PRE-PUBLICATION REPORT

The Detection and Reduction of Mercury in Humans Using Oral DMPS (2,3-dimercaptopropane-1-sulfonate) with Support Nutritionals

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Abstract

Background: ***Micromercurialism*** is a term designating chronic low-level mercury toxicity, the clinical testing, diagnosis and treatment of which has been essentially non-existent in our health care system[1]. This is likely due to the vague and non-specific nature of the presenting signs and symptoms [Table 1]. Dental amalgam is the greatest source of mercury in the general population[2], and is released in vapour form, which is detectable, and quantifiable[3, 4a, 4b]. Tissue-bound mercury levels are not adequately measured by standard blood and urine analysis and there are many inconsistencies and false negatives associated with hair analysis[5]. The determination of an elevated body burden of mercury can best be made by measuring urinary mercury, after provocation with the chelating agent **2,3,-dimercapto-propane sulfonate (DMPS),** a simple, inexpensive procedure that provides objective confirmatory evidence[6]. Attempts both to detect and detoxify individuals of mercury have been hampered by the use of intravenous DMPS chelation and lack of clinician's awareness of proper testing techniques.

Objective: To determine the ability of an oral DMPS preparation to provide both accurate detection and removal of tissue-bound mercury by measuring pre- and post-treatment urine mercury by DMPS provocation analysis.

Methods: From January 1, 2005 through April 30, 2006 a cohort of 147 people distributed between medical clinics in New Zealand and the United States subsequently performed acceptable follow-up testing and was included in this study. The participants were selected based on the documentation of tissue burden of mercury obtained by an oral DMPS provocation 2-hour urine collection and analysis. Collection protocols required no seafood for 3 days preceding the collection. This baseline quantitative analysis was then compared against a repeat provoked urine following either one or two months of treatment using oral DMPS and a support formula (**MercOut**• www.MercOut.com), each taken once daily. Dosing of DMPS was initially 100 mg given at bedtime and progressed to a maximum 200 mg DMPS over the 30-day detoxification period.

Results: 63% of the cohort (93 of 147) showed a reduction of measured urine mercury levels greater than 50% within 30 to 60 days of using the oral DMPS formulation. The average mercury reduction in this group was a highly significant 69% [Chart 1].

Conclusion: 93 of the 147 cohort (63%) fell into either Groups C or D, showing a very significant reduction from between 51% to 100% in their repeat urine Hg levels as compared to initial baseline. The average mercury urine reduction in these two groups was 69%. The results show that the use of a formulation containing oral DMPS significantly reduced the tissue concentrations of mercury in humans within 60 days.

References

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Chart 1 -- Patient Outcomes

The following data shows baseline mercury levels taken prior to 30- to 60-day DMPS/nutritional supplement program ("Pre-Hg") and after the program was completed and a repeat urine challenge was performed ("Post-Hg"), with the % Improvement indicated.

Results Analysis: 93 of the 147 total included cohort (63%) fell into either Groups C or D, showing a very significant reduction of between **51% to 100%** in their repeat urine mercury (Hg) levels as compared to baseline. The average mercury urine reduction in these two groups was **69%.**

Group A: 0-25% Improvement (25 people)

Name	Pre-Hg	Post-Hg	% Improve	Name	Pre-Hg	Post-Hg	% Improve
Alberto	5.9	5.9	0%	Jayne	54	43	20%
Dennis	16	16	0%	Murray	54	43	20%
Melissa	23	23	0%	Maria	15	12	20%
Carol	28	27	4%	John	64	50	22%
Diana	31	29	6%	Robert	8.1	6.3	22%
Randy	92.5	85	8%	Shushila	22	17	23%
Donald	13	12	8%	Glenys	56	43	23%
Eric	23	20	13%	Jo	49	38	23%
Dawn	73	69	15%	Suzanne	40	31	23%
Alyse	9.8	8.3	15%	Becky	60	46	23%
Bob	13	11	15%	Tom	25	19	24%
Pat	29	24	17%	Janet	16	12	25%
Angelika	10	8.1	19%				

Group B: 26 to 50% Improvement (29 people)

Name	Pre-Hg	Post-Hg	% Improve	Name	Pre-Hg	Post-Hg	% Improve
Marion	29	21	28%	George	8.4	4.9	42%
Rosemarie	45	31	31%	Stuart	28	16	43%
Steven	29	20	31%	Adolf	14	8	43%
Ladene	7.4	5	32%	Ted	32	18	44%
Chris	46	31	33%	Hectorine	25	14	44%
Justine	33	22	33%	Laurie	25	14	44%
Janis	15	9.8	35%	Vivian	110	60	45%
Rick	6.2	4	35%	Michael	20	11	45%
Michael	42	27	36%	Bill	7.4	4.1	45%
Macy	19	12	37%	T.	26	14	46%
Tom	24	15	38%	Robert	18	9.5	47%
Christine	49	30	39%	Louise	10	5.1	49%
Mary-Lyn	28	11	39%	Steve	66	33	50%
Sandra	110	66	40%	Bob	34	17	50%
Ada	7.4	4.4	41%				

Chart 1 -- Patient Outcomes (cont'd)

Group C: 51 to 75% Improvement (65 people)

Name	Pre-Hg	Post Hg	% Improve	Name	Pre-Hg	Post-Hg	% Improve
Liz	5.7	2.8	51%	Marcus	30	11	63%
Diane	70	34	51%	MaryLou	65	24	63%
Shirley	27	13	52%	Fraser	47	17	64%
Janet	42	20	52%	Karen	15	5.4	64%
Alister	25	12	52%	Larry	76	27	64%
Erica	4.5	2.1	53%	Leas	69	25	64%
Peggy	70	33	53%	Adela	14	5.1	64%
David	5.5	2.6	53%	Graeme	34	12	65%
Geoffrey	35	16	54%	Maria	28	9.8	65%
Larry	6.8	3.1	54%	Lee	32	11	66%
Verna	65	30	54%	Gaylene	18	6.1	66%
Bronwynne	60	27	55%	Ann	140	47	66%
Ursula	20	9	55%	Dianne	17	5.7	66%
Derry	42	19	55%	James	27	9.3	66%
Walter	33	15	55%	Reowtie	170	57	66%
Jack	210	95	55%	Sude	51	17	67%
Charise	85	37	56%	Michelle	72	24	67%
Louisa	25	11	56%	Susan	69	23	67%
Phyllis	11	4.7	57%	Karen	20	6.4	68%
Harry	22	9.5	57%	Linton	15	4.8	68%
Mark	140	58	59%	Dianne	80	25	69%
Mary	32	13	59%	Ann	83	24	71%
John	57	23	60%	Maufred	28	8.2	71%
Vikki	36	14	61%	Bronwyn	72	20	72%
Vince	44	17	61%	Bill	7.4	2.1	72%
Tom	11	4.3	61%	Ron	18	4.8	73%
Gary	83	32	61%	Jose	13	3.5	73%
Natallie	37	14	62%	Mezare	92	25	73%
Scott	17	6.4	62%	Antoine	8.9	2.4	73%
David	45	17	62%	Marc	92	24	74%
Randy	20	7.7	62%	Betty	25	6.3	75%
Gary	24	8.9	63%	Wes	91	23	75%
Elly	63	23	63%				

Group D: 76% to 100% Improvement (28 people)

Name	Pre-Hg	Post-Hg	% Improve	Name	Pre-Hg	Post-Hg	% Improve
Harold	27	6.5	76%	Francoise	52	8.2	84%
Jay	49	11	78%	Mary	37	5.2	86%
Howard	35	7.7	78%	Rosalie	41	4.5	86%
Otto	58	12	79%	George	27	3.8	86%
Beth	23	4.9	79%	James	44	5.8	87%
Tony	27	5.4	80%	Diane	7.3	0.9	88%
Philip	12	2.4	80%	Kathy	150	18	88%
John	20	3.9	81%	Carol	52	4.9	91%
Marty	92	17	82%	N.	15	1.4	91%
Joe	340	55	83%	Anjal	23	1.8	92%
Nancy	66	11	83%	Steven	90	2.4	97%
Paul	21	3.3	84%	Gary	38	1.2	97%
Landon	22	3.6	84%	Carol	49	6.5	99%
Jim	26	4.1	84%	A.J.	21	0	100%

Table 1: Symptoms and Pathology of Mercury in the Human Body

Physical
Autism
Amylotrophic lateral sclerosis
Ankylosing spondylitis
Myasthenia gravis
Paresthesias and neuralgias
Vision, taste, smell & hearing disturbances
Vertigo & tinnitus
Multiple Sclerosis
Parkinson's disease
Alzheimer's Dementia
Other dementias
Hypothyroidism/Cold Extremities
Infertility
Poor libido
Impotency

Physical (cont'd)
Other endocrine problems
Rheumatoid arthritis
Juvenile arthritis
Arrhythmias
Myocardial infarction
Lupus erythromatosus
Other autoimmune diseases
Multiple chemical sensitivities
Chronic fatigue
Fibromyalgia
Sciatica
Gastritis & Colitis
Irritable bowel syndrome
Crohn's disease
Sleep disorders
Yeast syndrome

Psychological/Mental:
"Brain fog" or poor focus/concentration
Rage or being quick to anger
Mood swings
Indecisiveness
Panic attacks
Attention Deficit Disorder (ADHD)
Hyperactivity
Learning disabilities
Depression
Unexplainable sadness
Joylessness
Fearfulness
Obsessive-compulsive disorder
Manic-depressive disorder
Sleep disturbances
Anorexia nervosa
Bulimia

Oral Formula Used in Research

Dosage: 3 Morning capsules and 1 Nighttime capsule

Amount per 3 Morning capsules

Vitamin C (ascorbic acid)	360 mg
Calcium (from citrate)	50 mg
Magnesium (from aspartate)	12 mg
Zinc (from picolinate)	20 mg
Selenium (from l-selenomethionine)	200 mcg
Copper (from copper glycinate)	0.60 mg
Manganese (from manganese aspartate)	0.38 mg
Chromium (from polynicotinate)	25 mcg
Molybdenum (from molybdenum aspartate)	99 mcg

MercOut Support Complex 1426 mg
MSM (methylsulfonylmethane), NAC (N-Acetyl-Cysteine), Milk Thistle Extract (80% silymarin), Boron, Turmeric Root Extract (min. 95% curcuminoids), Alpha Lipoic Acid, L-Methionine, L-Glutamine, Glycine, L-Cysteine.

Amount per 1 Nighttime capsule

DMPS (dimercaptopropanesulfonic acid)	125 mg