ENDOTHERAPIA
ADVANCED DIAGNOSTIC TOOLS

BIOCHEMICAL REPORT

T***** C****

TABLE OF CONTENTS

INITIAL REPORT

Brief report and diagnostic recommendations

C**** T***** - 53 y.o.

HEALTH DATA AND GOALS

Joint/muscle pain
Morning stiffness
Polypharmacy
Dietary guidelines formulation

SUMMARY

C**** T*****, 53yo, reports he has been experiencing joint pain since he was 20 years old. Specifically, it prevented him from playing with his children. He visited a rheumatologist who diagnosed rheumatoid arthritis. In 2003, he started taking Enbrel. Although it helped initially, he continued to have symptoms and doubled the dose for four years after which he reduced it again. By 2020 he had sporadic and mild discomfort with this scheme.

In 2020 he developed an infection after an accident for which he took extensive antibiotics. Thereafter he presented with symptoms of knee pain. The swelling appeared in the other knee as well and he was put on cortisone. When the pain spread to the shoulders, he stopped the Enbrel and was placed on Remicade, which seemed to significantly worsen his symptoms. Despite this, the dose was increased with corresponding deterioration. In January 2021 he stopped the Remicade and was started on a different biological agent, Kevzara. In the last 1.5 months the symptoms have worsened. Currently he reports pain in the hips, knees, wrists. There is no clear trigger and he cannot relate the pain to a particular food or sleep.

Useful data:

- Vegan diet of no help
- Family history of gastric and lung cancer
- Morning stiffness that lasts up to 1 hour
- Neuropathy after right ankle arthroscopy
- Polypharmacy
- Allergies
- Poor dietary habits

Indicative daily meal program

06:30 — **Awakening**

08:30
- Tea

14:00
- Oatmeal

14:30
- Eggs
- Muffins+honey

18:00
- Rice w/lentils
- Chicken w/rice
- Red meat w/starch
- Fish w/rice
- Sweet

22:00 — **Sleep**

Other information

Rx

Kevzara	Valtrex
Zirtek	Magnesium
Celebrex	Multivitamin
Allegra	D_3
Prednisone	Quercetin

General

Weight: 75kg
Height: 173cm
BMI: 25.1
Hydration: >20 glasses/day
Exercise: 3x week (currently)

DIET STATISTICS

Dairy	1	
Sweet	7	
Tea	7	Chai
Wheat products	5	
Juice	0	
Coffee	1	
Soda	0	
Chicken/Poultry	3	
Red meat	1	
Fish	3	
Pasta	1	
Rice	5	
Potatoes	1	
Eggs	5	

DIAGNOSTICS

1. Biochemistry blood tests

- IGF-1
- Prolactin
- 25(OH)vitamin D3
- PTH
- TSH
- fT4
- Fasting insulin
- Homocysteine
- Total IgA
- Total IgE
- Total IgG
- C3
- C4
- Folate
- Vitamin B12
- Iron
- Magnesium
- Selenium
- Calcium
- Zinc
- Ferritin
- Lp(a)
- Albumin
- Creatinine
- Glucose
- Uric acid
- Urea
- SGOT
- SGOT
- γ-GT
- CBC
- Stool calprotectin
- Urinalysis

2. Cytokine quantification

The quantification of specific cytokines may help target the appropriate inflammatory signal.

3. Heavy metal testing

Several heavy metals have been implicated in the pathogenesis and worsening of rheumatopathies.

4. Spine/brain MRI

Due to the nature of the disease and the accident you were involved in a younger age, it is prudent to repeat an MRI of your spine.

INITIAL RECOMMENDATIONS

1. Rheumatoid arthritis

- **Combine fasting with increased vegetable content in your diet**. Clinical experience suggests that fasting followed by vegetarian diet may help patients with rheumatoid arthritis. Changes in disease activity were found to be associated with concurrent alterations in the fecal microflora and in the antibody activity against P. mirabilis. These findings may indicate that the beneficial effect of dietary treatment is caused by alterations in the microflora secondary to changes in the diet[1,2].

- **Reduce the chicken and rice you consume to 2 times per week each, at most**. Both these foods contain higher than usual amounts of arsenic. Arsenic is an inorganic metal which has been shown to increase oxidative stress and inflammatory indices in patients with inflammatory disorders[3].

- **Use Valtrex only when indicated**. Valtrex is an antiviral that is used for the treatment herpes and should not be used as a long-term preventive measure.

- **Maintain an ideal weight.** According to a seminal study of 2007, patients diagnosed with rheumatoid arthritis should aim for a BMI of 21, whereas

1 Müller, Horst, F. Wilhelmi de Toledo, and K-L. Resch. "Fasting followed by vegetarian diet in patients with rheumatoid arthritis: a systematic review." Scandinavian journal of rheumatology 30.1 (2001): 1-10.

2 Kjeldsen-Kragh, Jens. "Rheumatoid arthritis treated with vegetarian diets." The American journal of clinical nutrition 70.3 (1999): 594s-600s.

3 Prasad, Priyanka, and Dona Sinha. "Low-level arsenic causes chronic inflammation and suppresses expression of phagocytic receptors." Environmental Science and Pollution Research 24.12 (2017): 11708-11721.

over 23 they are considered overweight[4]. This means that you should keep your weight around 70 kgs.

- **Avoid any fluid intake during the meal and for 45 minutes after**. In fact, the addition of high volumes of liquids with neutral or alkaline pH significantly changes the physicochemical properties of the gastric phase, leading to longer digestion and higher demand for histamine, gastrin and acetylcholine. The same goes for all liquids. **Drink your water and any other beverage 45 minutes after you finish your meal.**

- **Chew your food thoroughly**. You should have the best possible preparation of food for digestion in the mouth and stomach.

- **Reduce acidogenic foods from your diet**. As a general rule, animal protein and grains are considered acidogenic foods, while fresh fruits and vegetables are non-acidogenic. This is not absolute, as the final acid equivalents that will be produced are also affected by additional conditions, such as food combinations, and even the time it will be consumed. In any case, it is clear that excess consumption of acidogenic foods permanently alters the balance towards osteoclast activation, and therefore bone degradation[5,6].

4 Stavropoulos-Kalinoglou, Antonios, et al. "Redefining overweight and obesity in rheumatoid arthritis patients." Annals of the rheumatic diseases 66.10 (2007): 1316-1321.

5 Sebastian, Anthony, et al. "Estimation of the net acid load of the diet of ancestral preagricultural Homo sapiens and their hominid ancestors." The American journal of clinical nutrition 76.6 (2002): 1308-1316.

6 Jehle, Sigrid, et al. "Partial neutralization of the acidogenic Western diet with potassium citrate increases bone mass in postmenopausal women with osteopenia." Journal of the American Society of Nephrology 17.11 (2006): 3213-3222.

The following table is indicative:

Acidogenic	Net acid load	Non acidogenic	Net acid load
Fish	+14,6	Nuts	-1,1
Red meat	+12,4	Fresh fruits	-5,2
Poultry	+7,8	Tubers	-5,4
Eggs	+7,3	Mushrooms	-11,2
Shellfish	+7,3	Roots	-17,1
Cheese, yogurt	+3,3	Vegetables	-17,5
Milk	+1,3	Greens	-23,4
Grains	+1,1	Stems	-24,9

- Twice a week try bathing with thiomagnetic (Epsom) salts. Fill the tub with lukewarm water and dissolve in 250 g of Epsom salt. Before entering, you should do a few minutes of intense exercise to the point of sweating. Soak as many body areas in water as possible for 20 minutes. Then sit up and air-dry for 3-4 minutes as you wait for the tub to empty. Then rinse normally[1].

- The reason why your symptoms are more intense after immobility and after a night's sleep is due to the accumulation of fluid (inflammatory) in your joints making the surrounding tissues more stiff. There is a signal of pain until the fluid mobilizes and the tissues become elastic again. **Some tips are the following:**

  a) **Heated underblanket.** The temperature helps the problem areas to maintain a fluid mobility by reducing inflammation locally

  b) **Stretching**. Before getting out of bed try to move and stretch your joints

1 Prabhakaran, B. Evaluate the Effect of Hot Affusion Bath with Epsom Salt on Pain Management in Osteoarthritis of Knee. Diss. Government Yoga and Naturopathy Medical College, Chennai, 2019.

c) **Early dinner / light dinner**. With each meal we consume a number of toxins, bacteria and other compounds that lead to increased intestinal permeability. This increase, also known as leaky gut, has been strongly linked to the development of arthritis by activating the TLR4 receptor. For this reason, it is good to have limited digestions during the day and to finish early in the afternoon. The schedule you follow is good regarding the timing, however, some days we recommend having a lighter dinner and moving your main meal earlier.

d) **Before going to bed at night take a generous dose of magnesium and curcumin**

- Solanines, present in nightshades, are a family of molecules that have been shown to aggravate arthritic inflammation. They are a powerful inhibitor of cholinesterase, an enzyme involved in the flexibility of muscle movement. Hence consumption of these foods can interfere with muscle function and lead to subsequent stiffness. Examples of nightshades are eggplants, potatoes, tomatoes, paprika, peppers. The recommendation is complete avoidance of these foods for 3 months.

- **Consume ginger tea daily**. Ginger tea possesses potent anti-arthritic properties and daily consumption seems to increase pain threshold in patients with rheumatoid arthritis[2].

2 Ravikumar, Chandini. "Review on herbal teas." Journal of Pharmaceutical Sciences and Research 6.5 (2014): 236.

INITIAL RECOMMENDATIONS SUMMARY

Replace at least 3 days of animal protein with plant derived meals	Chew your meals thoroughly
Minimize chicken and rice consumption to 2 times weekly	Avoid any fluid intake during the meal and for 45 minutes after
Use Valtrex only when indicated	
Maintain an ideal weight of 70 kg	Reduce acidogenic foods from your diet
Sleep before midnight as frequently as possible	Consume ginger tea daily
Twice a week bathe with thiomagnetic (Epsom) salts	Use a heated underblanket
Stretch before getting out of bed	Consume magnesium and curcumin right before bedtime
Avoid eating solanines	

Reminder: This is an initial report. Upon completion of the recommended testing you will receive a very precise and personalized comprehensive report.

TESTS RESULTS

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Clinical Laboratory

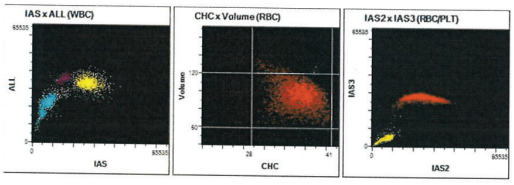
Exact Copy

Name:
Father Name:
MRN / Adm.ID:

S/N: 115723

Complete Blood Count and Differential

Test	Results	Units	Ref. Values
White Blood Cells(WBC)	5,79	x10^3/µl	4,0 - 11,0
Neutrophils (NEUT)	2,56| 44,1	#| %	40 - 80
Lymphocytes (LYMPH)	2,49| **43,0**	#| %	25 - 35
Monocytes (MONO)	0,48| 8,3	#| %	2 - 10
Eosinophils (EO)	0,20| 3,4	#| %	0-5
Basophils (BASO)	0,07| 1,1	#| %	0-2
Red Blood Cells (RBC))	5,41	x10^6/µl	4,5 - 5,9
Hemoglobin (HGB)	**17,8**	g/dL	13,5 - 17,5
Hematocrit (HCT)	52,0	%	41 - 53
Mean Corpuscular Volume (MCV)	96,1	fL	80 - 100
Mean Corpuscular Hemoglobin (MCH)	33,0	pg	26 - 34
Mean Corpuscular Hemoglobin Concentration(MCHC)	34,3	g/dL	31 - 37
Red cell Distribution Width (RDW-CV)	12,1	%	11,5 - 14,0
Platelets (PLT)	162,0	x10^3/µl	150,0 - 400,0
Mean Platelet Volume(MPV)	8,9	fL	6 - 11
Plateletcrit (PCT)	0,15	%	0,1 - 0,29
Platelet Distribution Width (PDW)	13	10(GSD)	12,3 - 16,1



Microscopy and other estimates:

RED CELLS MORPHOLOGY

Hypochromia	:	Poikilocytosis	:	Spherocytosis	:
Microcytosis	:	Stochocytosis	:	Schistocytosis	:
Anisocytosis	:	Bas. Stippling	:	Nucl. Red Cells	:
Macrocytosis	:	Polychromatophilia	:	Anisochromia	:

LEUKOCYTES DIFFERENTIAL COUNT

Neutrophils	:	Band Neutrophils	:	Nucl. Red C.	:
Lymphocytes	:	Metamyelocytes	:	Atypical	:
Monocytes	:	Myelocytes	:	Immature	:
Eosinophils	:	Promyelocytes	:		
Basophils	:	Blasts	:		

Remarks:

The Responsible Biopathologist
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BIOCHEMICAL BLOOD TESTS

TEST	RESULT	REFERENCE VALUES
Glucose (Glu)	75	74 - 100 mg/dl
Urea (Urea)	31	10 - 50 mg/dl
Creatinine (Crea)	1,03	0,72 - 1,25 mg/dl
Uric acid (UrAc)	**7,5**	3,5 - 7,2 mg/dl
Glutamic oxaloacetic transaminase (SGOT/AST)	22	< 64 U/l
Glutamic pyruvic transaminase (SGPT/ALT)	26	< 55 U/l
γ-glutamyl transferase (γ-GT)	13	12 - 64 U/l
Alboumin (ALB)	4,0	3,5 - 5,2 gr/dl
Calsium (Ca)	9,4	8,4 - 10,2 mg/dl
Magnesium (Mg)	2,2	1,6 - 2,6 mg/dl
Iron (Fe)	102	65 - 175 μg/dl
Ferritin (Ferr) **Method: CMIA**	192	22 - 275 ng/ml
Vitamin B12 (Vit-B12) **Method: CMIA**	606	> 1000 pg/mL High 225 - 1000 pg/mL Normal 165 - 225 pg/mL Intermediate < 162 pg/mL Deficiency
Folic Acid (Fol-Acid)	8,40	3,1 - 20,5 ng/ml

Remarks:

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VITAMINS

TEST	RESULT	REFERENCE VALUES
25-hydroxy vitamin D (Vit-D 25-OH) **Method: CMIA**	74	Lack: < 10 ng/ml Deficiency: < 20 ng/ml Optimal levels: 20 - 50 ng/ml Increased risk of hypercalciuria: 51 - 80 ng/ml Principle of toxicity levels: > 80 ng/ml

Remarks:

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LIPOPROTEINS

TEST	RESULT	REFERENCE VALUES
Lipoprotein-α Lp(a) **Method: CMIA**	10	< 30 mg/dl

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HORMONE BLOOD TESTS

TEST	RESULT	REFERENCE VALUES
Thyroid-stimulating hormone (TSH) **Method: CMIA**	3,08	0,35 - 4,94 μIU/ml
Free Thyroxin (Free T4) **Method: CMIA**	0,73	0,70 - 1,48 ng/dl
Parathyroid hormone (PTH) **Method: CMIA (ABBOTT)**	75,80	17,44 - 99,62 pg/ml
Insulin **Method: CMIA**	5,50	5 - 20 μU/ml

Remarks:

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IMMUNOGLOBULINS

TEST	RESULT	REFERENCE VALUES
Immunoglobulin IgG **Method: immunoturbidimetric**	1236	540 - 1822 mg/dl
Immunoglobulin IgA **Method: immunoturbidimetric**	**<25**	63 - 484 mg/dl
Immunoglobulin IgE **Method: immunoturbidimetric**	<10,3	< 100 IU/ml

Remarks:

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HORMONE BLOOD TESTS

TEST	RESULT	REFERENCE VALUES
Prolactin (PRL) **Method: CMIA**	15,55	3,46 - 19,4 ng/ml

Remarks:

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CARDIAC MARKERS

TEST	RESULT	REFERENCE VALUES
Homocystein (HCY) **Method: Chemiluminescence microparticle (CMIA)**	11,3	5,5 - 16,0 μmol/L

Remarks:

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ΕΛΕΓΧΟΣ ΣΥΜΠΛΗΡΩΜΑΤΟΣ

TEST	RESULT	REFERENCE VALUES
C-3 complement **Method: CMIA**	93	82-185 mg/dl
C-4 complement **Method: CMIA**	14,0	15 - 53 mg/dl

Παρατηρήσεις:

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URINALYSIS

GENERAL CHARACTERISTICS	RESULT	
Colour	Light Yellow	
Appearance	Clear	
PH	5,5	
Specific Gravity	1011	
CHEMICAL EXAMINATION	**RESULT**	**REFERENCE VALUES**
Protein	(-) 0	10 mg/dl
Glucose	(-) 0	0 mg/dl
Ketones	(-) 0	0 mg/dl
Hemoglobin	(-) 0,00	0 mg/dl
Urobilinogen	(-) 0,20	0,2 mg/dl
Bilirubin	(-) 0	0 mg/dl
Nitrites	(-)Negative	Negative
Leukocyte esterase	-	(-)
MICROSCOPICAL EXAMINATION	**RESULT**	
White Blood Cells	Rare 0-1 per HPF	
Red Blood Cells	Rare 0-1 per HPF	
Epithelial Cells	Rare epithelial cells per HPF	
Mucus	Little	
Casts	(-)	
Crystals	(-)	
Salts	(-)	
Microorganisms	Negative	

Remarks:

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DETECTION OF METALS IN BLOOD

TEST	RESULT	REFERENCE VALUES
Selenium, serum (Se)	128,0	60 - 150 μg/L
Zinc (Zn)	88,0	60 - 110 μg/dl

Method: ICP-MS

Remarks:

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STOOL TESTS

TEST	RESULT	REFERENCE VALUES
Stool calprotectin (quant) **Method: CLIA**	16	≤ 50 mg/kg stool: Negative 50-120 mg/kg stool: Doubtful ≥ 120 mg/kg stool: Positive

Remarks:

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ΟΡΜΟΝΙΚΕΣ ΕΞΕΤΑΣΕΙΣ

Περιγραφή εξέτασης	Ευρεθείσα Τιμή	Τιμές Αναφοράς
IGF 1 - Σωματομεδίνη C	157 ng/mL	0-3 ετών: Ανδρες 15-272 Γυναίκες 15-189 ng/mL 4-6 ετών: Ανδρες 55-248 Γυναίκες 47-231 ng/mL 7-9 ετών: Ανδρες 80-233 Γυναίκες 55-222 ng/mL 10-11 ετών: Ανδρες 96-545 Γυναίκες 95-315 ng/mL 12-13 ετών: Ανδρες 147-549 Γυναίκες 95-460 ng/mL 14-15 ετών: Ανδρες 208-444 Γυναίκες 211-512 ng/mL 16-18 ετών: Ανδρες 176-429 Γυναίκες 57-426 ng/mL 19-21 ετών: 105-346 ng/mL 22-24 ετών: 107-367 ng/mL 25-29 ετών: 88-537 ng/mL 30-34 ετών: 41-246 ng/mL 35-39 ετών: 57-241 ng/mL 40-44 ετών: 43-209 ng/mL 45-49 ετών: 74-196 ng/mL 50-54 ετών: 55-248 ng/mL 55-59 ετών: 36-200 ng/mL 60-64 ετών: 51-187 ng/mL 65-69 ετών: 37-219 ng/mL 70-79 ετών: 24-200 ng/mL 80-90 ετών: 17-323 ng/mL

Παρατηρήσεις:

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Nuclear Doctor

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CT-MRI DEPARTMENT
CLINICAL DIRECTOR
BONTOZOGLOU NIKOLAOS

Name :
Father Name
Date of birth :
SSN :

MRI OF THE CERVICAL SPINE, THORACIC SPINE AND LUMBAR SPINE

TECHINIQUE

Axial, sagittal and coronal T1 and T2 weighted sequences were obtained through the spine.

FINDINGS

The alignment of the vertebral bodies is normal.
The spinal canal appears normal in diameter.
At the cervical area there is a small disc bulging at the level C4-C5 with mild compression of the thecal sack without effacement of the subarachnoid space. There is no compression of the spinal cord.
At the level C5-C6 there is mild hypertrophy of the facet joints.
Low signal lesion is present at the C4 vertebral body (osteoma ?). There is mild stenosis of the intervertebral foramina C4-C6. The thoracic vertebral bodies and the posterolateral elements appear normal.
At the level of the lumbar spine there is a Schmorl's node at the level L1. Mild disc bulgings are present at the lumbar discs 1 to 5.
There are no signs of disc protrusion or compression of the nerve roots.
The spinal cord and the cauda equina appear normal.

IMPRESSION

Mild degenerative changes of the cervical and lumbar spine without significant stenoses of the spinal canal.
Mild intervertebral foramina stenosis at the level of the cervical spine.
Normal appearance of the spinal cord.

Bontozoglou Nikolaos
Director of CT-MRI Department
nk

ImmuneScan®

SPECIALIZED IMMUNOLOGY TESTS: INTERLEUKIN-10 (IL-10)

Code	TEST	RESULT		REFERENCE VALUES
1091	Interleukin–10 (**IL–10**)	46.13 pg/ml	↑	Serum 0.16 – 12.70 pg/ml
1091	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 0.39 - 25.0 pg/ml. **Sensitivity**: 0. 05 pg / ml. **Method Reproducibility**: Intra-assay: ≤ 6.8%. Inter-assay: ≤ 7.5%. **Reference Sample**: Recombinant human IL-10, calibrated to NIBSC (National Institute for Biological Standards and Controls) standard sample. 1 IU IL-10 NIBSC 93/722 corresponds to 200 pg of recombinant IL-10. **Measurement**: All measurements are in duplicate			
1091				

IMPORTANT NOTE: Specialized tests are carried out for research purposes and as ancillary or complementary analyses in the context of a conventional laboratory test. Specialized tests should only be used in conjunction with other established medical data (e.g., medical history, symptoms, clinical examination, results of other tests, etc.).
The results of cytokine measurement are important for understanding the pathophysiological mechanisms of autoimmune, infectious, and inflammatory diseases and are used for research purposes.

Reference Values & Methods adapted from:
1. Analytical Biochemistry, Holme & Peck, 3rd ed., 1998, Prentice Hall
2. Laboratory Tests and Diagnostic Procedures, Chernecky & Berger, 5th ed., 2008, Saunders Elsevier
3. Interpretation of Diagnostic Tests, Wallach, 8th ed., 2007, Lippincott

ImmuneScan®

SPECIALIZED IMMUNOLOGY TESTS: INTERLEUKIN-1α (IL-1α)

Code	TEST	RESULT		REFERENCE VALUES
1094	Interleukin–1α (**IL–1α)**	0.42 pg/ml	-	Serum < 3.90 pg/ml
1094	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 7.8 - 250.0 pg/ml. **Sensitivity**: 4.0 pg/ml. **Method Reproducibility:** Intra-assay: ≤ 5.5%. Inter-assay: ≤ 9.1%. **Measurement**: All measurements are in duplicate			
1094				

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3. Interpretation of Diagnostic Tests, Wallach, 8th ed., 2007, Lippincott

ImmuneScan®

SPECIALIZED IMMUNOLOGY TESTS: INTERLEUKIN-1b (IL-1b)

Code	TEST	RESULT		REFERENCE VALUES
1095	Interleukin–1 beta (**IL–1b)**	0.10 pg/ml	-	Serum < 5.00 pg/ml
1095	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 0.7 - 250.0 pg/ml. **Sensitivity**: 0.70 pg / ml. **Method Reproducibility**: Intra-assay: ≤ 7.6%. Inter-assay: ≤ 10.3%. **Reference Sample**: Recombinant human IL-1b, calibrated to NIBSC (National Institute for Biological Standards and Controls) standard sample. 1 IU IL-1β NIBSC 86/552 corresponds to 10 pg of recombinant IL-1b. **Measurement**: All measurements are in duplicate			
1095				

IMPORTANT NOTE: Specialized tests are carried out for research purposes and as ancillary or complementary analyses in the context of a conventional laboratory test. Specialized tests should only be used in conjunction with other established medical data (e.g., medical history, symptoms, clinical examination, results of other tests, etc.).
The results of cytokine measurement are important for understanding the pathophysiological mechanisms of autoimmune, infectious, and inflammatory diseases and are used for research purposes.

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SPECIALIZED IMMUNOLOGY TESTS: INTERLEUKIN-4 (IL-4)

Code	TEST	RESULT		REFERENCE VALUES
1097	Interleukin–4 (**IL–4)**	4.74 pg/ml	-	Serum < 7.80 pg/ml
1097	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 7.8 - 500.0 pg/ml. **Sensitivity**: 0.66 pg / ml. **Method Reproducibility**: Intra-assay: ≤ 6.3%. Inter-assay: ≤ 7.1%. **Reference Sample**: Recombinant human IL-4, calibrated to NIBSC (National Institute for Biological Standards and Controls) standard sample. 1 IU IL-4 NIBSC 86/504 corresponds to 76 pg of recombinant IL-4. **Measurement**: All measurements are in duplicate			
1097				

IMPORTANT NOTE: Specialized tests are carried out for research purposes and as ancillary or complementary analyses in the context of a conventional laboratory test. Specialized tests should only be used in conjunction with other established medical data (e.g. medical history, symptoms, clinical examination, results of other tests, etc.).
The results of cytokine measurement are important for understanding the pathophysiological mechanisms of autoimmune, infectious and inflammatory diseases and are used for research purposes.

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SPECIALIZED IMMUNOLOGY TESTS: INTERLEUKIN-6 (IL-6)

Code	TEST	RESULT		REFERENCE VALUES
1099	Interleukin–6 (**IL–6)**	22.38 pg/ml	↑	Serum < 1.10 – 14.30 pg/ml
1099	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 1.56 - 100.0 pg / ml. **Sensitivity**: 0.92 pg / ml. **Method Reproducibility**: Intra-assay: ≤ 5.2%. Inter-assay: ≤ 3.4%. **Reference Sample**: Recombinant human IL-6, calibrated to NIBSC (National Institute for Biological Standards and Controls) standard sample. 1 IU IL-6 NIBSC 89/548 corresponds to 10 pg of recombinant IL-6. **Measurement**: All measurements are in duplicate			
1099				

IMPORTANT NOTE: Specialized tests are carried out for research purposes and as ancillary or complementary analyses in the context of a conventional laboratory test. Specialized tests should only be used in conjunction with other established medical data (e.g. medical history, symptoms, clinical examination, results of other tests, etc.).
The results of cytokine measurement are important for understanding the pathophysiological mechanisms of autoimmune, infectious and inflammatory diseases and are used for research purposes.

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SPECIALIZED IMMUNOLOGY TESTS: TUMOR NECROSIS FACTOR α (TNF-α)

Code	TEST	RESULT		REFERENCE VALUES
1507	Tumor Necrosis Factor-α **(TNF-α)**	54.64 pg/ml	↑	Serum < 7.80 pg/ml
1507	**METHOD TECHNICAL DATA** **Method**: Sandwich ELISA. **Measurement range**: 7.8 - 500.0 pg / ml. **Sensitivity**: 1.6 pg / ml. **Method Reproducibility**: Intra-assay: ≤ 6.5%. Inter-assay: ≤ 9.0%. **Reference Sample**: Recombinant human TNF-α, calibrated to NIBSC (National Institute for Biological Standards and Controls) standard sample. 1 IU of TNF-α NIBSC 87/650 corresponds to 25 pg of recombinant TNF-α. **Measurement**: All measurements are in duplicate			
1507				

IMPORTANT NOTE: Specialized tests are carried out for research purposes and as ancillary or complementary analyses in the context of a conventional laboratory test. Specialized tests should only be used in conjunction with other established medical data (e.g. medical history, symptoms, clinical examination, results of other tests, etc.).
The results of cytokine measurement are important for understanding the pathophysiological mechanisms of autoimmune, infectious and inflammatory diseases and are used for research purposes.

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Βασικά Ιχνοστοιχεία					
Code	ΕΞΕΤΑΣΗ		ΑΠΟΤΕΛΕΣΜΑ		ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ
348	Βανάδιο (**V**) Ούρων	23 V Vanadium 50.942	0,359 μg/g	●	< 1.000 μg/g Κρεατινίνης
1122	Ιώδιο (**I**) Ούρων	53 I Iodine 126.904	98,319 μg/g	●	< 719.000 μg/g Κρεατινίνης
1207	Κοβάλτιο (**Co**) Ούρων	27 Co Cobalt 58.933	0,264 μg/g	●	< 5.000 μg/g Κρεατινίνης
1313	Μαγγάνιο (**Mn**) Ούρων	25 Mn Manganese 54.938	1,570 μg/g	●	< 4.500 μg/g Κρεατινίνης
1352	Μολυβδαίνιο (**Mo**) Ούρων	42 Mo Molybdenum 95.95	15,440 μg/g	●	9.700 – 100.000 μg/g Κρεατινίνης
1631	Σελήνιο (**Se**) Ούρων	34 Se Selenium 78.972	14,651 μg/g	●	12.000 – 90.000 μg/g Κρεατινίνης
1809	Χαλκός (**Cu**) Ούρων	29 Cu Copper 63.546	5,471 μg/g	●	1.450 – 60.000 μg/g Κρεατινίνης
1849	Χρώμιο (**Cr**) Ούρων	24 Cr Chromium 51.996	**0,325 μg/g**	↓	0.550 – 4.830 μg/g Κρεατινίνης

Τιμές Αναφοράς & Μέθοδοι προσαρμοσμένες από:
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Βασικά Ιχνοστοιχεία & Μικροστοιχεία					
Code	**ΕΞΕΤΑΣΗ**		**ΑΠΟΤΕΛΕΣΜΑ**		**ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ**
435	Βόριο (**B**) Ούρων	5 B Boron 10.811	1082,990 μg/g	●	< 3,766.000 μg/g Κρεατινίνης
1659	Στρόντιο (**Sr**) Ούρων	38 Sr Strontium 87.62	73,382 μg/g	●	< 200.000 μg/g Κρεατινίνης
1854	Ψευδάργυρος (**Zn**) Ούρων	30 Zn Zinc 65.38	0,255 mg/g	●	0.060 – 0.780 mg/g Κρεατινίνης
Δυνητικώς Τοξικά Βαρέα Μέταλλα					
Code	**ΕΞΕΤΑΣΗ**		**ΑΠΟΤΕΛΕΣΜΑ**		**ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ**
150	Αλουμίνιο (**Al**) Ούρων	13 Al Aluminum 26.982	1,315 μg/g	●	< 40.000 μg/g Κρεατινίνης
315	Άργυρος (**Ag**) Ούρων	47 Ag Silver 107.868	0,055 μg/g	●	< 1.400 μg/g Κρεατινίνης
323	Αρσενικό (**As**) Ούρων (ολικό)	33 As Arsenic 74.922	**23,366 μg/g**	↑	< 15.000 μg/g Κρεατινίνης

Τιμές Αναφοράς & Μέθοδοι προσαρμοσμένες από:
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Δυνητικώς Τοξικά Βαρέα Μέταλλα					
Code	ΕΞΕΤΑΣΗ		ΑΠΟΤΕΛΕΣΜΑ		ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ
359	Βάριο (**Ba**) Ούρων	^{56}Ba Barium 137.328	0,970 μg/g	●	< 5.700 μg/g Κρεατινίνης
380	Βηρύλλιο (**Be**) Ούρων	^{4}Be Beryllium 9.012	0,098 μg/g	●	< 0.310 μg/g Κρεατινίνης
456	Γαδολίνιο (**Gd**) Ούρων	^{64}Gd Gadolinium 157.25	0,179 μg/g	●	< 0.230 μg/g Κρεατινίνης
466	Γάλλιο (**Ga**) Ούρων	^{31}Ga Gallium 69.723	0,091 μg/g	●	< 7.760 μg/g Κρεατινίνης
530	Δημήτριο (**Ce**) Ούρων	^{58}Ce Cerium 140.116	0,451 μg/g	●	< 2.700 μg/g Κρεατινίνης
994	Ζιρκόνιο (**Zr**) Ούρων	^{40}Zr Zirconium 91.224	0,048 μg/g	●	< 1.000 μg/g Κρεατινίνης
1031	Θάλλιο (**Tl**) Ούρων	^{81}Tl Thallium 204.383	0,192 μg/g	●	< 0.600 μg/g Κρεατινίνης

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Δυνητικώς Τοξικά Βαρέα Μέταλλα					
Code	ΕΞΕΤΑΣΗ		ΑΠΟΤΕΛΕΣΜΑ		ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ
1110	Ιρίδιο (**Ir**) Ούρων	^{77}Ir Iridium 192.217	0,040 μg/g	●	< 0.150 μg/g Κρεατινίνης
1129	Κάδμιο (**Cd**) Ούρων	^{48}Cd Cadmium 112.411	0,132 μg/g	●	< 0.800 μg/g Κρεατινίνης
1138	Καίσιο (**Cs**) Ούρων	^{55}Cs Cesium 132.905	4,010 μg/g	●	< 11.000 μg/g Κρεατινίνης
1185	Κασσίτερος (**Sn**) Ούρων	^{50}Sn Tin 118.711	0,214 μg/g	●	< 2.000 μg/g Κρεατινίνης
1282	Λευκόχρυσος (**Pt**) Ούρων	^{78}Pt Platinum 106.42	0,109 μg/g	●	< 0.600 μg/g Κρεατινίνης
1359	Μόλυβδος (**Pb**) Ούρων	^{82}Pb Lead 207.2	1,080 μg/g	●	< 5.000 μg/g Κρεατινίνης
1416	Νικέλιο (**Ni**) Ούρων	^{28}Ni Nickel 58.693	2,256 μg/g	●	< 3.000 μg/g Κρεατινίνης

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Δυνητικώς Τοξικά Βαρέα Μέταλλα					
Code	ΕΞΕΤΑΣΗ		ΑΠΟΤΕΛΕΣΜΑ		ΤΙΜΕΣ ΑΝΑΦΟΡΑΣ
1477	Ουράνιο (**U**) Ούρων	^{92}**U** Uranium 238.029	0,015 μg/g	●	< 0.060 μg/g Κρεατινίνης
1495	Παλλάδιο (**Pd**) Ούρων	^{46}**Pd** Palladium 106.42	0,099 μg/g	●	< 1.400 μg/g Κρεατινίνης
1606	Ρόδιο (**Rh**) Ούρων	^{45}**Rh** Rhodium 102.906	0,005 μg/g	●	< 0.060 μg/g Κρεατινίνης
1683	Ταντάλιο (**Ta**) Ούρων	^{73}**Ta** Tantalum 180.948	0,025 μg/g	●	< 0.600 μg/g Κρεατινίνης
1709	Τιτάνιο (**Ti**) Ούρων	^{22}**Ti** Titanium 47.867	0,147 μg/g	●	< 13.000 μg/g Κρεατινίνης
1752	Υδράργυρος (**Hg**) Ούρων	^{80}**Hg** Mercury 200.952	0,405 μg/g	●	< 1.000 μg/g Κρεατινίνης

*__Δ.Α.__ = Δεν Ανιχνεύθηκε

Η μεθοδολογία που ακολουθείται για τον προσδιορισμό όλων των στοιχείων είναι **η ICP-MS**: Inductively Coupled Plasma Mass Spectroscopy (Φασματομετρία Ατομικής Μάζας σε Επαγωγικά Συζευγμένο Πλάσμα Αργού).

Μεταλλοειδή | Αλκαλικές Γαίες (Μέταλλα) | Στοιχεία Μετάπτωσης (Μέταλλα) | Στοιχεία Μετάπτωσης (Μέταλλα) | Ακτινίδες (Μέταλλα) | Λανθανίδες (Μέταλλα) | Αλκάλια (Μέταλλα)

Αμέταλλα | Αλογόνα (Αμέταλλα)

Πάνω Αριστερά: Ατομικός Αριθμός Στοιχείου
Κάτω Κέντρο: Ατομική Μάζα Στοιχείου

Τιμές Αναφοράς & Μέθοδοι προσαρμοσμένες από:
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RESULTS INTERPRETATION

Hemoglobin is elevated. Hb levels generally increased after biologic therapies. As such it cannot be evaluated in the context of other pathogenic factors[1].

Uric acid is the end product of purine metabolism and is produced by the action of the enzyme xanthine oxidase. Purines can come either from the catabolism of ingested food or from the destruction and recycling of the body's own cells. Uric acid levels reflect the amount of dietary purines and catabolism of endogenous nucleic acids. More often the increase in uric acid is the result of nutrition and less often of malignancy or certain metabolic disorders such as Lesch-Nyhan syndrome or reduced reuptake of uric acid by the kidneys due to a tubular disorder (Fanconi syndrome).

IgA is recovered below detectable levels. Immunoglobulin A (IgA) is an antibody blood protein that's part of your immune system. Your body makes IgA and other type of antibodies to help fight off sickness. Having an IgA deficiency means that you have low levels of or no IgA in your blood. IgA is found in mucous membranes, mainly in the respiratory and digestive tracts. It is also found saliva, tears, and breastmilk. A deficiency seems to play a part in asthma and allergies. Researchers have also linked IgA deficiency to autoimmune health problems. These are health problems that cause your body's immune system to attack your body by mistake. Common autoimmune conditions found with IgA deficiency include rheumatoid arthritis, lupus, celiac disease or inflammatory bowel disease.

Complement 4 levels are low. Complement C4, a key molecule in the complement system that is one of chief constituents of innate immunity for immediate recognition and elimination of invading microbes, plays an essential role for the functions of both classical (CP) and lectin (LP) complement pathways. Complement C4 is the most polymorphic protein in complement system. A plethora of research data demonstrated that individuals with C4 deficiency are prone to microbial infections and autoimmune disorders[2].

1 Hashimoto, Motomu, et al. "Increase of hemoglobin levels by anti-IL-6 receptor antibody (tocilizumab) in rheumatoid arthritis." PloS one 9.5 (2014): e98202.

2 Wang, Hongbin, and Mengyao Liu. "Complement C4, infections, and autoimmune diseases." Frontiers in Immunology (2021): 2682.

Chromium levels are low. Chromium is vital to proper blood glucose control because it functions in the body as a key constituent of what is referred to as the "glucose tolerance factor." Chromium works closely with insulin in facilitating the uptake of glucose into cells. Without chromium, insulin's action is blocked and glucose levels are elevated. Evidence indicates that marginal chromium status is common in the United States.

Arsenic is above the reference range. Most forms of ingested arsenic are excreted in urine, and variations in dietary intake, such as a single meal of arsenic containing shellfish, can cause urine levels to temporarily increase by a factor of 50 to 100. Therefore, increased urine arsenic indicates exposure but does not necessarily imply tissue accumulation or toxicity. Besides ingestion, arsenic can be assimilated by inhalation and via contact with the skin. Detoxication occurs via methylation, requiring S-adenosylmethionine (SAMe).

Arsenic has multiple toxic effects including inhibition of mitochondrial function, including metabolism of pyruvate, succinate and alpha-ketoglutarate (Kreb's Cycle metabolites), inactivation of lipoic acid, impairment of lymphocyte stimulation and proliferation, and interference with DNA repair processes. Symptoms consistent with excessive arsenic ingestion include garlic breath and increased salivation, fatigue, chest pain, diarrhea and hypotension. Long term or chronic signs may include hair loss, skin hypopigmentation, white-streaked fingernails, anorexia, peripheral neuropathy, leukopenia, and erythrocyte fragility. Commonly encountered sources of arsenic include contaminated shellfish or other seafoods, edible seaweeds, production of semiconductor or photoelectric components (particularly, gallium arsenide), electroplating, galvanizing and etching processes, certain fungicides and pesticides, chemical process industry (reagents, catalysts), fireworks (intense white and blue colors), leather tanning and taxidermy, textile printing, lead and copper alloys (cable sheaths, solders, shot), and specialty glass manufacture (opal glass, IR transmitting, decolorizing).

Interleukin 6 in combination with TNF-α and IL-1 elicits acute inflammatory response. IL-6 is almost solely responsible for the fever and the acute phase reaction in the liver and is an important factor in the transition from acute inflammation to acquired

immunity or to chronic inflammatory disease. When dysregulated, it contributes to chronic inflammation in conditions such as obesity, insulin resistance, inflammatory bowel disease, arthritis and septicemia.

The release of **Tumor Necrosis Factor-α (TNF-α)** is mainly caused by viral infections, endotoxins, lipopolysaccharides or other bacterial constituents, tissue injury, DNA damage and by IL-1, PDFG and TNF-α itself. It is primarily expressed in macrophages, but also in monocytes, neutrophils, NK-cells, mast cells, endothelial cells and activated lymphocytes. TNF-α in turn stimulates the expression of other cytokines, chemokines, oxygen radicals, nitric oxides and prostaglandins. The multiple biological functions of TNF-α include cell proliferation and differentiation, oncogenesis, apoptosis or cell death, immunoregulation, lipid metabolism, thrombosis and endothelial function. It promotes local or systemic inflammation and stimulates the acute phase response. Dysregulation of TNF-α is involved in many diseases: cancer, systemic lupus erythematosus (SLE), chronic intestinal inflammatory diseases (Crohn's disease, ulcerative colitis), psoriasis, pulmonary disorders (cystic fibrosis, asthma), rheumatoid arthritis, ankylosing spondylitis, transplantation (graft versus host disease, allograft rejection), atherosclerosis, arterial calcification, insulin resistance and obesity, neurodegenerative diseases (multiple sclerosis, Alzheimer's disease, Parkinson's disease).

IL-10 is a molecule with a MW of 18 kDa and is secreted by many cell types such as activated hematopoietic cells, hepatocytes, keratinocytes and placental cytotrophoblast. The involvement of IL-10 in immunoregulation includes both positive and negative effects. It promotes phagocytic activity and Th2 responses but suppresses antigen presentation and Th1 pro-inflammatory responses. IL-10 is a critical molecule in the control of viral infections as well as allergic and autoimmune inflammation.

HEALTH GOALS AND RECOMMENDATIONS

HEALTH GOALS

- Inflammation resolution
- Nutrient replenishment
- Diet optimization
- Immune optimization
- Cytokine reduction
- Arsenic avoidance

The stated goals derive from the above findings. They represent the end result we want to achieve based on the finding-symptom correlation. The next sections all aim to achieve these goals. Optimal results are achieved when the following treatment suggestions are followed as faithfully as possible.

NUTRITION

- At least 4 vegetarian days per week
- Implementation of all the behavioral rules described in the initial report
- Inclusion of antibacterial and antifungal nutrients in your diet daily
- Elimination of sugar as it eliminates chromium
- Avoidance of foods cooked at very high temperatures. Inclusion of raw foods in larger portions
- Avoidance of asparagus and cauliflower
- Limit consumption of fatty fish
- Limit tea steeping to 3 minutes to avoid arsenic leak

Your diet should include a lot more vegetables and several days of abstinence from animal food. Ideally, you should be a vegetarian at least 4 times a week. This recommendation is strong and concerns the findings of inflammation (TNF-a, Il-10), uricemia and general well-being. After all, a predominantly vegetarian diet is well documented to lead to optimization of the immune system as well.

The behavioral guidelines described in the original report are repeated and confirmed. It is important to complete your meals early and to wait to dilute your stomach with liquids for at least 45 minutes after each meal.

The total lack of IgA is the definition of selective immunodeficiency and should be addressed with a generous reduction of sugars in your diet and the introduction of antimicrobial foods (garlic, onion, turmeric, ginger, etc.) daily. In this case, decoctions possessing antimicrobial action help a lot, such as cardamom, turmeric, ginger, oregano, etc. Finally, it is advised to include raw foods very often.

Avoid eating asparagus and cauliflower as they increase levels of uric acid in blood. Try to find alternatives like cabbage and broccoli.

Fatty fish and crustaceous seafood contain elevated amounts of arsenic. Prefer smaller fish and avoid completely oysters, clams etc. In addition, all teas

contain small amounts of arsenic, but the greater the steeping time, the more the amounts of this metal is recovered. Try not to exceed 3 minutes of steeping.

The following herbs and spices are highly recommended for consumption[1]:

Herb	Ingredient	Effect
Coriander	Quercetin	Antihistamine, antiinflammatory
Ginger	Gingerol	Antiviral, antithrombotic
Turmeric	Curcumin	Antiinflammatory
Black pepper	Piperine	Antiproliferative, antiinflammatory
Cumin	EHP	Antiviral
Garlic, onion	Allicin	Antiviral, antibacterial
Holy basil	Terpenoids	Antiinflammatory
Clove	Eugenol	Antiviral

The following diet is an indicative, vegetarian diet free from gluten. Choose several days per week that you will be completely vegetarian (initially 4 per week).

1 do Nascimento, Tatiele Casagrande, Eduardo Jacob-Lopes, and Leila Queiroz Zepka. "Introductory Chapter: An Overview on Bioactive Compounds with Focus in the Biosynthesis, Characterization and Applications." Bioactive Compounds-Biosynthesis, Characterization and Applications (2021).

1.1 DAY 1

1.1.1 BREAKFAST HOT GRAIN-FREE CEREALS

Ingredients (2 servings)

- ¼ cup finely chopped nuts
- ¼ cup flaked unsweetened coconut, roughly chopped
- 2 tbsp flax seed meal
- 2 tbsp coconut flour
- 1 tbsp chia seeds
- ½ tsp cinnamon
- ½ tsp vanilla bean powder
- ⅛ tsp kosher salt
- 1 cup non-dairy milk of choice
- 1–2 tbsp maple syrup or honey

To serve

- Fresh berries
- Cashew butter or other nut butter of choice

Method

1. In a small bowl, mix together the chopped nuts, flaked unsweetened coconut, flax seed meal, coconut flour, chia seeds, cinnamon, vanilla bean powder, and salt.
2. Heat the non-dairy milk until steaming, and then pour over the dry ingredients and stir until completely combined – it will thicken as your stir. Add sweetener to taste.
3. Add toppings as desired.

1.1.2 LUNCH MEDITERRANEAN PASTA

Ingredients (3 servings)

- 2 cups gluten-free pasta
- 1 tbsp olive oil
- ¼ tsp crushed red pepper
- 2-3 garlic cloves, minced
- 2 cups grape tomatoes, halved
- 1 cup vegetable broth

- ½ cup marinated artichokes
- 3-4 tbsp of tomato paste to the recipe.
- 4 cups baby spinach
- ¼ cup torn basil leaves
- Optional: Parmesan, feta or ricotta salt for serving

Method

1. Bring a large saucepan of water to a boil (without salt). Add pasta; cook 8 minutes or until al dente. Reserve 1 cup pasta water then drain in a colander. Set aside.
2. While pasta cooks, heat a large skillet over medium heat.
3. Add oil to pan and swirl to coat. Add red pepper and garlic; sauté 30 seconds or until fragrant.
4. Add tomato paste, stir over heat for about 1 minute.
5. Add tomatoes, broth, salt, black pepper, artichokes and olives. Cook 5-7 minutes or until tomatoes begin to break down, stirring occasionally.
6. Add pasta, and simmer 2 minutes. If need more liquid, add reserved pasta water, hot water or more broth as desired.
7. Stir in spinach and basil; cook 2 minutes or until greens wilt.
8. Remove from heat and serve.
9. Top with cheese if desired.

1.1.3 DINNER QUINOA PAELLA WITH VEGETABLES (RECIPE)

Ingredients (4 servings)

- 2 tbsp avocado oil (or use olive oil)
- 1 clove garlic chopped
- 1 can artichoke hearts quartered
- 5-8 white mushrooms diced
- 5 scallions (green onions, chopped
- 1 red pepper diced
- 1 tomato diced
- ½ cup carrots shredded
- black olives diced
- 1 cup quinoa, rinsed and boiled
- 2 cups vegetable broth
- ¼ tsp saffron threads
- handful of peas
- parsley diced
- pinch paprika

Method

1. Heat the oil, saute the scallions and garlic until fragrant and soft.
2. Add in the artichokes, mushrooms, and other veggies and stir for a few minutes to heat the veggies and allow for slight browning on edges.
3. Turn pan off, let the veggies rest uncovered, and prepare quinoa.
4. Set 2 cups of vegetable broth and saffron threads to boil.
5. Rinse 1 cup of quinoa in a sieve for a minute to clear away bitter coating, add to the pot, turn down to simmer and simmer about 5 minutes, or until liquid is absorbed and you see curly tails on the quinoa kernels.
6. Transfer the cooked quinoa to a serving pan or a paella pan, and fold in veggies carefully.
7. Stir in a bit more vegetable broth if it seems dry.
8. Transfer quinoa to a serving pan, and fold in veggies carefully, and then toss in parsley, peas and paprika for color. Put the pan back on the stove, on simmer to the bottom a bit to create a flavourful crust on the bottom.

1.2 DAY 2

1.2.1 BREAKFAST GREEK SESAME BAR (PASTELI) (RECIPE)

Ingredients (20 pieces)

- 220 gr. honey
- 220 gr sesame seeds
- a pinch of salt
- zest of 1 medium sized lemon

Method

1. Place a frying pan over high heat and add the sesame seeds. Toast them for 2-3 minutes until golden and not too brown. Remove the sesame seeds from the pan and set aside. Continue with the rest of the recipe quickly, so that the sesame seeds remain hot.
2. In the same pan, add the honey and bring to a boil, until it starts to foam. Add a pinch of salt and the toasted sesame seeds. Lower the heat to medium and stir constantly with a wooden spoon for about 3-5 minutes, until nicely coloured.
3. Remove the pan from the heat, add the lemon zest and stir.
4. Line a round pan (22cm diameter) with parchment paper and pour in the mixture using a spoon.
5. Let the pasteli cool down for about 20 minutes and then cut into portions. If you let it cool completely, it would be harder to cut into pieces.

1.2.2 LUNCH CHICKPEA SALAD (RECIPE)

Ingredients (6 servings)

Salad

- 3 cups cooked chickpeas, drained and rinsed or 2 cans of chickpeas 400gr
- 2 cups cherry tomatoes, sliced in half
- 2 cups cucumber, diced
- ½ cup red onion, diced
- ½ cup red pepper/capsicum thinly sliced
- ½ cup kalamata olives
- 1 avocado, peeled, and cut into chunks
- 2 tbsp fresh basil
- 1 tbsp fresh flat leaf parsley

Dressing

- ⅓ cup olive oil
- 3 tbsp lemon juice
- ½ tsp salt
- ¼ tsp freshly ground black pepper

Method

1. Add all ingredients minus the basil and parsley into a bowl and combine.
2. Add the ingredients for the dressing into a jug or a jar and whisk with a fork.
3. Pour the dressing over the salad and serve immediately.

1.2.3 DINNER BALSAMIC ROASTED GARLIC MUSHROOMS (RECIPE)

Ingredients (2 servings)

- 400 gr. white bottom mushrooms, washed and stems trimmed
- 3 garlic cloves, minced or finely chopped
- 2 tbsp olive oil
- 1 tbsp balsamic vinegar
- 1 tbsp gluten-free tamari
- 1/2 tsp dried rosemary
- 1/2 tsp dried thyme
- 1 splash of lemon juice (optional)
- 1 healthy pinch of salt and black pepper

Method

1. Preheat the oven to 220°C. Put the mushrooms in a bowl, add the oil, garlic, vinegar, tamari, and spices. Combine well until all mushrooms are coated.
2. Arrange the mushrooms on a baking paper-lined pan and roast for 20 to 25 minutes until ready. Just before serving, splash the mushrooms with a bit of lemon juice

1.3 DAY 3

1.3.1 BREAKFAST SMOOTHIE WITH BERRIES AND AVOCADO

Ingredients (2 portions)

- 1/2 cup raspberries (frozen)
- 1/2 cup strawberries
- 1/2 cup avocado
- 1 2,5 cm cube ginger
- 1 cup unsweetened almond milk

Method

1. Add all ingredients to a blender and blend until smooth.
2. Drink right away and enjoy!

1.3.2 LUNCH LENTIL AND COUSCOUS SALAD

Ingredients (5 servings)

- 2 cups cooked gluten-free brown rice couscous, cooled
- 2 cups cooked green lentils, cooled
- 2 stalks celery, chopped
- 1 small red onion, finely chopped
- 3-4 roasted red peppers, chopped
- ½ cup marinated artichoke hearts, roughly chopped
- 3-4 cups spring mixed greens (or other greens like arugula, baby spinach, etc)

Vinaigrette:

- 3 tbsp balsamic vinegar
- ¼ cup olive oil
- 1 tbsp whole grain mustard
- 1 clove garlic, minced
- 1 tsp fresh oregano, roughly chopped (or less if using dried)
- salt and pepper, to taste

Method

1. In a small bowl whisk together all of the vinaigrette ingredients and set aside.
2. In a large serving bowl add all of the salad ingredients and toss gently to combine. Just before serving pour the vinaigrette over top and gently toss again to incorporate. Salt and pepper to taste and serve.

1.3.3 DINNER GREEN BEAN SALAD (RECIPE)

Ingredients (2 servings)

- 200 gr. green beans
- ½ tsp salt
- Pinch sugar

For dressing

- 2 garlic cloves peeled and grated
- 1 tbsp lemon juice
- 1 tbsp olive oil
- 1 tsp wholegrain mustard
- ¼ tsp salt

Method

1. To prepare the green bean salad, start by bringing a medium sized saucepan of water to boil with 1/2 tsp salt. Keep a bowl of iced water on the side.
2. Meanwhile, wash beans well. Top and tail them. Cut diagonally in half to make spears. If the beans are small, then leave them whole.
3. Once the water in the saucepan is boiling, add the beans to it and boil for 4-5 minutes.
4. Pass through a colander and plunge into the ice water bowl. This stops the beans from cooking further and retains the bright green colour. After 5 minutes, remove the blanched beans and mop dry with a kitchen towel.
5. To prepare the dressing for this easy green bean salad, combine all the dressing ingredients in a bowl and whisk vigorously with a fork until thick and creamy. Just before serving, toss beans well in the dressing. Serve immediately.

1.4 DAY 4

1.4.1 BREAKFAST BROCCOLI MELON PEAR SMOOTHIE

Ingredients (2 portions)

- 180 gr. broccoli fresh or frozen, florets and stalk
- 300 gr. pear peeled, deseeded
- 300 gr. honey dew melon peeled, deseeded
- 240 ml coconut water/drink or almond milk

- 4 tbsp lime juice or to taste
- Pinch of sea salt

Method

Place the ingredients in a blender and puree until smooth. Enjoy chilled.

1.4.2 LUNCH MEDITERRANEAN RICE

Ingredients (8 servings)

- 2 tbsp oil olive or avocado
- ½ sweet onion finely diced
- 3 cloves garlic crushed
- ¾ tsp. turmeric
- ¼ tsp. cumin
- ¼ tsp. paprika
- 1 ¼ tsp. salt to taste
- 1 ½ cups basmati rice rinsed and drained
- 2 ¼ cups water
- 2 tbsp. cilantro finely chopped
- 2 tbsp parsley flat-leaf, finely chopped
- ¼ cup pine nuts toasted

Method

1. Add oil and diced onion to a medium-sized pot over medium heat. Saute for 2-3 minutes, or until onion becomes translucent. Add crushed garlic and continue sauteing for another minute.
2. Mix in turmeric, cumin, paprika, and salt. Toast until fragrant. (About 1 minute.)
3. Pour in water, scraping the bottom of the pot to release any bits that are stuck, and add in the rice. Give it a good stir and bring the water to a boil.
4. Once boiling, cover the pot with a lid and reduce heat to low. Simmer for 20 minutes, or until rice is tender and fluffy.
5. Remove the pot from the heat and mix in chopped cilantro, parsley, and toasted pine nuts. Serve immediately.

1.4.3 DINNER MEDITERRANEAN SALAD WITH KALE AND LENTILS

Ingredients (2 portions)

- 1 cup black lentils, rinsed
- 2 bunches kale, destemmed and finely shredded
- 1 tbsp olive oil
- juice of 1/2 lemon

- pinch of salt
- ¼ cup coarsely chopped kalamata olives
- 2 tbsp chopped fresh mint
- 1 tbsp chopped fresh oregano
- ¼ cup chopped flat leaf parsley

For the dressing

- ¼ cup red wine vinegar
- juice of 1/2 a lemon
- 2 tsp. honey
- ½ tsp dijon
- ¼ tsp. salt
- ¼ tsp. pepper
- 2 tbsp olive oil

Method

1. Bring a medium pot of water to boil. Add the lentils and cook for about 20 minutes or until tender. Drain and set aside to cool.
2. Add kale to a large bowl. Add a tablespoon of olive oil, juice of half a lemon, and a pinch of salt. Massage for a minute or two to help break the kale down and become more tender. Add the cooled lentils, chopped olives, mint, oregano, and parsley and toss.
3. To make the dressing, add the red wine vinegar, lemon juice, honey, dijon, salt and pepper to a medium bowl. Stream in the olive oil and whisk to combine.
4. Add a couple tablespoons of the dressing to the salad and toss again.

1.5 DAY 5

1.5.1 BREAKFAST MEDITERRANEAN-STYLE OMELET

Ingredients (3 servings)

- 6 large eggs, beaten
- 1-2 tbsp unsweetened almond milk
- 2 tsp extra virgin olive oil
- ¼ cup marinated artichoke hearts, drained and chopped
- 2 tbsp pitted kalamata olives, drained and chopped
- ½ tsp dried oregano
- Pinch red pepper flakes, optional

Method

1. Heat 1 teaspoon of the olive oil in a nonstick skillet set over medium-high heat. Add the artichoke hearts, oregano, and red pepper flakes. Cook for some minutes. Transfer to a small bowl and set aside. Turn off heat, but keep skillet warm.
2. Place the eggs in a mixing bowl and add the almond milk. Beat well with a fork or whisk. Place the skillet over medium high heat and add the remaining 1 teaspoon olive oil. Pour the eggs into the pan. Sprinkle with a little salt and pepper. With a thin silicone spatula, draw in the cooked edges of the eggs into the center, letting the raw eggs run to the edge of the pan. Repeat the process, tilting the pan a bit, if needed, until the eggs are mostly cooked

1.5.2 LUNCH ROASTED BOCCOLI WITH HERBS

Ingredients (4 portions)

- 100g broccoli, cut into florets
- ¼ cup extra virgin olive oil
- ½ tsp salt, or to taste
- ¼ tsp black pepper, ground
- ½ tsp oregano, dried
- ½ tsp paprika

Method

1. Preheat oven to 200 °C.
2. In a bowl, add broccoli and all ingredients. Mix with your hands until spices and olive oil evenly cover all the florets.
3. Spread florets on a baking sheet.
4. Bake until florets are tender and golden brown, stirring and turning every 10 minutes for about 25-30 minutes.

1.5.3 DINNER ASPARAGUS AVOCADO SOUP

Ingredients (4 servings)

- 12 ounces asparagus
- 1 tbsp garlic infused olive oil
- 2 cups vegetable stock
- 1 avocado peeled and cubed
- ½ lemon juiced
- 1 tbsp coconut oil
- sea salt to taste
- fresh ground pepper to taste

Method

1. Preheat oven to 220 °C.
2. Toss asparagus with garlic infused olive oil, salt and pepper and roast for 10 minutes.
3. Carefully transfer asparagus to high-speed blender with remaining ingredients and puree until smooth. Add salt and pepper to taste.
4. Add water to thin to desired consistency, if needed, and warm gently over medium heat. Serve immediately.

1.6 DAY 6

1.6.1 BREAKFAST 1 SLICE OF GLUTEN-FREE BREAD + 1 BOILED EGG + ½ AVOCADO

1.6.2 LUNCH POTATOES WITH HERBS

Ingredients (4 servings)

- ¼ cup freshly squeezed lemon juice
- ¼ cup extra virgin olive oil
- 1 ¼ cup vegetable broth
- 6-8 garlic cloves, peeled and sliced
- 1 tsp sea salt
- ½ tsp freshly cracked black pepper
- 1 tsp dried oregano
- 1 tsp dried parsley
- ½ tsp dried rosemary
- 1 tsp paprika powder
- 1 kg young potatoes, cut into wedges
- For garnish: roughly chopped fresh herbs (chives, parsley, or oregano), lemon slices

Method

1. Preheat your oven to 200°C. Prepare a large deep baking dish.
2. In a medium bowl or a jar, mix together the freshly squeezed lemon juice, extra virgin olive oil, vegetable broth, sliced garlic, sea salt, black pepper, dried oregano, dried parsley, dried rosemary, and paprika powder. Stir until well combined. Set aside.
3. Lay your potato wedges into the prepared baking dish the skin side down. Try not to overlap them too much.
4. Pour the liquid over the potatoes, making sure to distribute the garlic evenly if you can.
5. Cover with foil or a lid and cook covered for 40 mins.
6. Raise the temperature to 220°C and uncover the potatoes. There should still be a lot of liquid there, that's good, it's going to cook down into a thick sauce. Cook for another 30-40 minutes. Toss gently 2-3 times throughout so they crisp up on all sides and don't dry out.
7. Toss again and serve immediately drizzled with the sauce that's left in the baking dish. Garnish with fresh herbs and lemon slices if desired.

1.6.3 DINNER LENTIL SOUP

Ingredients (4 servings)

- 1 tbsp olive oil
- 2 large stalks celery, diced
- ½ tsp kosher salt, plus more as needed
- 1 cup dried red lentils
- 4 cups water
- 1 whole bay leaf
- 2 tbsp freshly squeezed lemon juice (from 1/2 large lemon)

Method

1. Heat the olive oil in a medium (2- to 3-quart) saucepan or Dutch oven over medium heat until shimmering. Add the celery and salt and let the celery sweat, stirring occasionally, until the onions are soft and translucent, about 5 minutes.
2. Add the lentils, water and bay leaf and bring up to a boil. Reduce the heat to low and let simmer, covered, until the lentils begin to fall apart, about 20 minutes.
3. Turn off the heat. Taste and season with salt as needed.

1.7 DAY 7

1.7.1 BREAKFAST 1 SLICE OF GLUTEN-FREE BREAD + 30 GR. FETA CHEESE + 5 OLIVES

1.7.2 LUNCH AUBERGINE ROLLS WITH SPINACH & RICOTTA

Ingredients (4 portions)

- 2 aubergines , cut into thin slices lengthways
- 2 tbsp olive oil
- 500 gr spinach
- 250 gr ricotta
- grating of nutmeg
- 350 gr. jar tomato sauce
- 4 tbsp parmesan

Method

1. Heat oven to 220°C. Brush both sides of the aubergine slices with oil, then lay on a large baking sheet. Bake for 15-20 mins until tender, turning once.
2. Meanwhile, put the spinach in a large colander and pour over a kettle of boiling water to wilt. Cool, then squeeze out the excess water, so that it is dry. Mix with the ricotta, nutmeg and plenty of seasoning.
3. Dollop a spoonful of the cheesy spinach mix in the centre of each aubergine slice, fold over to make a parcel and lay, sealed-side down, in an ovenproof dish. Pour over tomato sauce, sprinkle with cheese, and bake for 20-25 mins.

1.7.3 DINNER CELERY AND LEEK SOUP

Ingredients (3 portions)

- 450 gr. celery
- 1 medium leek
- 3 cups vegetable bouillon
- 120 gr. coconut butter
- 1/2 cup chopped fresh parsley, loosely packed

Method

1. Clean the celery and leek and chop into large pieces.
2. Combine the celery, leek, liquid, and the coconut butter in a medium saucepan.
3. Bring to a boil over high heat. Once boiling, reduce the heat to medium-low. Let simmer, covered, for 20-30 minutes, or until the vegetables are completely soft.
4. Add the parsley and puree with an immersion blender or in a regular blender until smooth.
5. Serve. The soup stores well and tastes even better the next day.

1.7.4 SNACKS

- 80 gr. banana, apple or other fruit of your choice
- 60 gr. prunes, raisins or other dried fruit of your choice
- 1 handful nuts of your choice
- 200 gr. dairy-free yogurt without sugar
- 200 gr. dairy-free yogurt without sugar + 1 tsp honey + 3 walnuts
- 1 cup almond milk
- 1 cucumber or tomato + 30 gr. feta cheese + 6 Kalamata olives
- 1 slice of gluten-free bread + 1 tsp honey or jam without sugar or tahini
- 1 jelly without sugar

DIETARY SUPPLEMENTS

Chromium deficiency	Chromium Select	**Moss Nutrition** - 1 cap with breakfast
https://amritanutrition.com/products/chromium-select-90-vcapsules		
Inflammation	InflaQuell	**Researched Nutritionals** – 2 caps with breakfast and 1 cap with dinner
https://amritanutrition.com/products/inflaquell-buffered-enzymatic-support-180-capsules		
IgA deficiency/ Immune modulation/C_4 deficiency	Resilience Mushroom Blend (RMB)	**New Roots** – 1 cap with breakfast
https://amritanutrition.com/products/resilience-mushroom-blend-90-capsules		
IgA deficiency	Chlorella	**Nutrined** – 1 cap 1 hour before lunch
https://amritanutrition.com/products/chlorella-glass-grown-250mg-200-capsules		
Immune system/ Interleukin-6	Arctic cod liver oil	**Nordic Naturals** – 1 teaspoon with your main meal
https://amritanutrition.com/products/arctic-d-cod-liver-oil-lemon-flavour-237-ml		

Suggested treatment plan

Before breakfast	Probiotic Select
With breakfast	Chromium Select, Inflaquell, RMB
Before lunch	Chlorella
With lunch	Arctic cod liver oil
With dinner	Inflaquell

EXERCISE

- Prefer workouts that are indicated in case of rheumatopathies
- Avoid high impact exercises, like jump rope and teamsports like basketball
- Resistance training at least twice per week

The main exercises indicated in cases of rheumatopathies are the following:

1) Stretches
2) Walking
3) Tai Chi
4) Pilates
5) Strength exercises in water
6) Bicycle (gentle exercise)
7) Strength training (very important)
8) Balance exercises

We recommend a program drawn up by a specialist based on your pain areas. In any case your exercise should be at least 4 times a week, even if that means 15-20 minutes[1].

You will start the exercise always pre-hydrated (~6ml water/kg) about 30 minutes before the exercise. Be conscious during exercise. Reduce all distractions and try to listen if your body is straining more than necessary.

1 Yocum, David E., William Lesley Castro, and Michelle Cornett. "Exercise, education, and behavioral modification as alternative therapy for pain and stress in rheumatic disease." Rheumatic Disease Clinics of North America 26.1 (2000): 145-159.

SLEEP DETOXIFICATION

- Never sleep less than 7 hours
- Try to sleep before midnight as many days possible
- Avoid exposure to artificial light for at least 2 hours before bedtime
- Avoid exposure to sources of arsenic

Sleep is extremely important for all metabolic improvements, as during certain parts of it important hormones are regulated, such as melatonin, prolactin, growth hormone etc. Sleep is very important for you to reduce infammatory indices[2] and regulate immune function[3].

In the context of detoxification, everything we have discussed applies. In addition, the value of arsenic indicates increased exposure to this metal. For this reason try to avoid arsenic sources like secondhand smoke, fatty fish, crustaceans species, several algae, several paints and colorings and glass manufacturing material[4].

Another way of detoxification suggested in your case is through the frequent consumption of herbal extracts, mainly turmeric, mountain tea and green tea[5].

Finally, your hydration, in the context of exercise should be adequate at all times of the year.

2 Irwin, Michael R., et al. "Sleep loss activates cellular inflammatory signaling." Biological psychiatry 64.6 (2008): 538-540.

3 Dickstein, Jodi B., and Harvey Moldofsky. "Sleep, cytokines and immune function." Sleep Medicine Reviews 3.3 (1999): 219-228.

4 Chung, Jin-Yong, Seung-Do Yu, and Young-Seoub Hong. "Environmental source of arsenic exposure." Journal of preventive medicine and public health 47.5 (2014): 253.

5 Chow, HH S., et al. “Effects of green tea catechin intervention on human Phase II detoxification enzymes.” (2006): B152-B152.

INWARD DISCOVERY

- Practice mindful meditation
- Take daily mental breaks
- Forest bathing
- Practice yoga

Yoga has been shown in several studies to reduce sensitivity to pain and in several cases is able to reduce the need for medication. Aim for at least 2 times a week. Furthermore, empathy interventions can significantly improve pain intensity, depression and symptoms in patients with rheumatoid arthritis compared to conventional treatment[6]

Yoga, meditation, prayer and any practice that focuses attention on the present time studied and found beneficial for the immune response[7].

An additional way to increase immune surveillance is through contact with nature. More specifically, in multiple studies, contact with the forest (forest bathing) has been quantified in both subjective and objective effects on physiology. NK cell levels (a crucial immune population) after 4 days in the forest were significantly higher than those in the city. In another study, even less contact with the forest leads to an overall improvement in the immunophenotype[8].

6 Zhou, Bo, et al. "Mindfulness interventions for rheumatoid arthritis: A systematic review and meta-analysis." Complementary therapies in clinical practice 39 (2020): 101088.

7 Kim, Choon Kwan, et al. "Reduced NK cell IFN-γ secretion and psychological stress are independently associated with herpes zoster." PLoS One 13.2 (2018): e0193299

8 Chae, Youngran, et al. "The Effects of Forest Therapy on Immune Function." International Journal of Environmental Research and Public Health 18.16 (2021): 8440

OUTWARD EXPRESSION

- General guidilnes for outward expression

- Being well mannered
- Avoid conflict
- Community involvement
- Charity
- Positive relations with others
- Support family
- Support friends
- Focus on others

9 Decety, Jean. "The neuroevolution of empathy." Annals of the New York Academy of Sciences 1231.1 (2011): 35-45.

ADDITIONAL RECOMMENDATIONS

1. Track your progress for the next 2 months in order to monitor and modify your program
2. Further examination for immune deficiencies (Complete Immunephenotype)
3. Pathologic assessment for elevated hemoglobin levels
4. Complete clinical examination and monitoring by pathologist
5. Preventive testing according to your age and needs

NOTE THE FOLLOWING:

The Endotherapia team has created a report that does not include treatment nor diagnosis of specific diseases. Your personal biochemical/genetic analysis is based on current scientific data, however it does not ensure absolute protection against disease. If you suspect that you may have a disease that may require medical attention, then it is recommended that you consult your doctor without delay.

Endotherapia does not function as a primary care provider. All patients should have a primary care provider and medical coverage for acute needs, routine care and preventive examinations (such as mammography, Pap smear, colonoscopy, etc.). Every patient should have seen their doctor in the past year and done the necessary laboratory tests.

Endotherapia focuses on wellness, disease prevention and optimal health using natural, non-toxic dietary therapies as well as lifestyle adaptations. The goal is to educate and motivate patients to take more personal responsibility for their health by adopting a healthy attitude/lifestyle and proper nutrition.

ENDOTHERAPIA

ADVANCED DIAGNOSTIC TOOLS

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