2020 0618 HyperMax EWOT HL RHP MB+I+S+H+C+OS 30yoF

| Marker | 2020 0618 | | | 2020 0619 | Reference Range |
	10:18AM Pre	10:57AM After	12:39PM After HL + RHP	10:14	
DNA Viruses – Plasma	ND	ND	ND	ND	Not Detected
DNA Parasites – Plasma	ND	ND	ND	ND	Not Detected
DNA Fungi – Plasma	ND	ND	ND	ND	Not Detected
DNA Bacteria – Plasma	1O	1O	ND	ND	Not Detected
WBC	3778L	5496	6632	3173L	4000 - 11000 Cells/uL
Lymphocyte, Absolute	1257	2444	1151	1100	600 - 5500 Cells/uL
Lymphocyte, Percent	33	44	17	35	10 - 45 %
CD3, Absolute (T cells)	1056	1658	966	936	606 - 3187 /uL
CD3, Percent (T cells)	83.8H	66.7	82.8H	83.5H	61.0 - 80.0 %
CD4, Absolute (T helper cells)	685	896	645	579	365 - 2087 /uL
CD4, Percent (T helper cells)	54.5H	36.7L	56.0H	52.7H	37.0 - 52.0 %
CD8, Absolute (T suppressor cells)	343	628	276	311	154 - 1264 /uL
CD8, Percent (T suppressor cells)	27.3	25.7	24.0	28.2	15.0 - 32.0 %
CD4/CD8 Ratio	2.0	1.4	2.3	1.9	1.0 - 3.4 Ratio
CD16/56, Absolute (NK cells)	127	681H	105	99	26 - 497 /uL
CD16/56, Percent (NK cells)	10.1	26.9H	8.9	8.7	3.0 - 12.0 %
CD19, Absolute (B cells)	69L	128	80L	80L	89 - 747 /uL
CD19, Percent (B cells)	5.5L	5.1L	6.8L	7.0L	9.0 - 19.0 %
WBC	4.3	6.3	7.5	3.5L	4.0 - 11.0 k/mm3
RBC	3.88	4.22	3.57L	3.50L	4.30 - 6.00 m/mm3
Hemoglobin	12.0	13.1	11.5	11.1L	13.0 - 18.0 g/dL
Hematocrit	37.7	42.4	35.1	34.9L	40.0 - 53.0 %
MCV	97.2	100.5H	98.3	99.7	78.0 - 100.0 fL
MCH	30.9	31.0	32.2	31.7	27.0 - 34.0 pg
MCHC	31.8	30.9L	32.8	31.8	31.0 - 37.0 g/dL
Platelet Count	180	200	146	138	130 - 450 k/mm3
RDW(sd)	48.3	50.7H	48.9	51.0H	38.0 - 49.0 fL
RDW(cv)	13.5	13.6	13.5	14.0	11.0 - 15.0 %
MPV	13.2	12.9	12.8	12.9	7.5 - 14.0 fL
Segmented Neutrophils	57.8	45.5	75.1	54.1	%

Lymphocytes	33.9	46.9	18.7	37.4	%
Monocytes	6.0	5.6	5.1	6.2	%
Eosinophils	1.4	1.1	0.7	1.4	%
Basophils	0.7	0.6	0.3	0.6	%
Absolute Neutrophil	2.49	2.84	5.62	1.91	1.60 - 9.30 k/uL
Absolute Lymphocyte	1.46	2.93	1.40	1.32	0.60 - 5.50 k/uL
Absolute Monocyte	0.26	0.35	0.38	0.22	0.10 - 1.60 k/uL
Absolute Eosinophil	0.06	0.07	0.05	0.05	0.00 - 0.70 k/uL
Absolute Basophil	0.03	0.04	0.02	0.02	0.00 - 0.20 k/uL
Immature Granulocytes	0.2	0.3	0.1	0.3	%
Abs Imm Granulocytes	0.01	0.02	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	79	127H	71	65	65 - 99 mg/dL
Urea Nitrogen (BUN)	16	16	16	17	8 - 25 mg/dL
Creatinine	0.66	0.77	0.64	0.65	0.60 - 1.50 mg/dL
GFR Estimated	118	103	119	119	>=60 mL/min/1.73m2
BUN/Creatinine Ratio	24.2	20.8	25.0	26.2	10.0 - 28.0
Uric Acid	3.4	3.8	3.6	3.4	3.5 - 8.0 mg/dL
Sodium	139	140	139	141	134 - 147 mmol/L
Potassium	4.4	4.1	4.3	4.2	3.6 - 5.3 mmol/L
Chloride	102	99	105	104	95 - 108 mmol/L
Carbon Dioxide (CO2)	27	17L	24	21	19 - 31 mmol/L
Anion Gap	11	23H	10	16	4 – 18
Osmolality, Calculated	284	288	283	287	275 - 295 mOsm/kg
Protein, Total	6.5	7.2	6.1	6.1	6.0 - 8.0 g/dL
Albumin	4.4	4.9	4.1	4.3	3.6 - 5.1 g/dL
Globulin	2.1	2.3	2.1	1.8L	1.9 - 3.7 g/dL
Albumin/Globulin Ratio	2.0	2.2	2.0	2.3	1.0 - 2.5
Cholesterol	189	213H	178	176	<=199 mg/dL
Triglyceride	46	67	32	67	<=149 mg/dL
Calcium	9.0	9.3	8.8	8.7	8.7 - 10.4 mg/dL
Phosphorus (Inorganic)	3.6	4.2	3.1	3.4	2.4 - 4.8 mg/dL
Alkaline Phosphatase	34	39	29L	31L	40 - 140 IU/L
GGT	8	8	7	9	5 - 80 IU/L
Alanine Aminotransferase	23	27	25	28	5 - 60 IU/L
Aspartate Aminotransferase	26	32	28	28	10 - 50 IU/L

Lactate Dehydrogenase	144	186	185	160	112 - 245 IU/L
Bilirubin, Total	0.2	0.3	0.4	0.4	0.2 - 1.3 mg/dL
Cholesterol/HDL Ratio	3.3	3.3	3.4	36	<=4.9
HDL Cholesterol	57	64	53	49L	>=40 mg/dL
Non-HDL Cholesterol	132H	149H	125	127	<=129 mg/dL
LDL Cholesterol, Calculated	123H	136H	119H	113H	<=99 mg/dL
VLDL Cholesterol	9	13	<7	3	<=29 mg/dL
hs-CRP	0.6	0.7	0.6	1.0	≤0.9 mg/L
Albumin	4.4	5.1	4.2	4.2	3.5-5.2 g/dL
Erythrocyte Sedimentation Rate	8	6		10	<=15 mm/hr
Estradiol	163.1	226.4	155.1	191.5	25.8~60.7 pg/mL
FSH	2.5	2.8	2.3	2.0	1.5~12.4 mIU/mL
DHEA-S	136.4	148.7	140.6	124.4	88.9~427.0 µg/dL
LH	4.0	5.3	2.2	2.9	1.7~8.6 mIU/mL
SHBG	95.1	107.3	83.9	93.3	16.5~55.9 nmol/L
Cortisol	10.0	17.4	9.7	8.1	6.2-19.4 µg/dL
Testosterone, Total	26.8	37.7	27.1	18.1	200.5~1437.8 ng/dL
Free Testosterone	0.23	0.28	0.29	0.16	4.09~37.37 ng/dL
Progesterone	10.110	10.290	9.200	14.450	≤0.149 ng/mL
Parathyroid Hormone	49	65	76H	37	15~65 pg/mL
Estriol	<18.0	<18.0	<18.0	<18.0	≤200.8 pg/mL
Estrone	63.0	81.3	46.3	101.3	10.2~49.9 pg/mL
Prolactin	11.15	52.33H	11.08	10.98	4.04~15.20 ng/mL
Dihydrotestosterone	3.9L	5.3L	<3.2L	3.3L	14.8~101.8 ng/dL
Pregnenolone	1.54	1.43	1.12	1.18	0.38~3.50 ng/mL
Epinephrine	41	52	42	28	<95 pg/mL
Norepinephrine	316	959	304	271	217-1109 pg/mL
Dopamine	26H	153H	14	13	<20 pg/mL
Total (E+N_D)	383	1164H	360	312	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	278	306	175	243	250-300 Optimal value 300-320 Border line 321-340 Low ox stress 341-400 Med ox stress 401-500 High ox stress > 500 Very high ox stress
PAT	2537	3434	2572	2208	<2800 Very high

https://www.hedsrl.it/eng/oxidative-stress/what-is-the-pat-test/ Unit of measure: U. Cor 1 U.Cor = 1.4 µMol/L of ascorbic acid					2200–2800 Normal 2200–2000 BL low 2000–1800 Slightly def < 1800 Deficient
OBRI https://www.hedsrl.it/eng/obri/ Oxidative Balance Risk Index The cardiovascular risk index	0.9	0.8	0.6	1.0	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	4	29	57	34	<40 Normal 41-65 Borderline 66-120 High >121 Very High

Subject background:
- 30 year old female
- Has a history of physical pain issues
- When she came in we asked her to get tested and she was excited, I believe her husband purchased a system

Exercise Protocol
- On 2020 0521
  - First blood draw at 10:18, before exercise, called Pre
  - Performed 15 min of Elliptical exercise while breathing through mask and connected to O2 bag
  - Second blood draw at 10:67, after exercise, called After
  - Third blood draw at 12:39, after HL (UVBI) + RHP (blood ozone dialysis)

Results:
- If you compare results at each time point:
  - Bacterium found in plasma, this was still there after EWOT, but was eliminated after HL + RHP. This indicates that combining Hypermax Exercise with medical therapies may enhance outcomes. This individual had never done EWOT prior to this data and notice organisms were found in her blood!
  - No evidence of any organisms after combo therapies
  - Hypermax O2 significantly increases WBCs, lymphocytes, NK cells, and platelets
- No negative effects of Hypermax on liver or kidney function markers, indicating this is safe
- Notice most hormones were higher immediately posy HyperMax training, especially: DHEA-S, LH, SHBG, Cortisol, Total Testosterone, Free Testosterone, Dihydrotestosterone and Pregnenolone

- Reviewing this data with respect to:

- o Immunity Boosting – data shows increase in immune parameters
- o Disease and Virus fighting/preventative – indirect evidence
- o 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
- o 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/
- o Weight Loss – no evidence
    - We have tools to measure
    - This needs to be considered as a 3-6 month project
- o 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'
- o Joint Pain Relief – pain decreased
    - Could be improved if we had questionnaire
    - Go here https://www.mdcalc.com/ type in 'joint pain'
- o Cardiovascular Health – subjective evidence based on subject responses
    - Could be improved if we had EEG or other physiological data
- o 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