Systematic review confirms longstanding caffeine intake recommendations

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A rigorous, new scientific Systematic Review paper on caffeine safety confirms the results of the widely-cited Health Canada[i] literature review (2003), which concluded that adverse health effects were not associated with caffeine intake levels at ≤400 mg/day for adults (which is the equivalent of about 4 cups of coffee/day, and 90% of Americans typically consume less than this amount[ii], ≤300 mg/day for pregnant

women and ≤2.5 mg/kg-day for children and adolescents. These findings were published in *Food and Chemical Toxicology* and will be presented tomorrow to the scientific community in a symposium, "Conducting a Systematic Review for a Global Audience: Challenges in Merging Nutrition & Toxicological Evidence for a Safety Assessment of Caffeine," during the Experimental Biology conference in Chicago.

Since 2003, more than 10,000 papers have been published related to caffeine, but a robust, transparent and systematic assessment of the health effects associated with caffeine consumption is not yet available in the peer-reviewed literature. For this reason, ILSI North America decided to commission a Systematic Review of data published from 2001 to 2015.

The researchers who conducted the review concluded that the previously-defined levels of caffeine intake in a healthy caffeine consumer were not associated with overt, adverse effects, which indicates a need to shift future research to unhealthy populations, sensitive populations and interindividual variability.

"This Systematic Review provides evidence that furthers our understanding of caffeine on human health," said Dr. Eric Hentges, Executive Director, ILSI North America. "Also, this review provides the research community with data and valuable evidence to support the development and execution of future research on caffeine safety that will impact public health. The complete transparency with which the data has been shared will encourage other researchers to build upon this work."

Structured using the National Academies of Science, Institute of Medicine "Standards for Systematic Reviews"[iii], researchers critically analyzed more than 740 studies to assess adverse health outcomes related to caffeine in five areas: acute toxicity, bone/calcium, cardiovascular,

behavior, and reproductive and development. Consistent with IOM standards, the research team consisted of eight scientists from ToxStrategies, a private consulting firm providing services on toxicology and risk assessment issues to private and public organizations, as well as seven independent Scientific Advisory Board (SAB) members with diverse expertise in the study's areas of focus.

All the data related to the reviewing and grading of the literature that was included and excluded is publicly available on the Agency for Healthcare and Research Quality (AHRQ) Systematic Review Data Repository. The protocols for each health outcome are publicly available on PROSPERO register for Systematic Reviews.

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More information: (i)Nawrot, P., S. Jordan, J. Eastwood, J. Rotstein, A. Hugenholtz, and M. Feeley. "Effects of Caffeine on Human Health." Food Additives and Contaminants 20.1 (2003): 1-30. Web.

(ii))Diane C. Mitchell, Jon Hockenberry, Robyn Teplansky, Terryl J. Hartman, Assessing dietary exposure to caffeine from beverages in the U.S. population using brand-specific versus category-specific caffeine values, Food and Chemical Toxicology, Volume 80, June 2015, Pages 247-252, ISSN 0278-6915, doi.org/10.1016/j.fct.2015.03.024.

(iii)Institute of Medicine (US) Committee on Standards for Systematic Reviews of Comparative Effectiveness Research; Eden J, Levit L, Berg A, et al., editors. Finding What Works in Health Care: Standards for Systematic Reviews. Washington (DC): National Academies Press (US); 2011, www.ncbi.nlm.nih.gov/books/NBK209524/.

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