PUBLIC HEALTH

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Mercury levels in the hair of pregnant women living in coastal areas of Greece

2005-07-08
This study evaluates the effective exposure to Mercury of pregnant women living in coastal areas. Hair samples were taken from 30 women aged from 19 -39 who reside in Piraeus and in Zante. In all the examined samples mercury levels have been found with acceptable limits, established by FAO/WHO/UNEP and the mean value was lower than in most similar studies. Seafood consumption and age have no statistically significant correlation with Mercury levels in hair. The finding suggests that there is no evident risk for pregnant women living in coastal areas. An eventual health hazard might exist for families of fisherman and populations in remote islands consuming large quantity of seafood.

Authors: Chalkias, A.; Korogiannos, X.; Babatsikou, F.; Poggas, N.; Charisani, F.; Plessa, H.

Full source: Epitheorese Klinikes Farmakologias kai Farmakokinetikes 2004, 22(3), 135-139 (Greek)

Effect of amalgam fillings on the mercury concentration in human amniotic fluid

2005-07-08
Me mercury (MeHg) and metallic Hg are well known as neurotoxic agents. Dental amalgam contributes significantly to elemental Hg vapor exposure in the general population. There is little information about Hg concentration in human amniotic fluid (AF) of pregnant women and its potential toxic effect on the fetuses. Primary to assess the relationship between the presence of detectable mercury (Hg) concentration in human AF, number and surface areas of amalgam fillings of pregnant women; secondary to analyze their obstetric history and perinatal complications. The authors observed no statistically significant differences among the patients with a Hg concentration <0.08 ng/mL and those with a concentration >=0.08 with regard to obstetric history and perinatal complications. Number and surface areas of amalgam fillings influenced positive Hg concentration in AF but not at a significant level. Moreover Hg levels detected in AF were low and no adverse outcomes were observed through pregnancies and in the newborns.

Authors: Luglie, Pier Franca; Campus, Guglielmo; Chessa, Giannina; Spano, Giovanni; Capobianco, Giampiero; Fadda, Giovanni Maria; Dessole, Salvatore Full source: Archives of Gynecology and Obstetrics 2005, 271(2), 138-142 (Eng)

Blood concentrations of polycyclic musks in healthy young adults

2005-07-08
Knowledge on the concentration of polycyclic musk fragrance compounds in human blood is sparse. This study examined the concentrations of 6 polycyclic musks in blood samples from healthy volunteers. Two compounds-galaxolide and tonalide-were identified in higher percentages of the blood plasma samples. Maximum plasma levels over 100 ng/l were also only found for galaxolide (4100 ng/l) and tonalide (800 ng/l). Women showed significantly higher levels than men. In a statistical multivariate approach only use of body lotion and age were predictive of positive galaxolide concentrations. For tonalide no significant predictor could be found. The findings mirror the replacement of nitro musk fragrances by polycyclic musks, mainly galaxolide. The high concentrations of galaxolide in human
blood raise concern since few toxicological data are available.
Authors: Hutter, H.-P.; Wallner, P.; Moshammer, H.; Hartl, W.; Sattelberger, R.; Lorbeer, G.; Kundi, M.
Full source: Chemosphere 2005, 59(4), 487-492 (Eng)

DEHP metabolites in urine of children and DEHP in house dust
2005-07-08
Urine samples from the 2001/2002 pilot study for the German Environmental Survey on children (GerES IV) were analyzed for concentrations of the primary DEHP metabolite MEHP (mono (2-ethylhexyl)phthalate) and two secondary DEHP metabolites 5OH-MEHP (2-ethyl-5-hydroxyhexylphthalate) and 5-oxo-MEHP (2-ethyl-5-oxo-hexylphthalate). The geometric mean (GM) was 7.9 µg/l for MEHP in urine, and the GMS for the secondary metabolites 5OH-MEHP and 5oxo-MEHP were 52.1 µg/l and 39.9 µg/l. 5OH-MEHP and 5oxo-MEHP concentrations were highly correlated. The correlations of 5OH-MEHP and 5oxo-MEHP with MEHP were also high. The concentrations of 5OH-MEHP and 5oxo-MEHP were 8.0-fold and 6.2-fold higher than the concentrations of MEHP. The ratios 5OH-MEHP/5oxo-MEHP and 5oxo-MEHP/MEHP decreased with increasing age. Boys showed higher concentrations than girls for all three metabolites of DEHP in urine. Children aged 13-14 had the lowest mean concentrations of the secondary metabolites in urine. The house dust analyses revealed DEHP contamination of all samples. The GM was 508 mg/kg dust. No correlation could be observed between the levels of any of the urinary DEHP metabolites and those of DEHP in house dust.
Authors: Becker, Kerstin; Seiwert, Margarete; Angerer, Juergen; Heger, Wolfgang; Koch, Holger M.; Nagorka, Regine; Rosskamp, Elke; Schlueter, Christoph; Seifert, Bernd; Ulrich, Detlef
Full source: International Journal of Hygiene and Environmental Health 2004, 207(5), 409-417 (Eng)

Congener-specific analysis of polychlorinated biphenyl in human blood from Japanese
2005-07-08
Polychlorinated biphenyl (PCB) congeners were analyzed by high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) of whole blood samples collected from 24 healthy adult Japanese volunteers. On average, 95 PCB congeners were detected in whole blood. Mean total PCB concentration in whole blood was 771.9 pg/g (139.6 ng/g lipid). Congener-specific analysis identified predominant PCB congeners: 153 (22.2), 180 (11.6), 138 (8.4), 182/187 (6.6), 118 (5.6), 163/164 (5.0), 99 (3.9), 74 (3.6), 146 (3.3), 170 (3.0), and 156 (2.2), representing 75.6 of all PCB detected in blood samples. Among predominant PCB congeners, 153, 180, 138, 187, 118, 99, and 74 had a Cl substituent at the 2-, 4-, and 5- Ph ring positions. In human blood in Japanese persons, it is assumed these congeners would be characteristic of the entire population, based on the relation between PCB ingestion and metabolism.
Authors: Hirai, Tetsuya; Fujimine, Yoshinori; Watanabe, Syunkichi; Nakano, Takeshi
Full source: Environmental Geochemistry and Health 2005, 27(1), 65-73 (Eng)
Theoretical calculations of radiation exposure from Egyptian phospho-gypsum
2005-07-08
A theoretical study and computer simulation search program has been developed to calculate the gamma radiation doses from thin sheets of Egyptian phospho-gypsum containing an average 226Ra concentration of 750 Bq/kg. A comparison study using a natural gypsum has been made. The calculations presented in this paper are much more realistic in aspect that they take the geometry of the building materials into account. The methodology outlined in this paper can be used for calculations of gamma doses for any building material which satisfied assumptions used here, in particular that there is no significant absorption of gamma radiation in the air or the source material.
Authors: Gaber, Fatma A.; El-Shal, Azza O.; El-Mongy, S. A.; Mad'bouly, M.
Full source: Egyptian Journal of Biophysics and Biomedical Engineering 2002 (Pub. 2003), 3, 13-26 (Eng)

Gamma doses from granite sheet
2005-07-08
Use of granite in buildings may constitute an additional source of radiation exposure to workers and the public from gamma radiation produced by radioactive decay in the granite sheet. Presented calculations indicated that if different types of 2 cm-thick granite sheets containing a 226Ra eq concentration of 236.09889 Bq/kg for red granite and 360.92307 Bq/kg for rose granite were used in the walls and floor of a bank hall of <= 8 \* 10 \* 3 m and 10 \* 12 \* 3 m, the annual gamma radiation ED for a worker or person occupying the Bank hall was lower than the maximum acceptable 226Ra concentration in building materials. Calculations were much more realistic since they accounted for building geometry.
Authors: Gaber, Fatma A.; El-Shal, Azza O.; Ezz El-Din, M. R.; Helal, N. L.
Full source: Egyptian Journal of Biophysics and Biomedical Engineering 2002 (Pub. 2003), 3, 229-238 (Eng)

Migration of nitrosamines from rubber products - are balloons and condoms harmful to the human health?
2005-07-08
Studies performed in 2001 and 2003 surveyed the release of carcinogenic nitrosamines and nitrosatable substances from rubber toy balloons by extraction with artificial saliva and gas chromatography-thermal energy analysis (GC-TEA). 81% Of the 16 in 2001 sampled balloons and 93% of the 14 in 2003 sampled balloons released nitrosamines above the recommended level in Germany of 10 mug per kg material. Furthermore, 32 rubber condom samples collected in 2004 from the German market were surveyed for nitrosamines by determining the amount migrating into an artificial sweat test solution. The levels released from condoms varied from < 10 to 660 mug per kg material (i.e., up to 1.4 mug nitrosamines per condom). In a model calculation, not considering the differences that may exist in the resorption rate, the authors have calculated that the exposure from condoms may exceed the exposure from food 1.5-3 fold. So far no legal binding legislation exists worldwide concerning nitrosamine migration from toy balloons or condoms.
Authors: Altkofer, Werner; Braune, Stefan; Ellendt, Kathi; Kettl-Gromminger, Margit; Steiner, Gabriele
Full source: Molecular Nutrition & Food Research 2005, 49(3), 235-238 (Eng)
PCB-related neurodevelopmental deficit may be transient: follow-up of a cohort at 6 years of age

2005-07-08

Based on findings from a previous study the authors aimed to establish if cognitive deficit, shown to be induced by perinatal exposure to polychlorinated biphenyls (PCBs) at earlier ages, persists into school-age. Seventy-seven % of a cohort last examined at 42 months of age using the Kaufman Assessment Battery for Children were reexamined with the same test at 72 months. At this point, and contrary to the results at 30 and 42 months no adverse PCB-effects were found. However, the possible effect of the home environment became even more pronounced. Early PCB-exposure at current environmental background levels possibly induces transient delay in cognitive development rather than irreversible deficit.

Authors: Winneke, Gerhard; Kraemer, Ursula; Sucker, Kirsten; Walkowiak, Jens; Fastabend, Annemarie; Heinzow, Birger; Steingrueber, Hans-J.

Full source: Environmental Toxicology and Pharmacology 2005, 19(3), 701-706 (Eng)

Lead in soil and possible child health risk in Veles region, Macedonia

2005-07-08

The paper deals with the possible link between the Pb content of soil in the smelter plant area of the Veles town and the blood lead level of 10 yr old children living in the same town. These data were compared to those for children living in the Ivankovci village, located 10 km from Veles. Soil Pb content of uncultivated area of the Ivankovci village is 36.32 mg/kg, which corresponds to 36% of the maximum admissible content (MAC). The established blood Pb level of children, living in this village, is 18.2 mug/dL. Pb content of the surface layer of uncultivated soil near to the smelter plant in Veles is 191 mg/kg, which is 2 times higher than the MAC being 100 mg/kg. The examined blood Pb level of children is equal to 37.27 mug/dL. The authors established a significant difference in the Pb concentration of blood for the children of Veles and Ivankovci. The authors concluded that a dependence of blood Pb level of children on soil Pb content for the area they lived, existed.

Authors: Kochubovski, Mihail; Gjorgjev, D.

Full source: Journal of Balkan Ecology 2003, 6(2), 200-203 (Eng)

Lead levels of blood school children

2005-07-08

This paper deals with the assessment of possible impact of Pb to the hematopoiesis of school children from the municipality of Veles, Macedonia. It can be concluded that there was not identified significant disorder in hematopoiesis related to potential consequence by Pb pollution.

Authors: Kochubovski, Mihail; Georgiev, Dragan; Manevska, Biliana; Gruev, Todor

Full source: Journal of Balkan Ecology 2004, 7(2), 205-210 (Eng)

High exposure to polycyclic aromatic hydrocarbons may contribute to high risk of esophageal cancer in northeastern Iran

2005-07-08

The northeastern region of Iran has some of the highest rates of esophageal squamous cell carcinoma (ESCC) in the world. To investigate the role of polycyclic aromatic hydrocarbons (PAHs) in the etiology of ESCC in
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northeastern Iran, the authors measured urine 1-hydroxypyrene glucuronide (1-OHPG), a stable PAH metabolite, in 99 inhabitants of this area. The authors conclude that people in northeastern Iran are exposed to widespread and very high levels of PAH, largely from unknown sources, and this may contribute to the high rates of ESCC observed in this area.

Authors: Kamangar, Farin; Strickland, Paul T.; Pourshams, Akram; Malekzadeh, Reza; Boffetta, Paolo; Roth, Mark J.; Abnet, Christian C.; Saadatian-Elahi, Mitra; Rakhshani, Nasser; Brennan, Paul; Etemadi, Arash; Dawsey, Sanford M.
Full source: Anticancer Research 2005, 25(1B), 425-428 (Eng)

Exposure to traffic exhausts and oxidative DNA damage
2005-07-08
The aim was to assess the relations between exposure to traffic exhausts and indicators of oxidative DNA damage among highway toll station workers. Cross-sectional study of 47 female highway toll station workers exposed to traffic exhausts and 27 female office workers as a reference group. Results indicate that exposure to traffic exhausts increases oxidative DNA damage. Urinary 8-OHdG is a promising biomarker of traffic exhaust induced oxidative stress.

Full source: Occupational and Environmental Medicine 2005, 62(4), 216-222 (Eng)

Follow-up testing among children with elevated screening blood lead levels
2005-07-08
This study measures the proportion of children with elevated screening Pb levels who have follow-up testing and determines factors associated with such care. In multivariate analysis adjusting for age, screening blood Pb level results, and local health department catchment area, the relative risk of follow-up testing was lower for Hispanic or nonwhite children than for white children, for children living in urban compared with rural areas, and for children living in high- compared with low-risk Pb areas. Among children who did not have follow-up testing, 58.6% had at least 1 medical encounter in the 6-month period after the elevated screening blood Pb level, including encounters for evaluation and management or preventive care. The rate of follow-up testing after an abnormal screening blood Pb level was low, and children with increased likelihood of Pb poisoning were less likely to receive follow-up testing. At least half of the children had a missed opportunity for follow-up testing. The observed disparities of care may increase the burden of cognitive impairment among at-risk children.

Authors: Kemper, Alex R.; Cohn, Lisa M.; Fant, Kathryn E.; Dombkowski, Kevin J.; Hudson, Sharon R.
Full source: JAMA, the Journal of the American Medical Association 2005, 293(18), 2232-2237 (Eng)