

# **Manganese Health Research Program: Recent published literature**

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**September 2008 - November 2008**

**December 2008**

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# Introduction

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This report presents the bibliographic details of papers identified as being first published during the period September 2008 to November 2008.

The papers were selected because they address research areas that are considered of direct relevance to the health effects of manganese (Mn); in order to aid review, the papers are presented under the following categories:

**Section 1 - EXPOSURE MEASUREMENT AND MODELLING:** Papers relating to the measurements or modelling of environmental and occupational Mn exposure, the development of biomarkers of exposure or effect.

**Section 2 - HEALTH EFFECTS:** Papers on the influence of Mn on health, disease and dysfunction.

**Section 3 - MECHANISM:** Papers on the physiological, biochemical and cellular mechanisms underlying the toxic effects of Mn.

**Section 4 - HUMAN SUSCEPTIBILITY:** Papers relating to assessment of the influence of genetic and epigenetic factors on human susceptibility to the effects of Mn.

**Section 5 - TREATMENT AND IMAGING:** Papers on the development and implementation of new medical approaches to the treatment of excessive Mn exposure.

**Section 6 - MISCELLANEOUS:** Other papers considered of interest or potential relevance to the study of the health effects of Mn.

The papers presented herein were identified using a series of structured searches of the following on-line databases: Medline, Toxline, Biological Sciences and Proquest Health. The paper abstracts were reviewed and categorised by an experience Scientist to confirm their relevance before inclusion in this report.

# 1. EXPOSURE MEASUREMENT AND MODELLING

Aslam, Pejovic-Milic, A., Chettle, D.R., *et al.* (2008) Quantification of Manganese in Human Hand Bones: A Feasibility Study. *Physics in Medicine and Biology*, 53(15), 4081-4092.

Cheong, H., Kwon, H., Kim, E., *et al* (2008) Blood Manganese Level and Attention Deficit/Hyperactivity Disorder in Early School Age Children. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S223-S224. [Abstract].

Cheong, H., Kwon, H., Kim, E., *et al* (2008) Environmental, Behavioral, and Dietary Factors Related to the Manganese Exposure of Early School Age Children. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S288-S288. [Abstract].

Menezes-Filho, J.A., Sarcinelli, P.N., Moreira, J.C., *et al* (2008) Air, Water, House Dust, Blood and Hair Manganese of Children Living in the Vicinity of a Ferro-Manganese Alloy Plant. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S101-S101. [Abstract]

Riojas-Rodriguez, H., Rodriguez-Agudelo, Y., Schilman, A., *et al* (2008) Neuropsychological Effects of Manganese Exposure on Children Living in Communities Near Processing Plants in Mexico. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S153-S154. [Abstract]

Zota, A.R., Ettinger, A.S., Schwartz, J., *et al* (2008) Influences of Diet and Indoor Environment on Infant Manganese Exposure. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S149-S149. [Abstract]

## 2. HEALTH EFFECTS

Cheong, H., Kwon, H., Kim, E., *et al* (2008) Blood Manganese Level and Attention Deficit/Hyperactivity Disorder in Early School Age Children. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S223-S224. [Abstract].

Cheong, H., Kwon, H., Kim, E., *et al* (2008) Environmental, Behavioral, and Dietary Factors Related to the Manganese Exposure of Early School Age Children. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S288-S288. [Abstract]

Goodman, J.E., Bailey, L.A. & Beck, B.D. (2008) Recent Occupational Studies of Manganese and their Bearing on the Reference Concentration. *Annals of Epidemiology*, 18(9), 726-727.

Leikin, J.B. & Mottram, A.R. (2008) Psychosis Temporally Related to Supratherapeutic Manganese Supplementation. [Presented at the 2008 North American Congress of Clinical Toxicology Annual Meeting, September 11-16, 2008, Toronto, Canada] *Clinical Toxicology*, 46(7), 636-636. [Abstract]

Riojas-Rodriguez, H., Rodriguez-Agudelo, Y., Schilman, A., *et al* (2008) Neuropsychological Effects of Manganese Exposure on Children Living in Communities Near Processing Plants in Mexico. [Presented at the 20th ISEE Annual Conference, October 12-16, 2008, Pasadena, California, USA] *Epidemiology*, 19(6 Supp), S153-S154. [Abstract].

### 3. MECHANISM

Ciobotariu, D., Chelarescu, I., Stoica, B., *et al* (2008) Manganese Influence on Morphine-Induced Conditioned Place Preference in Rats. [Paper presented at the 21st ECNP Congress, 30 August-03 September 2008, Barcelona, Spain] *European Neuropsychopharmacology*, 18(Supp 4), S242-S243. [Abstract]

Deng, Y., Luan, Y., Qing, H., *et al.* (2008) The Formation of Catechol Isoquinolines in PC12 Cells Exposed to Manganese. *Neuroscience Letters*, 444(2), 122-126.

Dorman, D.C., Struve, M.F., Norris, A., *et al.* (2008) Metabolomic Analyses of Body Fluids After Subchronic Manganese Inhalation in Rhesus Monkeys. *Toxicological Sciences*, 106(1), 46-54.

Farina, M., Bonne, R., Vendrell, I., *et al* (2008) Oxidative Stress in Cerebellar Granule Neurons Exposed to Methylmercury and Manganese. [Presented at the 45th Congress of the European Societies of Toxicology, Rhodes, Greece, 05-08 October 2008] *Toxicology Letters*, 180(Supplement 1), S41-S41. [Abstract]

Guo, S-C., Lu, C-L. & Li, X-Y. (2008) Effect of Manganese on DNA Damage of Neurons. *Chinese Journal of Public Health -Shenyang-*, 24(9), 1101-1102. [Chinese]

Han, J.H., Chung, Y.H., Park, J.D., *et al.* (2008) Recovery from Welding-Fume-Exposure-Induced MRI T1 Signal Intensities After Cessation of Welding-Fume Exposure in Brains of Cynomolgus Monkeys. *Inhalation Toxicology*, 20(12), 1075-1083.

Jiao, J., Qi, Y., Fu, J., *et al.* (2008) Manganese-Induced Single Strand Breaks of Mitochondrial DNA in Vitro and in Vivo. *Environmental Toxicology and Pharmacology*, 26(2), 123-127.

Ma, C., Schneider, S.N., Miller, M., *et al.* (2008) Manganese Accumulation in the Mouse Ear Following Systemic Exposure. *Journal of Biochemical and Molecular Toxicology*, 22(5), 305-310.

Marreilha dos Santos, A.P., Santos, D., Au, C., *et al.* (2008) Antioxidants Prevent the Cytotoxicity of Manganese in RBE4 Cells. *Brain Research*, 1236, 200-205.

Nam, J. & Kim, K. (2008) Abnormal Motor Function and the Expression of Striatal Dopamine D2 Receptors in Manganese-Treated Mice. *Biological & Pharmaceutical Bulletin*, 31(10), 1894-1897.

Prestifilippo, J.P., Fernandez-Solari, J., De Laurentiis, A., *et al.* (2008) Acute Effect of Manganese on Hypothalamic Luteinizing Hormone Releasing Hormone Secretion in Adult Male Rats: Involvement of Specific Neurotransmitter Systems. *Toxicological Sciences*, 105(2), 295-302.

Simmons, J.M., Saad, Z.S., Lizak, M.J., *et al.* (2008) Mapping Prefrontal Circuits in Vivo with Manganese-Enhanced Magnetic Resonance Imaging in Monkeys. *Journal of Neuroscience*, 28(30), 7637-7647.

Thomas, P., Hayashi, H., Lazure, D., *et al.* (2008) Inhibition of Lipopolysaccharide Activation of Kupffer Cells by Transition Metals. *The Journal of Surgical Research*, 148(2), 116-120.

Wang, P. & Song, S-Z. (2008) Study on Apoptosis of PC12 Cell by Manganese Chloride and its Mechanism. *Chinese Journal of Industrial Medicine*, 21(4), 225-228. [Chinese]

Xu, X., Xiang, Y. & Yang, M. (2008) Subacute Toxicity of Exogenous Manganese on Rat Hippocampal Neurons Examination by MRI and Optical Microscopy. *Neural Regeneration Research*, 3(005), 550-553.

Xu, B., Xu, Z-F. & Deng, Y. (2008) Effect of Nimodipine on Changes of NO and NOS in Rat Liver Caused by Manganese. *Chinese Journal of Industrial Medicine*, 21(3), 174-175. [Chinese]

Zhang, F-L., Xu, Z-F. & Gao, J. (2008) Effect of Manganese Exposure on Energy Metabolism and Oxidative Damage of Mitochondria in Rat Brain. *Chinese Journal of Public Health -Shenyang-*, 24(8), 0954-0955. [Chinese]

Zhang, F., Xu, Z., Gao, J., *et al.* (2008) In Vitro Effect of Manganese Chloride Exposure on Energy Metabolism and Oxidative Damage of Mitochondria Isolated from Rat Brain. *Environmental Toxicology and Pharmacology*, 26(2), 232-236.

## **4. HUMAN SUSCEPTIBILITY**

No relevant papers identified.



## **5. TREATMENT AND IMAGING**

No relevant papers identified.

## **6. MISCELLANEOUS**

No relevant papers identified.