HEAVY METALS AND YOUR HEALTH

CENTERED IN WELLNESS

ANDREANNA RAINVILLE RN, CN

WHAT ARE HEAVY METALS

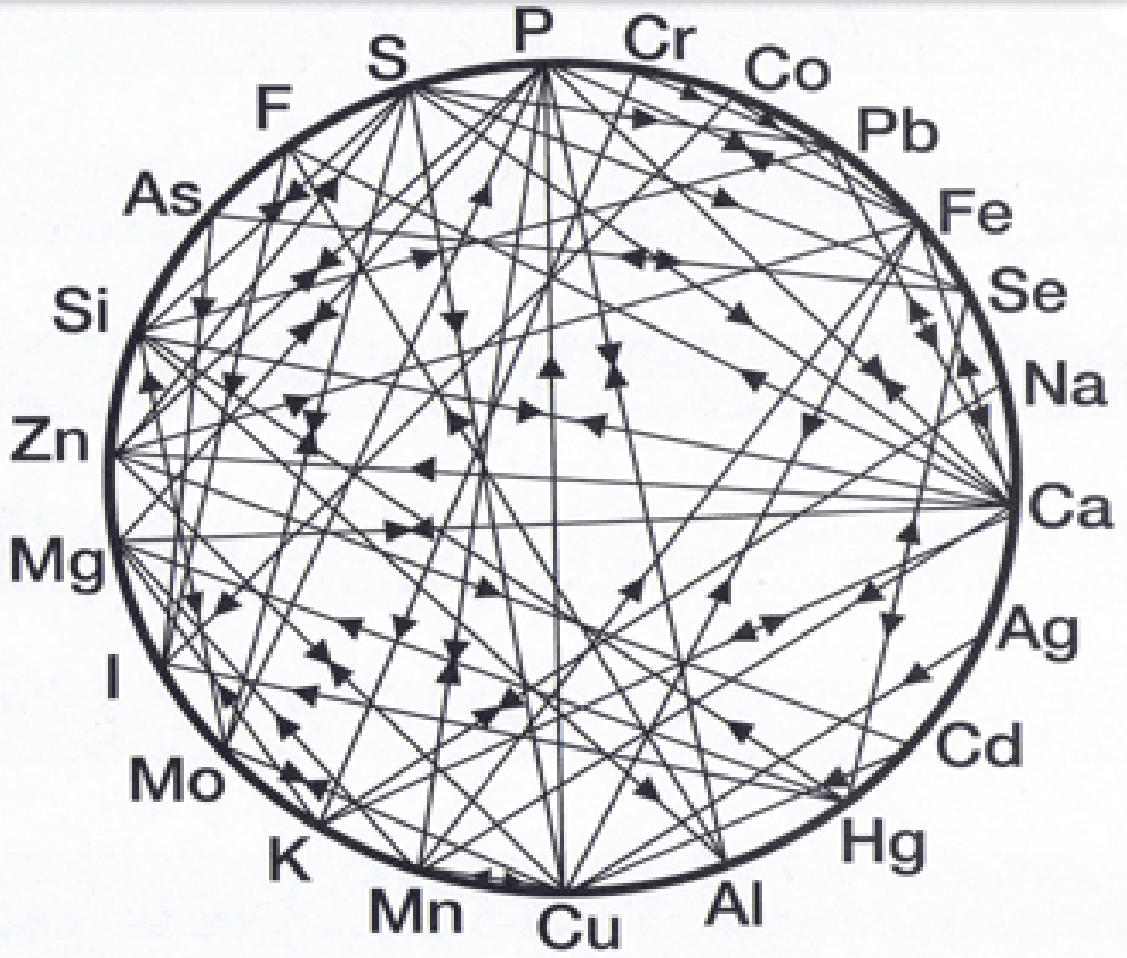
- HEAVY METAL IS A GENERAL COLLECTIVE TERM WHICH APPLIES TO THE GROUP OF METALS AND METALLOIDS WITH AN ATOMIC DENSITY GREATER THAN 4 G/CM^3.

- ITS POTENTIAL TOXICITY, ESPECIALLY IN ENVIRONMENTAL CONTEXTS. THE TERM HAS PARTICULAR APPLICATION TO CADMIUM, MERCURY, LEAD AND ARSENIC, ALUMINUM, ANTIMONY , ARSENIC, BARIUM, BISMUTH, NICKEL, TIN, URANIUM

- OTHER EXAMPLES INCLUDE MANGANESE, CHROMIUM, COBALT, NICKEL, COPPER, ZINC, SELENIUM, AND THALLIUM.

Mineral Interactions

P - Phosphorus
Cr - Chromium
Co - Cobalt
Pb - Lead
Fe - Iron
Se - Selenium
Na - Sodium
Ca - Calcium
Ag - Silver
Cd - Cadmium
Hg - Mercury
Al - Aluminum
Cu - Copper
Mn - Manganese
K - Potassium
Mo - Molybdenum
I - Iodine
Mg - Magnesium
Zn - Zinc
Si - Silica
As - Arsenic
F - Florine
S - Sulfur



Direction of arrows denotes interference.

Arrows **aimed at each other** denote **mineral synergy**.

Arrows **aimed away from each other** denote mutual **mineral interference** or antagonism.

The healing power of Minerals, special nutrients and trace elements
Paul Bergner, 1997 ,Prima Publishing

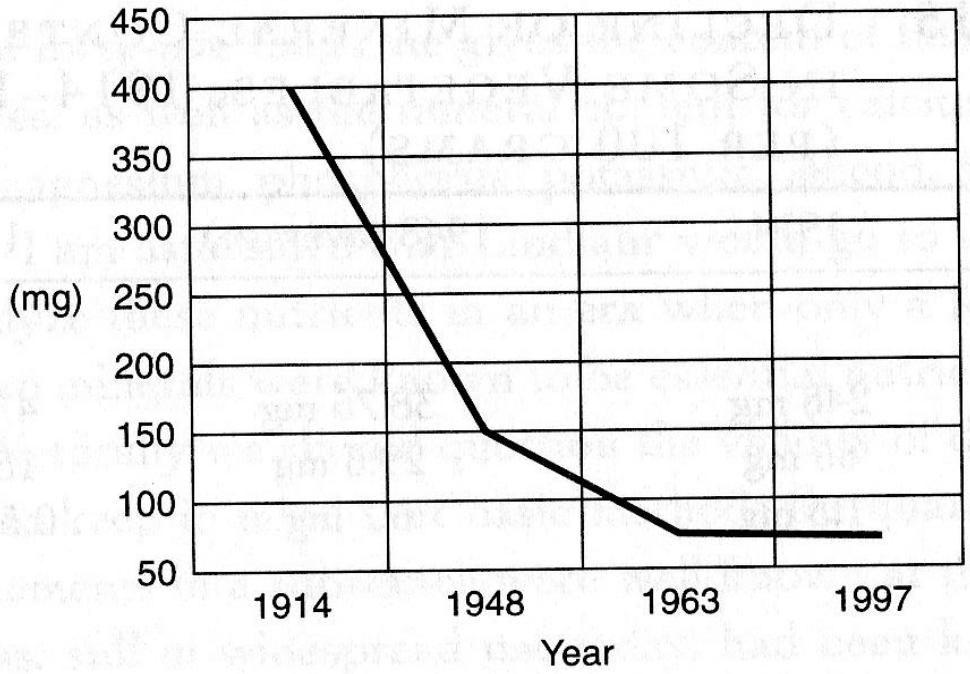


Figure 3.1 Average mineral content in selected vegetables, 1914–1997. Sums of averages of calcium, magnesium, and iron in cabbage, lettuce, tomatoes, and spinach. (Sources: Lindlahr, 1914; Hamaker, 1982; and U.S. Department of Agriculture, 1963 and 1997)

METALS HAVE SYNERGISTIC EFFECTS WITH EACH OTHER AND OTHER TOXINS

1+1+1= 100 TIMES THE TROUBLE

ALUMINUM-INDUCED ENTROPY IN BIOLOGICAL SYSTEMS: IMPLICATIONS FOR NEUROLOGICAL DISEASE

CA SHAW, S **SENEFF**, SD KETTE, L TOMLJENOVIC… - JOURNAL OF …, 2014 - HINDAWI.COM

CHRISTOPHER A. SHAW, 1,2,3 **STEPHANIE SENEFF**, 4 STEPHEN D. KETTE, 5 LUCIJA TOMLJENOVIC, 1 JOHN W. OLLER JR., 6 AND ROBERT M. DAVIDSON 7. ... AL FORMS TOXIC COMPLEXES WITH OTHER ELEMENTS, SUCH AS FLUORINE, AND INTERACTS NEGATIVELY WITH MERCURY, LEAD, AND **GLYPHOSATE**. ...

WA MORLEY, S **SENEFF** - SURGICAL NEUROLOGY INTERNATIONAL, 2014 - NCBI.NLM.NIH.GOV

ALUMINUM AND **GLYPHOSATE** CAN SYNERGISTI-CALLY INDUCE PINEAL GLAND PATHOLOGY: CON-NECTION TO GUT DYSBIOSIS AND NEUROLOGICAL DISEASE

S **SENEFF**, N SWANSON, C LI - AGRICULTURAL SCIENCES, 2015 - FILE.SCIRP.ORG

MANY NEUROLOGICAL DISEASES, INCLUDING AUTISM, DEPRESSION, DEMENTIA, ANXIETY DISORDER AND
PARKINSON'S DISEASE, ARE ASSOCIATED WITH ABNORMAL SLEEP PATTERNS, WHICH ARE DIRECTLY LINKED
TO PINEAL GLAND DYSFUNCTION. THE PINEAL GLAND IS HIGHLY SUSCEPTIBLE TO ENVIRONMENTAL ...

EVERYONE GETS TO PLAY

- NEARLY ALL ORGAN SYSTEMS ARE INVOLVED IN HEAVY METAL TOXICITY
- THE MOST COMMONLY INVOLVED ORGAN SYSTEMS INCLUDE THE CNS, PNS, GI, HEMATOPOIETIC, RENAL, AND CARDIOVASCULAR
- TO A LESSER EXTENT, LEAD TOXICITY INVOLVES THE MUSCULOSKELETAL AND REPRODUCTIVE SYSTEMS.
- THE ORGAN SYSTEMS AFFECTED AND THE SEVERITY OF THE TOXICITY VARY WITH
  - THE PARTICULAR HEAVY METAL INVOLVED
  - CHRONICITY AND EXTENT OF THE EXPOSURE
  - THE AGE AND GENETICS OF THE INDIVIDUAL.

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HEAVY METALS

- HEAVY METALS ARE ASSOCIATED WITH :
- CANCER
- CARDIOVASCULAR DISEASES
- NEUROLOGICAL DISORDERS
- AUTOIMMUNE DISEASES.

- METALS ACT AS CATALYSTS IN OXIDATIVE DAMAGE
- INDUCE REACTIVE OXYGEN SPECIES (ROS), AND LEAD TO THE GENERATION OF FREE RADICALS. ROS ACCUMULATION
- CAN AFFECT EPIGENETIC FACTORS
-

Ann NY Acad Sci 2007;1109:129–37 Mol Cell Biochem2004;255:3–10.

EXPOSURE SOURCES

- WATER
- AIR/DUST
- SOIL, FERTILIZERS, PESTICIDES, HERBACIDES
- FOOD/ CONTAINERS, CRYSTAL
- FOREST FIRES, FIREARMS, TREATED WOODS, FLAME RETARDANTS
- PLASTICS, BATTERIES
- ROADS
- COMPUTERS, ELECTRONIC COMPONENTS
- CARS
- MAKE UP , MANY DEODORANTS
- COOKING PANS, FOILS
- AMALGAMS/ PROSTETICS
- VACCINES
- ENDOGENOUS RE-EXPOSURE

WHY BOTHER?

- THE QUALITY OF OUR HEALTH IS GREATLY EFFECTED
- IQ IS REDUCED WITH HEAVY METAL EXPOSURE
  - COGNITION AND REASON ARE GREATLY EFFECTED
- METALS ARE PASSED ONTO OUR CHILDREN AND GRAND CHILDREN
  - THERE IS A LOT OF THOUGHT THIS IS PART OF THE RISE IN CHILDREN ON THE SPECTRUM
- IS A BLUNTING OF SENSATION WITH HEAVY METAL EXPOSURE

INDICATIONS OF **ACUTE TOXICITY** INCLUDE:

- SUDDEN, SEVERE CRAMPING AND/OR CONVULSIONS
- NAUSEA
- VOMITING
- SWEATING
- HEADACHE
- DIFFICULTY BREATHING
- IMPAIRED COGNITIVE, MOTOR AND LANGUAGE SKILLS

CHRONIC HEAVY METAL EXPOSURE AND BUILD UP SYMPTOMS INCLUDE

- FATIGUE
- DIGESTIVE DISTRESS, AND REDUCED ABILITY TO PROPERLY ASSIMILATE AND UTILIZE FATS
- ACHING JOINTS
- DEPRESSION AND MULTIPLE OTHER MENTAL SYMPTOMS
- IMPAIRED BLOOD SUGAR REGULATION
- FEMALE REPRODUCTIVE PROBLEMS SUCH AS MENSTRUAL DIFFICULTIES, INFERTILITY, MISCARRIAGE, PRE-ECLAMPSIA, PREGNANCY-INDUCED HYPERTENSION AND PREMATURE BIRTH
- ERECTILE DYSFUNCTION

PUBLIC HEALTH AND ECONOMIC CONSEQUENCES OF METHYL MERCURY TOXICITY TO THE DEVELOPING BRAIN
ENVIRON HEALTH PERSPECT. 2005 MAY; 113(5): 590–596.

LEONARDO TRASANDE, PHILIP J. LANDRIGAN,AND CLYDE SCHECHTER CENTER FOR CHILDREN'S HEALTH AND THE ENVIRONMENT, DEPARTMENT OF COMMUNITY AND PREVENTIVE MEDICINE, AND DEPARTMENT OF PEDIATRICS, MOUNT SINAI SCHOOL OF MEDICINE, NEW YORK, NEW YORK, USA;

ABSTRACT

METHYL MERCURY IS A DEVELOPMENTAL NEUROTOXICANT. EXPOSURE RESULTS PRINCIPALLY FROM CONSUMPTION BY PREGNANT WOMEN OF SEAFOOD CONTAMINATED BY MERCURY FROM ANTHROPOGENIC (70%) AND NATURAL (30%) SOURCES. THROUGHOUT THE 1990S, THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) MADE STEADY PROGRESS IN REDUCING MERCURY EMISSIONS FROM ANTHROPOGENIC SOURCES, ESPECIALLY FROM POWER PLANTS, WHICH ACCOUNT FOR 41% OF ANTHROPOGENIC EMISSIONS. HOWEVER, THE U.S. EPA RECENTLY PROPOSED TO SLOW THIS PROGRESS, CITING HIGH COSTS OF POLLUTION ABATEMENT. TO PUT INTO PERSPECTIVE THE COSTS OF CONTROLLING EMISSIONS FROM AMERICAN POWER PLANTS, WE HAVE ESTIMATED THE ECONOMIC COSTS OF METHYL MERCURY TOXICITY ATTRIBUTABLE TO MERCURY FROM THESE PLANTS. WE USED AN ENVIRONMENTALLY ATTRIBUTABLE FRACTION MODEL AND LIMITED OUR ANALYSIS TO THE NEURODEVELOPMENTAL IMPACTS—SPECIFICALLY LOSS OF INTELLIGENCE. USING NATIONAL BLOOD MERCURY PREVALENCE DATA FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION, WE FOUND THAT BETWEEN 316,588 AND 637,233 CHILDREN EACH YEAR HAVE CORD BLOOD MERCURY LEVELS > 5.8 MG/L, A LEVEL ASSOCIATED WITH **LOSS OF IQ. THE RESULTING LOSS OF INTELLIGENCE CAUSES DIMINISHED ECONOMIC PRODUCTIVITY THAT PERSISTS OVER THE ENTIRE LIFETIME OF THESE CHILDREN.**

THIS LOST PRODUCTIVITY IS THE MAJOR COST OF METHYL MERCURY TOXICITY, AND IT AMOUNTS TO $8.7 BILLION ANNUALLY (RANGE, $2.2–43.8 BILLION; ALL COSTS ARE IN 2000 US$). OF THIS TOTAL, $1.3 BILLION (RANGE, $0.1–6.5 BILLION) EACH YEAR IS ATTRIBUTABLE TO MERCURY EMISSIONS FROM AMERICAN POWER PLANTS. THIS SIGNIFICANT TOLL THREATENS THE ECONOMIC HEALTH AND SECURITY OF THE UNITED STATES AND SHOULD BE CONSIDERED IN THE DEBATE ON MERCURY POLLUTION CONTROLS.

MATERNAL AMALGAM DENTAL FILLINGS AS THE SOURCE OF MERCURY EXPOSURE IN DEVELOPING FETUS AND NEWBORN. PALKOVICOVA L, URSINYOVA M, MASANOVA V, YU Z, HERTZ-PICCIOTTO I. J EXPO SCI ENVIRON EPIDEMIOL. 2007 SEP 12

DENTAL AMALGAM IS A MERCURY-BASED FILLING CONTAINING APPROXIMATELY 50% OF METALLIC MERCURY (HG(0)). HUMAN PLACENTA DOES NOT REPRESENT A REAL BARRIER TO THE TRANSPORT OF HG(0); HENCE, FETAL EXPOSURE OCCURS AS A RESULT OF MATERNAL EXPOSURE TO HG, WITH POSSIBLE SUBSEQUENT NEURODEVELOPMENTAL DISABILITIES IN INFANTS. THIS STUDY REPRESENTS A SUB-STUDY OF THE INTERNATIONAL NIH-FUNDED PROJECT "EARLY CHILDHOOD DEVELOPMENT AND POLYCHLORINATED BIPHENYLS EXPOSURE IN SLOVAKIA". THE MAIN AIM OF THIS ANALYSIS WAS TO ASSESS THE RELATIONSHIP BETWEEN MATERNAL DENTAL AMALGAM FILLINGS AND EXPOSURE OF THE DEVELOPING FETUS TO HG. THE STUDY SUBJECTS WERE MOTHER-CHILD PAIRS (N=99). QUESTIONNAIRES WERE ADMINISTERED AFTER DELIVERY, AND CHEMICAL ANALYSES OF HG WERE PERFORMED IN THE SAMPLES OF MATERNAL AND CORD BLOOD USING ATOMIC ABSORPTION SPECTROMETRY WITH AMALGAMATION TECHNIQUE. THE MEDIAN VALUES OF HG CONCENTRATIONS WERE 0.63 MUG/L (RANGE 0.14-2.9 MUG/L) AND 0.80 MUG/L (RANGE 0.15-2.54 MUG/L) FOR MATERNAL AND CORD BLOOD, RESPECTIVELY. NONE OF THE CORD BLOOD HG CONCENTRATIONS REACHED THE LEVEL CONSIDERED TO BE HAZARDOUS FOR NEURODEVELOPMENTAL EFFECTS IN CHILDREN EXPOSED TO HG IN UTERO (EPA REFERENCE DOSE FOR HG OF 5.8 MUG/L IN CORD BLOOD). A STRONG POSITIVE CORRELATION BETWEEN MATERNAL AND CORD BLOOD HG LEVELS WAS FOUND (RHO=0.79; P<0.001).

LEVELS OF HG IN THE CORD BLOOD WERE SIGNIFICANTLY ASSOCIATED WITH THE NUMBER OF MATERNAL AMALGAM FILLINGS (RHO=0.46, P<0.001) AND WITH THE NUMBER OF YEARS SINCE THE LAST FILLING (RHO=-0.37, P<0.001).

THESE ASSOCIATIONS REMAINED SIGNIFICANT AFTER ADJUSTMENT FOR MATERNAL AGE AND EDUCATION. DENTAL AMALGAM FILLINGS IN GIRLS AND WOMEN OF REPRODUCTIVE AGE SHOULD BE USED WITH CAUTION, TO AVOID INCREASED PRENATAL HG EXPOSURE.

A COMPARISON OF TEMPORAL TRENDS IN UNITED STATES AUTISM PREVALENCE TO TRENDS IN SUSPECTED ENVIRONMENTAL FACTORS.

NEVISON CD ENVIRON HEALTH. 2014 SEP 5;13:73. DOI: 10.1186/1476-069X-13-73.

ABSTRACT

BACKGROUND:

THE PREVALENCE OF DIAGNOSED AUTISM HAS INCREASED RAPIDLY OVER THE LAST SEVERAL DECADES AMONG U.S. CHILDREN. ENVIRONMENTAL FACTORS ARE THOUGHT TO BE DRIVING THIS INCREASE AND A LIST OF THE TOP TEN SUSPECTED ENVIRONMENTAL TOXINS WAS PUBLISHED RECENTLY.

METHODS:

TEMPORAL TRENDS IN AUTISM FOR BIRTH YEARS 1970-2005 WERE DERIVED FROM A COMBINATION OF DATA FROM THE CALIFORNIA DEPARTMENT OF DEVELOPMENTAL SERVICES (CDDS) AND THE UNITED STATES INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA). TEMPORAL TRENDS IN SUSPECTED TOXINS WERE DERIVED FROM DATA COMPILED DURING AN EXTENSIVE LITERATURE SURVEY. TOXIN AND AUTISM TRENDS WERE COMPARED BY VISUAL INSPECTION AND COMPUTED CORRELATION COEFFICIENTS. USING IDEA DATA, AUTISM PREVALENCE VS. BIRTH YEAR TRENDS WERE CALCULATED INDEPENDENTLY FROM SNAPSHOTS OF DATA FROM THE MOST RECENT ANNUAL REPORT, AND BY TRACKING PREVALENCE AT A CONSTANT AGE OVER MANY YEARS OF REPORTS. THE RATIO OF THE SNAPSHOT:TRACKING TREND SLOPES WAS USED TO ESTIMATE THE "REAL" FRACTION OF THE INCREASE IN AUTISM.

RESULTS:

THE CDDS AND IDEA DATA SETS ARE QUALITATIVELY CONSISTENT IN SUGGESTING A STRONG INCREASE IN AUTISM PREVALENCE OVER RECENT DECADES. THE QUANTITATIVE COMPARISON OF IDEA SNAPSHOT AND CONSTANT-AGE TRACKING TREND SLOPES SUGGESTS THAT ~75-80% OF THE TRACKED INCREASE IN AUTISM SINCE 1988 IS DUE TO AN ACTUAL INCREASE IN THE DISORDER RATHER THAN TO CHANGING DIAGNOSTIC CRITERIA. MOST OF THE SUSPECTED ENVIRONMENTAL TOXINS EXAMINED HAVE FLAT OR DECREASING TEMPORAL TRENDS THAT CORRELATE POORLY TO THE RISE IN AUTISM. SOME, INCLUDING LEAD, ORGANOCHLORINE PESTICIDES AND VEHICULAR EMISSIONS, HAVE STRONGLY DECREASING TRENDS. ***AMONG THE SUSPECTED TOXINS SURVEYED, POLYBROMINATED DIPHENYL ETHERS, ALUMINUM ADJUVANTS, AND THE HERBICIDE GLYPHOSATE HAVE INCREASING TRENDS THAT CORRELATE POSITIVELY TO THE RISE IN AUTISM.***

CONCLUSIONS:

DIAGNOSED AUTISM PREVALENCE HAS RISEN DRAMATICALLY IN THE U.S OVER THE LAST SEVERAL DECADES AND CONTINUED TO TREND UPWARD AS OF BIRTH YEAR 2005. THE INCREASE IS MAINLY REAL AND HAS OCCURRED MOSTLY SINCE THE LATE 1980S. IN CONTRAST, CHILDREN'S EXPOSURE TO MOST OF THE TOP TEN TOXIC COMPOUNDS HAS REMAINED FLAT OR DECREASED OVER THIS SAME TIME FRAME. ENVIRONMENTAL FACTORS WITH INCREASING TEMPORAL TRENDS CAN HELP SUGGEST HYPOTHESES FOR DRIVERS OF AUTISM THAT MERIT FURTHER INVESTIGATION.

EWG.ORG
2005 STUDY OF NEWBORN BABIES

RESULTS:

- **EXECUTIVE SUMMARY.** EWG TESTED 10 NEWBORN BABIES FOR 413 INDUSTRIAL CHEMICALS, POLLUTANTS AND PESTICIDES. WE LEARNED THAT THESE 10 BABIES WERE BORN POLLUTED WITH HUNDREDS OF CHEMICALS.

- **BABIES ARE VULNERABLE.** THE LOW DOSES THAT WE FOUND ARE MORE TOXIC TO BABIES THAN ADULTS.

- **HUMAN HEALTH PROBLEMS ON THE RISE.** AUTISM, CERTAIN CHILDHOOD CANCERS, OBESITY, ASTHMA AND OTHER HEALTH PROBLEMS ARE ALL INCREASING. CHEMICAL EXPOSURES ARE A LEADING SUSPECT.

ONLINE GUIDE TO CHEMICAL FAMILIES TESTED IN 10 NEWBORNS

- **MERCURY (HG) – 1 TESTED, 1 FOUND**

  POLLUTANT FROM COAL-FIRED POWER PLANTS, MERCURY-CONTAINING

  PRODUCTS, AND CERTAIN INDUSTRIAL PROCESSES. ACCUMULATES IN SEAFOOD. HARMS BRAIN DEVELOPMENT AND FUNCTION.

- **POLYAROMATIC HYDROCARBONS (PAHS) – 18 TESTED, 9 FOUND**

  POLLUTANTS FROM BURNING GASOLINE AND GARBAGE. LINKED TO CANCER. ACCUMULATES IN FOOD CHAIN.

- **POLYBROMINATED DIBENZODIOXINS AND FURANS (PBDD/F) – 12**

  TESTED, 7 FOUND ID/F CONTAMINANTS IN BROMINATED FLAME RETARDANTS. POLLUTANTS AND BYPRODUCTS FROM PLASTIC PRODUCTION AND INCINERATION. ACCUMULATE IN FOOD CHAIN. TOXIC TO DEVELOPING ENDOCRINE (HORMONE) SYSTEM

- **PERFLUORINATED CHEMICALS (PFCS) – 12 TESTED, 9 FOUND**

  ACTIVE INGREDIENTS OR BREAKDOWN PRODUCTS OF TEFLON, SCOTCHGARD, FABRIC AND CARPET PROTECTORS, FOOD WRAP COATINGS. GLOBAL CONTAMINANTS. ACCUMULATE IN THE ENVIRONMENT AND THE FOOD CHAIN. LINKED TO CANCER, BIRTH DEFECTS, AND MORE.

OUR AMAZING BRAINS

HOW THEY CLEAN THEMSELVES

HOW DOES THE BRAIN KEEP ITSELF CLEAN?

- **MECHANICS**: THE PUMPING ACTION OF THE BRAINS LYMPHATIC SYSTEM (GLYMPHATIC SYSTEM) MOTORED BY BOTH THE CRANIAL RHYTHM (RHYTHMIC FLUID PRODUCTION AND DRAINAGE) AND BY CHEWING (RHYTHMIC STRETCHING OF THE BRAIN'S MEMBRANES
- **BIOCHEMISTRY**: MELATONIN IS THE MOST IMPORTANT HOUSEKEEPING MOLECULE, ANTI OXIDANT AND DETOX AGENT FOR MERCURY LEAD AND OTHER MOLECULES. ORALLY TAKEN MELATONIN DOES NOT ENTER THE BRAIN UNLESS IT IS PREPARED LIPOSOMALLY. OLIVE OIL CLEARS AMYLOID
- **IMMUNOLOGICAL**: MACROPHAGES ALSO CLEAR TISSUES OF METALS AND OTHER TOXINS
- *SENER, G.ET AL: "**MELATONIN PROTECTS AGAINST MERCURY INDUCED OXIDATIVE TISSUE DAMAGE**". BASIC AND CLINICAL PHARMACOLOGY & TOXICOLOGY VOL 93, DEC 2003, PP 290-296*
- L. XIE, H. KANG, Q. XU, M. J. CHEN, Y. LIAO, M. THIYAGARAJAN, J. O'DONNELL, D. J. CHRISTENSEN, C. NICHOLSON, J. J. ILIFF, T. TAKANO, R. DEANE, M. NEDERGAARD. "***SLEEP DRIVES METABOLITE CLEARANCE FROM THE ADULT BRAIN***". *SCIENCE*, 2013; 342 (6156): 373 DOI:10.1126/SCIENCE.1241224
- *GLUTATHIONE MAY ONLY BE SECOND BEST. TO INCREASE REDUCED GLUTATHIONE IN THE BRAIN NAC WORKS, I.V INJECTED GLUTATHIONE ONLY IF IT IS OFFERED LIPOSOMALLY*

THE HOUSECLEANING SYSTEM OF THE BRAIN:

MECHANICS: THE GLYMPHATIC SYSTEM (GLIA + LYMPHATICS)

- STUDIES PUBLISHED IN 2012 AND 2013 REVEALED THAT YOUR BRAIN ACTUALLY HAS A UNIQUE METHOD OF REMOVING TOXIC WASTE. THIS WASTE-REMOVAL SYSTEM IS NOW CALLED THE "GLYMPHATIC SYSTEM" AND OPERATES IN A WAY THAT IS SIMILAR TO YOUR BODY'S LYMPHATIC SYSTEM, WHICH IS RESPONSIBLE FOR ELIMINATING CELLULAR WASTE PRODUCTS
- THE GLYMPHATIC SYSTEM PIGGYBACKS ON THE BLOOD VESSELS IN YOUR BRAIN. GLIAL CELLS MANAGE THIS SYSTEM. IT OPERATES ONLY DURING SLEEP

  L. XIE, H. KANG, Q. XU, M. J. CHEN, Y. LIAO, M. THIYAGARAJAN, J. O'DONNELL, D. J. CHRISTENSEN, C. NICHOLSON, J. J. ILIFF, T. TAKANO, R. DEANE, M. NEDERGAARD. **SLEEP DRIVES METABOLITE CLEARANCE FROM THE ADULT BRAIN**. *SCIENCE*, 2013; 342 (6156): 373 DOI:10.1126/SCIENCE.1241224

THE GLYMPHATIC SYSTEM CLEARS THE BRAIN DURING THE NIGHT

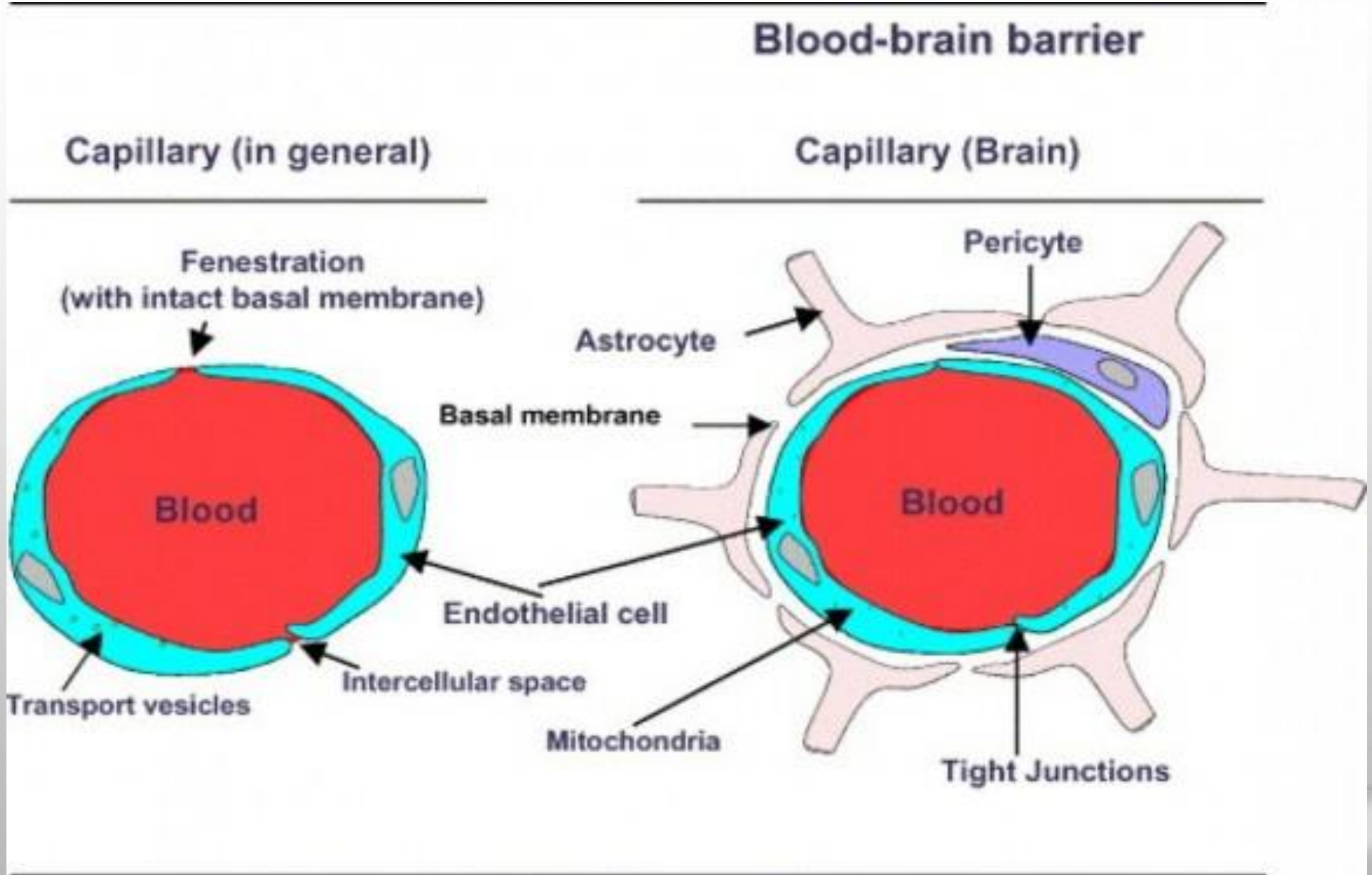
- WITH THE PUMPING ACTION AND RHYTHM OF THE CSF IN THE BRAIN, THE GLYMPHATIC SYSTEM FLUSHES THE WASTE FROM YOUR BRAIN BACK INTO YOUR BODY'S CIRCULATORY SYSTEM. FROM THERE, THE WASTE EVENTUALLY REACHES YOUR LIVER, WHERE IT'S ULTIMATELY ELIMINATED.
- **THIS SYSTEM RAMPS UP ITS ACTIVITY *DURING SLEEP***, THEREBY ALLOWING YOUR BRAIN TO CLEAR OUT TOXINS, INCLUDING HARMFUL PROTEINS CALLED AMYLOID-BETA, THE BUILD UP OF WHICH HAS BEEN LINKED TO ALZHEIMER'S.
- DURING SLEEP, **THE GLYMPHATIC SYSTEM BECOMES 10 TIMES MORE ACTIVE** THAN DURING WAKEFULNESS. SIMULTANEOUSLY, YOUR BRAIN CELLS SHRINK BY ABOUT 60 PERCENT, ALLOWING FOR GREATER EFFICIENCY OF WASTE REMOVAL.
- DURING THE DAY, THE CONSTANT BRAIN ACTIVITY CAUSES YOUR BRAIN CELLS TO SWELL IN SIZE UNTIL THEY TAKE UP JUST OVER 85 PERCENT OF YOUR BRAIN'S VOLUME,_THEREBY DISALLOWING EFFECTIVE WASTE REMOVAL DURING WAKEFULNESS

NIH/NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE. "BRAIN MAY FLUSH OUT TOXINS DURING SLEEP; SLEEP CLEARS BRAIN OF MOLECULES ASSOCIATED WITH NEURODEGENERATION: STUDY." SCIENCEDAILY. SCIENCEDAILY, 17 OCTOBER 2013. <WWW.SCIENCEDAILY.COM/RELEASES/2013/10/131017144636.HTM>.

TREATMENT OF THE GLYMPHATIC SYSTEM

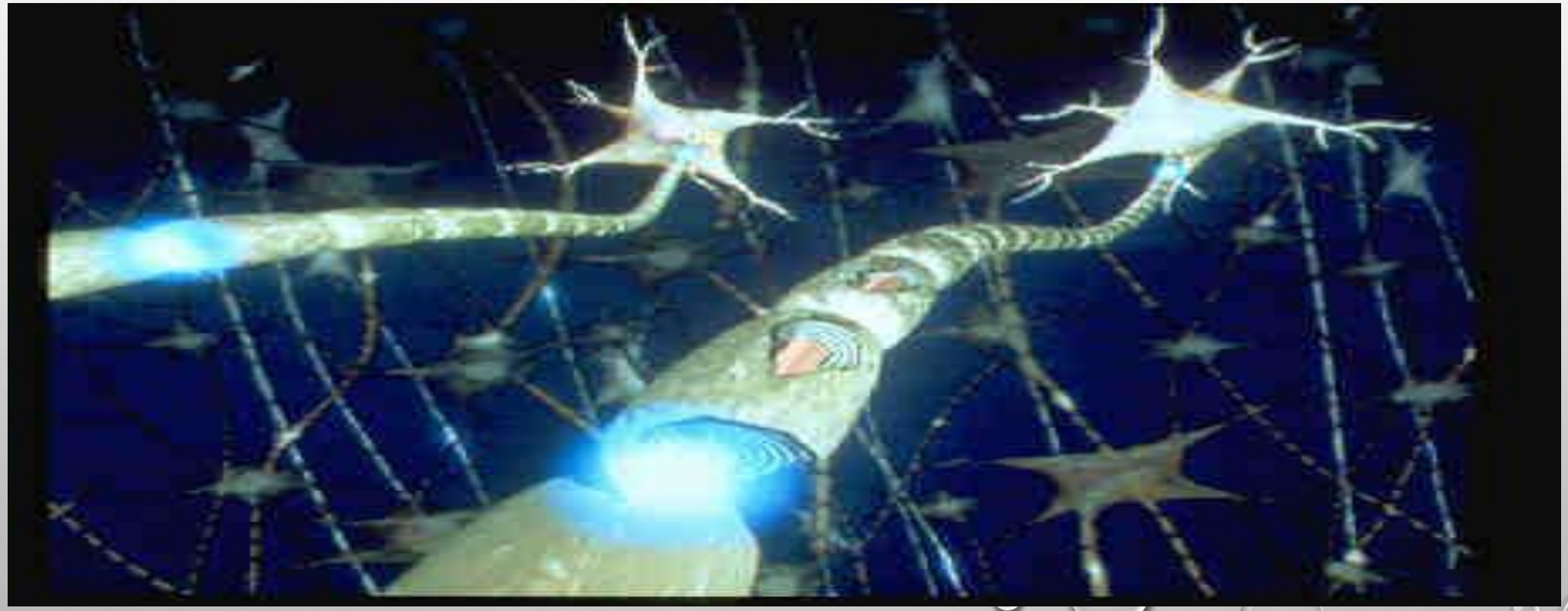
- CORRECT THE BITE, ESPECIALLY THE VERTICAL DIMENSION (SPLINT, AQUALIZER.COM, LIPTRAINER.COM, CROWNS/ONLAYS), SO THE PUMPING ACTION CREATED BY CHEWING WORKS
- MERCURY DETOX TO FREE UP THE GLIAL CELLS TO DO THEIR WORK
- GOOD CRANIAL WORK
- TRANSCRANIAL PEMF, TRANSCRANIAL IR-LASER, CES
- ***KLINGHARDT RHYTHMIC SKULL COMPRESSION***. 2-3 MIN TWICE DAILY, BEST AT NIGHT
- ***NEURAL THERAPY: TO TONSILS AND ANTERIOR NECK ONCE WEEKLY, SUPERIOR AND INFERIOR (STELLATE)CERVICAL GANGLION INJECTIONS***
- CCSVI – OPENING THE ANTERIOR NECK VEINS AND LYMPHATICS WITH
  - A. CATHETER/BALLOON
  - B. BEE VENOM OINTMENT ANTERIOR NECK
  - C. ORAL DEEP PURPLE 1 TSP BID (WWW.BIOPUREUS.COM)
  - D. MANUAL WORK: KLINGHARDT ANTERIOR NECK MASSAGE: 2 MIN TWICE DAILY
  - E. NEURAL THERAPY

THE BLOOD BRAIN BARRIER IS NOT DEVELOPED UNTIL WE ARE 18 MONTHS OF AGE. NO TOXIC INSULT IS TOLERATED BEFORE!



MERCURY AND OTHER SULFHYDRYL AFFINITIVE METALS (LEAD, CADMIUM, COPPER ETC.).

MERCURY DESTROYS THE BRAIN OF THE FETUS AND YOUNG CHILD IN MULTIPLE WAYS. MAYBE MOST IMPORTANTLY: MYELIN SHEETS BIND HEAVY METALS. MERCURY DESTROYS THE TUBULIN INSIDE THE NERVE AND RENDERS IT DYSFUNCTIONAL



HORMONES DIRECTLY EFFECT ACCUMULATION OF HEAVY METALS

PROGESTERONE: A NATURAL IMMUNO-REGULATOR

- PROGESTERONE EXERTS ITS PROTECTIVE EFFECTS BY REBUILDING THE BLOOD – BRAIN-BARRIER, DECREASING INFLAMMATION AND LIMITING CELLULAR NECROSIS AND APOPTOSIS
  (STEIN ET AL. ANN EMERG MED, 2007, JUNE 21)

- IN ANIMAL SYSTEMS, PROGESTERONE DECREASES EXPRESSION OF HLA-DR ANTIGENS AND DENDRITIC CELL-INDUCED STIMULATION OF T CELLS
  (BUTTS ET AL. INTERN IMMUNOL 10: 287-296)

ANDROGENS AND MERCURY

MED HYPOTHESES. 2005;64(5):946-54.

THE POTENTIAL IMPORTANCE OF STEROIDS IN THE TREATMENT OF AUTISTIC SPECTRUM DISORDERS AND OTHER DISORDERS INVOLVING MERCURY TOXICITY.

GEIER MR1, GEIER DA.

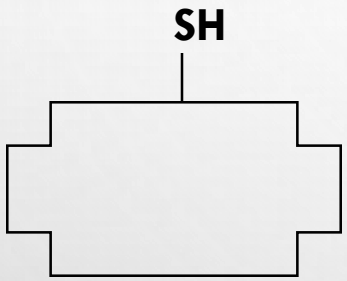
ABSTRACT

AUTISM IS A NEURODEVELOPMENTAL DISORDER THAT ACCORDING TO THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) AFFECTS 1 IN 150 CHILDREN IN THE UNITED STATES. AUTISM IS CHARACTERIZED BY IMPAIRMENTS IN SOCIAL RELATEDNESS AND COMMUNICATION, REPETITIVE BEHAVIORS, ABNORMAL MOVEMENTS, AND SENSORY DYSFUNCTION. RECENTLY EMERGING EVIDENCE SUGGESTS THAT MERCURY, ESPECIALLY FROM CHILDHOOD VACCINES, APPEARS TO BE A FACTOR IN THE DEVELOPMENT OF THE AUTISTIC DISORDERS, AND THAT **AUTISTIC CHILDREN HAVE HIGHER THAN NORMAL BODY-BURDENS OF MERCURY**. IN CONSIDERING MERCURY TOXICITY, IT HAS PREVIOUSLY BEEN SHOWN THAT **TESTOSTERONE SIGNIFICANTLY POTENTATES MERCURY TOXICITY**, WHEREAS ESTROGEN IS PROTECTIVE. EXAMINATION OF AUTISTIC CHILDREN HAS SHOWN THAT THE SEVERITY OF AUTISTIC DISORDERS CORRELATES WITH THE AMOUNT OF TESTOSTERONE PRESENT IN THE AMNIOTIC FLUID, AND AN EXAMINATION OF A CASE-SERIES OF AUTISTIC CHILDREN HAS SHOWN THAT SOME HAVE PLASMA TESTOSTERONE LEVELS THAT WERE SIGNIFICANTLY ELEVATED IN COMPARISON NEUROTYPICAL CONTROL CHILDREN. A REVIEW OF SOME OF THE CURRENT BIOMEDICAL THERAPIES FOR AUTISTICS, SUCH AS GLUTATHIONE AND CYSTEINE, CHELATION, SECRETIN, AND GROWTH HORMONE, SUGGESTS THAT THEY MAY IN FACT LOWER TESTOSTERONE LEVELS. WE PUT FORWARD THE MEDICAL HYPOTHESIS THAT **AUTISTIC DISORDERS, IN FACT, REPRESENT A FORM OF TESTOSTERONE MERCURY TOXICITY**, AND BASED UPON THIS OBSERVATION, ONE CAN DESIGN NOVEL TREATMENTS FOR AUTISTICS DIRECTED TOWARDS HIGHER TESTOSTERONE LEVELS IN AUTISTIC CHILDREN. WE SUGGEST A SERIES OF EXPERIMENTS THAT NEED TO BE CONDUCTED IN ORDER TO EVALUATE THE EXACT MECHANISMS FOR MERCURY-TESTOSTERONE TOXICITY, AND VARIOUS TYPES OF CLINICAL MANIPULATIONS THAT MAY BE EMPLOYED TO CONTROL TESTOSTERONE LEVELS.

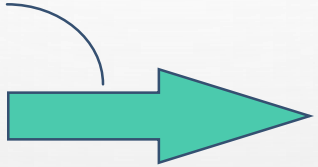
HEAVY METALS CAN CAUSE AUTO-IMMUNE DISORDERS

METALS BIND TO SULFUR (SH) GROUPS AND CHANGE THEIR CONFIGURATION. SUCH CELLS ARE RECOGNIZED BY IMMUNE SYSTEM AS "FOREIGN" AND ARE ATTACKED

Own cells



Hg, Ag, Au, Ni, Ti



Changed cells

S-Hg, S-Ag, S-Au, S-Ni, S-Ti

Does not stimulate the immune system

Stimulates the immune system

→ Allergy

→ **Autoimmunity**

TREATMENT OPTIONS

CHLORELLA IN PREGNANT AND BREASTFEEDING MOTHERS

- EFFECT OF CHLORELLA PYRENEIDOSA ON FECAL EXCRETION AND LIVER ACCUMULASTION OF POLYCHLORINATED DIBENZO-P-DIOXIN IN MICE CHEMOSPHERE 2005;59 297-304

- MATERNAL-FETAL DISTRIBUTION AND TRANSFER OF DIOXINS IN PREGNANT WOMEN IN JAPAN, AND ATTEMPTS TO REDUCE MATERNAL TRANSFER WITH CHLORELLA (CHLORELLA PYRENOIDOSA) SUPPLEMENTS

  S.NAKANO ET AL CHEMOSPHERE, APRIL 2005

- CHLORELLA PYRENEIDOSA SUPPLEMENTATION DECREASES DIOXIN AND INCREASES IMMUNOGLOBULIN A CONCENTRATIONS IN BREAST MILK

  SHIRO NAKANO ET AL J MED FOOD 10 (1) 2007, 134-142).

CHLORELLA AND METAL BINDING

CADMIUM

HAGINO ET AL.: EFFECT OF CHLORELLA ON FECAL AND URINARY CADMIUM EXCRETION IN ITAI-ITAI. JAP. J. HYG. 30: 77, 4/1975

NAGANO, T./SUKETA, Y., ET AL.: ABSORPTION AND EXCRETION OF CHLORELLA ELLIPSOIDEA CADMIUM-BINDING PROTEIN AND INORGANIC CADMIUM IN RATS. JPN. J. HYG., 38: 741-747, 1983

CARR, H.P., CARINO, F.A., ET AL.: CHARACTERIZATION OF THE CADMIUM-BINDING CAPACITY OF CHLORELLA VULGARIS. BULL. ENVIRON. CONTAM. TOXICOL., 60: 433-440, 1998

URANIUM

HORIKOSHI, T./ NAKAJIMA, A., ET AL.: UPTAKE OF URANIUM BY VARIOUS CELL FRACTIONS OF CHLORELLA VULGARIS. RADIOISOTOPES 28: 485-488, 1979

NAKAJIMA, A; HORIKOSHI, T; SAKAGUSHI, T.: RECOVERY OF URANIUM BY IMMOBILISED MICRO-ORGANISMS. EVR. J. APPL. MICROBIOL. BIOTECH, 16: 88-91, 1982.

LEAD

PROTECTIVE EFFECTS OF CHLORELLA VULGARIS IN LEAD EXPOSED MICE INFECTED WITH LISTERIA MONOCYTOGENES M.QUEIROZ ET AL INTERNATIONAL IMMUNOPHARMACOLOGY 3 (2003) 889-900

MERCURY

SHIEH, Y.J.; BARGER, J: UPTAKE OF MERCURY BY CHLORELLA AND ITS EFFECT ON POTASSIUM REGULATION. PLANTA, 109: 49-60, 1973

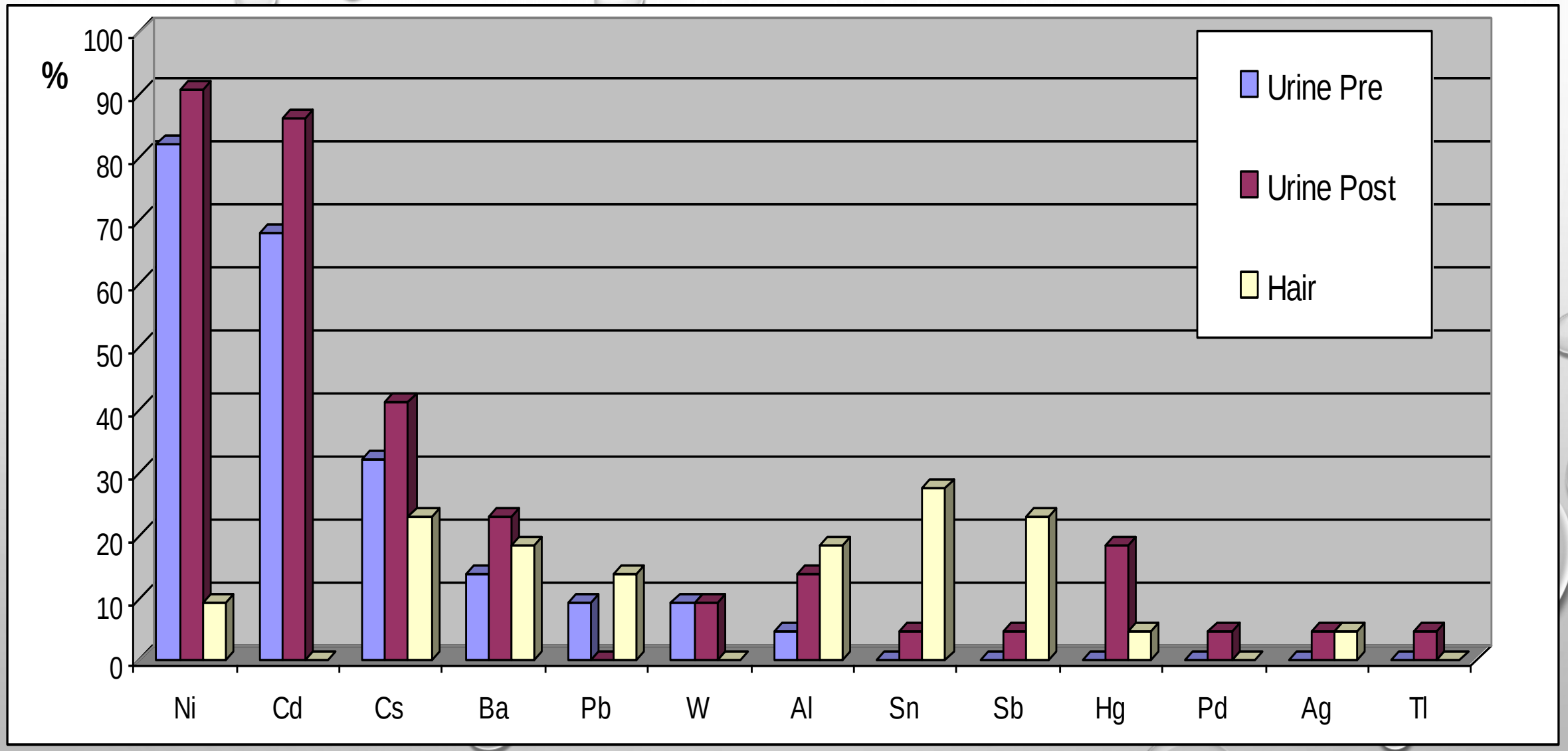
KLINGHARDT,D. :ALGENPRAEPARAT HILFREICH BEI DER AMALGAMAUSLEITUNG

ERFAHRUNGSHEILKUNDE BAND 48, HEFT 7, JULI 1999

D.KLINGHARDT AND J. MERCOLA: MERCURY TOXICITY AND SYSTEMIC ELIMINATION AGENTS D.KLINGHARDT AND J. MERCOLA, J OF NUTRITIONAL AND ENVIRONMENTAL MEDICINE (2001) 11, 53-62

PARACHLORELLA BEYERINCKII CK-5 IS FOUND TO ACCELERATE EXCRETION OF METHYL-MERCURY BOTH INTO FECES AND URINE: "JAPAN SOCIETY FOR BIOSCIENCE, BIOTECHNOLOGY AND AGRO-CHEMISTRY"(JSBBA: HTTP://WWW.JSBBA.OR.JP) MEETING IN NAGOYA CITY, JAPAN, MARCH 29~30, 2008 .

CILANTRO: TOXIC METAL IONS IN URINE AND HAIR – AFTER PROVOCATION WITH 15 DROPS *ENERGIZED CILANTRO* TINCTURE TID FOR 6 WEEKS AND THE IONIC FOOT BATH 20 MIN PER DAY (DR. MARGARITA GRIESS-BRISSON)



WONDERS OF MELATONIN

MELATONIN CLEARS THE BRAIN AT NIGHT OF TOXINS IT IS THE MOST POTENT BRAIN ANTI-OXIDANT AND DETOX AGENT

1.MELATONIN INDUCES SLEEP. WE ONLY HEAL AND DETOXIFY IN DEEP NON-REM SLEEP. WITHOUT MELATONIN NO REGENERATION AND NO DETOXIFICATION

2. MELATONIN IS THE MOST EFFECTIVE AND POTENT NEUROPROTECTIVE CHEMICAL IN THE CNS AND PREVENTS DAMAGE FROM MERCURY, LEAD, ALUMINUM, CHEMICALS, MYCOTOXINS, VIRUSES, CIGARETTE SMOKE, BACTERIAL AND PARASITIC ENDO-AND EXOTOXINS (LYME, CLOSTRIDIA, ASCARIS) OUTGASING OF CARPETS AND NEW CAR PLASTICS, ETC.

- *SENER, G.ET AL: "**MELATONIN PROTECTS AGAINST MERCURY INDUCED OXIDATIVE TISSUE DAMAGE**". BASIC AND CLINICAL PHARMACOLOGY&TOXICOLOGY VOL 93, DEC 2003, PP 290-296*
- L. XIE, H. KANG, Q. XU, M. J. CHEN, Y. LIAO, M. THIYAGARAJAN, J. O'DONNELL, D. J. CHRISTENSEN, C. NICHOLSON, J. J. ILIFF, T. TAKANO, R. DEANE, M. NEDERGAARD. ***"SLEEP DRIVES METABOLITE CLEARANCE FROM THE ADULT BRAIN"***. *SCIENCE*, 2013; 342 (6156): 373 DOI:10.1126/SCIENCE.1241224

INT J IMMUNOPHARMACOL. 2000 OCT;22(10):821-32.

INFLUENCE OF MELATONIN ON IMMUNOTOXICITY OF LEAD.

KIM YO1, PYO MY, KIM JH

ABSTRACT

THE RESULTS SUGGESTED THAT IMMUNOTOXICITY INDUCED BY LEAD [PB, AS PB(NO(3))(2)] WAS SIGNIFICANTLY RESTORED OR PREVENTED BY MELATONIN(MLT). MLT (10 OR 50 MG/KG) WAS ORALLY ADMINISTERED TO ICR MICE DAILY FOR 28 DAYS, AND PB WAS ALSO ADMINISTERED AT 35 MG/KG IN THE SAME WAY 2 H AFTER THE ADMINISTRATION OF MLT, AND THE NORMAL MICE WERE GIVEN VEHICLE. WITHIN THE PB PLUS MLT-TREATED GROUP, THE BODY WEIGHT GAINS AND THE RELATIVE THYMUS WEIGHTS WERE SIGNIFICANTLY INCREASED WHEN COMPARED WITH THE TREATMENT OF PB ALONE. THE RELATIVE SPLEEN AND LIVER WEIGHTS WERE INCREASED BY THE TREATMENT OF PB ALONE, AND THEN RESTORED TO NORMAL VALUE BY MLT TREATMENT. HEMAGGLUTINATION (HA) TITER, PLAQUE-FORMING CELL RESPONSE TO SHEEP RED BLOOD CELL (SRBC), AND SECONDARY IGG ANTIBODY RESPONSE TO BSA WERE SIGNIFICANTLY ENHANCED IN THE PB PLUS MLT-TREATED MICE, AS OPPOSED TO WHEN COMPARED WITH THE TREATMENT OF PB ALONE. THE MITOGENIC RESPONSE OF SPLENIC T CELL TO CONCANAVALIN A AND THAT OF B CELLS TO LIPOPOLYSACCHARIDE WAS REMARKABLY INCREASED BY MLT TREATMENT WHEN COMPARED WITH TREATMENT OF PB ALONE. SPLENIC CD4(+)CELLS WERE SIGNIFICANTLY INCREASED BY MLT TREATMENT WHEN COMPARED WITH TREATMENT OF PB ALONE. IN CASE OF CD8(+) CELLS, THE SLIGHT ENHANCEMENT WAS OBSERVED IN MLT TREATMENT. SPLENIC T AND B CELLS WERE SIGNIFICANTLY INCREASED BY MLT TREATMENT WHEN COMPARED WITH THE TREATMENT OF PB ALONE. THE **NATURAL KILLER CELL, PHAGOCYTIC ACTIVITY** AND THE NUMBER OF PERIPHERAL **LEUKOCYTES WERE SIGNIFICANTLY ENHANCED IN PB PLUS MLT-TREATED MICE** WHEN COMPARED WITH THE TREATMENT OF PB ALONE.

CURR NEUROPHARMACOL. 2008 SEP;6(3):203-14. DOI: 10.2174/157015908785777201.

CELLULAR AND BIOCHEMICAL ACTIONS OF MELATONIN WHICH PROTECT AGAINST FREE RADICALS: ROLE IN NEURODEGENERATIVE DISORDERS.

ORTIZ GG1, BENÍTEZ-KING GA, ROSALES-CORRAL SAPACHECO-MOISÉS FP, VELÁZQUEZ-BRIZUELA IE.,

ABSTRACT

MOLECULAR OXYGEN IS TOXIC FOR ANAEROBIC ORGANISMS BUT IT IS ALSO OBVIOUS THAT OXYGEN IS POISONOUS TO AEROBIC ORGANISMS AS WELL, SINCE OXYGEN PLAYS AN ESSENTIAL ROLE FOR INDUCING MOLECULAR DAMAGE. MOLECULAR OXYGEN IS A TRIPLET RADICAL IN ITS GROUND-STAGE (.O-O.) AND HAS TWO UNPAIRED ELECTRONS THAT CAN UNDERGOES CONSECUTIVE REDUCTIONS OF ONE ELECTRON AND GENERATES OTHER MORE REACTIVE FORMS OF OXYGEN KNOWN AS FREE RADICALS AND REACTIVE OXYGEN SPECIES. THESE REACTANTS (INCLUDING SUPEROXIDE RADICALS, HYDROXYL RADICALS) POSSESS VARIABLE DEGREES OF TOXICITY. NITRIC OXIDE (NO*) CONTAINS ONE UNPAIRED ELECTRON AND IS, THEREFORE, A RADICAL. NO* IS GENERATED IN BIOLOGICAL TISSUES BY SPECIFIC NITRIC OXIDE SYNTHASES AND ACTS AS AN IMPORTANT BIOLOGICAL SIGNAL. EXCESSIVE NITRIC OXIDE PRODUCTION, UNDER PATHOLOGICAL CONDITIONS, LEADS TO DETRIMENTAL EFFECTS OF THIS MOLECULE ON TISSUES, WHICH CAN BE ATTRIBUTED TO ITS DIFFUSION-LIMITED REACTION WITH SUPEROXIDE TO FORM THE POWERFUL AND TOXIC OXIDANT, PEROXYNITRITE.REACTIVE OXYGEN AND NITROGEN SPECIES ARE MOLECULAR "RENEGADES"; THESE HIGHLY UNSTABLE PRODUCTS TEND TO REACT RAPIDLY WITH ADJACENT MOLECULES, DONATING, ABSTRACTING, OR EVEN SHARING THEIR OUTER ORBITAL ELECTRON(S). THIS REACTION NOT ONLY CHANGES THE TARGET MOLECULE, BUT OFTEN PASSES THE UNPAIRED ELECTRON ALONG TO THE TARGET, GENERATING A SECOND FREE RADICAL, WHICH CAN THEN GO ON TO REACT WITH A NEW TARGET AMPLIFYING THEIR EFFECTS.THIS REVIEW DESCRIBES THE MECHANISMS OF OXIDATIVE DAMAGE AND ITS RELATIONSHIP WITH THE MOST HIGHLY STUDIED NEURODEGENERATIVE DISEASES AND THE ROLES OF MELATONIN AS FREE RADICAL SCAVENGER AND NEUROCYTOSKELETAL PROTECTOR.

AGING (MILANO). 1995 OCT;7(5):340-51.

OXYGEN RADICAL DETOXIFICATION PROCESSES DURING AGING: THE FUNCTIONAL IMPORTANCE OF MELATONIN.

REITER RJ

ABSTRACT

THAT FREE RADICAL DESTRUCTION OF MACROMOLECULES IS A BASIS OF AGING AND AGE-RELATED DISEASES HAS CONSIDERABLE EXPERIMENTAL SUPPORT.MELATONIN, A HORMONE PRODUCED IN ORGANISMS AS DIVERSE AS ALGAE AND HUMANS, IS BELIEVED TO HAVE EVOLVED COINCIDENT WITH AEROBIC METABOLISM. IN ALL ORGANISMS MELATONIN IS PRODUCED PRIMARILY DURING THE DAILY PERIOD OF DARKNESS, WITH ONLY SMALL AMOUNTS BEING SYNTHESIZED DURING THE DAY. IN MAMMALS INCLUDING MAN, MELATONIN IS PRODUCED BY AND SECRETED FROM THE PINEAL GLAND DURING THE NIGHT; HOWEVER, THE NIGHT-TIME PRODUCTION OF MELATONIN FALLS MARKEDLY WITH AGING SUCH THAT IN SENESCENT ANIMALS A NIGHT-TIME MELATONIN RISE IS BARELY MEASURABLE. THIS MAY BE SIGNIFICANT IN TERMS OF AGING IN THE LIGHT OF RECENT OBSERVATIONS WHICH SHOW THAT MELATONIN IS A HIGHLY EFFICIENT FREE RADICAL SCAVENGER AND ANTIOXIDANT BOTH IN VITRO AND IN VIVO. IN VITRO, MELATONIN HAS BEEN SHOWN TO DIRECTLY SCAVENGE BOTH THE HYDROXYL AND PEROXYL RADICAL, AND IT DOES SO MORE EFFICIENTLY THAN OTHER KNOWN ANTIOXIDANTS. FURTHERMORE, MELATONIN GREATLY POTENTIATES THE EFFICIENCY OF PREVIOUSLY-DISCOVERED ENDOGENOUS AND EXOGENOUS ANTIOXIDANTS. IN VIVO, BOTH PHYSIOLOGICAL AND PHARMACOLOGICAL LEVELS OF MELATONIN REPORTEDLY COUNTERACT THE DEVASTATINGLY DESTRUCTIVE ACTIONS OF FREE RADICAL GENERATING CHEMICALS. FOR EXAMPLE, **MELATONIN EFFECTIVELY COMBATS DNA DAMAGE** IN RATS GIVEN MASSIVE DOSES OF THE CHEMICAL CARCINOGEN SAFROLE, AND THE INDOLE OVERCOMES MUCH OF THE GENOMIC DAMAGE INFLICTED BY IONIZING RADIATION. ALSO, **LIPID PEROXIDATION** INDUCED BY EITHER PARAQUAT, BACTERIAL LIPOPOLYSACCHARIDE OR H2O2 IS HIGHLY **SIGNIFICANTLY REDUCED BY CONCURRENT MELATONIN ADMINISTRATION**. FINALLY, **CATARACTS** PRODUCED IN NEWBORN RATS BY THE DEPLETION OF THE ENDOGENOUS ANTIOXIDANT GLUTATHIONE ARE **PREVENTED BY MELATONIN**. THESE FINDINGS PROVIDE EVIDENCE THAT **MELATONIN IS OPERATIVE IN THE CELL NUCLEUS**, IN THE AQUEOUS CYTOSOL AND IN LIPID-RICH CELLULAR MEMBRANES **AS AN ANTIOXIDANT**. CONSIDERING THIS, THE LOSS OF THIS POTENT ANTIOXIDANT DURING AGING MAY BE CONSEQUENTIAL IN TERMS OF CELLULAR AND ORGANISMAL AGING AS WELL AS THE ONSET OF AGE-RELATED DISEASES. THESE EXPERIMENTAL RESULTS FROM A VARIETY OF SOURCES SUGGEST THAT A MORE DETERMINED APPROACH TO THE STUDY OF MELATONIN AS AN ANTI-AGING FACTOR IS WARRANTED

INT J IMMUNOPHARMACOL. 2000 APR;22(4):275-84.

INFLUENCE OF MELATONIN ON IMMUNOTOXICITY OF CADMIUM.

KIM YO, AHN YK, KIM JH.

ABSTRACT

- THE RESULTS SUGGESTED THAT IMMUNOTOXICITY INDUCED BY CD WAS SIGNIFICANTLY RESTORED OR PREVENTED BY MLT. MLT (10 OR 50 MG/KG) WAS ORALLY ADMINISTERED TO ICR MICE DAILY FOR 28 CONSECUTIVE DAYS, AND CADMIUM (CD, AS [CD(AC)(2)]) WAS ALSO ADMINISTERED AT 25 MG/KG BY THE SAME ROUTE 2 H AFTER THE ADMINISTRATION OF MLT, AND THE NORMAL MICE WERE GIVEN VEHICLE. WITHIN THE CD PLUS MLT-TREATED GROUP, THE BODY WEIGHT GAINS AND RELATIVE THYMUS WEIGHTS WERE SIGNIFICANTLY INCREASED WHEN COMPARED WITH THE TREATMENT OF CD ALONE. THE RELATIVE SPLEEN AND LIVER WEIGHTS WERE INCREASED BY TREATMENT OF CD ALONE, THEN RESTORED TO NORMAL VALUE BY MLT TREATMENT. HEMAGGLUTINATION (HA) TITER, PRIMARY IGM ANTIBODY RESPONSE TO SRBC, AND SECONDARY IGG ANTIBODY RESPONSE TO BSA WAS SIGNIFICANTLY INCREASED WITH THE CD PLUS MLT-TREATED MICE, AS OPPOSED TO WHEN COMPARED WITH TREATMENT OF CD ALONE. **THE NK CELL** AND **PHAGOCYTIC ACTIVITY** USED FOR EVALUATION OF NON-SPECIFIC IMMUNOCOMPETENCE WAS **SIGNIFICANTLY INCREASED** IN CD PLUS MLT-TREATED MICE WHEN COMPARED WITH THE TREATMENT OF CD ALONE. THE **NUMBER OF PERIPHERAL LEUKOCYTES WAS SIGNIFICANTLY INCREASED** IN CD PLUS MLT-TREATED MICE WHEN COMPARED WITH TREATMENT OF CD ALONE.

SURG NEUROL INT. 2014; 5: 97.
PUBLISHED ONLINE 2014 JUN 18. DOI: 10.4103/2152-7806.134731
PMCID: PMC4093745

DIMINISHED BRAIN RESILIENCE SYNDROME: A MODERN DAY NEUROLOGICAL PATHOLOGY OF INCREASED SUSCEPTIBILITY TO MILD BRAIN TRAUMA, CONCUSSION, AND DOWNSTREAM NEURODEGENERATION

WENDY A. MORLEY AND STEPHANIE SENEFF[1,*]

ABSTRACT

THE NUMBER OF SPORTS-RELATED CONCUSSIONS HAS BEEN STEADILY RISING IN RECENT YEARS. DIMINISHED BRAIN RESILIENCE SYNDROME IS A TERM COINED BY THE LEAD AUTHOR TO DESCRIBE A PARTICULAR PHYSIOLOGICAL STATE OF NUTRIENT FUNCTIONAL DEFICIENCY AND DISRUPTED HOMEOSTATIC MECHANISMS LEADING TO INCREASED SUSCEPTIBILITY TO PREVIOUSLY CONSIDERED INNOCUOUS CONCUSSION. WE DISCUSS HOW MODERN DAY ENVIRONMENTAL TOXICANT EXPOSURE, ALONG WITH MAJOR CHANGES IN OUR FOOD SUPPLY AND LIFESTYLE PRACTICES, PROFOUNDLY REDUCE THE BIOAVAILABILITY OF NEURO-CRITICAL NUTRIENTS SUCH THAT THE NORMAL PROCESSES OF HOMEOSTATIC BALANCE AND RESILIENCE ARE NO LONGER FUNCTIONAL. THEIR DIMINISHED CAPACITY TRIGGERS PHYSIOLOGICAL AND BIOCHEMICAL 'WORK AROUND' PROCESSES THAT RESULT IN UNDESIRABLE DOWNSTREAM CONSEQUENCES. EXPOSURE TO CERTAIN ENVIRONMENTAL CHEMICALS, PARTICULARLY **GLYPHOSATE**, THE ACTIVE INGREDIENT IN THE HERBICIDE, ROUNDUP®, MAY DISRUPT THE BODY'S INNATE SWITCHING MECHANISM, WHICH NORMALLY **TURNS OFF THE IMMUNE RESPONSE TO BRAIN INJURY ONCE DANGER HAS BEEN REMOVED. DEFICIENCIES IN SEROTONIN, DUE TO DISRUPTION OF THE SHIKIMATE PATHWAY, MAY LEAD TO IMPAIRED MELATONIN SUPPLY**, WHICH REDUCES THE RESILIENCY OF THE BRAIN THROUGH REDUCED ANTIOXIDANT CAPACITY AND ALTERATIONS IN THE CEREBROSPINAL FLUID, REDUCING CRITICAL PROTECTIVE BUFFERING MECHANISMS IN IMPACT TRAUMA. DEPLETION OF CERTAIN RARE MINERALS, OVERUSE OF SUNSCREEN AND/OR OVERPROTECTION FROM SUN EXPOSURE, AS WELL AS OVERINDULGENCE IN HEAVILY PROCESSED, NUTRIENT DEFICIENT FOODS, FURTHER COMPROMISE THE BRAIN'S RESILIENCE. MODIFICATIONS TO LIFESTYLE PRACTICES, IF WIDELY IMPLEMENTED, COULD SIGNIFICANTLY REDUCE THIS TREND OF NEUROLOGICAL DAMAGE.

KEYWORDS: CHRONIC TRAUMATIC ENCEPHALOPATHY, GLYPHOSATE, NEUROTOXINS, POSTCONCUSSION SYNDROME, SPORTS-RELATED CONCUSSION

HOW TO MAKE LIPOSOMAL MELATONIN

INGREDIENTS: 1. LIPO-HEALTH, BIOPURE 2. MELATONIN CAPSULES WITH MINIMAL FILLERS, WE USE BIOTECH OR A COMPOUNDING PHARMACY 3. ORGANIC COCONUT OIL 4. ORGANIC HONEY 5. WATER, FILTERED 6. BLENDER; A MAGIC BULLET/NUTRIBULLET WORKS WELL 7. ULTRASONIC JEWELRY CLEANER (NOT THE ONE THAT YOU USE TO CLEAN YOUR OWN JEWELRY WITH); 8. GLASS CONTAINER LIKE A CUSTARD CUP OR RAMEKIN THAT FITS INSIDE THE JEWELRY CLEANER

PUT INTO THE BLENDER, IN ORDER: 2 TSP WATER, 2 TABLESPOON ROOM TEMPERATURE COCONUT OIL, 2 TSP LIPO-HEALTH, 7-10 DAYS WORTH OF MELATONIN (OPEN APPROPRIATE NUMBER OF CAPSULES INTO BLENDER; SEE BELOW FOR EXAMPLE CALCULATION), AND 1.5 TSP HONEY OR TO TASTE. BLEND UNTIL WELL MIXED. YOU WANT IT TO LOOK A LITTLE GELATINOUS AND THICK ENOUGH THAT IT STILL POURS, BUT SLOWLY. ADD WATER AS NEEDED TO MAKE PRODUCT BLENDABLE. ADD COCONUT OIL IF TOO FLUID. PUT INTO A GLASS CONTAINER IN ULTRASONIC JEWELRY CLEANER THAT IS FILLED WITH WATER. FOLLOWING INSTRUCTIONS FOR CLEANER, RUN FOR 20 MINUTES. PLACE IN REFRIGERATOR, WHERE IT SHOULD THICKEN UP TO RESEMBLE BUTTER. AFTER IT HAS THICKENED, CUT INO SLICES LIKE A PIE, SO THAT EACH SLICE IS YOUR DESIRED DOSE.

HOW TO TAKE: LET IT ABSORB THROUGH YOUR MOUTH BY MOVING IT AROUND TO COAT INSIDES OF CHEEKS, ROOF OF MOUTH, ETC. FOR SEVERAL MINUTES. AVOID BRUSHING TEETH, EATING, DRINKING, OR TAKING OTHER SUPPLEMENTS FOR AT LEAST 15 MINUTES.

- THIS IS MORE POTENT THAN NON-LIPOSOMAL MELATONIN. START YOUR DOSE LOW OR AS YOUR DOCTOR RECOMMENDS. THE SIGN OF HAVING TAKEN TOO MUCH IS DROWSINESS THE NEXT DAY.

- HONEY HERE ALSO ACTS AS AN EMULSIFIER, SO IT IS PREFERRED OVER OTHER SWEETENERS

- SIMPLE DOSING CALCULATION EXAMPLE: IF YOUR DOSE IS 2MG/NIGHT, AND YOU ARE GOING TO CUT THE PRODUCT INTO 8 SLICES (ONE SLICE/NIGHT), YOU NEED TO ADD 16MG TO THE FORMULA. IF YOUR MELATONIN IS 5MG/CAPSULE, OPEN 3 CAPSULES INTO THE BLENDER, FOR A TOTAL OF 15MG/BATCH, OR JUST UNDER 2MG/DOSE.

HOW TO EVALUATE BODY BURDEN

- HAIR ANALYSIS
- PROVOKED URINE CHALLENGE
- NUTRA-EVAL
- PORPHYRIN LEVELS

- *ALWAYS WANT TO LOOK AT ESSENTIAL NUTRIENT AS WELL
- **GENETIC MUTATIONS MAKE A LARGE DIFFERENCE IN HOW OUR BODY EXCRETES

PSYCHOLOGICAL FACTORS EFFECT OUR HOLDING OR RELEASING HEAVY METALS

- PSYCHO-KINESIOLOGY
- FAMILY CONSTELLATION WORK

NON INVASIVE DETOX METHODS

- MANUAL DRAINAGE, MASSAGE WHICH MAY BE ENHANCED WITH ESSENTIAL OILS

- ACUPUNCTURE THERE ARE MULTIPLE OPTIONS
  - TRADITIONAL NEEDLINGS
  - ADJUNCTIVELY USING ELECTRICAL CURRENT

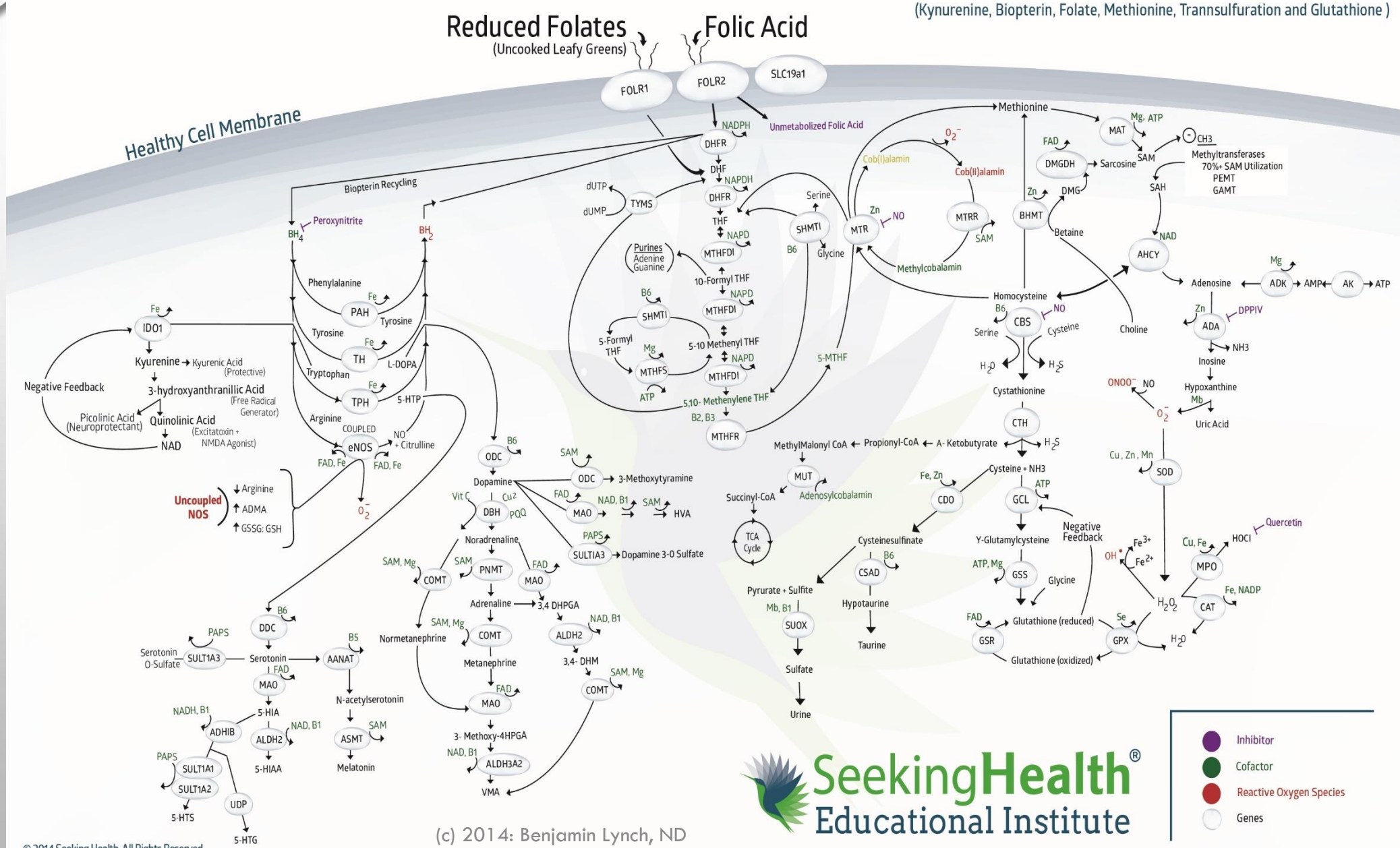
  - IONIC FOOT BATH ENHANCED WITH SPECIFIC HERBAL SUPPORT
  - NEURO-FEEDBACK

ORAL PROVOCATION AND DETOX OPTIONS

- DMPS
- AN ORAL PROVOCATION WITH THE AMINO ACID GLYCINE, 80 MG/KG BODY WEIGHT (IN DIVIDED DOSES) 24 HOURS BEFORE A DIAGNOSTIC EDTA CHELATION WITH SUBSEQUENT URINE COLLECTION CAN BE DONE TO CONFIRM ALUMINUM EXCESS.
- DMSA
- IMD
- D-PENICILLAMINE
- CILANTRO
- LIPOSOMAL MELATONIN
- * IT IS VITAL TO HAVE PATHWAYS OF ELIMINATION OPEN AND BINDING AGENTS ON BOARD
- **GENETICALLY BI-PASS YOUR MUTATIONS

Pathway Planner

(Kynurenine, Biopterin, Folate, Methionine, Trannsulfuration and Glutathione)



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MORE TREATMENT OPTIONS FOR METAL TOXICITY

- PREVENTION OF MERCURY TOXICITY: MOTHER SHOULD HAVE MERCURY-AMALGAM FILLINGS REMOVED LONG BEFORE GETTING PREGNANT WITH AGGRESSIVE TREATMENT (COMPLEXING AND DETOX AGENTS), USING DMPS, DMSA, D-PENICILLAMINE, CURCUMIN, CHLORELLA, CILANTRO, MELATONIN ETC.
- DURING PREGNANCY AND LACTATION: DO NOT REMOVE FILLINGS OR ROOT CANAL FILLED TEETH! USE CHLORELLA AS PRIMARY FETUS-PROTECTIVE STRATEGY
- HG DETOX: ALWAYS SUPPLEMENT NANONIZED MINERALS ("MICROMINERALS" AND ELECTROLYTE ("MATRIX ELECTROLYTE") TO KEEP KIDNEYS OPEN AND FILL THE VACANT SITES WITH MINERALS AFTER TOXIC METALS LEAVE THEIR BINDING SITES
- BEDTIME: LIPO-MELATONIN (1-8 MG), CHLORELLA (250 MG TBL, 10-25) AND OTHER BINDERS AT NIGHT (ZEOCLEAR, MICROSILICA)
- DAYTIME: CHLORELLA, MICROSILICA, CILANTRO, DMPS, DMSA, HOMEO-K CLEAR
- TO LOWER TESTOSTERONE: USE BOTH HIGH POTENCY HOMEOPATHIC TESTOSTERONE AND DHEA , HIGH DOSE VIT A AND/OR KETOCONAZOLE (NIZORAL)
- IONIC FOOT BATH WITH ORAL CILANTRO

INTRAVENOUS / INTRA-MUSCULAR PROVOCATION AND CHELATION TREATMENT OPTIONS

- DMPS
- GLUTATHIONE
- AMINOSYN
- MYERS AND LONG DRIP VITAMIN C
- DESFERAL
- CUSTOMIZED IV THEARAPY

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COMPARISON OF CHELATING AGENTS DMPS, DMSA AND EDTA FOR THE DIAGNOSIS AND TREATMENT OF CHRONIC METAL EXPOSURE

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ABSTRACT

SEVERAL CHELATING AGENTS ARE PRESENTLY USED AMONG ENVIRONMENTAL PHYSICIANS TO DIAGNOSE AND TREAT A CHRONIC METAL OVEREXPOSURE. WE EVALUATED AND COMPARED THE BINDING CAPACITY OF THE MOST COMMON CHELATING AGENTS DMPS (2, 3-DIMERCAPTO-1-PROPANESULFONIC ACID), DMSA (DIMERCAPTOSUCCINIC ACID), ALSO CALLED SUCCIMER) AND EDTA (ETHYLENE DIAMINE TETRAACETIC ACID) FOR THE POTENTIALLY TOXIC METALS ANTIMONY (SB), ARSENIC (AS), CADMIUM (CD), LEAD (PB) AND MERCURY (HG). SECONDLY, WE EVALUATED HOW THE NUTRIENT ELEMENTS CALCIUM (CA), COPPER (CU) AND ZINC (ZN) ARE AFFECTED BY THE CHELATING AGENTS TESTED.

RESULTS: THE INTRAVENOUS APPLICATION OF DMPS IS MOST SUITABLE FOR THE DIAGNOSIS AND TREATMENT OF A SINGLE OR MULTIPLE METAL EXPOSURE, INVOLVING THE METALS SB, AS AND HG. BOTH EDTAS (NACAEDTA AND NAEDTA), ADMINISTERED INTRAVENOUSLY, ARE THE AGENTS OF CHOICE FOR CD, WHILE PB CAN BE CHELATED USING DMSA, DMPS, OR THE EDTAS. BOTH EDTAS HAVE A STRONG ZN BINDING ABILITY, BUT ONLY NAEDTA IS SUITABLE FOR BINDING APPRECIABLE AMOUNTS OF CA. DMPS BEST BINDS CU.

CONCLUSION: THE INTRAVENOUS APPLICATION OF DMPS IS MOST USEFUL FOR THE DIAGNOSIS OF MULTIPLE METAL OVEREXPOSURE. IT IS ALSO THE TREATMENT OF CHOICE FOR SB, AS AND HG AND HAS THE STRONGEST CU BINDING ABILITY OF THE CHELATORS TESTED.

KEYWORDS: DMPS; DMSA; EDTA, ARSENIC; CADMIUM; COPPER; LEAD; MERCURY.

THANK YOU FOR YOUR TIME AND ATTENTION
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