

## ADDITIONAL RESULTS

### Symptoms

Only 6/12 men and 1/10 women were able to complete the full exercise test under all conditions (See Table 3 in main body of manuscript). Test withdrawals were related to self-reported discomfort caused by the load carried (shoulder discomfort, blisters and chaffing around the hips and groin) or muscular discomfort. Reports of discomfort increased with load in both sexes, but the frequency of reporting was greatest in women (See Table 1). No withdrawals were related to work rate.

Table 1: Symptoms reported by participants post exercise test

	Men				Women			
	LOW	MED	HIGH	V-HIGH	LOW	MED	HIGH	V-HIGH
Shoulder discomfort	1		5	8	2	5	7	6
Chaffing		2		2	1	4	3	
Blisters / hot spots (feet)		2		2		2	5	2
General discomfort	1		1					2
Helmet discomfort	1				1			
Back discomfort		2		1	3	3	3	2
Hip discomfort		1	2		1	3	1	
Neck discomfort				2		1	1	2
Legs tired				1		1	1	1
Hamstring discomfort				1				
Feeling hot					2			
Knee discomfort					1	1		
Arm discomfort					1			
Shin discomfort					1		1	
Calf discomfort								1
Breathing discomfort						1	3	1
Chest discomfort					1		1	1

*Note that not all participants marched for the same length of time as some withdrew from the test due to discomfort.*

## Cognitive Tests

Table 2: N-back accuracy data for men and women measured in four load configurations during each hour of the march.

		<i>Men</i>			<i>Women</i>		
		<i>Hour 1</i>	<i>Hour 2</i>	<i>Hour 3</i>	<i>Hour 1</i>	<i>Hour 2</i>	<i>Hour 3</i>
<i>0-back</i>	<i>LOW</i>	97.0 (3.3) [12]	98.0 (2.7) [11]	97.0 (2.3) [11]	97.0 (1.9) [9]	96.1 (2.9) [8]	98.2 (2.2) [6]
	<i>MED</i>	96.7 (4.3) [12]	97.4 (2.4) [11]	97.2 (2.8) [11]	97.0 (2.9) [8]	94.6 (5.1) [7]	96.9 (2.5) [5]
	<i>HIGH</i>	96.6 (3.6) [11]	97.8 (2.4) [11]	91.3 (13.1) [11]	94.1 (5.8) [6]	89.5 (8.3) [7]	97.8 (1.8) [4]
	<i>V-HIGH</i>	96.4 (4.1) [11]	95.6 (3.4) [8]	96.8 (2.8) [7]	84.0 (14.1) [6]	93.3 (-) [1]	97.8 (-) [1]
<i>1-back</i>	<i>LOW</i>	96.5 (2.6) [12]	97.0 (2.3) [11]	96.9 (3.0) [10]	94.8 (1.9) [9]	92.5 (6.6) [8]	93.8 (4.0) [6]
	<i>MED</i>	95.9 (4.0) [12]	95.0 (6.1) [12]	93.1 (6.6) [11]	93.8 (3.9) [8]	91.1 (3.1) [7]	96.2 (2.0) [5]
	<i>HIGH</i>	96.0 (4.6) [11]	95.6 (4.0) [11]	92.7 (5.9) [11]	90.1 (6.7) [8]	89.8 (7.8) [6]	91.3 (6.1) [4]
	<i>V-HIGH</i>	89.7 (13.7) [11]	93.9 (5.0) [8]	92.4 (6.6) [7]	78.4 (11.9) [5]	84.0 (-) [1]	91.0 (-) [1]
<i>2-back</i>	<i>LOW</i>	92.4 (7.1) [12]	94.3 (4.9) [11]	91.3 (6.6) [11]	92.6 (5.3) [9]	89.7 (7.1) [8]	89.3 (7.9) [6]
	<i>MED</i>	88.7 (11.2) [12]	90.7 (10.8) [11]	85.7 (11.6) [11]	90.0 (6.1) [8]	91.0 (9.7) [7]	86.2 (15.0) [5]
	<i>HIGH</i>	92.0 (8.8) [10]	89.3 (11.3) [11]	88.1 (11.6) [11]	82.9 (11.1) [7]	87.2 (17.0) [6]	94.5 (4.4) [4]
	<i>V-HIGH</i>	89.3 (8.6) [10]	87.2 (11.3) [8]	74.0 (30.5) [7]	74.0 (8.7) [3]	71.0 (-) [1]	76.0 (-) [1]
<i>3-back</i>	<i>LOW</i>	85.7 (8.3) [12]	87.1 (6.7) [11]	83.6 (9.1) [11]	81.6 (9.3) [8]	88.7 (5.9) [7]	87.7 (6.1) [6]
	<i>MED</i>	86.3 (11.4) [12]	82.6 (11.0) [11]	83.2 (11.8) [11]	79.5 (8.6) [8]	84.9 (5.1) [7]	85.8 (3.8) [5]
	<i>HIGH</i>	87.3 (10.0) [10]	86.7 (9.9) [11]	82.8 (10.8) [11]	80.3 (8.2) [6]	84.7 (8.7) [6]	85.5 (7.3) [4]
	<i>V-HIGH</i>	78.9 (10.3) [10]	81.1 (10.7) [8]	75.6 (11.6) [6]	62.0 (22.0) [3]	76.0 (-) [1]	80.0 (-) [1]

Data presented are mean (SD), the number of participants who completed the test is shown in square brackets.

Table 3: Visual Go/No Go accuracy data for men and women measured in four load configurations during each hour of the march.

		<i>Hour 1</i>		<i>Hour 2</i>		<i>Hour 3</i>	
		<i>Minute 5</i>	<i>Minute 20</i>	<i>Minute 5</i>	<i>Minute 20</i>	<i>Minute 5</i>	<i>Minute 20</i>
<i>Men</i>	<i>LOW</i>	83.7 (13.8) [12]	85.8 (12.0) [12]	88.8 (7.4) [11]	86.8 (9.3) [11]	87.7 (9.1) [11]	84.5 (12.1) [11]
	<i>MED</i>	81.3 (15.9) [10]	69.4 (26.1) [11]	69.4 (21.4) [11]	73.8 (26.3) [10]	75.7 (16.7) [10]	77.2 (20.0) [10]
	<i>HIGH</i>	75.2 (19.9) [9]	69.2 (26.2) [10]	73.9 (21.8) [9]	82.2 (15.5) [9]	78.7 (16.9) [9]	76.5 (18.0) [9]
	<i>V-HIGH</i>	81.8 (14.0) [11]	82.1 (16.2) [11]	83.0 (16.0) [10]	87.8 (7.7) [9]	85.7 (8.9) [7]	83.8 (12.4) [7]
<i>Women</i>	<i>LOW</i>	84.5 (7.4) [7]	90.4 (6.0) [8]	86.0 (7.7) [8]	82.5 (15.5) [8]	71.5 (118.2) [8]	88.3 (8.2) [7]
	<i>MED</i>	70.5 (11.9) [7]	81.7 (16.6) [8]	72.5 (20.2) [6]	79.7 (20.8) [6]	77.8 (18.0) [6]	85.0 (18.3) [5]
	<i>HIGH</i>	72.4 (12.4) [7]	66.4 (18.2) [7]	86.0 (6.3) [8]	78.1 (13.7) [7]	76.7 (18.7) [5]	70.7 (23.2) [5]
	<i>V-HIGH</i>	79.4 (10.8) [6]	69.8 (12.1) [7]	82.1 (7.0) [4]	75.0 (13.0) [3]	85.0 (7.1) [2]	65.0 (35.4) [2]

Data presented are mean (SD). The number of participants who completed the test is shown in square brackets.

Table 4: Auditory Go/No Go accuracy data for men and women measured in four load configurations during each hour of the march.

		<i>Hour 1</i>		<i>Hour 2</i>		<i>Hour 3</i>	
		<i>Minute 10</i>	<i>Minute 25</i>	<i>Minute 10</i>	<i>Minute 25</i>	<i>Minute 10</i>	<i>Minute 25</i>
<i>Men</i>	<i>LOW</i>	96.5 (3.5) [8]	96.7 (6.8) [8]	95.6 (6.7) [8]	94.8 (6.8) [8]	95.4 (6.0) [8]	93.1 (11.8) [8]
	<i>MED</i>	96.0 (5.9) [8]	94.4 (6.6) [8]	95.7 (6.4) [7]	94.5 (6.0) [7]	95.0 (7.6) [8]	95.2 (5.5) [8]
	<i>HIGH</i>	97.3 (6.4) [8]	95.4 (5.0) [8]	96.2 (7.3) [8]	94.8 (9.4) [8]	93.5 (8.4) [8]	95.8 (6.7) [8]
	<i>V-HIGH</i>	95.7 (8.5) [7]	95.5 (8.4) [7]	93.8 (8.0) [7]	94.2 (6.8) [6]	97.3 (2.5) [5]	94.3 (6.5) [5]
<i>Women</i>	<i>LOW</i>	94.8 (4.6) [9]	96.7 (4.1) [9]	94.4 (4.6) [8]	95.2 (3.1) [8]	94.0 (6.0) [8]	95.8 (3.1) [6]
	<i>MED</i>	93.6 (6.6) [7]	92.4 (7.4) [7]	89.5 (5.8) [7]	89.6 (7.6) [5]	93.9 (4.2) [3]	91.3 (7.6) [4]
	<i>HIGH</i>	94.3 (4.6) [7]	93.6 (4.7) [7]	89.3 (7.3) [7]	83.9 (18.2) [6]	87.7 (5.8) [5]	86.3 (17.7) [4]
	<i>V-HIGH</i>	95.7 (3.8) [5]	86.4 (12.8) [6]	88.0 (7.2) [5]	82.1 (14.9) [4]	82.8 (10.2) [3]	77.2 (15.5) [3]

Data presented are mean (SD). The number of participants who completed the test is shown in square brackets.

Table 5: Rating of Perceived Exertion in Men Measured During the Exercise Test.

	Hour 1				Hour 2				Hour 3			
	BA	AO	PO	MO	BA	AO	PO	MO	BA	AO	PO	MO
N	12	12	11	10	12	12	11	8	11	11	11	7
Minimum	6	6	6	7	6	6	6	7	6	6	7	8
Maximum	11	13	12	15	11	13	13	15	12	16	14	19
Median	6.5	7	9 <sup>ab</sup>	11.5	7 <sup>†</sup>	7 <sup>†</sup>	10 <sup>ab†</sup>	10.5	7 <sup>†</sup>	8.5 <sup>†</sup>	10 <sup>†</sup>	13

Notes: Data presented is for the end of each hour. "a" indicates where a difference from BA was observed; "b" indicates where a difference from AO was observed; † indicates a difference from the start of hour 1 ( $p < 0.05$ ).

Table 6: Rating of Perceived Exertion in Women Measured During the Exercise Test.

	Hour 1				Hour 2				Hour 3			
	BA	AO	PO	MO	BA	AO	PO	MO	BA	AO	PO	MO
N	9	8	7	6	8	6	6	3	6	5	4	2
Minimum	7	7	8	12	7	7	8	13	7	7	8	13
Maximum	9	10	12	17	13	12	14	20	12	14	14	17
Median	8.0	8.5	10.0 <sup>a</sup>	14.0 <sup>*</sup>	8.5 <sup>*</sup>	9.5	12.0 <sup>a†</sup>	15.0	9.0 <sup>†</sup>	11.0	11.0 <sup>a†</sup>	15.0

Notes: Data presented is for the end of each hour. "a" indicates where a difference from BA was observed; † indicates a difference from the start of hour ; \* indicates a difference from men ( $p < 0.05$ ).