



# Cocoon Nutrition

Scientific Breakthroughs for Radiant Health

## Mercury Magnet

- Mercury Magnet is derived from a single natural substance
- Mercury Magnet does not push mercury into the brain in that it does not enter into the bloodstream; a major safety factor as documented in studies using radio labeled product
- Mercury Magnet is nontoxic and a proven safe alternative for mercury chelation.

### The Use of Mercury Magnet in Heavy Metal Toxicity

The active ingredient in Mercury Magnet is a biopolymer with molecular weights ranging between 25 -45 K. The active ingredient is isolated from the bark of a particular species of oak tree that is native to forests in Eastern Europe. It is chemically a poly phenolic acid, with molecular structures that resemble procyanins.

Oral administration of Mercury Magnet is safe, although some unpleasant gastrointestinal side effects (excess gastric acid secretion and gas formation) may develop, although rarely (approximately 1 % to 2%), and termination of Mercury Magnet is recommended.

As evidenced by radio-labeled Mercury Magnet in animal studies, Mercury Magnet does not get absorbed. No traces of the active ingredient were found in the blood-stream, but rather completely secreted in the feces (which is most likely due to the high molecular weight of the active ingredient).

### Comparison Of Chelating Agents Used For Detoxification

	DMSA/DMPS	Cornucopia Of Natural Chelators	Mercury Magnet
Composition	Synthetic drug	Natural substances	Oak tree bark
Safety/Tolerance	Very questionable! Often not tolerated well	Undetermined/insufficient data to determine tolerance	Safe and effective! 1-2% intolerance
Removal Of Hg From Brain	Undetermined	Undetermined	87% in animal
Danger Of Relocating Hg In The Body	Potentially yes	Potentially yes	No
Does Chelators Circulate In Blood Stream And Brain	Yes	Yes	No - remains in GI tract as determined by radio labeled studies
Years In Use	30+ years	5 years	30+ years
Studies	Good clinical data	Suppliers offer selected data	Military use with good clinical data
Use In Autism	Generally positive with ups and downs. Major concern of hg being pushed into brain	Anecdotal data that some people feel better. No documentation consistent for hg removal	Needs evaluation

## Study I (Human with lead toxicity)

Volunteer workers of the Ajka Crystal Factory (Hungary) ranging from 18 to 60 years old of both sexes, who had been continually exposed to high doses of lead prior to starting the trial, were selected. The workers' blood lead level was regularly determined during the mandatory blood lead control exams that were carried out every six months. Volunteers, whose blood lead levels exceeded 2.4  $\mu\text{mol/l}$  by the end of the third week, were removed from their workplace and employed in a less risky job, until their blood level dropped below 2.5  $\mu\text{mol/l}$ . In the case of young female workers the critical threshold was 15  $\mu\text{mol/l}$ .

The following criteria were set for exclusion from the study group:

- Suspected lead poisoning (necessity of EDTA treatment),
- Pregnancy, breast-feeding,
- Kidney, liver and heart failure,
- Circulatory and/or respiratory problems,
- Blood clotting disturbance,
- Disease of the central nervous system or psychiatric illness,
- Acute allergic illness,
- Diabetes mellitus,
- Permanent medication (except for oral contraception), of abuse of alcohol and/or drugs.

60 volunteers were selected to participate in the study.

## Results and Test Protocol

Out of the 60 participants, 2 volunteers stopped taking Mercury Magnet due to uncomfortable feeling around the stomach (excess gas and acid secretion). 58 volunteers completed the 12-week study.

The duration of the trial (the treatment period for one patient) was 12 weeks. The volunteer glass factory workers, who had participated in the obligatory serum lead screening examinations and met the criteria for participation, reported for the trial at the factory medical clinic. On the first day of the research program personal histories were taken from each participant. Each participant underwent a physical check-up that included an ECG, blood pressure and heart rate monitoring, and laboratory tests. The volunteers involved in the trial were given the Mercury Magnet in a syrup in sufficient quantities for a three-week treatment protocol. They took 1 x 10 ml syrup per day after the main meal in accordance with the instructions on administration.

Control examinations were held on the 42nd and the 84th ( $\pm 3$  days) days. The volunteers appearing for control examination participated in laboratory tests, which according to the protocol - comprised of the following examinations :

### 1.1 Physical check-up

Examination	Method
ECG	MR-11
Blood pressure	RR
Pulse	Feeling

Examination	Method	Normal Range
Hematology	COBAS MICROS Roche automatic analyzer	
WBC		4-9 x 10 <sup>3</sup>
Segm.		40-70%
Lymphocytes		20-45%
Eosinophils		1-6%
St.		1-2%
Mo.		1-2%
RBC		45.5 x 10 <sup>6</sup>
Hemoglobin		120-170 g/l
Hematocrit		38.0-50.0%
MCV		85-100 fl
MCH		28-32 pg
MCHC		320-360 g/l
Thr.		150-400 x 1000/ml
Sedimentation		1-2mm/h

Clinical Examinations	Unit Used	Range
- se Na	Referenzmethode (Flammenphotometrie)	135-145 mmol/l
- se K	Referenzmethode (Flammenphotometrie)	3.5-4.8 mmol/l
- BUN	UV test (Urease-GLDH)	2-10 mmol/l
- se creatinin	Jaffé (mit enteiweissung)	45-106 umol/l
- se bi.	DPD	4-21 umol/l
- blood sugar	Hexokinase	3.3-5.9 mmol/l
- ALP	DGKC 37 °C	98-279 U/l
- SGOT	JFCC (ohne pyridoxaiphosphat) 37 °C	0-47 U/l
- SGPT	[FCC (ohne pyridoxalphosphat) 37 °C	0-49 U/l
- LDH	DGKC 37 °C	230-460 U/l
- Gamma-GT	SZASZ 37 °C	
- Se cholesterol	CHOD-PAP (Endproduct)	2.9 -5.7 mmol/l
- Se-triglyceride	GPO-PAP	0.8-1.9 mmol/l
- Se Fe	Ferrozin (ohne enteiweissung)	12.5-25 umol/mol
- Se-transferrin	Nephelometrie	2-4 g/l
blood Pb,	Perkin Elmer 3000 AAS	Umol/dm <sup>3</sup>
ZnPP	Free PP	umol/mol
Urine analysis:	ELU Test-URI CONT (vondor 77 Elektronika)	
- density,	Weight measurement	1015-1025 g/l
- pH,	ELU Test-MI CONT (vondor 77 Elektronika)	4-10
- protein,	Biuret (ohne Probe-Leerwort)	-
- sugar,	ELU Test-URI CONT (vondor 77 Elektronika)	-
- acetone,	ELU Test-URI CONT (vondor 77 Elektronika)	-
- UBG,	ELU Test-URI CONT (vondor 77 Elektronika)	-
- sediment.	Microscope	-

In the entire test population - consisting of 58 individuals - Se (serum) lead dropped in 46 patients compared to the initial parameters, which indicates a 79.3% positive reaction to Mercury Magnet (as shown after statistical analysis of the data).

The volunteers were divided into two groups (a and b); the members of group "a" were exposed to lead throughout the trial, whereas those of group "b" the exposure was interrupted.

By the end of the therapy (12-week duration), the mean blood lead level lowered in the entire group of volunteers by 0.18  $\mu\text{mol}/\text{dm}^3$ , while in the group exposed to lead all through the trial the reduction was 0.12  $\mu\text{mol}/\text{dm}^3$ . In the group removed from exposure it was by 0.26  $\mu\text{mol}/\text{dm}^3$ . The rate of reduction was significant in all three groups cases

### Final Comments and Discussion

The key selection criteria included exposure and a minimum blood lead level of 1  $\mu\text{mol}/\text{dm}^3$  as specified in the protocol. Relocation from the workplace was a necessity, as it was obligatory to stop exposure whenever the limit value defined by OMFI and ANTSZ was exceeded. The same way re-employment was allowed when the measured parameter dropped below the normal limit.

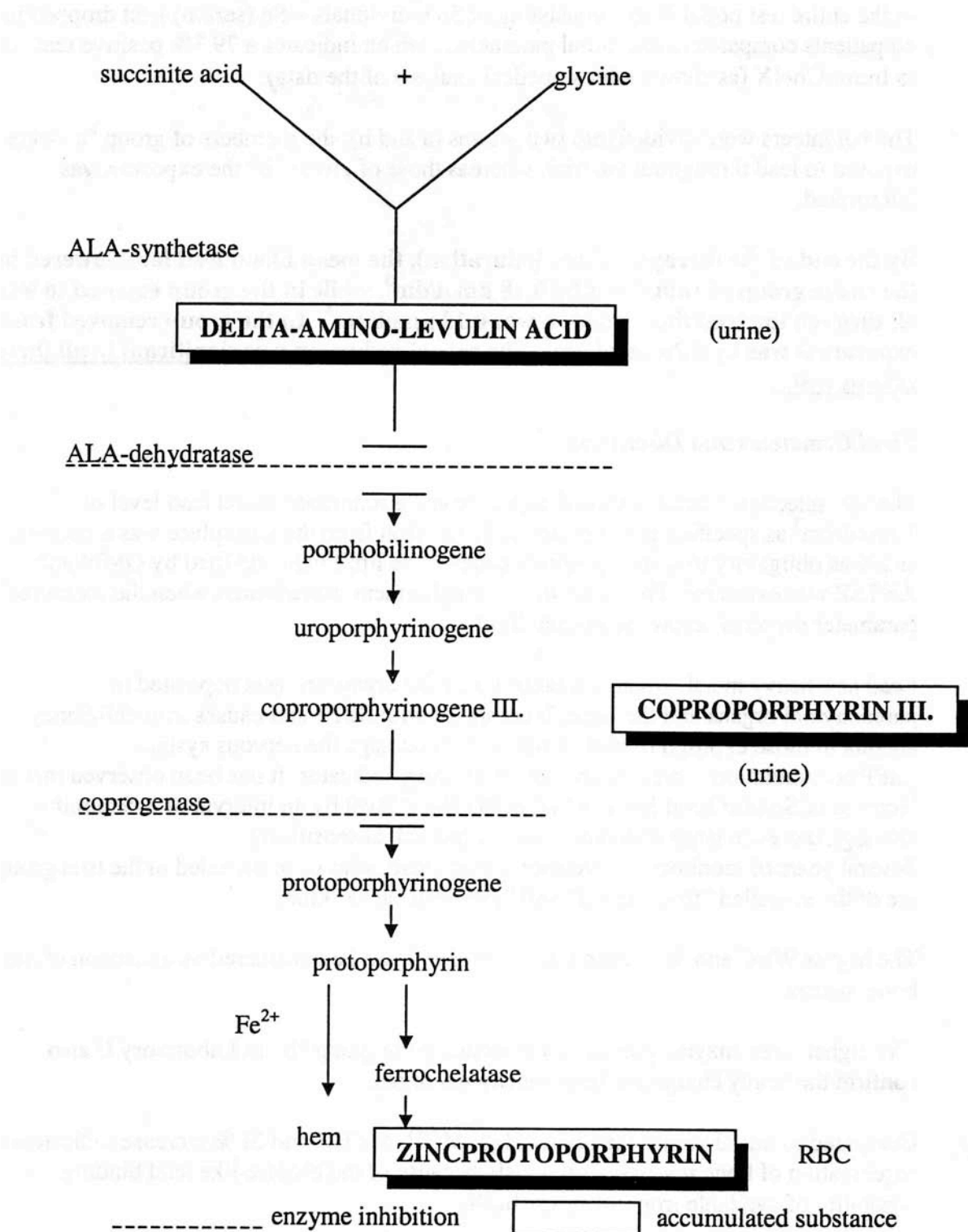
Lead as a heavy metal, when it is taken up by the organism, gets deposited in parenchymal organs and the bone. It competes with Se Fe and causes iron deficiency anemia in those exposed to lead. It might even damage the nervous system. ZnPP accumulation serves as a rough preliminary indicator. It has been observed that the increase of Se lead level follows that of the ZnPP level by an interval of 3-5 months, although there are large differences due to individual sensitivity. Several years of monitoring have shown that those, who were included in the trial group, are of the so-called "fast take-up" and "slow discharge" kind.

The higher WBC and St % found in Laboratory 1 can be considered as a reaction of the bone marrow.

The higher liver enzyme partial values measured in group "b" in Laboratory II also confirm the heavy charge on the parenchymal organ.

Compared to initial values the higher Hgb, MCH, MCHC and St % increase indicate the regeneration of bone marrow - obviously because of the chelate-like lead binding capability of available iron in Mercury Magnet.

The reduction of Se cholesterol seems also interesting and deserves to be followed up. The same way the reduction of SGOT and SGPT level is also noteworthy. It might confirm that Mercury Magnet by eliminating the lead deposited in the liver facilitates the normalization of the enzyme level.



**Study II (human - cadmium)**

Based on the metal chelating capacity of Mercury Magnet and the well-known interaction of cadmium with other micro/trace elements, this study was aimed at determining whether the daily consumption of Mercury Magnet with bound complex micro elements (1MB) has beneficial effect in cadmium workers. Blood and urine cadmium concentrations (Cd-B and Cd-U),

hematology, liver and kidney tests were measured in two groups of cadmium exposed workers (Group A: 9 persons working in alkaline battery production; Group B: 22 persons working in a metal plating workshop) before and after a six-week treatment schedule. Cd-B was significantly decreased in group A from 47.73 to 27.24 umol/l (43% drop) and in group B from 8.55 to 7.17 umol/l (17% drop). Cd-U was increased significantly in group A from 3.21 to 4.25 nmol/mmol creatinine but not in group B. In most cases the initially abnormal serum iron levels and markers of liver and kidney function improved. Daily consumption of Mercury Magnet for six weeks seemed to decrease uptake and increase urinary excretion of cadmium and to improve the iron status and other adverse laboratory changes found in the workers. Regular consumption of Mercury Magnet may contribute to health protection an effective means of prevention and in cases of occupational cadmium exposure.

**Table 1. Distribution of cadmium workers according to plant, sex, smoking, habit, age and exposure time (mean±SD; range).**

Location	Plant A (alkaline battery production)				Plant B (metal plating)			
	Males		Females		Males		Females	
Smoking	Smokers	Non-smokers	Smokers	Non-smokers	Smokers	Non-smokers	Smokers	Non-smokers
N =	4	3	2	0	3	15	2	2
Age (years)	45.4±8.2 33 - 59		50.0±0 50 -50		39.7±10.4 23-70		54.0±4.8 49-59	
Exposure Time (years)	8.8±6.1 1.5 - 17		12.0±1.4 11 - 13		8.3±5.0 1 - 20		11.0±1.2 10 - 12	

Administration of Mercury Magnet (MM) during the study: 10 ml taken orally once a day (supplemented with potassium: 36.7 mg, magnesium: 15 mg, iron: 14 mg, zinc: 10 mg, manganese: 3 mg, copper: 2 mg, vanadium: 0.5 mg, cobalt: 0.2 mg, molybdenum: 0.175 mg, selenium: 0.125 mg, that does not exceed the respective recommended daily intake for any element; WHO, 1992).

Venous blood and spot urine samples were analyzed.

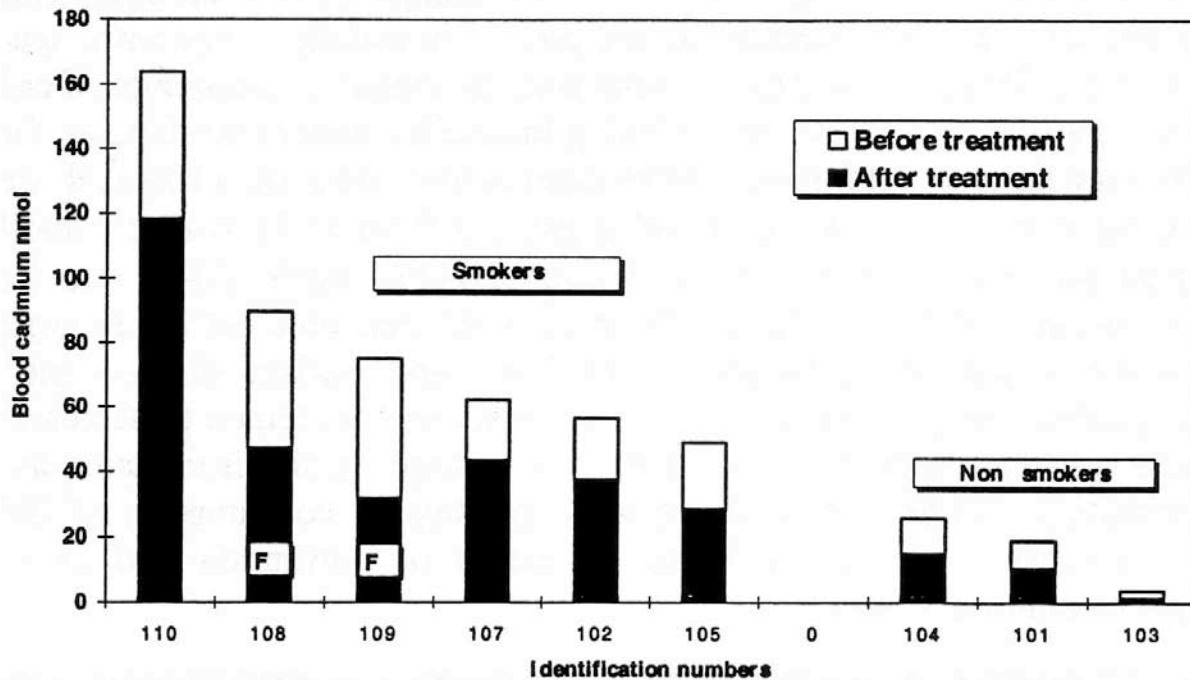


Figure 1. Decrease of blood cadmium concentration in Group A workers (alkaline battery plant) on the effect of consumption of Mercury Magnet for six weeks F: female.

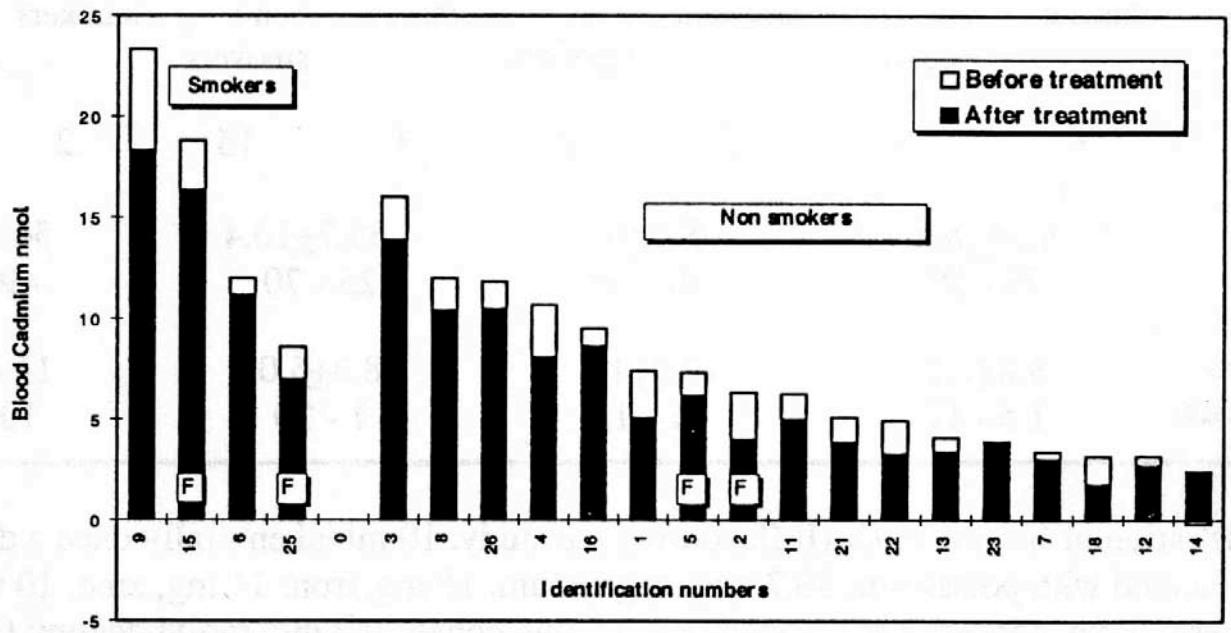


Figure 2. Changes of blood cadmium concentration in group B workers (metal plating factory) on the effect of consumption of Mercury Magnet for six weeks. F: female.

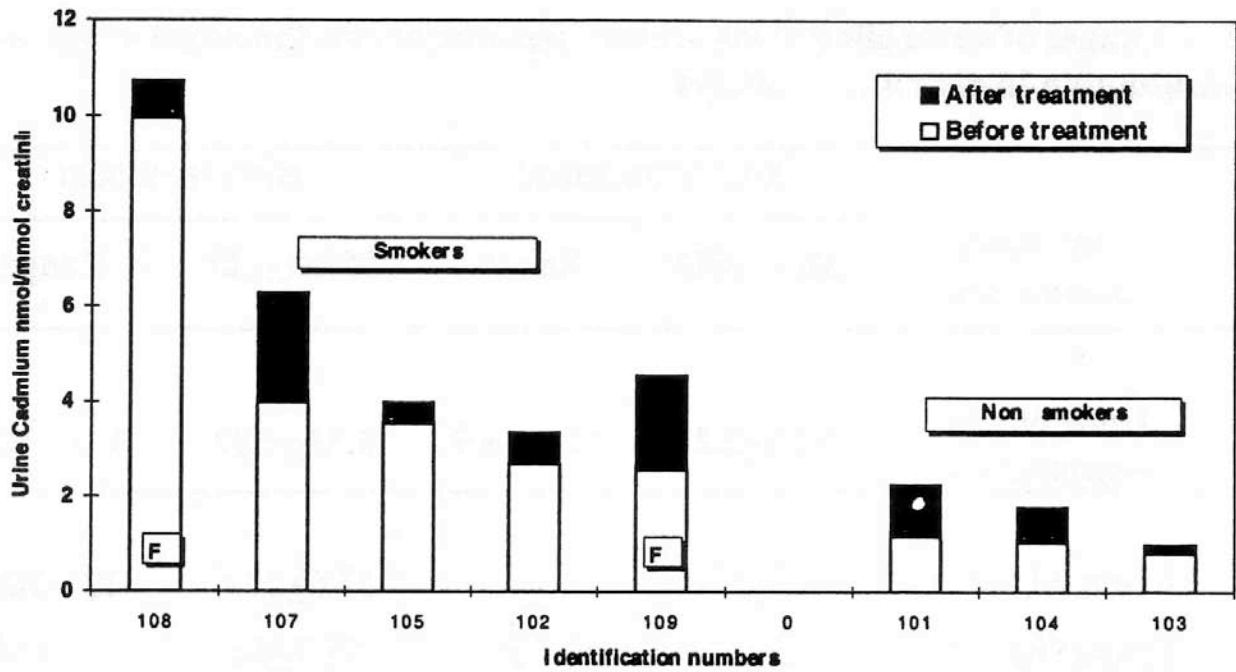


Figure 3. Increase of urine cadmium concentration in Group A (alkaline battery plant - except No. 10) on the effect of consumption of Mercury Magnet for six weeks. F: female.

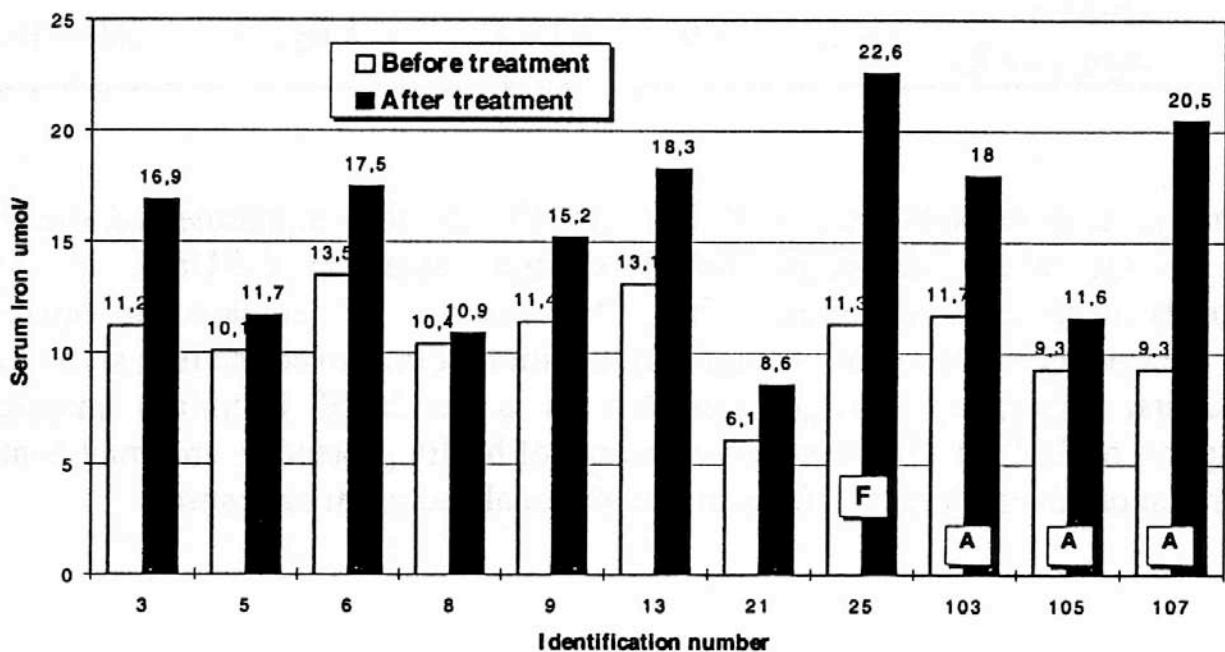


Figure 4. Increase of serum iron concentration in cadmium exposed workers with initial abnormally low iron on the effect of consumption of Mercury Magnet for six weeks. A: Group A; F: female.

**Table 3. Changes of some clinical laboratory parameters on the effect of six-week Mercury Magnet consumption in cadmium workers**

Laboratory parameters	Before Treatment		After Treatment		p<	
	Mean±SD	Range	Mean±SD -	Range		
<b>Plant A</b>						
males n=6*	Urine protein Mg/mmol Cr.	5.85±2.23	2.70-8.9	3.33±0.87	1.9-6.2	0.01
<b>Plant B</b>						
males n=18	Serum ALAT U/l	46.7±34.3	13 - 153	37.6±25.6	13 - 105	0.02
	Serum GGT U/l	63.3±86.7	15 - 396	51.7±58	11 - 261	NS
	Uric acid umol/l	423±107	221 - 587	333±110	180 - 644	0,001
females n=4	Urine protein mg/mmol Cr.	9.76±16.7	2.3 - 74.2	5.45±11.8	0.45 - 52.2	0.01
	Serum ALAT U/l	30.5±24.4	17 - 67	21.5±9.1	17 - 35	NS
	Serum GGT U/l	37.3±26.1	22 - 67	28.5±18.6	10 - 52	NS
	Uric acid umol/l	248±69	172 - 334	201±27	183 - 241	NS
	Urine protein mg/mmol Cr.	15.2±19.9	4.1 - 45	5.0±3.6	2.9 - 10.5	NS

In summary, daily consumption of Mercury Magnet (Mercury Magnet plus supplemented metals, see above) for six weeks decreased Cd-Blood and increased Cd-Urine in workers continuously exposed to cadmium. Thus, Mercury Magnet seemed to decrease the uptake and increase the urinary excretion of cadmium. In addition, it improved the iron status and the other adverse laboratory changes detected as a result of cadmium intoxication. Consumption of Mercury Magnet may be an effective means of health protection and may contribute to prevention of adverse health effects in occupational cadmium exposure.

### Study III (Animal - Mercury)

**Contaminating substance:** mercury(II) chloride labeled with Hg isotope in aqueous solution. For mercury administration 1000 ml solution with approximately 50 kBq/ml activity concentration and 0.09 mg/ml mercury concentration was made using the isotope preparation detailed above, common mercury(II) chloride and distilled water.

**Test substance:** Mercury Magnet syrup preparation supplemented with metals (see above).

#### Trial livestock

**Species and strain:** pig; Hungarian White Large x Pietrain

**Source:** Ecsenyi Agricultural Co.

**Justification of species:** It is a suitable model animal for the extrapolation of research results for human clinical trials.

**Sex:** male

**Age of animals:** between 60 and 65 days Weight range at the beginning of the trial: 16.2-18.2 kg (35.6-40.4 lb)

**Number of animals:** 15

Only healthy animals, as certified by a veterinary surgeon, were used in the trials.

The animals were divided into four groups according to the treatment protocols: 4, 4, 4 and 3 pigs in group I, II, IV and III, respectively.

Cages of standard size allowed separate feces and urine collection.

**Light:** artificial (only during the day)

**Temperature:** 18-26 °C

**Relative humidity:** 65-75%

**Animal space:** 0.60m x 0.35m = 0.21 m<sup>2</sup> (per animal)

#### Food and feed

The animals received MT-10 standard diet produced by Déldunántuli Gabona Rt. (DelDunántul Grain Co.), ad libitum.

#### Water supply

The animals received ordinary tap water ad libitum daily.

#### Animal identification

The animals were identified by ear tags.

#### Administration of the contaminating substance

On the day following the five-day acclimation period, each pig received 10 ml of the radioactive HgC12 solution prepared according to the description in paragraph 3.1. in order that mercury loss is prevented, the mercury solution was added to feed of a certain quantity, then the produced mixture was fed separately. In this manner 0.9 mg mercury (900 ug is a 5-fold increase of mercury from 1992 vaccine protocol) labeled with <sup>203</sup>Hg isotope of 503.9 kBq activity was administered to each animal.

#### Treatment protocols

Every day including the five days of the acclimation period, the Mercury Magnet intake was zero, 2.5, 7.5 and 20 ml/pig/day for group I, II, III and IV respectively. Mercury Magnet was dissolved in the morning drinking water (for Groups II, III and IV).

#### Mercury measurement

The radioactivity the <sup>203</sup>Hg isotope was determined in feces and urine daily and also in organs after slaughter. Data were subjected to statistical analysis.

## Results

**Table 1**

Mercury excreted as percentage of mercury administered (503.9 kBq = 100%)								
Group	Mercury Magnet	Feces		Urine			Total	
	MI/day/pig	%	SD+/-	%	SD+/-	F / U	%	SD+/-
I Control	0	52.8	4.5	12.1	8.8	4.36	64.9	5.6
		475.2ug of Hg		108.9 ug of Hg			584.1 ug of Hg	
II 25% dosage	2.5	53.8	7.9	13.0	8.7	4.14	66.9	1.7
		484.2ug of Hg		117ug of Hg			602.1 ug of Hg	
III 50% dosage	7.5	60.2	10.5	15.4	13.7	3.91	75.6	3.3
		541.8 ug of Hg		136.8 ug of Hg			680.4 ug of Hg	
IV 100% dosage	20.0	67.9	13.0	18.1	9.2	3.71	86.0	6.9
		611.1ug of Hg		162.9 ug of Hg			774 ug of Hg	

**Note:** Control animals excreted 64.9% (584.4 ug) of mercury.  
Mercury Magnet animals excreted 86% (774 ug) of mercury.  
Mercury Magnet shows a 21% increase over controls in an 11-day trial.

Table 2 Specific activity (Hg content) of pig organs on the 11th day after mercury administration (Bq/g)

	Kidney	Liver	Lung	Testicles	Skeletal Muscle	Brain
Group 1	2455.5 <sup>b</sup>	169.75 <sup>ab</sup>	36.1 <sup>Ab</sup>	7.9 <sup>ab</sup>	2.53 <sup>AB</sup>	6.65 <sup>AB</sup>
	917.5	126.9	34.9	11.0	1.69	2.66
Group 2	2540.25 <sup>a</sup>	216.0 <sup>a</sup>	50.25 <sup>A</sup>	14.1 <sup>a</sup>	5.6 <sup>A</sup>	6.125 <sup>A</sup>
	2564.1	172.6	19.6	12.0	5.8	4.94
Group 3	1078.7 <sup>ab</sup>	118.7 <sup>b</sup>	3.4 <sup>B</sup>	6.0 <sup>ab</sup>	1.13 <sup>AB</sup>	2.03 <sup>AB</sup>
		43.7	2.4	9.5	1.88	2.92
Group 4	1005.5 <sup>b</sup>	111.75 <sup>ab</sup>	7.3 <sup>B</sup>	2.625 <sup>B</sup>	0.125 <sup>B</sup>	0.875 <sup>B</sup>
	719.8	84.8	7.8	4.61	0.13	1.26

### Conclusions

Mercury Magnet resulted in a significant increase in mercury(II) excretion in pigs, as evidenced by the appearance of Hg activity mostly in the urine. It also appeared to decrease mercury levels in all organs examined, although high level significance (P<0.05) was only observed for kidney, lung and brain. Please note this is an 87% reduction of mercury in the brain as compared to controls.

### Bibliography

Personal communication, Department of Biochemistry, University of Kaposvar, Kaposvar, Hungary.

### Required Disclaimer

These statements have not been evaluated by the U.S. FDA or Health Canada. This information is provided as an educational service and should not be considered advice on taking or using Mercury Magnet or other nutrients to diagnose, treat, prevent or cure any disease.