Hair Testing for Mercury and Other Toxic Metals
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Notes

1. Roels, HA *et al*. Urinary excretion of mercury after occupational exposure to mercury vapor and the influence of the chelating agent meso-2,3-dimercaptosuccinic acid (DMSA). *British Journal of Industrial Medicine*. 1991; 48:247-253.
2. Aposhian HV *et al*. Urinary mercury after administration of 2,3- dimercaptopropane- 1-sulfonic acid - correlation with dental amalgam score. *FASEB Journal,* 1992; 6(7):2472-2476.
3. Bennett and Plum. *Cecil Textbook of Medicine*. 20th edition. WB Saunders & Co. both p. 69 "Because of the metabolism of mercury, blood and urine levels may be unreliable, and clear evidence of poisoning may be documented only after administering drugs that augment mercury excretion in urine." This is also in the 21st edition. The 24th edition states: "clinical signs or symptoms are poorly correlated with blood or urine mercury levels because of substantial intraindividual and interindividual variation."
4. Collin, J. Letter from the publisher: the post-chelation urinary toxic element screen. *Townsend Letter*. October 2016;7-8.
5. E. g. as determined by the tri-test: Shade, C. Mercury tri-test. https://www.quicksilverscientific.com/testing/mercury-tri-test Accessed 11/5/16.
6. Rooney, JPK. The retention time of inorganic mercury in the brain – a systematic review of the evidence. *Toxicol Appl Pharmacol*. 2014; 274:425-35.
7. Cutler, AH. *Hair Test Interpretation: Finding Hidden Toxicities*. Sammamish: Andrew Hall Cutler; 2004. ISBN 0967616816.
8. Goodman, LS and Gilman, A *The Pharmacological Basis of Therapeutics*, 5th edition, New York: MacMillan Publishing Co, Inc.; 1975. See page 937.
9. Personal communication from Dr. George Gilson, recounting that Dr. Johnathan Wright has discussed this for quite a long time.
10. *Hair Test Interpretation*, *vide supra*. The astute reader may notice that the book was written, and rules derived, with 23 'essential and other' elements, but today's DDI test has 22. The statistics work out close enough that the actual counts to use do not change and the probability of satisfying one of the rules by chance is not increased above 2.5%.
11. Gerstner, HB and Huff JE. Clinical toxicology of mercury. *J. Toxicol Env Hlth.* 1977; 2:491-526. see pp 505-7. Or *Hair Test Interpretation, vide supra,* pp 81-5.
12. How to interpret some other labs' tests is given on page 268 of *Hair Test Interpretation, vide supra*. For labs not on the list compare to the lab with the closest number of essential and other elements.
13. Ferris, D. Hair tests. http://www.livingnetwork.co.za/chelationnetwork/hairtest/hairtest3/ Accessed 10/31/16.
14. See page 26 of *Hair Test Interpretation*, *vide supra*, for finer gradations between a "normal" and an "abnormal" hair test depending on exactly how it counts.
15. David Hammond kindly provided access to a dataset on Thai public college students in 2016.
16. livingnetwork.co.za *vide supra*.
17. Blaurock-Busch, E. et al. Toxic metals and essential elements in hair and severity of symptoms among children with autism. *Mædica - a Journal of Clinical Medicine.* 2012; 7(12):38-48.
18. Shin, D.W. et al. Association of hair manganese level with symptoms in attention-deficit/hyperactivity disorder. *Psychiatry Investig.* 2015; 12(1):66-72.
19. Boffetta, P. et al. Cancer occurrence among European mercury miners. *Cancer Causes and Control.* 1009' 9:591-599.
20. Shen, F. et al. The association between deficient manganese levels and breast cancer: a meta-analysis. *Int J Clin Exp Med.* 2015; 8(3):3671-3680.
21. Yasuda, H., Yasuda, Y., and Tsutsui, T. Estimation of autistic children by metallomics analysis. *Scientific Reports*. 2013; 3:1199:1-7.
22. Autism Research Institute, *Treatment ratings for autism*. 2009; http://www.autism.com/pdf/providers/ParentRatings2009.pdf accessed 10/31/16.
23. Data of Adams, JB et al. privately communicated to me in 2004. This data consisted of Doctor's Data hair analyses for autistic children and control children. No formal evaluation of controls being 'neurotyipical' was performed.
24. Unpublished data of myself and Gordon Downie, PhD, MD.
25. He, K. Mercury exposure in young adulthood and incidence of diabetes later in life. *Diabetes Care*; 2013; 36:1-7.