among multiple outcomes and IVF cycles per patient, we applied a random effect for each woman and a compound symmetry correlation structure for the multiple outcomes. We adjusted for age, previous live birth, gonadotropin dose, IVF protocol, intracytoplasmic sperm injection, number of embryos transferred, clinic, ethnic group, infertility diagnosis, body mass index, and smoking.

RESULTS: Compared to the lowest HCB exposure group, quartile 1, the multivariable adjusted odds for failed implantation were 1.89 times higher for women in quartile 3, [95% confidence interval (CI) 1.17, 3.06], and 1.87 times higher for women in the highest HCB exposure group, quartile 4, [CI 1.15, 3.06] with a significant test for trend (p= 0.007). No statistically significant associations were found between DDT/DDE and IVF outcomes or between HCB and chemical pregnancy or SAB.

CONCLUSION: There was a statistically significant trend toward increased implantation failure among women with higher serum levels of HCB.

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**O-248** Wednesday, October 27, 2010 04:30 PM

**URINARY METABOLITES OF DI(2-ETHYLHEXYL) PHTHALATE ARE ASSOCIATED WITH INCREASED RISK OF IMPLANTATION FAILURE AMONG WOMEN UNDERGOING IVF.** S. R. Ehrlich, J. D. Meeker, P. L. Williams, D. Wright, J. Petrozza, R. Hauser. Environmental Health, Harvard School of Public Health, Boston, MA; Environmental Health Sciences, University of Michigan School of Public Health, Ann Arbor, MI; Biostatistics, Harvard School of Public Health, Boston, MA; The Fertility Center, Vincent Memorial Obstetrics and Gynecology, Massachusetts General Hospital, Boston, MA.

OBJECTIVE: Di(2-ethylhexyl) phthalate (DEHP) is a plasticizer widely used in consumer products. In rodent studies, MEHP (a metabolite of DEHP) was associated with implantation failure and reduced litter size. We investigated the association between urinary DEHP metabolites and implantation failure in women undergoing IVF.

DESIGN: Prospective cohort study among women undergoing IVF at Massachusetts General Hospital Fertility Center.

MATERIALS AND METHODS: DEHP metabolites were measured by the CDC using on-line solid phase extraction-high performance liquid chromatography-isotope dilution tandem mass spectrometry. Implantation failure was defined as a negative BHCG test (<6mIU/mL) 2 weeks after embryo transfer. Multivariate models applying a generalized estimating equation (GEE) approach, adjusting for correlation between multiple IVF cycles within the same woman, were used to evaluate the association between quartiles of urinary phthalate metabolite concentration (adjusted for specific gravity) and implantation failure. We adjusted for age, protocol and day of embryo transfer (day 5 versus day 3).

RESULTS: Urinary DEHP metabolite concentrations were measured in 79 women (mean age 35.6 yrs) undergoing 96 IVF cycles; 15 women [19 %] had more than 1 IVF cycle. Forty (42%) of the IVF cycles resulted in implantation failure. A significant dose response association was observed between implantation failure and urinary DEHP metabolites, particularly for MEHP (test for trend, p-value=0.002) where odds ratios were 2.05, 3.56 and 7.10 for the second to fourth quartiles of urinary MEHP levels, respectively, as compared to the lowest quartile. Other urinary DEHP metabolites (MEOHP, MEHHP and MECPP) showed similar but slightly weaker patterns of association with implantation failure.

CONCLUSION: Among women undergoing IVF, those with higher DEHP metabolite levels, particularly MEHP, had significantly higher risk of uterine implantation failure.

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**O-249** Wednesday, October 27, 2010 04:45 PM

**LAPTOP EXPOSITIONS AFFECT MOTILITY AND INDUCE DNA FRAGMENTATION IN HUMAN SPERMATOZOA IN VITRO BY A NON-THERMAL EFFECT: A PRELIMINARY REPORT.** C. Avendaño, A. Mata, A. M. Juarez Villanueva, V. S. Martínez, C. A. Sanchez Sarmiento. Nascentis Medicina Reproductiva, Córdoba, Córdoba, Argentina.

OBJECTIVE: The use of laptops has drastically increased in the last years. These devices are commonly used on the lap near the groin area and may expose the human testes to radio frequency electromagnetic waves (WiFi mode) as well as to high temperatures. There is weak scientific information about the possible impact of exposition to laptops on male reproduction. Therefore, we have assessed the sperm exposure to laptops in an in vitro study.

DESIGN: An in vitro prospective study.

MATERIALS AND METHODS: Semen samples from 15 men were evaluated. Semen parameters (concentration, motility, morphology and vitality) were assessed. Motile sperm were selected by swim up and separated in two fractions and incubated 4 hours at controlled temperature (25°C). The first aliquot was exposed to the laptop during the incubation times. The second fraction was incubated without exposition (control group). Motility, vitality and sperm DNA fragmentation (TUNEL) was evaluated after incubation in all samples. Comparisons between groups were performed by Student's t test. Data is expressed as mean ± SD.

RESULTS: Our results showed decrease progresive sperm motility (73,5 ± 8,2 vs 63,6 ± 7,3; $p < 0,05$), increase sperm immotily (18,8 ± 6,9 vs 28,3 ± 7,3; $p < 0,05$) and increase of sperm DNA fragmentation (6,3 ± 8,1 vs 13,1 ± 9,2; $p < 0,05$) in the exposed group vs non exposed. Levels of non progressive sperm motility and vitality did not show significant difference between the two groups.

CONCLUSION: To the best of our knowledge, this is the first study to evaluate the impact of laptops on human spermatozoa. We have demonstrated that exposure to laptops decrease progresive motility and induce DNA fragmentation in human spermatozoa in vitro by a non-thermal effect. We speculate that keeping the laptops (WiFi mode) on the lap near the testes may result in decreased male fertility. Further studies are needed to test this hypothesis and identify the causes why sperm quality is affected by laptops exposition.

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**O-250** Wednesday, October 27, 2010 05:00 PM

**POLYCHLORINATED BIPHENYLS AND SEMEN QUALITY – LIFE STUDY.** G. M. Buck Louis, S. Kim, Z. Chen, A. M. Sweeney, D. Barr, S. M. Schrader. Division of Epidemiology, Statistics & Prevention Research, Eunice Kennedy Shriver National Institute of Child Health & Human Development, Rockville, MD; Epidemiology, Texas A & M Rural School of Public Health, College Station, TX; Emory University, Atlanta, GA; NIOSH, CDC, Cincinatti, OH.

OBJECTIVE: Preliminary evidence suggests that polychlorinated biphenyls (PCBs) may be associated with diminished male fecundity, though much of available evidence utilizes clinical rather than population-based sampling frameworks. In response, we designed the LIFE Study to assess the relation between 36 PCB congeners and semen quality.

DESIGN: Prospective cohort study design.

MATERIALS AND METHODS: 501 couples with a male partner aged >17 years were recruited from households located in 16 counties in Texas and Michigan with presumed environmental PCB exposure. Men (95%) collected semen samples following a two-day abstinence period during the first two months attempting pregnancy and shipped specimens overnight to an andrology laboratory. PCB congeners were summed as a simple total then categorized by purported biologic activity into estrogenic, antiestrogenic and other groupings (ng/g serum). Multiple linear regression utilizing the weighted least squares approach modeled total PCBs and each grouping separately in relation to semen quality endpoints (left continuous) adjusting for age (years), location (Texas/Michigan), and serum cotinine (log transformed).

RESULTS: Total PCBs were negatively associated with total sperm count (beta = -12.5; $p<0.04$) and anti-estrogenic PCBs with amplitude of lateral head displacement (um) (beta =-10.8; $p<0.02$) and beat cross frequency (Hz) (beta=-57.6; $p<0.02$). Serum lipids were not associated with semen quality.

CONCLUSION: Select PCB congeners at environmentally relevant concentrations were negatively associated with aspects of semen quality in this population-based cohort of couples attempting pregnancy. Our findings underscore the importance of assessing chemical mixtures by purported biologic activity of PCBs relative to aspects of semen quality to aid future mechanistic research.