2020 0601 HyperMax MB+I+S+H+C+OS 88yoF – Effects of Exercise + Hyperoxia on Health Parameters

Marker	2020 0108 11:00AM Fasted, Rested	2020 0601 HyperMax Elliptical Exercise 10:23AM Pre	11:00AM After	11:34AM +30 min	Reference Range
DNA Viruses – Plasma	NA	ND	ND	ND	Not Detected
DNA Parasites – Plasma	NA	ND	ND	ND	Not Detected
DNA Fungi – Plasma	NA	ND	ND	ND	Not Detected
DNA Bacteria – Plasma	3O	3 O	ND	ND	Not Detected
WBC	NA	7121	8636	6376	4000 - 11000 Cells/uL
Lymphocyte, Absolute	NA	2092	3295	2118	600 - 5500 Cells/uL
Lymphocyte, Percent	NA	29	38	33	10 - 45 %
CD3, Absolute (T cells)	NA	1679	2601	1629	606 - 3187 /uL
CD3, Percent (T cells)	NA	76.9	77.3	77.5	61.0 - 80.0 %
CD4, Absolute (T helper cells)	NA	570	819	580	365 - 2087 /uL
CD4, Percent (T helper cells)	NA	27.2L	24.9H	27.4H	37.0 - 52.0 %
CD8, Absolute (T suppressor cells)	NA	923	1455H	957	154 - 1264 /uL
CD8, Percent (T suppressor cells)	NA	44.1H	44.2H	45.2H	15.0 - 32.0 %
CD4/CD8 Ratio	NA	0.6L	0.6L	0.6L	1.0 - 3.4 Ratio
CD16/56, Absolute (NK cells)	NA	200	428	176	26 - 497 /uL
CD16/56, Percent (NK cells)	NA	8.8	12.5H	8.4	3.0 - 12.0 %
CD19, Absolute (B cells)	NA	326	330	299	89 - 747 /uL
CD19, Percent (B cells)	NA	14.3	9.6	14.3	9.0 - 19.0 %
WBC	5.40	8.1	9.5	7.0	4.0 - 11.0 k/mm3
RBC	4.34	4.92	5.00	4.61	3.70 – 5.40 m/mm3
Hemoglobin	14.2	14.7	15.1	13.8	11.5 - 16.0 g/dL
Hematocrit	40.3	44.9	45.1	42.5	35.0 - 48.0 %
MCV	92.9	91.3	90.2	92.2	78.0 - 100.0 fL
MCH	32.7H	29.9	30.2	29.9	27.0 - 34.0 pg
MCHC	35.2	32.7	33.5	32.5	31.0 - 37.0 g/dL
Platelet Count	253.0	264	280	231	130 - 450 k/mm3
RDW(sd)	46.1	50.5H	49.1H	51.2H	38.0 - 49.0 fL
RDW(cv)	13.9	15.0	15.0	15.1H	11.0 - 15.0 %
MPV	9.7	9.9	9.7	9.7	7.5 - 14.0 fL
Segmented Neutrophils	2.07	58.1	49.1	55.3	%

Lymphocytes	45.7	32.1	41.9	34.6	%
Monocytes	11.1	7.1	6.5	7.6	%
Eosinophils	3.0	2.1	1.8	2.0	%
Basophils	0.70	0.5	0.6	0.4	%
Absolute Neutrophil	2.07	4.70	4.64	3.84	1.60 - 9.30 k/uL
Absolute Lymphocyte	2.47	2.59	3.97	2.41	0.60 - 5.50 k/uL
Absolute Monocyte	0.60	0.57	0.62	0.53	0.10 - 1.60 k/uL
Absolute Eosinophil	0.16	0.17	0.17	0.14	0.00 - 0.70 k/uL
Absolute Basophil	0.04	0.04	0.06	0.03	0.00 - 0.20 k/uL
Immature Granulocytes	1.1	0.1	0.1	0.1	%
Abs Imm Granulocytes	0.060	0.01	0.01	0.01	0.00 - 0.10 k/uL
NRBC RE, Nucleated RBC Percent	0.0	0.0	0.0	0.0	0.0 - 1.0 %
Glucose	98	114H	103H	113H	65 - 99 mg/dL
Urea Nitrogen (BUN)	27H	19	18	20	8 - 25 mg/dL
Creatinine	1.11H	0.93	1.00	0.93	0.60 - 1.40 mg/dL
GFR Estimated	45L	55L	50L	55L	>=60 mL/min/1.73m2
BUN/Creatinine Ratio	24H	20.4	18	21.5	10.0 - 28.0
Uric Acid	3.5	3.5	3.5	3.4	2.2 - 7.0 mg/dL
Sodium	141	142	142	142	134 - 147 mmol/L
Potassium	4.9	4.0	4.5	4.3	3.6 - 5.3 mmol/L
Chloride	104	106	106	107	95 - 108 mmol/L
Carbon Dioxide (CO2)	23	25	24	25	19 - 31 mmol/L
Anion Gap	NA	11	12	10	4 – 18
Osmolality, Calculated	NA	292	291	292	275 - 295 mOsm/kg
Protein, Total	7.7	7.2	7.6	7.0	6.0 - 8.0 g/dL
Albumin	4.4	4.2	4.4	4.0	3.4 – 4.9 g/dL
Globulin	NA	3.0	3.2	3.0	1.9 - 3.7 g/dL
Albumin/Globulin Ratio	NA	1.4	1.4	1.4	1.0 - 2.5
Cholesterol	246H	229H	244H	229H	<=199 mg/dL
Triglyceride	118	101	121	101	<=149 mg/dL
Calcium	10.2	9.6	9.8	9.4	8.7 - 10.4 mg/dL
Phosphorus (Inorganic)	3.8	3.0	3.4	3.1	2.4 - 4.8 mg/dL
Alkaline Phosphatase	66	69	74	67	42 - 146 IU/L
GGT	13	11	12	11	5 - 60 IU/L
Alanine Aminotransferase	31	29	30	27	5 - 46 IU/L
Aspartate Aminotransferase	31	28	30	27	10 - 41 IU/L

Lactate Dehydrogenase	245	232	241	219	112 - 245 IU/L
Bilirubin, Total	0.5	0.4	0.4	0.4	0.2 - 1.3 mg/dL
Cholesterol/HDL Ratio	3.11	2.4	2.5	2.5	<=4.4
HDL Cholesterol	79	94	98	90	>=50 mg/dL
Non-HDL Cholesterol	167H	135H	146H	139H	<=129 mg/dL
LDL Cholesterol, Calculated	143	115H	122H	119H	<=99 mg/dL
VLDL Cholesterol	NA	20	24	20	<=29 mg/dL
hs-CRP	3.8	8.1	8.4	7.7	≤0.9 mg/L
Albumin		4.1	4.3	4.0	3.5-5.2 g/dL
Estradiol	30.7	<5.0	9.9	6.6	<5-138 pg/mL
FSH	92.4	96.3	105.4	99.1	25.8-134.8 mIU/mL
DHEA-S	44.8	56.4	52.9	55.4	12.0-154.0 µg/dL
LH	47.9	49.9	62.9	58.3	7.7-58.5 mIU/mL
SHBG	99.7	107.8	116.8	107.1	17.3-125.0 nmol/L
Cortisol	15.4	14.2	24.3H	26.9H	6.2-19.4 µg/dL
Testosterone, Total	10.5	7.2	11.4	13.1	4.6-312.6 ng/dL
Free Testosterone	0.09	0.05	0.08	0.1	0.03-2.62 ng/dL
Progesterone	0.246	<0.050	0.198	0.350	0-0.126 ng/mL
Parathyroid Hormone	19	41	55	39	15-65 pg/mL
Estriol	<18.0	<18.0	<18.0	<18.0	≤287.6 pg/mL
Estrone	42.0	39.9	16.7	25.0	16.6-184.9 pg/mL
Prolactin	10.81	12.31	32.57H	29.26H	4.79-23.30 ng/mL
Dihydrotestosterone	<3.2L	<3.2L	<3.2L	<3.2L	6.5-50.1 ng/dL
Pregnenolone	1.93	1.97	2.14	2.88	0.38-3.80 ng/mL
Epinephrine	NA	<20	<40	30	<95 pg/mL
Norepinephrine	NA	1737H	3747H	1633H	217-1109 pg/mL
Dopamine	NA	78H	291H	138H	<20 pg/mL
Total (E+N_D)	NA	1815H	4038H	1801H	242-1125 pg/mL
d-ROMs https://www.hedsrl.it/eng/oxidative-stress/what-is-d-roms-test/ Unit of measure: U. Carr 1 U. Carr = 0.08 mg H²O²/dL	NA	260	315	310	250-300 Optimal 300-320 BL 321-340 Low 341-400 Med 401-500 High > 500 Very high
PAT https://www.hedsrl.it/eng/oxidative-stress/what-is-the-pat-test/ Unit of measure: U. Cor	NA	2496	2176	1831	<2800 Very high 2200–2800 Nor 2200–2000 BL

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1 U.Cor = 1.4 µMol/L of ascorbic acid					2000–1800 Slightly def < 1800 Deficient
OBRI https://www.hedsrl.it/eng/obri/ Oxidative Balance Risk Index The cardiovascular risk index	NA	0.9	1.3	1.5	0.8-1.2 Normal 1.3-1.7 Borderline 1.8-2.2 High >2.2 Very High
OSI Redox https://www.hedsrl.it/eng/osi/ Oxidative Stress Index Summary value of oxid stress	NA	11	38	60	<40 Normal 41-65 Borderline 66-120 High >121 Very High
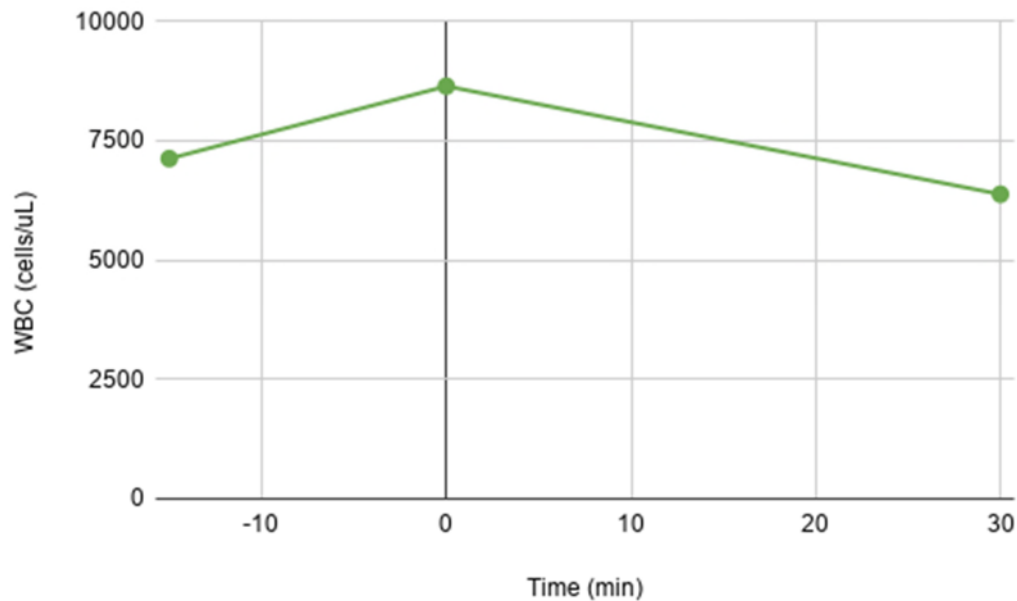
WBC increase acutely with HyperMax Training

After training with HyperMax Oxygen a few months, WBC are now higher
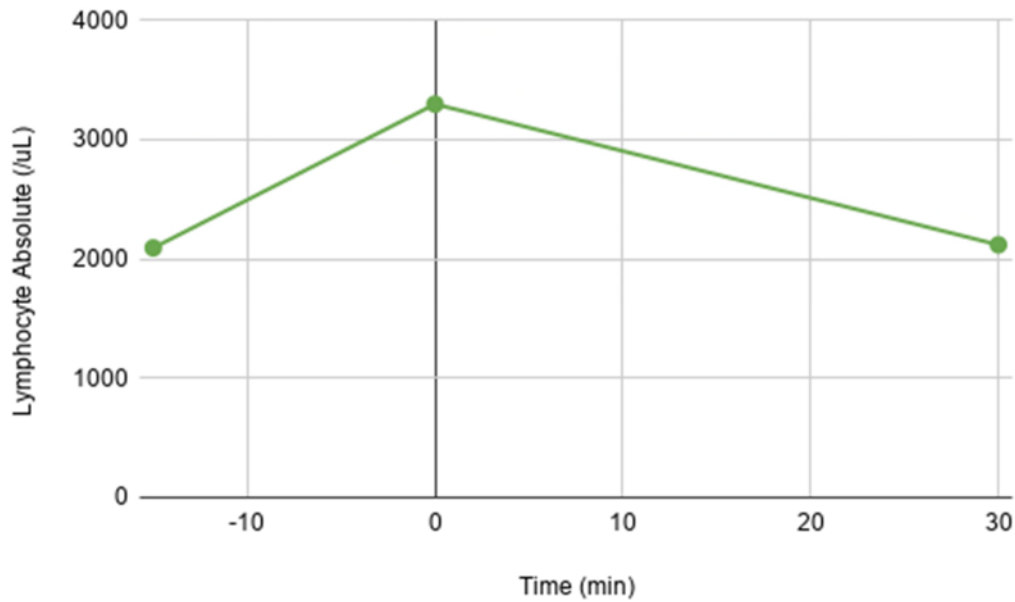
Lymphocytes increase acutely with HyperMax Training

After training with HyperMax Oxygen a few months, Lymphocytes are now higher
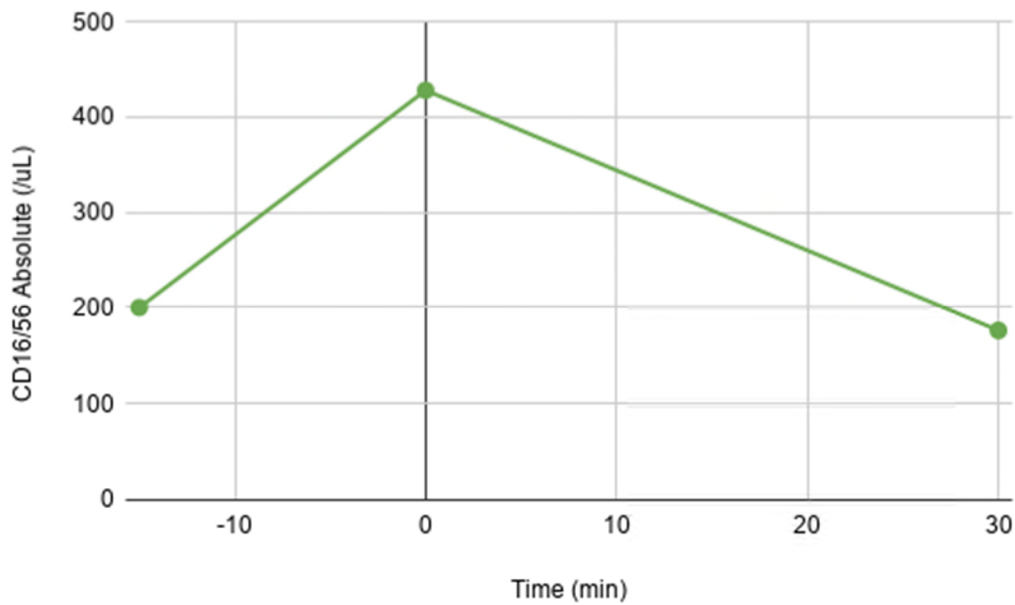
NK cells increase acutely with HyperMax Training

After training with HyperMax Oxygen a few months, NK Cells are now higher

Subject background:
- 88 year old female with history of lymphoma and 2 years earlier had a spider bite
- Note that our testing was done two years after the spider bite and two species of Friedmanniella bacteria were identified. These bacteria are not commonly identified in humans and typically associated with environmental/insect/spider samples. Streptomyces graminis was also identified at very low levels and is a common soil microorganism.
- After a single session, no evidence of bacteria were found in the post-exercise specimens analyzed!

Exercise Protocol
- On 2020 0601
  - First blood draw at 10:23, before exercise, called Pre
  - Performed 15 min of Elliptical exercise while breathing through mask and connected to O2 bag
  - Second blood draw at 11:00, after exercise, called After
  - Third blood draw at 11:34, 30 minutes after exercise, called +30 min

Results:
- If you compare blood draw on 1/08/20 (before Hypermax O2) vs 6/1/20
  - This individual had done zero HyperMax sessions prior to this data and notice organisms were found in her blood!
  - After chronic training, Hypermax O2 significantly increased WBCs, RBCs, hemoglobin, hematocrit, neutrophils, lymphocytes, DHEAS, LH, SHBG, Prolatin
- No negative effects of Hypermax on liver or kidney function markers, indicating this is safe
- Kidney function appears to have improved
- If you compare blood draw before exercise with Hypermax O2 vs after exrceise on 6/1/20
  - This individual had done zero HyperMax sessions prior to this data and notice organisms were found in her blood!
  - Hypermax O2 eliminated all organisms found in plasma within 15+ minutes
  - Hypermax O2 significantly increased WBCs, lymphocytes, CD3, CD4, CD8, NK cells, CD19, RBCs, platelets, estradiol, FSH, LH, SHBG, cortisol, Testosterone, Free Testosterone, progesterone, PTH, prolactin, pregnenolone
- No negative effects of Hypermax on liver or kidney function markers, indicating this is safe
- She has noticed significant improvements
- Reviewing this data with respect to:
  - Immunity Boosting – data shows improvements in immune parameters
  - Disease and Virus fighting/preventative – direct evidence – shows elimination of plasma organisms detected
  - Lung Health – no evidence, cannot measure adequately using Massimo
    - See https://www.cosmed.com/en/products/cardio-pulmonary-exercise-test/quark-rmr
    - https://www.cosmed.com/en/products/pulmonary-function/q-box
  - Youthfulness qualities – subjective evidence based on subject responses
    - Could be improved if we had questionnaire
    - https://link.springer.com/article/10.1023/A:1009524612420

- - https://www.tandfonline.com/doi/abs/10.1080/15298868.2015.1133452?src=recsys&journalCode=psai20
    - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7397859/
  - Weight Loss – no evidence
    - We have tools to measure
    - This needs to be considered as a 3-6 month project
  - Reduction of Depression and Brain Fog – subjective evidence based on subject responses
    - Could be improved if we had questionnaire
    - Go here https://www.mdcalc.com/ type in 'depression'
  - Joint Pain Relief – has no joint issues, no evidence
    - Could be improved if we had questionnaire
    - Go here https://www.mdcalc.com/ type in 'joint pain'
  - Cardiovascular Health – subjective evidence based on subject responses
    - Could be improved if we had EEG or other physiological data
  - Better overall Fitness – subjective evidence based on subject responses
    - Cannot measure adequately using Massimo
    - See https://www.cosmed.com/en/products/stress-testing-ecg
    - https://www.cosmed.com/en/products/ergometers/cosmed-treadmills
    - https://www.cosmed.com/en/products/ergometers/cosmed-bikes