Contents

(click on page numbers for links)

ENVIRONMENTAL RESEARCH
Increase in intracellular Ca(2+) level by phenylsulfamide fungicides, tolylfluanid and dichlofluanid, in rat thymic lymphocytes ..............................................3
Should We Put Our Feet in the Water? Use of a Survey to Assess Recreational Exposures to Contaminants in the Anacostia River .................................4
Outbreaks of Illness Associated with Recreational Water - United States, 2011-2012 .........................................................................................................................5
It is time to develop ecological thresholds of toxicological concern to assist environmental hazard assessment .........................................................................................5
Targeting Hormone-Related Pathways to Improve Grain Yield in Rice: A Chemical Approach ........................................................................................................6

MEDICAL RESEARCH
Tea consumption in pregnancy as a predictor of pesticide exposure and adverse birth outcomes: The MIREC Study .................................................................7
Performance of the BG1Luc ERTA method in a qHTS format .........................................................8
The ins and outs of RND efflux pumps in Escherichia coli ..........................................................9
Are urinary polyaromatic hydrocarbons associated with adult hypertension, heart attack, and cancer? USA NHANES, 2011-2012 ..................10
Greater Cognitive Decline with Aging among Elders with High Serum Concentrations of Organochlorine Pesticides .........................................................11

OCCUPATIONAL RESEARCH
Environmental and occupational exposures as a cause of male infertility 12
Non-radiation risk factors for leukaemia: A case-control study among Chernobyl cleanup workers in Ukraine .................................................................................13
The Global Landscape of Occupational Exposure Limits- Implementation of Harmonisation Principles to Guide Limit Selection ....14
The Scientific Basis of Uncertainty Factors used in Setting Occupational Exposure Limits ............................................................................................................14
A Turkish translation of the Nordic Occupational Skin Questionnaire (NOSQ-2002/LONG) adapted for young workers in high-risk jobs ..........15

PUBLIC HEALTH RESEARCH
Persons injured during acute chemical incidents - hazardous substances emergency events surveillance, nine States, 1999-2008 .............16
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory and cardiometabolic risk on obesity: role of environmental xenoestrogens</td>
<td>18</td>
</tr>
<tr>
<td>Pollution as a Risk Factor for the Development of Melasma and Other Skin Disorders of Facial Hyperpigmentation. Is There a Case to Be Made?</td>
<td>19</td>
</tr>
<tr>
<td>Indoor Air Problems and Hoarseness in Children</td>
<td>19</td>
</tr>
<tr>
<td>Benzonphenone-type UV filters in urine of Chinese young adults: Concentration, source and exposure</td>
<td>20</td>
</tr>
</tbody>
</table>
In this study, the effects of phenylsulfamide fungicides were examined on rat thymocytes by using fluorescent probes in order to further characterise the cellular actions of phenylsulfamide fungicides.

Tolylfluanid, a phenylsulfamide fungicide, is one of the many pesticides that are frequently detected in crops. Therefore, its health risk is a concern. Micromolar concentrations of tolylfluanid induce chromosomal aberrations and micronuclei in mammalian lymphocytes. The authors investigated the cellular actions of tolylfluanid and another frequently detected pesticide, dichlofluanid, at submicromolar and micromolar concentrations. Of the cellular actions of chemicals, the action on cellular Ca(2+) homeostasis is important since Ca(2+) is involved in cell signalling and death. Consequently, in this study, the effects of phenylsulfamide fungicides were examined on rat thymocytes by using fluorescent probes in order to further characterise the cellular actions of phenylsulfamide fungicides. Both phenylsulfamide fungicides exhibited biphasic, early and late, increase in intracellular Ca(2+) levels. The early phase was dependent on intracellular Ca(2+) release and increased membrane Ca(2+) permeability. The late phase was owing to Ca(2+) influx via activation of store-operated Ca(2+) channels and the further increase of membrane ionic permeability. Voltage-dependent Ca(2+) channels were not involved. The increases in intracellular Ca(2+) levels by phenylsulfamide fungicides were observed at drug concentrations of 0.1μM or more (up to 10μM). Thus, it is plausible that micromolar concentrations of phenylsulfamide fungicides deregulate intracellular Ca(2+) homeostasis in rat thymocytes. Both phenylsulfamide fungicides at 10μM promoted the transition from intact living cells to living cells with phosphatidylserine-exposed membranes. This was not the case for phenylsulfamide fungicides at 3μM. The potency of tolylfluanid was similar to that of dichlofluanid. Although the information on residual concentrations of tolylfluanid and dichlofluanid is very limited, their residual concentrations do not reach micromolar levels. The authors concluded that it is unlikely that humans...
will develop adverse effects on exposure to phenylsulfamide fungicides under present environmental conditions.

Authors: Fukunaga E, Enma K, Saitoh S, Nishimura-Danjyobara Y, Oyama Y, Akaike N.


Should We Put Our Feet in the Water? Use of a Survey to Assess Recreational Exposures to Contaminants in the Anacostia River

2015-08-04

The Anacostia River, a tributary of the Potomac River that flows into the Chesapeake Bay, is highly contaminated with raw sewage, heavy metals, oil and grease, trash, pathogens, excessive sediments, and organic chemicals. Despite this contamination, recreation on the river is very popular, including kayaking, canoeing, rowing, and sport fishing. There is currently no information available on the potential health risks faced by recreational users from exposure to the river’s pollutants. During this study, a total of 197 recreational users of the Anacostia River were surveyed regarding general demographic information and their recreational behaviour over the previous year, including frequency and duration of recreation and specific questions related to their water exposure. 84.1% of respondents who engaged in canoeing, kayaking, rowing, rafting, or paddling were exposed to water on their bodies during recreation. Some 27.2% of those exposed to water reported getting water in their mouth while recreating, and 60.7% of that group reported swallowing some of this water. This is the first study to examine the exposure to contaminants faced by the recreational population of the Anacostia River.

Authors: Murray R, Wilson S, Dalemarre L, Chanse V, Phoenix J, Baranoff L.


During this study, a total of 197 recreational users of the Anacostia River were surveyed regarding general demographic information and their recreational behaviour over the previous year, including frequency and duration of recreation and specific questions related to their water exposure.
Outbreaks of Illness Associated with Recreational Water
- United States, 2011-2012

2015-08-04

Outbreaks of illness associated with recreational water use result from exposure to chemicals or infectious pathogens in recreational water venues that are treated (e.g., pools and hot tubs or spas) or untreated (e.g., lakes and oceans). For 2011-2012, the most recent years for which finalised data were available, public health officials from 32 states and Puerto Rico reported 90 recreational water-associated outbreaks to CDC’s Waterborne Disease and Outbreak Surveillance System (WBD OSS) via the National Outbreak Reporting System (NORS). The 90 outbreaks resulted in at least 1,788 cases, 95 hospitalisations, and one death. Among 69 (77%) outbreaks associated with treated recreational water, 36 (52%) were caused by Cryptosporidium. Among 21 (23%) outbreaks associated with untreated recreational water, seven (33%) were caused by Escherichia coli (E. coli O157:H7 or E. coli O111). Guidance, such as the Model Aquatic Health Code (MAHC), for preventing and controlling recreational water-associated outbreaks can be optimised when informed by national outbreak and laboratory (e.g., molecular typing of Cryptosporidium) data.

Authors: Hlavsa MC, Roberts VA, Kahler AM, Hilborn ED, Mecher TR, Beach MJ, Wade TJ, Yoder JS.


It is time to develop ecological thresholds of toxicological concern to assist environmental hazard assessment

2015-08-04

The Threshold of Toxicological Concern (TTC) concept is well established for assessing human safety of food-contact substances and has been reapplied for a variety of endpoints including carcinogenicity, teratogenicity, and reproductive toxicity. The TTC establishes an exposure level for chemicals, below which no appreciable risk to human health or the environment is expected based upon a de minimis value for toxicity identified for many chemicals. TTC approaches have benefits for screening-level risk assessments, including the potential for rapid decision-making, fully utilising existing knowledge, reasonable conservativeness for chemicals used in lower volumes (Low Production Volume Chemicals (LPCVs -e.g.<1 t/yr), and reduction or elimination of unnecessary animal
In the present study, the authors used different inhibitors of plant hormone action to assess their effects on grain yield and on the expression of hormone-associated genes.
The aim of this study was to determine whether tea intake in the first trimester was associated with elevated concentrations of various pesticides in maternal blood or urine.

Authors: Tamaki H, Reguera M, Abdel-Tawab YM, Takebayashi Y, Kasahara H, Blumwald E.


MEDICAL RESEARCH

Tea consumption in pregnancy as a predictor of pesticide exposure and adverse birth outcomes: The MIREC Study

2015-08-04

Pesticide residues in tea may contribute to exposure during pregnancy; however, the impact on maternal and infant health is not well understood. The aim of this study was to determine whether tea intake in the first trimester was associated with elevated concentrations of various pesticides in maternal blood or urine. Further, the authors examined the relationship between tea consumption and adverse birth outcomes. Data from the Maternal-Infant Research on Environmental Chemicals (MIREC) Study, a pan-Canada pregnancy cohort, were used. All singleton, live births (n=1898) with available biomarkers were included in the analyses. Descriptive statistics were used to characterise the population. The geometric means (GM) of organochlorine (OC) pesticide constituents or metabolites in maternal plasma (lipid adjusted) and organophosphate (OP) pesticide metabolites (adjusted for specific gravity) in maternal urine were calculated for participants who drank regular, green or herbal tea in the first trimester and for those who did not. Differences between groups were examined using chi-square or t-tests. Associations between frequency of drinking tea and adverse birth outcomes were examined using logistic regression (preterm birth and small-for-gestational-age) or generalised linear models (birthweight decile and head circumference). The GM of the OC pesticide constituent trans-nonachlor was 2.74mg/g lipid, and for metabolites oxychlordane and p,p’-DDE this was 1.94ng/g lipid and 55.8ng/g lipid, respectively. OP pesticide metabolite concentrations adjusted for specific gravity, were dimethylphosphate (GM: 3.19µg/L), dimethylthiophosphate (GM: 3.29µg/L), dimethyldithiophosphate (GM: 0.48µg/L), diethylphosphate (GM: 2.46), and diethylthiophosphate (GM: 0.67µg/L). There was no significant difference
in mean concentrations for these OC or OP pesticide constituents or metabolites between tea drinkers - of any type - and non-tea drinkers. Further, no association was found between tea intake and adverse birth outcomes. The authors concluded that pesticide concentrations did not differ by tea intake. Further, tea intake in the first trimester was not associated with adverse birth outcomes. In this study population, there was no evidence for concern about tea intake being a source of the OP or OC pesticide metabolites measured or adversely affecting birth outcomes; however, tea intake was lower than national Canadian data for women of reproductive age.

Authors: Colapinto CK, Arbuckle TE, Dubois L, Fraser W.

Full Source: Environmental Research. 2015 Jun 24;142:77-83. doi: 10.1016/j.envres.2015.06.020. [Epub ahead of print]

Performance of the BG1Luc ER TA method in a qHTS format

In 2012, the BG1Luc4E2 oestrogen receptor (ER) transactivation (TA) method (BG1Luc ER TA) was accepted by the United States regulatory agencies and the Organisation for Economic Co-operation and Development to detect substances with ER agonist activity. The method is now part of the Tier 1 testing battery in the Environmental Protection Agency’s Endocrine Disruptor Screening Programme. The BG1Luc ER TA method uses the BG1 ovarian cell line that endogenously expresses full-length ER (α and β) and is stably transfected with a plasmid containing four oestrogen responsive elements upstream of a luciferase reporter gene. To allow increased throughput and testing efficiency, the BG1Luc ER TA (“BG1 manual”) method was adapted for quantitative high-throughput screening (BG1 qHTS) in the U.S. Tox21 testing programme. The BG1 qHTS test method was used to test approximately 10,000 chemicals three times each, and concentration-response data (n=15) were analysed to evaluate test method performance. The balanced accuracy of the BG1 qHTS test method (97% [32/33]) was determined by comparing results to ER TA performance standards for the BG1 manual method. Concordance between the BG1 manual and qHTS methods was 92% (57/62) when calculated for a larger set of non-reference chemicals tested in both methods. These data demonstrate that the performance of the BG1 qHTS is similar to the currently accepted BG1 manual method, thereby
In the present review, the authors summarise the current knowledge on resistance-nodulation-cell division efflux mechanisms in E. coli, a bacteria responsible for community and hospital-acquired infections, as well as foodborne outbreaks worldwide.

The ins and outs of RND efflux pumps in Escherichia coli.

2015-08-04

Infectious diseases remain one of the principal causes of morbidity and mortality in the world. Relevant authorities including the WHO and CDC have expressed serious concern regarding the continued increase in the development of multi-drug resistance among bacteria. They have also reaffirmed the urgent need for investment in the discovery and development of new antibiotics and therapeutic approaches to treat multi-drug resistant (MDR) bacteria. The extensive use of antimicrobial compounds in diverse environments, including farming and healthcare, has been identified as one of the main causes for the emergence of MDR bacteria. Induced selective pressure has led bacteria to develop new strategies of defence against these chemicals. Bacteria can accomplish this by several mechanisms, including enzymatic inactivation of the target compound; decreased cell permeability; target protection and/or overproduction; altered target site/enzyme and increased efflux due to over-expression of efflux pumps. Efflux pumps can be specific for a single substrate or can confer resistance to multiple antimicrobials by facilitating the extrusion of a broad range of compounds including antibiotics, heavy metals, biocides and others, from the bacterial cell. To overcome antimicrobial resistance caused by active efflux, efforts are required to better understand the fundamentals of drug efflux mechanisms. There is also a need to elucidate how these mechanisms are regulated and how they respond upon exposure to antimicrobials. Understanding these will allow the development of combined therapies using efflux inhibitors together with antibiotics to act on Gram-negative bacteria, such as the emerging globally disseminated MDR pathogen Escherichia coli ST131 (O25:H4). In the present review, the authors summarise the current knowledge on resistance-nodulation-cell division efflux mechanisms.
in E. coli, a bacteria responsible for community and hospital-acquired infections, as well as foodborne outbreaks worldwide.

Authors: Anes J, McCusker MP, Fanning S, Martins M.


Are urinary polyaromatic hydrocarbons associated with adult hypertension, heart attack, and cancer? USA NHANES, 2011-2012

2015-08-04

Links between environmental chemicals and human health have emerged over the last few decades, but the effects from polyaromatic hydrocarbons were less studied, compared to other commonly known environmental chemicals such as heavy metals, phthalates, arsenic, phenols and pesticides. In this study, the authors examined the relationships of urinary polyaromatic hydrocarbons and adult cardiovascular disease and cancer using human sample in a national and population-based study in recent years. Data was retrieved from US National Health and Nutrition Examination Surveys, 2011-2012, including demographics, self-reported health conditions and urinary polyaromatic hydrocarbons. Statistical analyses included chi-square test, t test, survey-weighted logistic regression modelling and population attributable risk (PAR) estimation. Of 5560 American adults aged 20-80 and included in the statistical analysis, urinary polyaromatic hydrocarbons (representatively in one-third sample) were observed to be higher in people with cardiovascular disease and total cancer. In particular, urinary 4-hydroxyphenanthrene was associated with hypertension (odds ratio (OR) 1.33, 95% confidence interval (CI) 1.00-1.76, P=0.048, PAR 5.1%), urinary 1-hydroxypyrene was significantly associated with heart attack (OR 1.47, 95%CI 1.05-2.06, P=0.027, PAR 1.7%), and urinary 2-hydroxynapthalene (2-naphthol) was associated with cancer (OR 1.46, 95%CI 1.12-1.90, P=0.008, PAR 3.9%). Urinary polyaromatic hydrocarbons were associated with adult hypertension, heart attack and cancer, although the causality cannot be established. From the research perspective, future studies with a longitudinal or experimental approach would be suggested. From the law and public health perspectives, regulation on minimising exposure to polyaromatic hydrocarbons might...
need to be considered in future health and environmental policies and intervention programmes.

Author: Shiue I.


Greater Cognitive Decline with Aging among Elders with High Serum Concentrations of Organochlorine Pesticides

2015-08-04

Although cognitive decline is very common in elders, age-related cognitive decline substantially differs among elders and the determinants of the differences in age-related cognitive decline are unclear. This study investigated the hypothesis that the association between age and cognition was stronger in those with higher serum concentrations of organochlorine (OC) pesticides, common persistent and strongly lipophilic neurotoxic chemicals. Participants were 644 elders aged 60-85, participating in the National Health and Nutrition Examination Survey 1999-2002. Six OC pesticides (p,p′-dichlorodiphenyltrichloroethane (DDT), p,p′-dichlorodiphenyldichloroethylene (DDE), β-hexachlorocyclohexane, trans-nonachlor, oxychlordane, and heptachlor epoxide) were evaluated. "Lower cognitive function" was defined as having a low Digit-Symbol Substitution Test (DSST) score (<25th percentile of DSST score, cutpoint 28 symbols substituted). Higher levels of β-hexachlorocyclohexane, trans-nonachlor, oxychlordane, and heptachlor epoxide modified the associations between age and lower cognitive function (Pinteraction<0.01, 0.03, <0.01, and 0.02, respectively). Elders in the 3rd tertile of these chemicals demonstrated a greater risk of lower cognitive function with aging, compared to those in the combined 1st and 2nd tertiles. Among those with highest OC pesticides (3rd tertile), the odds ratio for the risk of lower cognitive function was about 6 to 11 for the highest quintile of age (80-85 years) versus the first quintile of age (60-63 years), while the association between age and lower cognitive function became flatter in those with lower OC pesticides (combined 1st and 2nd tertiles). Both DDT and DDE showed no interaction, with lower DSST scores for higher age irrespective of serum concentrations of DDT or DDE. Even though DSST score measures only one aspect of cognition, several OC pesticides...
This study determined the association between environmental and occupational exposures, semen parameters and lead (Pb) and cadmium (Cd) levels in seminal plasma of men investigated for infertility. Data were collected from 300 men investigated for infertility using an interviewer-administered questionnaire. Seminal fluid analysis and classification was done according to WHO guidelines. Positive exposure was defined as environmental or occupational exposure to agro or industrial chemicals, heavy metals and living in areas within 50m of potential sources of pollution for three months or more. Seminal plasma lead and cadmium levels were estimated by graphite furnace atomic absorption spectrophotometry after digestion with nitric acid. The means of sperm parameters, Pb and Cd concentrations between exposed and non-exposed groups were compared using t-test. Mean age was 34.8 (95% CI 34.2-35.4) years BMI was 24.3 (95% CI 23.8-24.7) kg/m2 and duration of the infertility was 45.7 (41.7-49.6) months. In this study, 54.6% were exposed to toxins through environmental or occupational sources. All sperm parameters were lower in the exposed group when compared to the non exposed. Lead and cadmium were detected in 38.3% and 23% of men respectively. The distance from the source of possible environmental or occupational exposure was negatively correlated to seminal plasma Pb (r=-0.06, p>0.05) and Cd (r=0.26, p<0.05) concentrations. In the exposed, mean lead concentration was 17.7 (95% CI 15.0-20.4) μg/dl and 13.5 (95% CI 11.2-15.7) μg/dl in non-exposed and cadmium concentration in exposed was 1.2 (95% CI 1.1-1.4) μg/dl and 1.1 (0.9-1.3) μg/dl in non-exposed. The authors concluded that environmental and occupational exposures were
Technical

associated with reduced sperm count motility, viability, normal forms and detectable levels of lead and cadmium in seminal plasma.

Authors: Wijesekara GU, Fernando DM, Wijerathna H, Bandara N.


Non-radiation risk factors for leukaemia: A case-control study among Chernobyl cleanup workers in Ukraine 2015-08-04

Occupational and environmental exposure to chemicals such as benzene has been linked to increased risk of leukaemia. Cigarette smoking and alcohol consumption have also been found to affect leukaemia risk. Previous analyses in a large cohort of Chernobyl clean-up workers in Ukraine found significant radiation-related increased risk for all leukaemia types. This study investigated the potential for additional effects of occupational and lifestyle factors on leukaemia risk in this radiation-exposed cohort. In a case-control study of chronic lymphocytic and other leukaemias among Chernobyl cleanup workers, the authors collected data on a range of non-radiation exposures. These and other potential risk factors were analysed adjusting for estimated bone marrow radiation dose. Odds Ratios and 95% Confidence Intervals were calculated in relation to lifestyle factors and occupational hazards. After adjusting for radiation, the authors found no clear association of leukaemia risk with smoking or alcohol but identified a two-fold elevated risk for non-CLL leukaemia with occupational exposure to petroleum (OR=2.28; 95% Confidence Interval 1.13, 6.79). Risks were particularly high for myeloid leukaemias. No associations with risk factors other than radiation were found for chronic lymphocytic leukaemia. The authors concluded that these data - the first from a working population in Ukraine - add to evidence from several previous reports of excess leukaemia morbidity in groups exposed environmentally or occupationally to petroleum or its products.

Authors: Gudzenko N, Hatch M, Bazyka D, Dyagil I, Reiss RF, Brenner A, Chumak V, Babkina N, Zablotska LB, Mabuchi K.

Full Source: Environmental Research. 2015 Jun 24;142:72-76. doi: 10.1016/j.envres.2015.06.019. [Epub ahead of print]

This study investigated the potential for additional effects of occupational and lifestyle factors on leukaemia risk in a large cohort of Chernobyl cleanup workers.
The Global Landscape of Occupational Exposure Limits- Implementation of Harmonisation Principles to Guide Limit Selection

2015-08-04

Occupational exposure limits (OELs) serve as health-based benchmarks against which measured or estimated workplace exposures can be compared. In the years since the introduction of OELs to public health practice, both developed and developing countries have established processes for deriving, setting, and using OELs to protect workers exposed to hazardous chemicals. These processes vary widely, however, and have thus resulted in a confusing international landscape for identifying and applying such limits in workplaces. The occupational hygienist will encounter significant overlap in coverage among organisations for many chemicals, while other important chemicals have OELs developed by few, if any, organisations. Where multiple organisations have published an OEL, the derived value often varies considerably reflecting differences in both risk policy and risk assessment methodology as well as access to available pertinent data. This study explores the underlying reasons for variability in OELs, and recommends the harmonisation of risk-based methods used by OEL-deriving organisations. A framework is also proposed for the identification and systematic evaluation of OEL resources, which occupational hygienists can use to support risk characterisation and risk management decisions in situations where multiple potentially relevant OELs exist.


Full Source: Journal of Occupational & Environmental Hygiene. 2015 Jun 22:0. [Epub ahead of print]

The Scientific Basis of Uncertainty Factors Used in Setting Occupational Exposure Limits

2015-08-04

The uncertainty factor concept is integrated into health risk assessments for all aspects of public health practice, including by most organisations that derive occupational exposure limits. The use of uncertainty factors is predicated on the assumption that a sufficient reduction in exposure from those at the boundary for the onset of adverse effects will yield a safe exposure level for at least the great majority of the exposed population, including vulnerable subgroups. There are differences in the application of
the uncertainty factor approach among groups that conduct occupational assessments; however, there are common areas of uncertainty, which are considered by all or nearly all occupational exposure limit-setting organisations. Five key uncertainties that are often examined include interspecies variability in response when extrapolating from animal studies to humans, response variability in humans, uncertainty in estimating a no-effect level from a dose where effects were observed, extrapolation from shorter duration studies to a full life-time exposure, and other insufficiencies in the overall health effects database indicating that the most sensitive adverse effect may not have been evaluated. In addition, a modifying factor is used by some organizations to account for other remaining uncertainties – typically related to exposure scenarios or accounting for the interplay among the five areas noted above. Consideration of uncertainties in occupational exposure limit derivation is a systematic process whereby the factors applied are not arbitrary, although they are mathematically imprecise. As the scientific basis for uncertainty factor application has improved, default uncertainty factors are now used only in the absence of chemical-specific data, and the trend is to replace them with chemical-specific adjustment factors whenever possible. The increased application of scientific data in the development of uncertainty factors for individual chemicals also has the benefit of increasing the transparency of occupational exposure limit derivation. Improved characterisation of the scientific basis for uncertainty factors has led to increasing rigor and transparency in their application as part of the overall occupational exposure limit derivation process.

Authors: Dankovic DA, Naumann BD, Maier A, Dourson ML, Levy LS.

Full Source: Journal of Occupational & Environmental Hygiene. 2015 Jun 22:0. [Epub ahead of print]

A Turkish translation of the Nordic Occupational Skin Questionnaire (NOSQ-2002/LONG) adapted for young workers in high-risk jobs

2015-08-04

Occupational skin diseases (OSDs) represent 10-40% of all occupational diseases in many industrialised countries. Young workers are frequently exposed to toxic substances and chemicals in the workplace. The occupational conditions of young workers can impose a high level of risk for the occurrence of OSDs. The Nordic Occupational Skin Questionnaire
(NOSQ-2002) was developed in English as a new, comprehensive, standardised tool with which to screen for OSDs. This study translated the NOSQ-2002 into Turkish and to culturally adapt the long version of the instrument for use with young workers in jobs with high risk for the occurrence of OSDs. Forward and back translations were carried out. Problematic items were modified until the Turkish-language version achieved a satisfactory consensus with the original version of the NOSQ-2002. The final Turkish version was tested in 40 randomly selected young workers with and without OSDs who were studying in the fields of hairdressing, jewellery making, and car mechanics at vocational training schools run by the National Education Ministry. When the original questionnaire had been translated into the target language, a first consensus version was evaluated by an expert panel. The expert panel determined that 36 questions (63.2%) in the Turkish version required some level of modification in order to facilitate clear understanding. Cognitive interviews were then performed. After some modification, the final Turkish version was established and tested among young workers. The authors concluded that the new Turkish version of the NOSQ is a comprehensible, reliable, and useful tool that can be applied to young workers in specific occupations.

Authors: Aktas E, Esin MN.

This study investigated the levels of xenoestrogens in plasma and adipose tissue depots in a sample of pre- and postmenopausal obese women undergoing bariatric surgery and their cardiometabolic impact in an obese state.

Authors: Duncan MA, Wu J, Neu MC, Orr MF.

Inflammatory and cardiometabolic risk on obesity: role of environmental xenoestrogens

Some chemicals used in consumer products or manufacturing (e.g., plastics, pesticides) have oestrogenic activities; these xenoestrogens (XEs) may affect immune responses and have recently emerged as a new risk factors for obesity and cardiovascular disease. However, the extent and impact on health of chronic exposure of the general population to XEs are still unknown. This study investigated the levels of XEs in plasma and adipose tissue (AT) depots in a sample of pre- and postmenopausal obese women undergoing bariatric surgery and their cardiometabolic impact in an obese state. The authors evaluated XE levels in plasma and visceral and subcutaneous AT samples of Portuguese obese (body mass index ≥ 35 kg/m²) women undergoing bariatric surgery. Association with metabolic parameters and 10-year cardiovascular disease risk was assessed, according to menopausal status (73 pre- and 48 postmenopausal). Levels of XEs were determined by gas chromatography with electron-capture detection. Anthropometric and biochemical data were collected prior to surgery. Adipocyte size was determined on tissue sections obtained during surgery. The results demonstrated that XEs are pervasive in this obese population. Distribution of individual and concentration of total XEs differed between plasma, visceral AT, and subcutaneous AT, and the pattern of accumulation was different between pre- and postmenopausal women. Significant associations between XE levels and metabolic and inflammatory parameters were found. In premenopausal women, XEs in plasma seem to be a predictor of 10-year cardiovascular disease risk. The authors concluded that the findings from this study point toward a different distribution of XE between plasma and AT in pre- and postmenopausal women, and reveal the association between XEs on the development of metabolic abnormalities in obese premenopausal women.


Pollution as a Risk Factor for the Development of Melasma and Other Skin Disorders of Facial Hyperpigmentation. Is There a Case to Be Made?

2015-08-04

Worldwide air pollution is a major health concern. There is accumulating scientific evidence that air pollution plays an important role in extrinsic aging. This study considers pollution as a possible emerging etiologic agent for the development of melasma. Pollution may be a risk factor for melasma and other facial pigmentary dyschromias. Air pollution in the form of airborne particulate matter (PM) and Polycyclic aromatic hydrocarbons (PAHs) enter the skin via nanoparticles and generate quinones, which are redox-cycling chemicals that produce reactive oxygen species (ROS). The PM increases the amount of ROS that triggers the increase of metalloproteinases that leads to extrinsic aging, which includes skin pigmentation. The incidence of disorders of facial hyperpigmentation specifically, melasma, is increased in persons of skin type III-VI living in India and South East Asia. Interestingly, these are also geographic regions with very heavy pollution. India, South East Asia, China, and United States lead the world in air pollution.

Authors: Roberts WE.


Indoor Air Problems and Hoarseness in Children

2015-08-04

A well-functioning voice is becoming increasingly important because voice-demanding professions are increasing. The largest proportion of voice disorders is caused by factors in the environment. Moisture damage is common and can initiate microbial growth and/or diffusion of chemicals from building materials. Indoor air problems due to moisture damage are associated with a number of health symptoms, for example, rhinitis, cough, and asthma symptoms. The purpose of this study was to investigate if children attending a day care centre, preschool, or school with indoor air problems due to moisture damage were hoarse more often than the children in a control group. Information was collected through electronic and paper questionnaires from the parents of 6- to 9-year-old children (n=1857) attending 57 different day care centres, preschools, or schools with or without indoor air problems due to moisture damage. The results showed a significant correlation between the degree of indoor air problem due to moisture damage and the frequency of hoarseness.
Significant predictors for the child being hoarse every week or more often were dry cough, phlegm cough, and nasal congestion. The authors concluded that the results indicate that these symptoms and exposure to indoor air problems due to moisture damage should be included in voice anamnesis. Furthermore, efforts should be made to remediate indoor air problems due to moisture damage and to treat health symptoms.

Authors: Kallvik E, Putus T, Simberg S.


Benzophenone-type UV filters in urine of Chinese young adults: Concentration, source and exposure

Benzophenone (BP)-type UV filters are commonly used in our daily life. 2-hydroxy-4-methoxy benzophenone (BP-3), 4-hydroxy benzophenone (4-HBP), 2,4-dihydroxy benzophenone (BP-1), 2,2',4,4'-tetrahydroxy benzophenone (BP-2) and 2,2'-dihydroxy-4-methoxy benzophenone (BP-8) were measured in urine samples from Chinese young adults. The results indicated that Chinese young adults were widely exposed to BP-3, BP-1, and 4-HBP, with the median concentrations of 0.55, 0.21, and 0.08ng/mL, respectively. No significant difference was found between males and females, between urban and rural population. The correlations between urinary concentrations provided important indications for sources and metabolic pathways of target compounds. The estimated daily excretion doses of BP-3, 4-HBP, BP-1, BP-2 and BP-8 were 27.2, 2.24, 5.86, 0.76 and 0.30ng/kg-bw/day, respectively. The ratio of exposure to excretion must be considered for the exposure assessment with chemicals based on urine measurement. This is the first nationwide study on BP-derivatives with young adults in China.

Authors: Gao CJ, Liu LY, Ma WL, Zhu NZ, Jiang L, Li YF, Kannan K.