments | HR | Sat |
|-------|--------------------------------------|---------|----------------------------|
| 0:00 | start rest | | |
| | Time in Xining 9:34 | | |
| | $\dot{V}O_2/kg = 5.6$ Sat: 93 HR: 94 | | |
| 1:00 | | | |
| 3:00 | start 30W | 99 | 94 |
| 4:00 | | 101 | 95 |
| 5:00 | | 100 | 97 |
| 6:00 | start 60W | 111 | 94 |
| 7:00 | | 113 | 96 |
| 8:00 | | 112 | 93 |
| 9:00 | start 90W | 115 | 94 |
| 10:00 | | 127 | 93 |
| 11:00 | | 129 | 93 |
| 12:15 | start 120W | 133 | 90 |
| 13:00 | | 140 | 90 |
| 14:00 | | 146 | 89 |
| 15:00 | start 150W | 1513 | R: 1.10 150 89 |
| 16:00 | | 158 | 90 |
| 17:00 | | 163 | 91 |
| 18:00 | Asked subject to stop | R: 1.23 | $\dot{V}O_2 = 1717$ 164 90 |

Starting up studies at 4200m today to be consistent with studies of females on 24 Sept 2013.

~~2200m~~Start at chamber @
4200m this dayHypobaric chamber 28 Sept 2013
Temp: 19 RH: 21

Up to 4200m

| Time | Altitude | KPA | BP |
|-------|----------|------|-----|
| 10:42 | 2207 | 96.8 | 58b |
| 10:49 | 2805 | 70.9 | 542 |
| 10:56 | 4008 | 60.4 | 461 |
| 11:02 | 4108 | 59.1 | 455 |

Ambient conditions

| | |
|----------|------|
| Temp | 20 |
| RH | 13 |
| Altitude | 4200 |
| PB | 454 |

Down to 2200m

| Time | Altitude | KPA | BP |
|-------|----------|------|-----|
| 14:44 | 3963 | 60.8 | 471 |
| 14:52 | 3749 | 68.0 | 524 |
| 15:00 | 2370 | 75.3 | 576 |

433 - 4200m

26 Sept 2013 cm kg BP Hb Altitude
433 22yrs. 153 50 110/79 4200

Han Female

ECG-pre ~~venous~~ rest

| Time | Comments | HR sat |
|------|--------------------------------------|---|
| 0:00 | start rest | Time in Xining 11:48 97 84 |
| 0:30 | | Physiowave debt signal |
| 2:00 | | stopped working VO ₂ /kg=5 92 84 |
| 2:45 | ABG@rest | |
| 3:30 | start 45W | R: 0.87 122 78 |
| 4:30 | | R = 1.16 VO ₂ = 841 164 78 |
| 6:30 | start 75W | R: 1.18 166 76 |
| 7:30 | ABG@75W | R: — Submax 174 168 82 |
| | start 90W | — stopped pedalling |
| 8:00 | ABG@90W | R: 124 177 79 |
| | — got a sample, but bad - do not use | |
| 9:15 | ABG@90W | — max 178 80 |
| | Subject had to stop | |
| | ECG-post | |

taped mask on top

* Subject had some trouble pedalling
at ~ 7:45 - 9:00

Completed 2200m ECG before entering chamber

* Subject wanted to redo test - VO₂, Phys.
See end of this section

X34 - 4200m

26 Sept 2013 cm kg BP Hb Altitude
 X34 170 63 134/81 4200m
 Tibetan Female from San Nan Yisan
 ECHO-pre ? yrs. student

| <u>Time</u> | <u>Comment</u> | <u>HR Sat</u> |
|-------------|----------------------------|--|
| 0:00 | start rest | Time in Xining 12:23 86 91 |
| 1:00 | | $\dot{V}O_2/\text{kg} = 12.4$ $\dot{V}O_2 = 372$ |
| 2:00 | ABG @rest | $R = 1.0$ $\dot{V}O_2 = 250$ |
| 3:00 | start 45W | 92 90 |
| 4:00 | | 129 88 |
| 5:00 | $\dot{V}O_2 = 785$ R: 1.15 | 152 89 |
| 6:00 | start 90W | R: 1.17 |
| 7:00 | start 105W | R: 1.23 |
| 7:45 | ABG @105W | Submax 171 84 |
| 8:00 | start 120W | Submax 2 |
| 8:05 | ABG @120W | R: 1.32 |
| 8:20 | start 135W | Submax 3 |
| 8:30 | ABG @135W | 178 85 |
| 9:00 | ABG @135W | Max |
| 9:15 | subject stopped | 178 83 |
| | ECHO-post | |

Did not tape mask

Subject had a little trouble pedalling 3:00-5:00
 Physioflow : 7:30-8:00

X35 - 4200m

26 Sept 2013 cm kg BP Hb Altitude
 X35 23 154 41 104/64 4200
 Tibetan Female from Guinan AMDO
 ECHO-pre 3 yrs. student

| <u>Time</u> | <u>Comments</u> | <u>HR Sat</u> |
|-------------|------------------------------|----------------------------|
| 0:00 | start rest | Time in Xining 13:00 86 86 |
| 1:00 | $\dot{V}O_2/\text{kg} = 5.9$ | R: 0.93 |
| 2:45 | ABG @rest | Big bubble in ABG |
| 3:00 | start 45W | |
| 4:00 | | |
| 5:00 | 6:00 start 60W | 154 77 |
| 6:15 | start 75W | 162 82 |
| 7:00 | start 90W | R: 1.12 175 94 |
| 8:00 | ABG @90W | — submax 1 |
| 8:15 | start 105W | — submax 2 |
| 9:00 | ABG @90W | R: 1.22 177 73 |
| | ABG @90W | — max 181 71 |
| | ECHO-post | |

Taped subject's mask on top + bottom

X36 - 4200

20 Sept 2013 cm kg BP HR Altitude
 X36 155 44 101/bb 4200
 Tibetan Female Student? yrs.
 ECHO-pre from Lhasa

| <u>Time</u> | <u>Comments</u> | |
|-------------|--------------------------------------|-----------------------------|
| 0:00 | start rest | Time in Xining 13:38 HR sat |
| 1:00 | $\dot{V}O_2 / \text{kg} = 5.1$ | $\dot{V}O_2 = 290$ 1187 |
| 1:45 | ABG @ rest | — |
| 3:00 | start 45W b/w R: 0.61 | 102 87 |
| 4:00 | | 159 82 |
| 5:00 | | 164 87 |
| 6:00 | start 75W | $\dot{V}O_2 = 1057$ 172 86 |
| 6:45 | ABG @ 75W | — submax! |
| 7:00 | start 90W subject fell off pedals | 179 88 |
| | ABG @ 90W → did not get | 180 88 |
| 8:15 | subject had to stop | 181 86 |

X37 - 4200m

20 Sept 2013 cm kg BP HR Altitude
 X37 154 53.5 114/77 4200
 Tibetan Female
 ECHO-pre

| <u>Time</u> | <u>Comments</u> | <u>HR</u> | <u>Sat</u> |
|-------------|--|--------------------|------------|
| 0:00 | start rest | Time in Xining | 90 90 |
| | $\dot{V}O_2 / \text{kg} = 4.4$ | $\dot{V}O_2 = 270$ | |
| 1:45 | ABG @ rest | — | 97 90 |
| 3:00 | start 45W | 101 | |
| 4:00 | | 129 84 | |
| 5:00 | | 133 86 | |
| 6:00 | start 90W | 137 89 | |
| 6:30 | start 105W | 152 96 | |
| 7:00 | ABG @ 105W — submax | 159 85 | |
| 7:30 | ABG @ 105W — max R=1.26 164 85 subject could not continue | | |

Bad arterial line - will go to hospital for repair

* Took post-exercise venous sample for lactate

* Start 0:00 @ Physioflow 3:00

Put cotton balls at top of mask

Put cotton balls at top of mask

X33 - 4200m 2nd run "again" file
 28 Sept 2013 cm kg BP HR Altitude
 X33 see previous 110/79 / 4200m
 Han Female

| <u>Time</u> | <u>Comments</u> | |
|-------------|-------------------------------|-------------------------|
| 0:00 | start rest | Time in Xining 14:33 |
| | | V̄O₂ = 44b V̄D/kg = 6.9 |
| | No resting ABG - use previous | HR Sat |
| 1:00 | | 108 85 |
| 2:00 | start 45W | V̄O₂ = 349 |
| 3:00 | | V̄D = 692 |
| 4:00 | | 150 81 |
| 5:00 | | 161 78 |
| 6:00 | start 75W V̄O₂ = 647 "1" | 165 77 |
| 7:00 | ABG @ 75W — submax | 175 76 |
| 7:30 | start 90W | |
| 8:00 | ABG @ 90W — Max | 180 75 |
| 8:10 | subject could not continue | |

$$\dot{V}O_2 = 1.1 \text{ both runs}$$

Started O₂ 100% experiments at 16:00.
 See PW notebook.

X33 - 2200m

28 Sept 2013 BP 86/69

Han Female

ECG-pre O venous at rest

| <u>Time</u> | <u>Comments</u> | HR | SAT |
|-------------|-----------------------------------|---------------|-----------------------------|
| 0:00 | start rest | Var/kg b.0g = | Time in Xining 17:21 107 92 |
| 1:00 | | V̄O₂ = 262 | 103 90 |
| 2:00 | ABG @ rest | | |
| 3:00 | start 45W | V̄O₂ = 375 | 119 89 |
| 4:00 | | V̄D = 634 | 145 90 |
| 5:00 | | V̄O₂ = 829 | 152 90 |
| 6:00 | start 90W R = 1.01 "1" | | |
| 7:00 | ABG @ 90W — submax | 173 93 | |
| | start 105W ABG@ao — submaxz | 177 94 | |
| 7:30 | ABG @ 105W — R: 1.23 — Max 191 93 | | |
| | subject could not continue | | |
| | ECG-post | | |

taped, cotton in top of mask; taped bottom
 as for previous experiment at 4200m.

X34 - 2200m

28 Sept 2013

X34

Tibetan Female

ECHO-pre

① venous BG at rest

Time

Wz/kg

Comments

Altitude

2200m

BP

127/79

X35 - 2200m

28 Sept 2013

X35

Tibetan Female

ECHO-pre

① venous BG at rest

Time

BP

95/51

Altitude

2200m

| Time | Wz/kg | Comments | HR Sat |
|------|----------------------------|---------------------|--------------|
| 0:00 | Start rest | 5.2 Time in Xining | 17:47 106 95 |
| 2:00 | ABG @ rest | | 96 95 |
| 3:00 | start 105W | $\sqrt{O_2} = 44.6$ | |
| 4:00 | | | 128 94 |
| 5:00 | $\text{Wz/kg} = 13.2$ | | 137 95 |
| 6:00 | start 90W | $R = 1.1$ | 148 95 |
| 7:00 | ABG @ 90W | — Submax1 | 160 97 |
| 7:10 | start 105W | $R = 1.23$ | 170 96 |
| 7:30 | start 120W | | |
| | ABG @ 120W | — Submax2 | 177 96 |
| 7:45 | start 135W | | |
| 8:15 | ABG @ 135W - w/ air | | 160 95 |
| | Subject could not continue | | |

ECHO-post

| Time | Wz/kg | Comments | HR Sat |
|------|----------------------------|-----------|-------------|
| 0:00 | Start rest | 5.9 | 18:08 95 97 |
| 1:00 | | | Wz = 265 |
| 2:00 | ABG @ rest | | — R: 0.91 |
| 3:00 | start 45W | | |
| 4:00 | | | |
| 5:00 | | | |
| 6:00 | start 90W | | |
| 7:00 | ABG @ 90W | — Submax1 | |
| | start 105W | | |
| 7:30 | ABG @ 105W | — Submax2 | |
| 7:45 | ABG @ 105W | — Max | 170 64 |
| | Subject could not continue | | |

ECHO-post

② venous BG post exercise at 18:47

Cotton balls added to top of mask.

No exercise for X36 - arterial line fell out during H2O experiment

X37 - 2200m

28 Sept 2013

X37

Tibetan Female
ECG pre

Time

0:00 Start rest
 $\dot{V}O_2 / \text{kg} = 4.7$

1:00

2:00 ABG @ rest

3:00 Start 45W

4:00

5:00

6:00 Start 90W

6:30 Start 105W

7:30 ABG @ 105W

7:45 ABG @ 120W

8:00 ABG @ 120W

8:15 Subject could not continue

BP

102/64

Altitude

2200m

X15 - 2200m RECALL

28 Sept 2013

X15 Recall - Same protocol

Han Female

BP

99/66

Comment

Time in Xining 18:33 74.99

Time

0:00 $\dot{V}O_2 / \text{kg} = 4.3$

Comment

Time in Xining 19:16 81.97

HR Sat

1:00

$\dot{V}O_2 = 229$

2:00 $\dot{V}O_2 = 189$

Time in Xining 19:16 81.97

18:33 74.99

3:00

$\dot{V}O_2 = 277$

3:00 start 30W

R: 0.93

18:33 74.99

4:00

$\dot{V}O_2 = 312$

4:00

R: 0.84

18:33 74.99

5:00

$\dot{V}O_2 = 312$

5:00

VE = 18

18:33 74.99

6:00

$\dot{V}O_2 = 312$

6:00

$\dot{V}O_2 = 580$

18:33 74.99

7:00

$\dot{V}O_2 = 312$

7:00

R: 0.92

18:33 74.99

8:00

$\dot{V}O_2 = 312$

8:00

$\dot{V}O_2 / \text{kg} = 14.7$

18:33 74.99

9:00

$\dot{V}O_2 = 312$

9:00

Start 75W

18:33 74.99

10:00

$\dot{V}O_2 = 312$

10:00

R: 0.94

18:33 74.99

11:00

$\dot{V}O_2 = 312$

11:00

$\dot{V}O_2 = 634$

18:33 74.99

12:00

$\dot{V}O_2 = 312$

12:00

$\dot{V}O_2 = 1261$

18:33 74.99

13:00

$\dot{V}O_2 = 312$

13:00

Submax1

18:33 74.99

14:00

$\dot{V}O_2 = 312$

14:00

Submax2

18:33 74.99

15:00

$\dot{V}O_2 = 312$

15:00

Max R: 1.3

18:33 74.99

16:00

$\dot{V}O_2 = 312$

16:00

164.98

18:33 74.99

17:00

$\dot{V}O_2 = 312$

17:00

R: 1.24

18:33 74.99

18:00

$\dot{V}O_2 = 312$

18:00

R: 1.33

18:33 74.99

19:00

$\dot{V}O_2 = 312$

19:00

$\dot{V}O_2 = 1.1$

18:33 74.99

20:00

$\dot{V}O_2 = 312$

20:00

Asked subject to stop per previous protocol.

18:33 74.99

Calibration VO₂ System 29 Sept 2013

HEW CAL

Ambient Conditions

Temp: 19

PB: 504

RH%: 15

Altitude: 2200

time

Comments

HR Sat

0:00 start rest

Time in Xining 11: 59

81 99

VO₂/kg = 4.1

R = 0.88 VO₂ = 231

0:30

45

84 94

2:00

start 45W

R = 0.66

88 100

3:00

start 45W

R = 0.66

102 100

4:00

start 45W

VO₂ = 776 R = 0.86

101 100

5:00

start 60W

R = 0.89

101 100

6:00

start 60W

VO₂ = 702 R = 0.90

107 100

7:00

start 60W

VO₂ = 702 R = 0.90

107 100

8:00

start 60W

VO₂ = 912

105 95

8:15

start 60W

VO₂ = 938 R = 0.95

107 93

9:00

start 60W

VO₂ = 938 R = 0.95

120 91

10:00

start 60W

R = 1.01

107 93

11:00

start 120W

R = 1.03 VO₂ = 1208 13094

140 93

12:00

start 120W

VO₂ = 1478 R = 1.08

145 94

13:00

start 150W

VO₂ = 1602

154 93

14:00

start 150W

VO₂ = 1713

162 92

15:00

start 150W

VO₂ = 1713

162 92

16:00

start 150W

VO₂ = 1713

162 92

17:00

start 150W

VO₂ = 1713

162 92

18:00

Asked subject to stop

VO₂ = 1713

1716

X09 - 2200 - Recall

29 Sept 2013

BP

111/72

X9 2200m Recall

Han, Female

Time

Comments

0:00 start rest $\dot{V}O_2 = 197$ Time in Xining 16:31

W2/kg = 3.1b R = 0.81 HR = 92 Sat. 97

2:00 start 45W

$\dot{V}O_2 = 620$ R: 0.8

3:00

$\dot{V}O_2 = 702$ R: 0.94

4:00

$\dot{V}O_2 = 1.0$ $\dot{V}O_2 = 691$

5:00

$\dot{V}O_2 = 16125$ 97

6:00 start 90W

$\dot{V}O_2 = 1.0$ $\dot{V}O_2 = 1988$ R = 1.3

7:00

subject to stop per previous 2200m

$\dot{V}O_2 + QT$ only

Altitude

2200m

X13 - 2200m - Recall $\text{V}\dot{\text{O}}_2$
 29 Sept 2013 BP QT
 X13 2200m recall 113/78 Altitude
 Han Female

| Time | Comments | |
|------|----------------------------------|---|
| 0:00 | start rest | Time in Xining 17:01 HR Sat |
| 1:00 | $\text{V}\dot{\text{O}}_2 = 3.5$ | 74.96 |
| 2:00 | start 45W | $\text{V}\dot{\text{O}}_2 = 4.06 @ 4:30$ 77.95 |
| 3:00 | | 114.93 |
| 4:00 | | $\text{V}\dot{\text{O}}_2 = 8.04$ R = 0.97 114.93 |
| 5:00 | | $\text{V}\dot{\text{O}}_2 = 8.58$ R = 0.98 |
| 6:00 | start 90W | $\text{V}\dot{\text{O}}_2 = 9.65$ R = 0.91 140.92 |
| 7:15 | start 105W | 152.13 |
| 8:15 | start 120W | $\text{V}\dot{\text{O}}_2 = 12.94$ 167.93 |
| 9: | | 169.92 |

X8 - 2200m - Recall $\text{V}\dot{\text{O}}_2$
 29 Sept 2013 BP QT
 X8 2200m recall 107/61 Altitude
 Han Male

| Time | Comments | |
|------|--|--|
| 0:00 | start rest | Time in Xining 17:31 |
| 1:00 | $\text{V}\dot{\text{O}}_2 / \text{kg} = 4.7$ | HR 83 Sat: 98 |
| 2:00 | start 60W | |
| 3:00 | | R = 1.08 $\text{V}\dot{\text{O}}_2 = 9.41$ |
| 5:00 | | R = 1.12 $\text{V}\dot{\text{O}}_2 / \text{kg} = 17.4$ HR Sat |
| 5:15 | | HR on $\text{V}\dot{\text{O}}_2$ sys: 138 81 78 |
| 6:30 | start 90W | |
| | | $\text{V}\dot{\text{O}}_2 / \text{kg} = 18.2$ HR $\text{V}\dot{\text{O}}_2$ sys: 140 |
| 7:15 | start 105W | Pulse ox: HR Sat |
| 8:00 | | $\text{V}\dot{\text{O}}_2 = 13.33$ 165 99 |
| 8:30 | | R = 1.2 |
| 8:40 | start 120W | 173 99 |
| | | R = 1.2 |
| | | $\text{V}\dot{\text{O}}_2 = 14.71$ |
| 9:20 | | R = 1.20 |
| | | subject had to stop 183 99 |

Hypobaric Chamber 29 Sept 2013
Temp: 21 RH: 29

Up to 4200m

| Time | Altitude | kPa | BP |
|-------|----------|------|-----|
| 18:00 | 2207 | 76 | 581 |
| 18:09 | 2510 | 73.8 | 563 |
| 19:14 | 3044 | 69.1 | 524 |
| 18:21 | 3098 | 61.5 | 470 |
| 18:24 | 4186 | 59.1 | 452 |

Down to 2200m

| Time | Altitude | kPa | BP |
|-------|----------|-----|-----|
| 19:38 | 3900 | 77 | |
| 19:47 | 2903 | 70 | 536 |

X15 - 4200m - Recall
29 Sept 2013 BP
X15 4200m recall 90/60
Han Female

| Time | Comments | HR: 80 | Sat: 96 |
|------|--|---------------------------------|---------|
| 0:00 | VO ₂ /kg = Time in Xining 18:30 | | |
| 6:2 | VO ₂ = 264 | | |
| 2:00 | start 30W | | |
| 2:30 | | | |
| 3:00 | | | |
| 4:00 | | | |
| 4:30 | start 75W | VO ₂ = 10.4 R = 1.03 | |
| 5:00 | | VO ₂ = 62.6 R = 1.08 | |
| 5:30 | start 90W | VO ₂ = 67.9 R = 1.09 | |
| 6:30 | subject had to stop | VO ₂ = 77.0 | 152 82 |
| | (previous stop 6:45) | VO ₂ = 93.2 | 161 78 |
| | | | 175 81 |

X9 - 4200M - Recall

29 Sept 2013

X9 4200m recall

Han Female

BP 111/72 Altitude 4200M

| <u>Time</u> | <u>Comments</u> | HR: 114 | SAT: 82 |
|-------------|--|---------|---------|
| 0:00 | start rest Time in Xining 18:54 $\dot{V}O_2/\text{kg} = 4.2$ R: 0.83 $\dot{V}O_2 = 239$ | | |
| 2:00 | start 45W | | |
| 3:00 | $\dot{V}O_2 = 681$ 139 82 | | |
| 4:00 | | | |
| 5:00 | start 75W $\dot{V}O_2 = 720$ 143 85 | | |
| 6:00 | start 90W $\dot{V}O_2 = 919$ R=1.26 | | |
| 6:45 | $\dot{V}O_2 = 1055$ R=1.34 | | |
| 7:00 | $\dot{V}O_2 = 140$ | | |

X13 - 4200M - recall

29 Sept 2013

X13 4200 recall

Han Chinese

BP: 124/78 Altitude 4200m
→ subject id X9 4200m recall
in VO2 system saved as X13-4200 recall

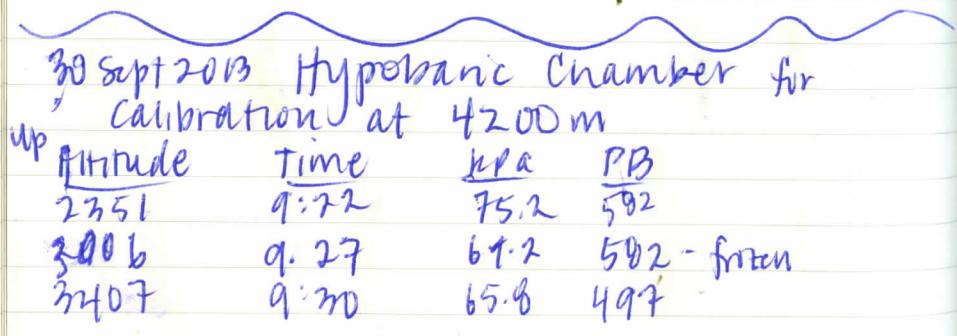
| <u>Time</u> | <u>Comments</u> | Time in xining 19:11 | |
|-------------|------------------------------|----------------------|---------|
| 0:00 | $\dot{V}O_2/\text{kg} = 4.9$ | | |
| 1:00 | $\dot{V}O_2 = 240$ | HR: 84 | SAT: 88 |
| 2:00 | start 45W | | |
| 4:00 | | | |
| 5:00 | start 75W | 141 | 74 |
| 6:00 | start 90W R=1.07 | 156 | 72 |
| 6:45 | | 163 | 71 |

X9 - 4200m - Recall

29 Sept 2013
X9 4200m recall
Han Mule

| <u>Time</u> | <u>Comments</u> |
|-------------|--|
| 0:00 | $W_2/kg = 5.4$ Time in Xining 19:28 $W_2 = 289$ |
| 2:00 | start bOW R: 0.91 |
| 3:00 | $W_2 = 781$ HR: 127 Sat: 93 |
| 4:00 | $W_2 = 966$ HR: 131 Sat: 97 |
| 5:00 | start 9DW $W_2 = 1094$ HR: 136 Sat: 90 |
| 6:30 | subject had to stop due to leg cramp |

plot W_2 agst. watts
project up - straight line



Ambient conditions

Temp 19
RH 23%
Alt: 3000 → really 4200

Down

Altitude

1725 10:15 72 —

calibration m2 system 30 Sept 2013

HEW CAL

Ambient conditions

Temp : 19
RH : 23

PB: ~~592~~ 453
Altitude: 4200

Comments
Timing in Xining 9:40
HR: 92 Sat: 95

| <u>Time</u> | <u>Comments</u> |
|-------------|-----------------|
| 0:00 | start rest |
| | $W_2/kg = 4.7$ |
| 1:00 | $W_2 = 2$ |
| 2:00 | |
| 3:00 | start 3DW |
| 4:00 | |
| 5:00 | |
| 6:00 | start bOW |
| 7:00 | |
| 8:00 | |
| 9:00 | start 9DW |
| 10:00 | |
| 10:30 | |
| 11:00 | |
| 12:00 | start 12DW |
| 13:00 | |
| 14:00 | |
| 14:30 | |
| 15:00 | |

HR: 91 Sat: 94
91 96
 $W_2 = 599$
HR: 101 Sat: 95
 $W_2 = 674$ R=0.90
 $W_2 = 850$ HR: 113 Sat: 93
 $W_2 = 920$ HR: 116 Sat: 90
R: 1.0 HR: 120 Sat: 94
 $W_2/kg = 16.8$ $W_2 = 1075$ R=1.03
HR: 135 Sat: 89
 $W_2 = 1174$ R: 1.06
HR: 141 Sat: 86
 $W_2 = 1339$ HR: 149 Sat: 82
R: 1.21 $W_2 = 1446$ HR: 153 Sat: 77
R: 1.23 $W_2 = 1409$ HR: 153 Sat: 80
 $W_2 = 1425$ HR: 157 Sat: 80