(8)

The Permanente Medical Group, Inc.
27400 Hesperian Boulevard
Hayward, California 94545-4299
(510) 784-4000

KAISER PERMANENTE

Continuation for: 04-13-2000 MRN 08789174 DOUG F COPP

EXPLANATION OF LAB RESULTS

An explanation of laboratory tests is provided below. Minor abnormalities of test results are not unusual and are likely to represent individual or lab variations. Abnormalities are subject to the interpretation of your health care provider.

Cholesterol represents 1 of many risk factors for heart disease. A desirable number is less than 240 mg%.

Creatinine (CREAT) measures kidney function.

Glucose-random is a screen for diabetes--high sugar in the blood after having eaten food within 8 hours.

HDL (high density lipoprotein) is a measure of good cholesterol. High HDL is good for your heart.

TSH (thyroid stimulating hormone) measures thyroid activity. A high number indicates an underactive thyroid. A low number indicates either an overactive thyroid or too much thyroid replacement is being taken.

White Cells (WBC) is a screen for the presence of infection or inflammation in the body.

RBC (Red Blood Cell count) is a test for anemia.

Hemoglobin is a test for anemia.

Hematocrit is a test for anemia.

MCV (Mean Corpuscular Volume) is a test to measure the size of red blood cells.

HAV/MED /M TRAN M.D.

(9)

280 West MacArthur Boulevard
Oakland, California 94611-5693
Phone: (510) 596-1000

Senior Vice President and Service Area Manager
Paul T. McDonald, M.D.
Physician-in-Chief

KAISER PERMANENTE

DOUG F COPP
802 LINCOLN AVE # B
ALAMEDA CA 94501

04/15/99 ←
KAISER # 08789174
DAY: (510) 523-5493
EVE: (510) 523-5493

Here are the results of your recent laboratory tests:

	TEST		RESULT	NORMAL RANGE
04/13/99	Westergren ESR		9mm/Hr	0 - 15
04/13/99	Complete Blood Count			
	White Cells		3.6K/uL	3.5 - 12.5
	Red Cells		4.52M/uL	4.10 - 5.70
	Hemoglobin		13.9g/dL	13.0 - 17.0
	Hematocrit		39.1%	39.0 - 51.0
	MCV		87fL	80 - 100
	Platelets		224K/uL	140 - 400
04/13/99	Auto Differential			
	Granulocytes	L	48.7%	50.0 - 70.0
	Lymphocytes		39.3%	20.0 - 50.0
	Monocyte		8.9%	1.0 - 14.0
	Eosinophil		2.5%	0.0 - 4.0
	Basophil		0.6%	0.0 - 2.0

Richard N. Levine, M.D.

Looks good!
Best wishes,
Rich Levine MD

(10)

Kaiser Permanente Medical Center
280 West MacArthur Boulevard
Oakland, California 94611-5695
Phone: (510) 596-1000

Richard D. Cordova
Senior Vice President and Service Area Manager

Paul T. McDonald, M.D.
Physician-in-Chief

KAISER PERMANENTE

cont.... DOUG F COPP (MR NUMBER = 08789174)

EXPLANATION OF LAB RESULTS

An explanation of laboratory tests is provided below. Minor abnormalities of test results are not unusual and are likely to represent individual or lab variations. Abnormalities are subject to the interpretation of your health care provider.

The sed rate (Westergren ESR) is a nonspecific test of inflammation in the body.

White Cells (WBC) is a screen for the presence of infection or inflammation in the body.

RBC (Red Blood Cell count) is a test for anemia.

Hemoglobin is a test for anemia.

Hematocrit is a test for anemia.

MCV (Mean Corpuscular Volume) is a test to measure the size of red blood cells.

Platelets are one measurement of how well blood clots.

Richard N. Levine, M.D.

Post 911 labs

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN ①

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X0464616792

Blood Drawn	Processed	Reported	ISL No
10/23/02	10/25/02	11/11/02	[illegible]

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
**** LYMPHOCYTE SUB-POPULATION ****				
TOTAL WBC	6600		4800-10800	mm3
TOTAL LYMPHOCYTE	1650.0		960-4320	mm3
% LYMPHOCYTE	25.0		20 - 40%	mm3
TOTAL T-CELL	1359.0		586-3672	mm3
% T CELL (T11, CD2)	82.0		61 - 85%	mm3
TOTAL T HELPER CELL (T4)	974.0		336-2376	mm3
% T HELPER CELL (T4)		59.0	25-55%	mm3
TOTAL SUPPRESSOR CELL	363.0		192-1598	mm3
% SUPPRESSOR CELL (T8)	22.0		20-37%	mm3
T-HELPER/T-SUPPRESSOR		2.7	1-2.5	mm3
TOTAL B CELL	149.0		48-648	mm3
% B-CELL (B1,CD20)	9.0		5 - 15%	mm3
TOTAL NATURAL KILLER	116.0		52-864	mm3
%NATURAL KILLER CELLS	7.0		5.5-20%	mm3
TOTAL IMMUNOCOMPETENT	17.0		14-216	mm3
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
TOTAL NKHT3 NEGATIVE	99.0		38-648	mm3
% NKHT3 NEGATIVE	6.0		4-15%	mm3
TOTAL CD3+ CD26+	660.0		10-1944	mm3
% CD3+ CD26+ (TA1)	40.0		1-45%	mm3
TOTAL T3 (CD3) POSITIVE C	1337.0		509-3413	mm3
% T3 POSITIVE CELLS		81.0	53-79%	mm3

Severely Compromised & Dysregulated immune System

Depletion of immune functioning

Stable immune & stress

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X0464461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
**** NK CELL ACTIVITY PANEL ****				
NK CELL ACTIVITY		10.90	20-50	LUs
NK CELL ACTIVITY/CELL	9.40		5.1-10	mm3
%NATURAL KILLER CELLS	7.0		5.5-20%	mm3
% IMMUNOCOMPETENT -NKHT3+		1.0	1.5-5%	mm3
% NKHT3 NEGATIVE	6.0		4-15%	mm3
% T3 POSITIVE CELLS		81.0	53-79%	mm3

One of the major mechanisms by which the immune response deals with foreign or abnormal cells is to damage or destroy them. Such immunologic cytotoxicity may lead to complete loss of viability of the target cells (cytolysis) or an inhibition of the ability of the cells to continue growing (cytostasis). Immunologic cytotoxicity can be manifested against a wide variety of target cells. These include malignant cells, normal cells from individuals unrelated to the responding host, and normal cells of the host that are infected with viruses or other microorganisms. In addition, the immune system can cause direct cytotoxic effects on some microorganisms, including bacteria, parasites, and fungi. Immunologic cytotoxicity is a principal mechanism by which the immune response copes with and often eliminates foreign materials or abnormal cells. Natural killer cell activity is influenced by a variety of conditions including stress, chemical exposure, infections, chronic fatigue syndrome, immune deficiencies and cancer. In an increasing number of studies of clinical treatments of patients with various diseases, serial monitoring of cytotoxic reactivity is performed. The objective is to determine whether the treatment can produce a significant alteration from the pretreatment levels of NK activity, Antibody Dependent Cytotoxic activity, or both. Interleukin 2, interferon and natural killer cytotoxic factor has been shown to enhance NK cell activity. Therefore enhancement of Interleukin 2 Production may be useful in reactivation of NK cells in patients with the above mentioned conditions.

****

REFERENCE RANGE:

CONTINUED ON NEXT PAGE

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

(3)

REFERRING PHYSICIAN

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	18500

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** AUTO IMMUNE PANEL ***				
ANTI-CENTROMERE	NEGATIVE		NEGATIVE	
ANTI-MICROSOMAL	5		<20	IU/ml
ANTI-MITOCHONDRIAL	NEGATIVE		NEGATIVE	
ANTI-MYOCARDIAL	1:20		0-20	ELISA
ANTI-NATIVE DNA	NEGATIVE		NEGATIVE	
ANTI-NUCLEAR AB BY HEP-2		1:320	1:20	
SPECKLED				
ANTI-PARIETAL CELL	1:23		0-40	ELISA
ANTI-RNP	N.D.		NOT DETECTED	
ANTI-SM	N.D.		NOT DETECTED	
ANTI-SMOOTH MUSCLE		1:25	0-20	ELISA
ANTI-SSA	N.D.		NOT DETECTED	
ANTI-SSB	N.D.		NOT DETECTED	
ANTI-STRIATED MUSCLE	1:19		0-20	ELISA
ANTI-THYROGLOBULIN	8		<45	IU/ml
C3-COMPLEMENT		167.0	75-140	ug/dl
C4-COMPLEMENT		36.0	10-34	ug/dl
RHEUMATOID FACTOR		25.0	0-20	IU/ml
TOTAL IMMUNE COMPLEX		52.0	0-50	ug eq/ml

autoimmune activator & autoimmune disease

N.D.= NOT DETECTED
Autoimmune diseases can be separated into two categories. One group is characterized by the presence of autoantibodies

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Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (3a)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	IS# No.
10/23/02	10/25/02	11/11/02	[illegible]

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS

that are broadly reactive with nuclear or cytoplasmic antigens and that do not demonstrate any tissue specificity. Included in this group are diseases such as rheumatoid arthritis, systemic lupus eryhtematosus, mixed connective tissue disease, sleroderma, Sjogren's syndrome, and dermatomyositis or polymyositis. A second group of autoimmune diseases is characterized by autoantibodies which demonstrate tissue specificity. These diseases include thyroiditis, chronic liver diseases (including primary biliary cirrhosis and chronic active hepatitis), certain cases of pernicious anemia, and myasthenia gravis.

The detection of circulating antibodies to nuclear antigens is an important tool in the investigation of systemic rheumatic diseases. Many techniques have been developed to detect antinuclear antibodies (ANA), but the fluorescent-ANA (FANA) or enzyme-ANA EANA) test continues to be the most widely used and accepted. When the ANA is performed by using substrate of choice such as human epidermoid cell line (HEP-2) the ANA incidence is positive in 99% of SLE; 85% of Sjogren; 80% of sleroderma; 55% of rheumatoid arthritis and 40% of juvenile chronic arthritis.

Antinuclear antibodies may be classified biochemically according to whether they bind a nucleic acid per se, a chromatin component such as histone, ribunucleoprotein (RNP), or some other nuclear constituent. Antibodies within each class can be detected readily in assays based on immunofluorescence using HEP-2 cell line, enzyme immunoassay and Western Blot Assays using biochemically purified antigens.

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Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (4)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2011 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/15/02	[illegible]

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** IMMUNE COMPLEX ASSAY ***				
IgG IMMUNE COMPLEX		23	0-20	ug eq/ml
IgM IMMUNE COMPLEX		16	0-15	ug eq/ml
IgA IMMUNE COMPLEX		13	0-10	ug eq/ml

immune activation & overload

Interactions between antigens and antibodies can form molecular aggregates in the body known as immune complexes. They can deposit in blood vessels, tissue and various glands throughout the body, producing inflammation and pathological conditions. They may initially form in the circulation prior to deposition or diraectly in tissue. Elevated levels have been detected in many diseases including autoimmune conditions such as SLE, rheumatoid arthritis and glumerulonephritis, as well as malignancies and various infectious diseases. They have also appeared in migraine headaches, psoriasis, and other unexpected diseases.
Their presence during a disease state does not necessarily implictae them as causative factors in the disease process. Other clinical data and the condition of the patient should be taken into consideration when interpreting results.
Immune complex levels up to two times the upper range of normal may be significant but should not be considered diagnostic or prognostic unless supported by a strong clinical picture.

Reference:
Carol Ann Toth, Douglas Pohl, and Vincent Agnello. "Methods for Detection of Immune Complexes by Utilizing C1q or Rheumatoid Factors" in Manual of Clinical Laboratory Immunology, 3rd edition, ed. Noel R. Rose, Herman Friedman and John L. Fahey (Washington, D.C., 1986), pp. 204-207.
Some analyte-specific reagents used in these in-house procedures are classified under Class I devices by the FDA and are exempt from the premarket notfication requirements of Section 510(K) of the act.
This test was developed and its performance characteristics determined by Immunosciences Lab., Inc. It does not have to be cleared by the FDA, pursuant to act 21 CFR 809 30(e).
These tests have undergone stringent quality control and assurance, and comparison studies have been performed in compliance with the State of California's requirements.

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (5)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Name: CORP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	135065

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** FUNGAL PANEL 2 ***				
IgG ALTERNARIA TENUIS + A		5193 very elevated	0-1600	ELISA
IgE ALTERNARIA TENUIS + A	45	abnormally elevated	0-50	ELISA
IgG ASPER FUMIGATUS		2272	0-1600	ELISA
IgE ASPER FUMIGATUS	38		0-50	ELISA
IgG ASPER NIGER	522		0-1600	ELISA
IgE ASPER NIGER	41		0-50	ELISA
IgG CANDIDA		4717	800-3200	ELISA
IgE CANDIDA		76	0-50	
IgG CLADOSPORIUM HERBARUM	420		0-1600	ELISA
IgE CLADOSPORIUM HERBARUM		57	0-50	ELISA
IgG EPICOCCUM NIGRUM		6515	0-1600	ELISA
IgE EPICOCCUM NIGRUM	43		0-50	ELISA
IgG GEOTRICHUM CANDIDUM		2174	0-1600	ELISA
IgE GEOTRICHUM CANDIDUM	35		0-50	ELISA
IgG PENICILLIUM NOTATUM	1263		0-1600	ELISA
IgE PENICILLIUM NOTATUM	48		0-50	ELISA
IgG PHOMA HERBARIUM	1554		0-1600	ELISA
IgE PHOMA HERBARIUM	46		0-50	ELISA
IgG PULLULARIA PULLULANS		3080	0-1600	
IgE PULLULARIA PULLULANS		69	0-50	
IgG RHIZOPUS NIGRICANS	736		0-1600	ELISA
IgE RHIZOPUS NIGRICANS	39		0-50	ELISA

FAXED 11-25-02

Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (5a)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	1850[illegible]

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
IgG RHODOTORULA GLUTINIS		1600	0-1600	ELISA
IgE RHODOTORULA GLUTINIS	41		0-50	ELISA

IgE titers greater than100 are indicative of atopic allergy to that fungus.

IgG titers greater than 1600 are suggestive of chronic exposure to that fungus or of prior desensitization. Assay should be repeated three months later to confirm successful desensitization or avoidance of the fungus.

Some analyte-specific reagents used in these in-house procedures are classified under Class I devices by the FDA and are exempt from the premarket notfication requirements of Section 510(K) of the act.

This test was developed and its performance characteristics determined by Immunosciences Lab., Inc. It does not have to be cleared by the FDA, pursuant to act 21 CFR 809 30(e).

These tests have undergone stringent quality control and assurance, and comparison studies have been performed in compliance with the State of California's requirements.

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Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (P6)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/01/02	135005

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
**** GAMMA GLUTAMYL TRANSFERAS ****				
GAMMA GLUTAMYL TRANSFERAS		65.2 hepatotoxicity 2° to toxic chemical overload	0-43	UNITS/ML

RESULT VERIFIED BY REPEAT ANALYSIS - WTC exposure

Elevated GGTP levels have been observed in the following conditions:

Cholelithiasis	Liver cirrhosis
Chronic alcoholism	Liver metastasis
Epilepsy	Myocardial infraction
Hepatic neoplasms	Obstructive jaundice
Hepatitis (viral, drug, chronic)	Pleurisy
Highly vascularized brain lesions	

Administration of certain drugs or ingestion of ethanol has been shown to influence serum GGTP levels. For example, increased serum GGTP activity has been observed in patients taking anti-epileptic drugs, such as phenytoin or barbiturates.

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Immunosciences Lab., Inc.
Rahim Karjoo, M.D. Medical Director

REFERRING PHYSICIAN (87)

TRICORE REFERENCE LABORATORIES
ATTN: SENDOUT DEPARTMENT
2811 STANFORD N.E.
ALBUQUERQUE, NM. 87107

Patient Name: COPP, DOUGLAS
Patient I.D.: X046461692

Blood Drawn	Processed	Reported	ISL No.
10/23/02	10/25/02	11/11/02	13506

TEST	RESULTS NORMAL	RESULTS ABNORMAL	REFERENCE RANGE	UNITS
*** SECRETORY IgA ***				
SECRETORY IgA		very low level 11.0 damage to immune cells	10-20	Ug/ml

Secretory IgA is the first line of defense and response to foreign antigens including bacteria, viruses, parasites, and food proteins. Secretory IgA is found only in surface mucosal secretions, and its absence is the most common immunodeficiency disorder accounting for 15% of all such cases. Frequency of certain diseases, mainly neurological (24%), gastrointestinal (28%), collagen, autoimmune (20%), and recurrent infections (23%), may occur in patients with selective IgA deficiency. These include neuropathies, endocrinopathies, atopy, Celiac Disease, asthma, food allergies, Rheumatoid Arthritis, Lupus, Malabsorption Syndrome, lymphomas, bacterial, viral and fungal infections.

High levels of Secretory IgA is associated with chronic viral syndromes, parotitis, gingivitis, and may be indicative of mucosal surfaces infection with EBV, CMV, Herpes, HIV, Streptococcus, Bacteroides and Candida albicans.
Some analyte-specific reagents used in these in-house procedures are classified under Class I devices by the FDA and are exempt from the premarket notfication requirements of Section 510(K) of the act.
This test was developed and its performance characteristics determined by Immunosciences Lab., Inc. It does not have to be cleared by the FDA, pursuant to act 21 CFR 809 30(e).
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Elemental Analysis Hair

8

Great Smokies Diagnostic Laboratory℠

63 Zillicoa Street · Asheville, NC 28801-10
www.gsdl.co

Patient: **DOUGLAS COPP**
Age: 51
Sex: M
MRN: 0000428962

Order Number: 34160533
Completed: October 21, 2002
Received: October 16, 2002
Collected: October 08, 2002

TIMOTHY SMITH MD
5281 Thomas Road
Sebastopol, CA 95472

Toxic Elements

Analyte	Reference	Reference Range
Aluminum	2.3	<=9.0
Antimony	0.035	<=0.030
Arsenic	<0.025	<=0.100
Barium	3.87	<=1.45
Bismuth	<0.0250	<=0.2000
Cadmium	0.309	<=0.150
Lead	2.03	<=1.40
Mercury	1.06	<=1.00
Nickel	0.821	<=0.400
Thallium	<0.0003	<=0.0012
Tin	0.102	<=0.280
Uranium	0.038	<=0.060

Reference range expressed in ppm

Nutrient Elements

Analyte	Reference	Reference Range
Calcium	2,317	220-780
Magnesium	265	16-90
Copper	30.6	10.5-28.0
Zinc	193	120-170
Manganese	1.54	0.12-0.45
Chromium	0.33	0.34-0.90
Cobalt	0.1260	0.0075-0.0400
Molybdenum	0.057	0.025-0.096
Boron	1.10	0.15-3.00
Iodine	0.38	0.16-1.75
Lithium	0.0388	0.0027-0.0320
Selenium	0.83	0.48-1.45
Strontium	8.79	0.35-3.25
Sulfur	52,207	44,200-53,000
Vanadium	0.101	0.014-0.150

Reference range expressed in ppm

Within FPR* Outside FPR* Outside Ref Range

Additional Elements

Analyte	Reference	Reference Range
Sodium	142	8-60
Potassium	2.4	1.5-30.0
Rubidium	0.012	0.004-0.045
Iron	17.4	6.0-18.0
Phosphorous	159	125-240
Titanium	0.56	0.25-1.25

Reference range expressed in ppm

	Inside Range	Outside Range	Reference
Ca/Mg	8.7		5.0-15.0
Ca/P		14.6	2.5-10.0
Na/K		59.2	1.5-10.0

20% 40% 60% 80% 100%
The % of shading represents the degree of confidence in an endogenous origin of the element.

Histograms on this report are not based on data from large populations and should be used for illustrative purposes only.

Toxic Element Clearance Profile
Random/Timed in µg/g Creatinine

RP

Great Smokies Diagnostic Laboratory℠

63 Zillicoa Street · Asheville, NC 28801-1074
www.gsdl.com

Patient: **DOUGLAS COPP**
Age: 51
Sex: M
MRN: 0000428962

Order Number: 36280198
Completed: December 31, 2002
Received: December 28, 2002
Collected: December 27, 2002

ROBERT FRIEDMAN MD
1264 Rodeo Road Ste B
Santa Fe, NM 87505

Toxic Elements

Element	(µg / g creat.)	Ref Range
Lead	20.49	<= 1.38
Mercury	1.82	<= 1.72
Aluminum	2.2	<= 74.0
Antimony	0.056	<= 0.170
Arsenic	86.8	<= 66.7
Barium	3.41	<= 7.40
Bismuth	11.111	<= 0.370
Cadmium	1.33	<= 0.74
Cesium	3.59	<= 11.20
Gadolinium	0.015	<= 0.019
Gallium	3.77	<= 3.15
Nickel	4.32	<= 9.40
Niobium	0.02	<= 0.05
Platinum	0.013	<= 0.014
Rubidium	821.0	<= 2,398.0
Tellurium	<dl	<= 0.520
Thallium	0.160	<= 0.510
Thorium	<dl	<= 0.000
Tin	0.52	<= 3.03
Tungsten	0.112	<= 0.330
Uranium	<dl	<= 0.013

Nutrient Element

Element	(mg / g creat.)	Ref Range
Sulfur	586.6	350.0-865.0

post - chelation

Provocation Comments

Post-provocation laboratory results.

Creatinine Concentration & Urine Volume

Urine Creatinine	81.36	30.00-209.00 mg/dL
Urine Total Volume (in milliliters)	450	

Legend

- Reference Range for Toxic Elements
- Reference Range for Nutrient Elements
- Cautionary Level - Result is outside the reference range. Pre-collection dietary variables, supplements or use of challenge substances may be the cause. Such values should be assessed with the individuals symptoms, physical findings, nutritional status and exposure potential in mind.
- Tentative Maximum Permissible Level (TMPL) - Element excretion is elevated. These levels are not strict toxicological points, but represent excessive excretion and therefore potential exposure or body burden of the element which can impact negatively on overall health. The TMPL's for Pb, Hg, Al, Sb, Cd, Ni, Tl, and Co are derived from Casaret and Doull's TOXICOLOGY: The Basic Science of Poisons 5th Ed. 1996 McGraw Hill NY, NY. with standardization of units.

Detoxification Profile (Comprehensive)

(P10)

Great Smokies Diagnostic Laboratory℠

63 Zillicoa Street · Asheville, NC 28801-107
www.gsdl.com

Patient: **DOUGLAS COPP**
Age: 51
Sex: M
MRN: 0000428962

Order Number: 34240611
Completed: October 28, 2002
Received: October 24, 2002
Collected: October 23, 2002

TIMOTHY SMITH MD
5281 Thomas Road
Sebastopol, CA 95472

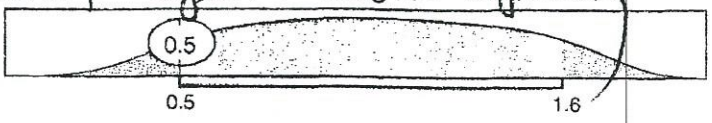
Phase I

severely compromised hepatic detox capacity

on program x 10 d.

Caffeine Clearance

Ref Range mL/min/kg



Phase II

Plasma Cysteine

cys deficiency

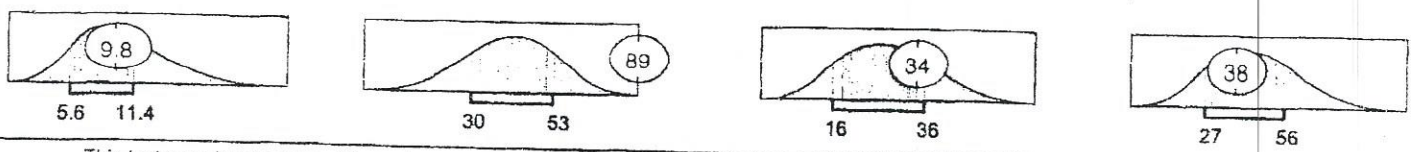
on program 7-10 d when this was done

cys/sulfy hi

Plasma Sulfate

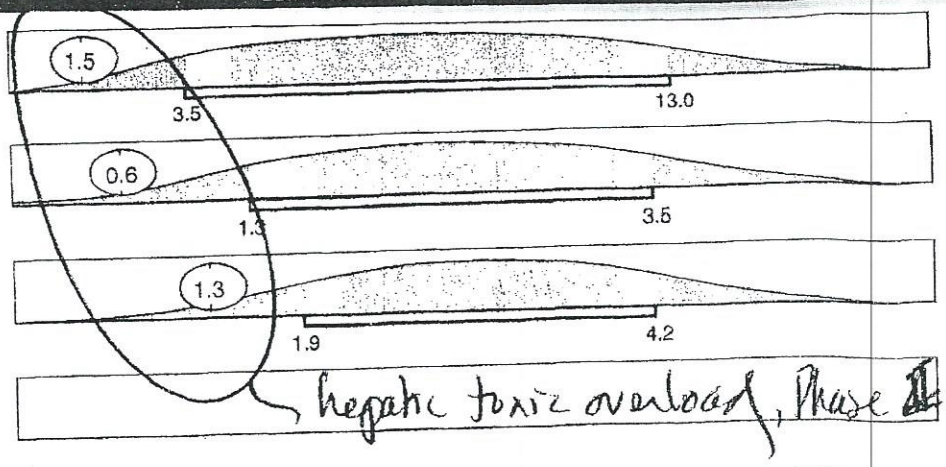
low dep.

Glutathione Conjugation	Glycine Conjugation	Sulfation	Glucuronidation
Acetaminophen Mercapturate % Recovery	Salicyluric Acid % Recovery	Acetaminophen Sulfate % Recovery	Acetaminophen Glucuronide % Recovery



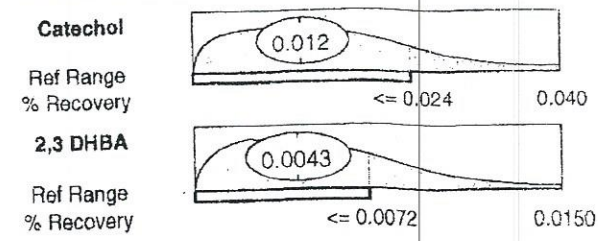
This test was developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

Ratios



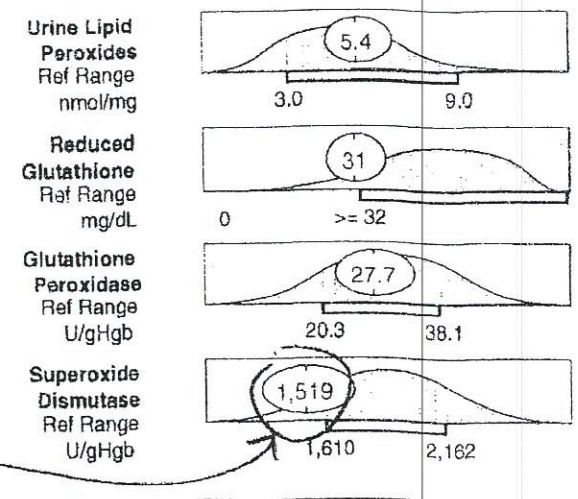
Free Radical Markers

Salicylic Acid **Hydroxyl Radical**



Lipids **Free Radicals**

one lipoic acid =



indicate) toxic overloading & compromised immune functioning

Total Urine Volume

mL per 10 hours: 1,200

Commentary

Lab Comments

No plasma received. 10/24/02 TH

Commentary

Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

To the patient:

Our bodies must be able to detoxify, or neutralize, toxins from the external environment as well as those produced within our own bodies. This process takes place mostly in the liver, and consists of two phases. In Phase I toxins are activated, which means that they are altered in such a way that carrier molecules (Phase II) are able to transport them out of the body. A handy analogy is the bagging of our trash (Phase I), so that the garbageman can pick it up and cart it away (Phase II). Phase I is accomplished by a family of enzymes called "cytochrome P450", and Phase II takes place via a number of important mechanisms, four of which we measure in this test, with the help of the challenge substances, caffeine, acetaminophen and aspirin. Both Phase I and Phase II of detoxification must function adequately so that toxins are able to be neutralized, and the two phases must be in balance with each other so that the activated compounds from Phase I cannot accumulate in the body and cause damage.

In your particular case, Phase I and Phase II are functioning adequately, and are in balance with each other. There is also some evidence of low anti-oxidant reserve. Anti-oxidants help to prevent free radical damage in the body ("oxidative stress") which does not seem to be occurring right now, despite the low reserve. With nutritional support, the insufficiency is usually correctable. The following is a detailed description of your test results.

To the clinician:

Caffeine clearance is within the reference range, indicating ~~normal~~ low Phase I (cytochrome P450) activity.

Because the plasma cysteine and plasma sulfate were not available, it is not possible in this case to assess sulfoxidation ability (the generation of inorganic sulfate from cysteine).

"Note: Phase I/Phase II ratios which lie below the reference range will not be discussed within the commentary text, even though they may appear in the red boxes labeled "abnormal". At this time we have not found sufficient information to consider them clinically significant."

All Phase II detoxification pathways appear to be functioning adequately.

Urine lipid peroxides, markers for hydroxyl radical activity (catechol and 2,3 DHB) and the intracellular antioxidant, glutathione peroxidase (GSHPx), are all within the reference range.

The level of superoxide dismutase (SOD), however, was found depressed. The body utilizes this enzyme to rapidly convert the superoxide anion radical to hydrogen peroxide, which is less toxic to cells. Mitochondrial SOD requires manganese for its activity, while the cytoplasmic form requires copper and zinc. Reduced levels of SOD have been noted in several disorders, including rheumatoid arthritis, cataracts, infertility and compromised immune function. A low level indicates poor defense against the superoxide anion radical, thereby increasing the risk of free radical damage.

Reduced glutathione, an important antioxidant and detoxifying nutrient, was also found to be low. Replenishing reserves of glutathione, and maintaining optimal levels of all antioxidants can help to prevent oxidative stress.

The Phase I/Phase II ratios for sulfation, glycination and glucuronidation are all below the reference range. This is not considered to be clinically significant.

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NEUROPSYCHOLOGICAL EVALUATION

Identifying Information

Name:	**COPP, Doug**
Age:	**51 years**
DOB:	**8/3/51**
Date of Evaluation:	**4/23/03**
Date of Report:	**5/7/03**

Reason for Referral

Mr. Copp was referred for a neuropsychological evaluation by Timothy Smith, M.D., in order to provide objective information and clarification with respect to current neurocognitive functioning in light of reported cognitive difficulty.

Records Reviewed

The following medical records were reviewed and used in the formulation of the final report:

1. Records of Timothy Smith, M.D. (uncertain initial date of contact to present)
2. Records of Robert Friedman, M.D. (12/26/02 to present)
3. Records of Henry Garcia, M.D. (1/9/02 to present)

History

Mr. Copp is a 51-year old, right hand dominant male, accompanied to the evaluation by his wife. By way of history, Mr. Copp is a rescue worker, founder and executive director of American Rescue Team International, who sustained heavy metal toxicity and chemical exposure during time spent at the 9/11 World Trade Center disaster site. He was at the site on 9/12/01, and there for approximately two weeks engaged in search and rescue operations. His medical difficulties are extensive, and well documented in the available records provided by his treating physicians. He is currently being treated for significant respiratory problems as a result, and has been identified with reactive airway disease and multiple fungal infections, along with hypertension, immune system insufficiency, and fractured lumbar vertebrae (as a result of a fall sustained during the operation) with chronic pain. Please review the extensive medical records for additional history and background regarding his very complex and multifaceted medical profile. In addition to his respiratory distress and related health problems, he is also describing cognitive symptoms, including memory impairment, poor concentration, and difficulty focusing. He reports that, prior to this incident, he was symptom-free and functioning at a very high level as the director of an international rescue team with extensive experience and background at major disaster sites. This report is substantiated by the ancillary documentation provided by Mr. Copp

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and referenced in his medical records. He is currently being followed by Timothy Smith, M.D., with diagnoses of World Trade Center Respiratory Systemic Toxicity Syndrome, Hypothyroidism, and Acute Organic Brain Syndrome. Dr. Smith is located in San Francisco, California, and his local treating physicians are Dr. Robert Friedman in Santa Fe and Dr. Henry Garcia in Albuquerque.

Development/Family History: Mr. Copp reports that his father is deceased from the effects of brain cancer and his mother is alive and in good health. She is a retired nurse. He has one half-brother.

Education/School History: He indicates that he has a bachelors degree in philosophy and engineering. No educational records are available for review.

Employment History: He is the founder and executive director of American Rescue Team International. He founded the organization approximately 18 years ago and has worked major disasters in several countries. Prior to founding the organization, he worked for a number of years doing building demolitions. He indicates that he has not returned to work since the World Trade Center disaster, although there are references in the medical record to his involvement ina rescue mission in Mexico City in May of 2002.

Psychological/Psychiatric History: Mr. Copp denies any history of prior contact with mental health professionals. He indicates that he experienced symptoms similar to posttraumatic stress after he worked on his first disaster, but was not treated.

Drug/Alcohol History: Denied.

Current Family/Living Situation: He is residing with his spouse of ten years. He has one daughter from a prior marriage, with sporadic contact. His marriage relationship has declined since September of 2001. He reports that they have been unable to have sexual relations because of his health problems.

Medical History: As reported previously. The primary focus for the current evaluation is that of identification of potential cognitive impairments and decline as related to toxic exposure following his time at the World Trade Center disaster site. Of note is the fact that he is on multiple medications and has been participating in chelation therapy, oxygenation, and antioxidant treatment, in addition to facet injections for his back pain.

Current Medication(s): Mr. Copp is on an extensive regimen of medications and supplements, directed by Dr. Smith. Please refer to the addendum at the end of the report for this list.

Previous Testing: Mr. Copp has not undergone any previous neuropsychological or psychological evaluations.

Test Observations/Mental Status Examination

Mr. Copp presents as an alert, cooperative, and fully oriented adult male appearing his stated age. He is dressed casually and appropriately, with fair grooming and moderately unkempt appearance. He walks slowly with a stiff gait. Speech is even, well modulated, and fluent.

He communicates in a disorganized and moderately tangential fashion, embellishing answers and providing much extraneous and unsolicited detail. He is in moderate psychological distress. Mood is frustrated and irritable and affect is moderately labile. Thought processes are scattered and unfocused, with poor topic maintenance. There is no evidence on mental status, however, to suggest the presence of psychotic process in thinking. His sleep pattern is described as adequate at present. Regarding appetite, this has fluctuated. He indicates that, following the 9/11 incident, he gained over 50 pounds but has lost over 30 pounds in recent weeks. His current level of energy is low. He denies suicidal ideation. Ability to control impulses appears to be adequate. Ability to relate is basically adequate. His spouse provides ancillary information regarding his current day-to-day functioning, relating that he is forgetful, that he is often fatigued, and that he has great difficulty focusing. During formal test administration, Mr. Copp put forth reasonable effort and was motivated to perform optimally at all time. Two measures specifically designed to assess for effort and motivation in formal testing situations were administered to Mr. Copp, the Test of Memory Malingering and the Twenty-One Item Test. The results from both of these instruments indicate that Mr. Copp put forth good effort and was attempting to perform his best on measures of cognitive functioning. Fatigue was clearly an issue for him and he did require breaks. The current results appear to accurately represent his functioning in the areas evaluated.

Sources of Information

1. Wechsler Adult Intelligence Scale-III
2. Wide Range Achievement Test-III
3. Rey Complex Figure Test and Recognition Trial
4. California Verbal Learning Test
5. Controlled Oral Word Association Test
6. Wisconsin Card Sorting Test
7. Paced Auditory Serial Addition Test
8. Boston Naming Test
9. Test of Memory Malingering
10. Twenty-One Item Test
11. Category Test
12. Tactual Performance Test
13. Seashore Rhythm Test
14. Speech-Sounds Perception Test
15. Finger Tapping Test
16. Trail-Making Test, Parts A and B
17. Grip Strength Test
18. Reitan Indiana Aphasia Screening Test
19. Reitan-Klove Sensory-Perceptual Examination
20. Name Writing Test
21. Tactile Form Recognition Test
22. Minnesota Multiphasic Personality Inventory-II
23. Neuropsychological History Questionnaire
24. Oklahoma Premorbid Intellectual Estimate-III

Review of available medical records, referenced previously
Clinical Interview with Mr. Copp

Discussion of Results

Attention/Concentration: Mr. Copp is displaying prominent impairments of attention, concentration, and complex processing, and this is a consistent finding on all related measures included in the evaluation. He obtained a WAIS-III Working Memory Index score of 73 (4th percentile). On an auditory span task, he was only able to recall five digits forward and three backward successfully, and on a letter-number sequencing task within the same group subtests, a measure that requires the reordering of numbers and letters following auditory presentation, he was only able to consistently reorder a set of two to one letter and one number. He also performs moderately below expectancy on the Seashore Rhythm Test from the Halstead Reitan Battery (T = 34), and could not complete the Paced Auditory Serial Addition Test.

Memory Functioning: Mr. Copp's performance on the California Verbal Learning Test, a serial word list learning task consisting of 16 words for 4 semantic categories, he displays deficits of list acquisition, retrieval, and storage, with scores on all measures of acquisition, recall, and recognition well below expectancy. Results from the Rey Complex Figure Test and Recognition Trial, a core measure of visuospatial memory, provides for a similar pattern of impaired acquisition and retrieval, but with performance somewhat better overall, suggestive of relatively stronger visual memory. His performance on the memory portion on the Tactual Performance Test is below expectancy, with five of ten figures identified.

Intellectual Functioning: Mr. Copp obtained a Verbal IQ of 96 (39th percentile), a Performance IQ of 78 (7th percentile), and a Full Scale IQ of 88 (21st percentile) on the Wechsler Adult Intelligence Scale-III, however, this score pattern is not likely reflective of his actual intellectual functioning, due to the influences of deficits of working memory, attention, and concentration, and speed of processing on overall performance. He obtained the following index scores: Verbal Comprehension Index = 110 (75th percentile), Perceptual Organization Index = 89 (23rd percentile), Working Memory Index = 73 (4th percentile), Processing Speed Index = 73 (4th percentile). The most valid indicator of Mr. Copp's actual intellectual functional level is that of the Verbal Comprehension Index, a measure that provides for relatively pure verbal skill, in that there are no timing requirements on any of the three subtests involved on the index. His Verbal Comprehension score of 110 is very consistent with the estimate of premorbid intellectual functioning computed, the Oklahoma Premorbid Intellectual Assessment-III, a measure the utilizes a combination of current WAIS-III subtest performance and demographic variables to predict premorbid functioning. His OPIE-III IQ estimate is 108.

Academic Functioning: Mr. Copp obtained the following scores on the Wide Range Achievement Test-III, a screening instrument of core academic functioning: Reading Recognition: Standard Score = 107 (68th percentile; grade equivalent = post high school), Spelling: Standard Score = 108 (70th percentile; grade equivalent = post high school), Arithmetic: Standard Score = 99 (4th percentile; grade equivalent = high school). No decline in academic skills is suggested, based upon the current evaluation, with findings consistent with and similar to his reported educational background.

Language Functioning: Mr. Copp's performance on various measures of expressive and receptive language is all at expectancy, and there is no evidence to support the presence of dysfluency or language processing problems. He does perform in a rang of mild to moderate impairment on a controlled word fluency task, a test of verbal fluency in which words beginning

with a specific target letter of the alphabet or semantic category are generated, however, there are no perseverative errors and this pattern appears to be more related to speed of processing deficits than a core language dysfunction.

Motor Functioning: Mr. Copp's performance on the Finger Tapping Test from the Halstead Reitan Battery, a bilateral measure of rapid finger oscillation, is slow bilaterally with performance significantly below expectancy for both dominant and nondominant hand performance. His performance on the Hand Dynamometer Test, a measure of grasp strength, is also lower than expectancy.

Sensory-Perceptual Functioning: Mr. Copp's performance on the Sensory-Perceptual Examination is within normal limits, indicative of no identified difficulties of basic auditory-visual or tactile processing.

Executive Functioning and Mental Control: Mr. Copp's performance on various measures of higher order "executive" functioning and mental control is consistently below expectancy. His performance on the Trail-Making Test, Parts A and B, a test of visual scanning speed, visual attention, and mental control, in which the individual is instructed to either connect a series of numbers in sequence (Part A) or a series of numbers and letters in alternating sequence (Part B) is moderately below expectancy for both parts of the task. His performance on the Category Test from Halstead Reitan Battery, a test of abstraction and conceptualization that requires the individual to solve a problem based on an underlying principal, reveals 104 errors (T = 24) and error pattern that places him within a range of significant impairment. His performance on the Wisconsin Card Sorting Test, an additional higher order measure of hypothesis testing, abstract reasoning, and ability to shift and maintain cognitive set, is also below expectancy with only three categories successfully completed and a lower than expected percentage of conceptual level responding.

Personality and Behavioral Functioning: In order to evaluate current personality and emotional functioning, Mr. Copp was administered the Minnesota Multiphasic Personality Inventory-II, a comprehensive and objective self-report measure. Results from the validity scales portion of the instrument indicate that Mr. Copp approached the test in a consistent fashion, however, the validity configuration does suggest a slightly non-acquiescent profile. In general, however, the clinical profile appears valid for formal interpretation. Results from the clinical scales portion of the instrument reveal scale elevations on scales 1, 2, 3, 7, and 8. Individuals with similar MMPI-II configurations typically present with an array of somatic and psychological complaints. These individuals frequently show signs of depression, with associated fatigue and neurovegetative dysfunction. Low energy level, anhedonia, and low self-confidence are also frequently identified, in addition to a series of somatic complaints often identified in individuals with depressive disorders. Psychological turmoil is also often present in these individuals, and they frequently report problems with concentration and memory, in addition to reporting feelings of inadequacy and inferiority. A prominent focus on health concerns is also identified.

Summary and Interpretation

In conclusion, Mr. Copp is a 51-year old right hand dominant male, referred for a neuropsychological evaluation by his primary physician due to concerns raised regarding cognitive dysfunction since his involvement in the World Trade Center disaster of 9/11/2001.

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His health problems since the incident are extensive and well documented, and the primary focus of concern for the current evaluation is that of the extent to which Mr. Copp is experiencing cognitive dysfunction related to toxic exposure from this incident. Results from the current evaluation reveal measurable cognitive difficulty in the areas of memory acquisition, storage and retrieval, with a performance pattern suggestive of somewhat lower performance overall on measures of verbal-auditory learning as compared to visuospatial learning, poor performance on measures of attention, concentration, and complex information processing, performance lower than expectancy on measures of speed of processing, and difficulties on measures of higher order executive functioning as related to abstraction, conceptualization, and ability to establish and maintain cognitive set. His basic cognitive and intellectual functioning appears to be at the high end of average, with performance on a formal intellectual battery significantly influenced by deficits of working memory and processing speed. A premorbid estimate of intellectual functioning is consistent with one intellectual index score that emphasizes verbal skill and de-emphasizes attentional processes or speed. No decline of academic or language functioning is identified on the current evaluation and basic sensory-perceptual skills are also at expectancy, although motor functioning is also impaired, with performance on measures of motor speed and integrity below expectancy bilaterally.

As part of this evaluation, the complete Halstead Reitan Neuropsychological Battery was administered to Mr. Copp. This battery includes a number of tests and index scores sensitive to cerebral impairment. His obtained Halstead Average Impairment Rating of 2.36 (T = 20) places Mr. Copp within a range of significant impairment, supportive of the presence of prominent neuropsychological difficulty. Results from the personality portion of the evaluation reveals findings that are consistent with the presence of depression, somatic reactivity, current psychological distress, and poor coping ability. Individuals with chronic medical conditions frequently produce similar MMPI-II profiles, and an emphasis on and focus on somatic complaints is often a prominent aspect of the overall clinical picture. In summary, the current results support, to a reasonably degree of neuropsychological probability, the presence of moderate neuropsychological dysfunction, most likely related to toxic exposure within a previously high functioning individual. Affected areas include attention, concentration, processing speed, working memory, and acquisition, storage, and retrieval, in addition to executive conceptualization and flexibility of cognition. While psychological variables are present and likely influential, primarily as related to depression, it is unlikely that psychological variables fully account for the neurocognitive deficits seen on the current evaluation. From a diagnostic perspective, Mr. Copp's presentation is most consistent with a cognitive disorder and coexisting depression with stress, as related to his medical condition, along with related personality changes.

Treatment and intervention for his combination of cognitive difficulty and psychological dysfunction is clearly indicated. Mr. Copp should be considered for treatment for depression, including pharmacological management and individual counseling. He also should be considered for a course of cognitive rehabilitation to assist him with developing compensatory strategies to improve attention, efficiency of cognition, memory, and executive functioning. Referrals to a psychiatrist, psychotherapist, and speech-language pathologist for these interventions is recommended.

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Thank you for referring this most interesting gentleman for an evaluation. I hope that the current evaluation is helpful in planning for his future care. Please feel to contact me directly if you have any questions.

Tony J. Kreuch, Psy.D., ABPN, ACPN
Clinical Neuropsychologist,
Diplomate American Board of Professional Neuropsychology

Medications and supplements prescribed for Doug Copp
45 different medications multi dose, to 127 total doses per day

1. Zuthyomax
2. Rhino-Cort
3. Sporanox
4. Tiazac
5. Propenta
6. Advair
7. Intal
8. Cimetidene
9. Prednisone
10. Cromolin Sodium Opthalmic
11. Azmacort
12. Oxycodome
13. Aibuterol
14. Xopenex
15. Levothyroid
16. Pregnenolene
17. Saint John's Wort
18. MGN3
19. Glyolean
20. Antioxidart Catalypt
21. Gilko-Biloba
22. Mannatech Sport with Amlrotoe
23. Glucosamine-C. droitin
24. Multi-Vitamin
25. Ester-C
26. Flex-Brage Capsule
27. Vitamin B-100
28. Coenyme Q-10
29. Mixed Caitenoids
30. Ginseng
31. Adren Plus
32. Pantothenic Acid
33. Adrenal Glandlar

34.DHEA
35.Astralagus
36.Vitamin A (micellyid)
37.Chinese Herbal Supplement Drops (wise judge)
38.Zinc
39.Ambrotose
40.Whey Protein
41.Lipoic Acid
42.N-Acetylcysteine
43.MSM
44.Inflammation Control
45.Garlic
46.2cc Sodium Chloride with 2cc Glutathione in Neblizer 3 X per day