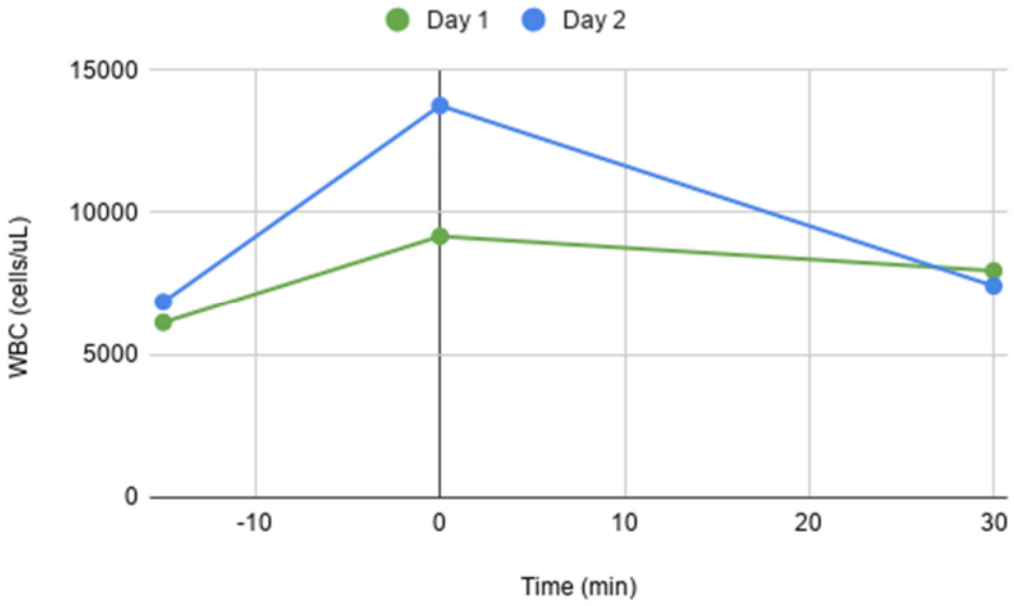
2020 0521 HyperMax MB+I+S+H+OS 37yoM – Effects of Hyperoxia During Exercise 2 Days in a Row

Marker	2020 0521 HyperMax Rogue Echo			2020 0522 HyperMax Rogue Echo			Reference Range
	13:30PM Pre	14:14PM After	15:15PM +30 min	9:40AM Pre	10:11AM After	10:45AM +30 min	
DNA Viruses – Plasma	ND	ND	ND	ND	ND	ND	Not Detected
DNA Parasites – Plasma	ND	ND	ND	ND	ND	ND	Not Detected
DNA Fungi – Plasma	ND	ND	3 O	1 O	ND	ND	Not Detected
DNA Bacteria – Plasma	3 O	23 O	9 O	1 O	ND	ND	Not Detected
WBC	6125	9170	7960	6858	13748	7428	4000 - 11000 Cells/uL
Lymphocyte, Absolute	1624	3114	1908	1703	5096	1730	600 - 5500 Cells/uL
Lymphocyte, Percent	27	34	24	25	37	23	10 - 45 %
CD3, Absolute (T cells)	1156	1909	1379	1178	2715	1213	606 - 3187 /uL
CD3, Percent (T cells)	68.8	60.7L	72.7	68.6	52.3L	70.2	61.0 - 80.0 %
CD4, Absolute (T helper cells)	746	1222	957	784	1520	799	365 - 2087 /uL
CD4, Percent (T helper cells)	46.0	39.2	50.1	46.0	29.8L	46.2	37.0 - 52.0 %
CD8, Absolute (T suppressor cells)	320	539	356	328	957	348	154 - 1264 /uL
CD8, Percent (T suppressor cells)	19.7	17.3	18.7	19.3	18.8	20.1	15.0 - 32.0 %
CD4/CD8 Ratio	2.3	2.3	2.7	2.4	1.6	2.3	1.0 - 3.4 Ratio
CD16/56, Absolute (NK cells)	245	719H	178	231	1777H	209	26 - 497 /uL
CD16/56, Percent (NK cells)	14.1H	22.7H	9.5	13.4H	33.6H	12.1H	3.0 - 12.0 %
CD19, Absolute (B cells)	277	449	305	282	662	257	89 - 747 /uL
CD19, Percent (B cells)	16.0	14.1	16.2	16.3	12.5	14.9	9.0 - 19.0 %
WBC	6.4	9.4	7.0	6.7	11.3H	6.8	4.0 - 11.0 k/mm3
RBC	4.86	5.22	4.87	4.62	4.87	4.62	4.30 - 6.00 m/mm3
Hemoglobin	15.2	16.4	15.3	14.4	15.0	14.1	13.0 - 18.0 g/dL
Hematocrit	44.0	48.5	43.7	41.8	45.7	41.7	40.0 - 53.0 %
MCV	90.5	92.9	89.7	90.5	93.8	90.3	78.0 - 100.0 fL
MCH	31.3	31.4	31.4	31.2	30.8	30.5	27.0 - 34.0 pg
MCHC	34.5	33.8	35.0	34.4	32.8	33.8	31.0 - 37.0 g/dL
Platelet Count	235	320	230	232	349	247	130 - 450 k/mm3
RDW(sd)	40.8	42.2	40.7	39.8	42.4	40.3	38.0 - 49.0 fL
RDW(cv)	12.4	12.4	12.4	12.2	12.2	12.2	11.0 - 15.0 %
MPV	11.7	11.7	11.4	11.3	11.7	11.6	7.5 - 14.0 fL
Segmented Neutrophils	58.7	52.9	61.3	61.9	52.6	64.2	%

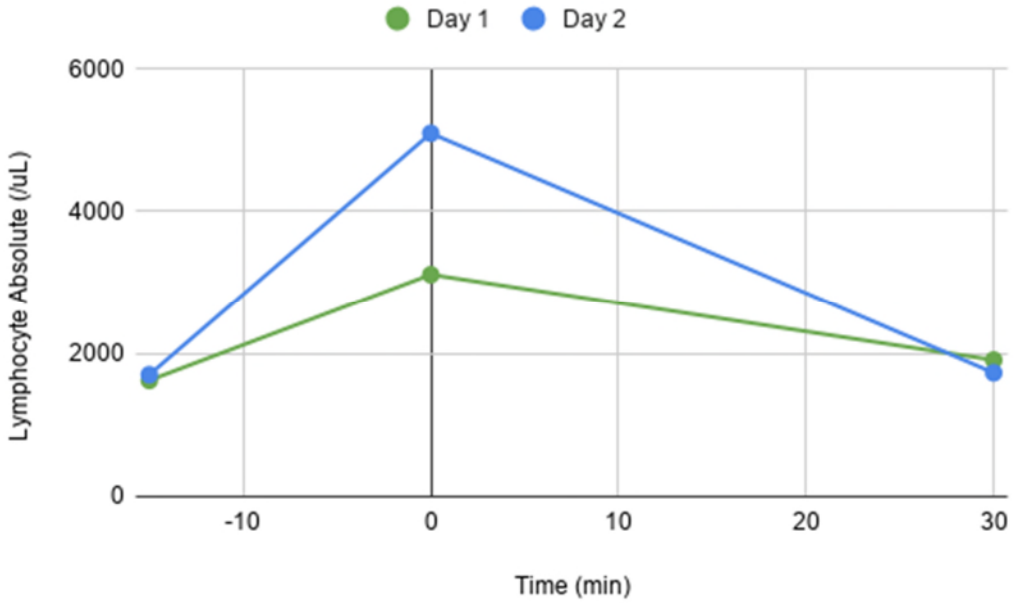
Lymphocytes	27.6	34.7	25.2	25.0	35.2	23.0	%
Monocytes	9.6	9.3	9.6	9.2	9.4	9.6	%
Eosinophils	3.6	2.5	3.2	3.3	2.2	2.7	%
Basophils	0.3	0.5	0.4	0.3	0.4	0.4	%
Absolute Neutrophil	3.75	4.97	4.28	4.16	5.92	4.35	1.60 - 9.30 k/uL
Absolute Lymphocyte	1.76	3.27	1.76	1.68	3.96	1.56	0.60 - 5.50 k/uL
Absolute Monocyte	0.61	0.88	0.67	0.62	1.06	0.65	0.10 - 1.60 k/uL
Absolute Eosinophil	0.23	0.24	0.22	0.22	0.25	0.18	0.00 - 0.70 k/uL
Absolute Basophil	0.02	0.05	0.03	0.02	0.04	0.03	0.00 - 0.20 k/uL
Immature Granulocytes	0.2	0.1	0.3	0.3	0.2	0.1	%
Abs Imm Granulocytes	0.01	0.01	0.02	0.02	0.02	0.01	0.00 - 0.10 k/uL
NRBC RE, Nucleated RBC Percent	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 1.0 %
Glucose	88	119 H	104H	98	152 H	100H	65 - 99 mg/dL
Urea Nitrogen (BUN)	23	24	24	25	25	24	8 - 25 mg/dL
Creatinine	1.09	1.22	1.05	1.07	1.35	1.25	0.60 - 1.50 mg/dL
GFR Estimated	86	75	90	88	66	73	>=60 mL/min/1.73m2
BUN/Creatinine Ratio	21.1	19.7	22.9	23.4	18.5	19.2	10.0 - 28.0
Uric Acid	4.7	5.0	5.3	4.4	5.1	5.9	3.5 - 8.0 mg/dL
Sodium	140	140	138	141	143	138	134 - 147 mmol/L
Potassium	4.3	4.7	4.1	4.5	4.6	4.4	3.6 - 5.3 mmol/L
Chloride	101	100	101	104	103	100	95 - 108 mmol/L
Carbon Dioxide (CO2)	25	24	23	25	14L	21	19 - 31 mmol/L
Anion Gap	13	17	14	12	26H	17	4 – 18
Osmolality, Calculated	288	291	286	292	299H	286	275 - 295 mOsm/kg
Protein, Total	7.6	8.3H	7.5	7.2	8.0	7.2	6.0 - 8.0 g/dL
Albumin	5.2H	5.1	5.1	4.7	5.2H	4.6	3.6 - 5.1 g/dL
Globulin	2.4	3.2	2.4	2.5	2.9	2.6	1.9 - 3.7 g/dL
Albumin/Globulin Ratio	2.2	1.6	2.1	1.8	1.8	1.8	1.0 - 2.5
Cholesterol	172	197	170	157	172	154	<=199 mg/dL
Triglyceride	38	53	41	34	68	29	<=149 mg/dL
Calcium	10.5	10.8H	10.3	9.9	10.7H	9.9	8.7 - 10.4 mg/dL
Phosphorus (Inorganic)	3.7	5.1H	4.2	3.9	5.5H	3.9	2.4 - 4.8 mg/dL
Alkaline Phosphatase	40	46	40	40	48	40	40 - 140 IU/L
GGT	10	11	10	9	10	10	5 - 80 IU/L
Alanine Aminotransferase	13	18	14	15	15	14	5 - 60 IU/L

Aspartate Aminotransferase	25	23	22	19	21	22	10 - 50 IU/L
Lactate Dehydrogenase	164	196	164	138	180	159	112 - 245 IU/L
Bilirubin, Total	0.4	0.5	0.5	0.2	0.3	0.2	0.2 - 1.3 mg/dL
Cholesterol/HDL Ratio	3.0	3.2	3.0	2.9	2.9	2.9	<=4.9
HDL Cholesterol	57	62	56	55	60	54	>=40 mg/dL
Non-HDL Cholesterol	115	135H	114	102	112	100	<=129 mg/dL
LDL Cholesterol, Calculated	108 H	124H	106H	95	98	94	<=99 mg/dL
VLDL Cholesterol	8	11	8	<7	14	<7	<=29 mg/dL
VA IgM, IgG, IgA	Neg		Neg	Neg		Neg	
hs-CRP	0.4	0.5	0.4	0.4	0.5	0.4	≤0.9 mg/L
Insulin	4.2	5.9	7.6				2.6-24.9 µU/mL
Albumin	5.0	5.4H	5.0	4.8	5.4H	5.0	3.5-5.2 g/dL
Erythrocyte Sedimentation Rate	7	7	9	10	10	8	<=15 mm/hr
Estradiol	9.8L	23.8L	23.6L	12.6L	16.8L	19.1L	25.8~60.7 pg/mL
FSH	4.8	5.1	4.7	5.2	5.5	5.0	1.5~12.4 mIU/mL
DHEA-S	265.0	279.9	281.8	287.4	316.6	323.7	88.9~427.0 µg/dL
LH	2.4	2.8	2.2	4.7	4.7	3.7	1.7~8.6 mIU/mL
SHBG	77.4H	89.1H	83.6H	76.8H	88.6H	80.2H	16.5~55.9 nmol/L
Cortisol	6.6	11.6	14.6H	7.0	13.5	19.6H	6.2-19.4 µg/dL
Testosterone, Total	735.3	784.1	637.6	707.8	912.1	686.1	200.5~1437.8 ng/dL
Free Testosterone	8.46	7.91	6.72	8.25	9.52	7.57	4.09~37.37 ng/dL
Progesterone	0.083	0.246H	0.357H	0.077	0.243H	0.444H	≤0.149 ng/mL
Parathyroid Hormone	18	31	21	23	19	27	15~65 pg/mL
Estriol	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	≤200.8 pg/mL
Estrone	29.9	<9.0L	27.7	21.2	28.2	16.8	10.2~49.9 pg/mL
Prolactin	12.02	19.33H	16.30H	9.68	25.60H	21.78H	4.04~15.20 ng/mL
Dihydrotestosterone	86.5	73.2	73.0	90.2	93.4	88.6	14.8~101.8 ng/dL
Pregnenolone	0.83	1.55	0.71	0.96	0.99	0.96	0.38~3.50 ng/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 H^2O^2/dL	414	519	464	404	548	392	250-300 Optimal value 300-320 Border line 321-340 Low ox stress 341-400 Med ox stress

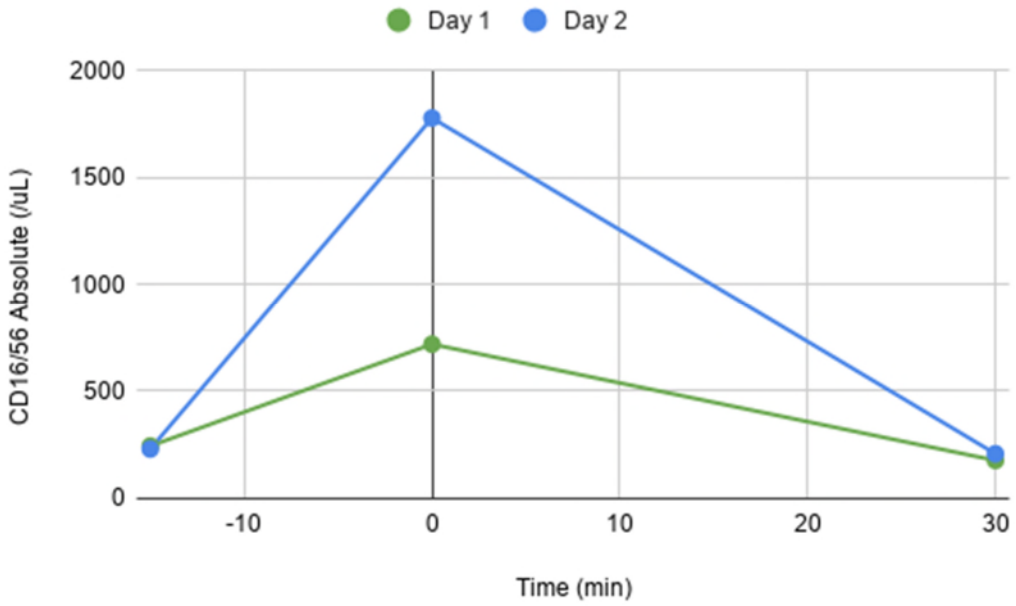
							401-500 High ox stress > 500 Very high ox stress
PAT https://www.hedsrl.it/eng/oxidative-stress/what-is-the-pat-test/ Unit of measure: U. Cor 1 U.Cor = 1.4 µMol/L of ascorbic acid	2842	2599	2971	1713	3302	1244	<2800 Very high 2200–2800 Normal 2200–2000 BL low 2000–1800 Slightly def < 1800 Deficient
OBRI https://www.hedsrl.it/eng/obri/ Oxidative Balance Risk Index The cardiovascular risk index	1.3	1.8	1.4	2.1	1.5	2.8	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	79	139	108	98	157	120	<40 Normal 41-65 Borderline 66-120 High >121 Very High



WBC counts hire on 2nd day of hyperoxic exercise

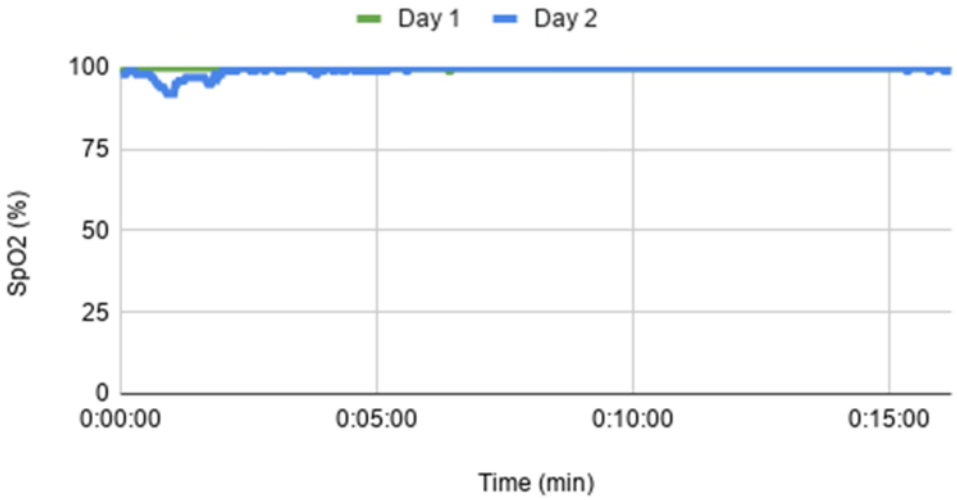


Lymphocyte counts hire on 2nd day of hyperoxic exercise



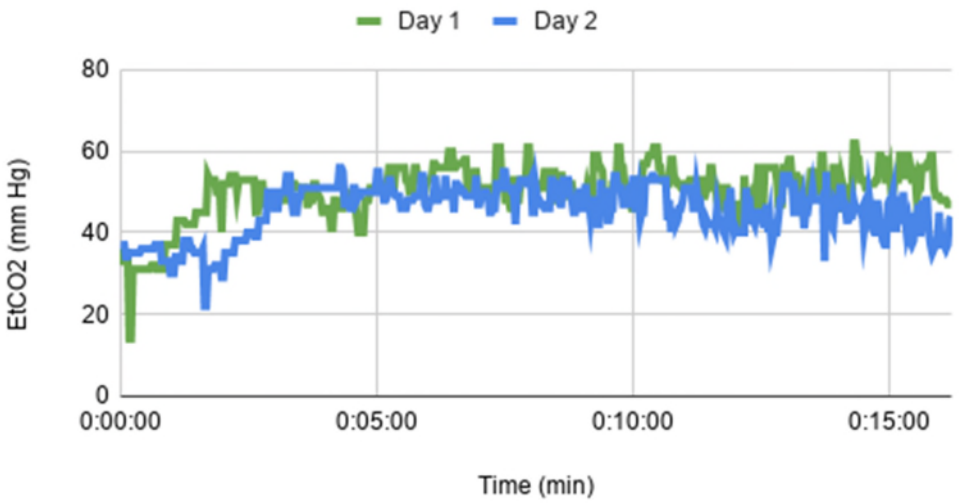
NK Cell counts hire on 2nd day of hyperoxic exercise

LRS

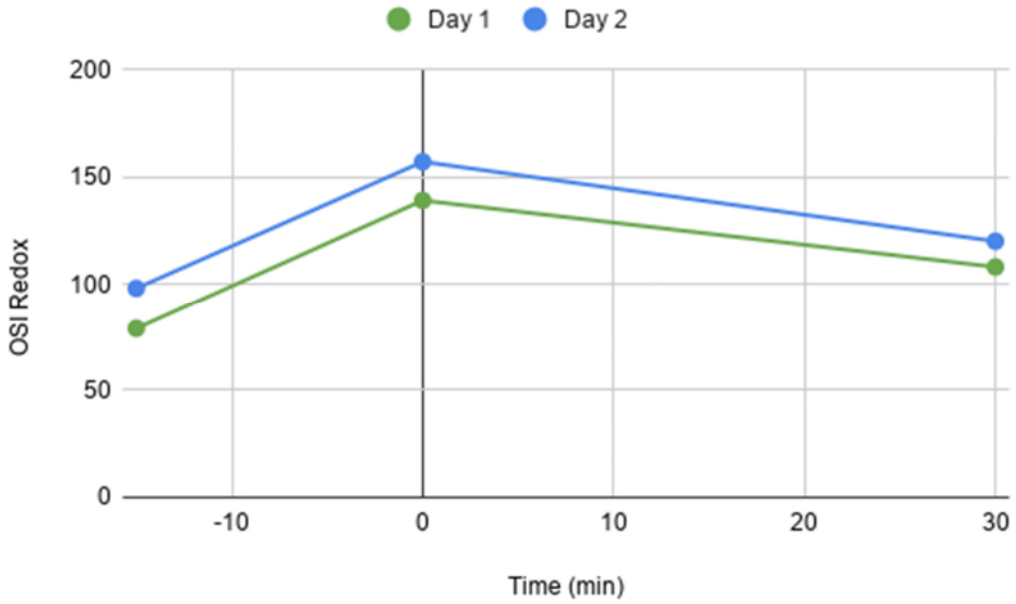


O2 saturation at 100% most of the time on both days

LRS



EtCO2 lower on 2nd day of hyperoxic exercise



Oxidative stress hire on 2nd day of hyperoxic exercise

Subject background:

- 37 year old male

Exercise Protocol

- On 2020 0521
  - First blood draw at 15:30, before exercise, called Pre
  - Performed 15 min of Rogue Echo cycling exercise while breathing through mask and connected to O2 bag
  - Second blood draw at 14:14, after exercise, called After
  - Third blood draw at 15:15, 30 minutes after exercise, called +30 min
- 2020 0514
  - First blood draw at 9:40, before exercise, called Pre
  - Performed 15 min of Rogue Echo cycling exercise while breathing through mask and connected to O2 bag
  - Second blood draw at 10:11, after exercise, called After
  - Third blood draw at 11:45, 30 minutes after exercise, called +30 min

Results:

- If you compare first day of exercise with Hypermax O2 vs second day of exercise with Hypermax O2:
  - This individual had done zero hyperoxia exercise sessions prior to this data and notice organisms were found in his blood!
  - Hypermax O2 eliminated all organisms found in plasma by second day
  - Hypermax O2 significantly increases WBCs, lymphocytes, NK cells, and platelets even more on second day!
- No negative effects of Hypermax on liver or kidney function markers, indicating this is safe
- Notice most hormones were higher on the second day of testing, especially: DHEA-S, LH, SHBG, Cortisol, Total Testosterone, Free Testosterone, Dihydrotestosterone and Pregnenolone

- Reviewing this data with respect to:
  - Immunity Boosting – data shows increase 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 – not applicable, he has no joint issues
        - 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