

SELECTED RESULTS 2023

Criteria	Contribution to knowledge
Output name	Getting angry with endocrine-disrupting chemicals Enfadarse con las sustancias químicas alteradoras endocrinas Enfadar-se amb les substàncies químiques alteradores endocrines
Author	MgA. Lenka Veselá, MA, Ph.D.

Description of the Output and Justification of Its Significance

Veselá, Lenka (2023). Getting angry with endocrine-disrupting chemicals. *Matter: Journal of New Materialist Research*, 7, 47—69.

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The article *Getting Angry with Endocrine-Disrupting Chemicals* investigates the widespread presence of endocrine-disrupting chemicals (EDCs) in our environment and their overlooked influence on emotional well-being. Discussions on EDCs have predominantly emphasized their effects on sexuality and reproductive health, with lesser focus on cancer risks and metabolic disruptions. However, this article shifts attention to the broader implications of EDCs on emotional states, particularly how exposure to these chemicals may disrupt brain chemistry and, consequently, human emotions.

The article underscores that while fluctuations in endogenous (physiological) hormones are widely recognized for their influence on sensory, cognitive, and emotional changes, these effects have been insufficiently examined in the context of endocrine disruption. Emotional symptoms such as anxiety, irritability, mood swings, and depression are well-documented in relation to hormonal fluctuations during puberty, pregnancy, menopause, and throughout the menstrual cycle. These symptoms are also common side effects of hormonal treatments such as contraception and hormone replacement therapy. Both scientific research and personal accounts confirm the strong link between hormone levels and emotional states. However, despite this well-established relationship, the potential for EDCs to similarly disrupt emotions remains largely underexplored. The article highlights this gap in research, urging for greater attention to how environmental endocrine-disrupting chemicals may mimic or interfere with hormonal functions, thereby affecting emotional well-being in ways that parallel physiological hormone fluctuations. In response, the article adopts a speculative approach, acknowledging that while experimental models may not yet conclusively prove the emotional effects of EDC exposure, the potential for these chemicals to disrupt emotional well-being is significant, prompting important questions about the wider impact of EDCs on both individual well-being and society as a whole. By foregrounding the emotional effects of EDC exposure, the article expands the discourse on these chemicals beyond their well-documented impact on reproductive health, pointing toward a more holistic understanding of their influence on human well-being.

Published in *Matter: Journal of New Materialist Research*—an open-access, peer-reviewed journal indexed in ERIH PLUS—the article contributes to the interdisciplinary discourse of new materialism, an emerging field that bridges the humanities, science and technology studies (STS), and artistic and practice-based research. **Since its publication on February 28, 2023, the article has garnered**

significant attention, becoming the second most viewed in the journal in 2023 with 880 views. As of October 24, 2024, it holds the position of the most viewed article in the journal in 2024, with 820 views. These numbers reflect the article's substantial impact and its relevance to ongoing discussions in environmental health, feminist technoscience, and interdisciplinary research on the Anthropocene.

Contribution to Research on Endocrine-Disrupting Chemicals (EDCs)

EDCs are ubiquitous chemicals capable of interfering with the body's hormonal systems. Although their effects on human reproductive health have been widely documented, this article emphasizes an underexplored dimension: their influence on emotional well-being. The article highlights how chronic exposure to these chemicals can affect brain chemistry, disrupting emotional regulation and contributing to feelings of anxiety, irritability, and sadness. This broader focus is crucial because it underscores the psychological toll that EDC exposure can have, not only at the level of individual emotional experiences but also at a societal level, influencing collective emotional capacities. The article introduces the *Endocrine Disruption Tracker Tool* (EDTT), a speculative instrument designed to help individuals, communities, and researchers investigate the emotional impact of EDC exposure. By inviting participants to track their emotions over a period of time, the EDTT creates space for reflection on how involuntary exposure to environmental chemicals might influence their emotional landscape. The EDTT challenges the traditional individualized methods of health monitoring, such as self-help diagnostic tools or tracking apps, by fostering a collective practice that situates EDC exposure within a broader political, ethical, and social context. This collective practice promotes a new form of environmental care and activism by highlighting the urgent need for systemic responses to the invisible and pervasive risks posed by EDCs.

Contribution to Artistic Research

The article is rooted in an interdisciplinary approach that integrates perspectives from art-based practice, environmental toxicology, science and technology studies (STS), and feminist theory. By using artistic research methods, such as the speculative *Endocrine Disruption Tracker Tool*, the article demonstrates how artistic practices can enrich scientific and theoretical discourses on environmental chemicals. The EDTT not only facilitates personal reflection on emotional responses to EDCs but also serves as a catalyst for collective investigative practices, fostering a sense of shared responsibility and care in the face of involuntary chemical exposure. This artistic research practice emphasizes the bio-social nature of EDCs as agents that influence not only human biology but also social and cultural environments. The EDTT is an experimental tool that brings to light the often-overlooked emotional and psychological impacts of living in chemically saturated environments. By fostering dialogue between art, science, and society, the article contributes to a growing body of interdisciplinary work that explores complex bio-social phenomena like endocrine disruption. The inventive application of speculative and artistic methods in this research demonstrates the potential of artistic practice to tackle pressing environmental and health issues, expanding knowledge and broadening the socio-cultural imagination in ways that traditional approaches might not.

Contribution to Posthumanism and New Materialism

The article makes a notable contribution to posthumanism and new materialism by framing endocrine-disrupting chemicals as active agents that participate in shaping human and nonhuman life. Rather than viewing EDCs merely as harmful pollutants, the article positions them within a material-discursive network that connects human bodies to broader environmental systems. This aligns with the posthumanist understanding that humans are not isolated from their material surroundings but are entangled with nonhuman actors—such as chemicals—in mutually constitutive ways. This perspective encourages reconsidering traditional human-centric views on health and the environment, offering a more integrated understanding of how chemical agents contribute to the ongoing reconfiguration of human and nonhuman life in the Anthropocene. The article also engages with new materialist theories by focusing on the agency of matter—specifically, how EDCs, as material agents, affect not only biological

processes but also social and cultural life. The speculative methodology employed in the article aligns with feminist technoscience approaches, which emphasize the importance of care, relationality, and situated knowledge. By inviting participants to reflect on their emotions and connect them to their material environments, the EDTT exemplifies how new materialist inquiry can foster an ethics of care in relation to chemical exposure. By positioning EDCs as bio-social disruptors, the article offers new ways of thinking about how humans and chemicals co-create the world, offering a more fluid and interconnected understanding of life in a chemically transformed world.

Key role of authors from BUT

This article is the product of interdisciplinary research led by Lenka Veselá from the Faculty of Fine Arts (FFA) at Brno University of Technology (BUT). The research was first presented publicly under the title “Keeping Track of the Anthropocene: Endocrine Disruption Tracker Tool” during the “Posthumanism/ New Materialism” panel at the 11th European Feminist Research Conference, held at the University of Milano-Bicocca from June 15–18, 2022. The panel was chaired by convenors Silvia Luraschi, Federica Timeto, and Sibel Yardımcı who later invited me to contribute to a special issue “Situating research on art, technological practices, and literature” that they were editing for *Matter*.

→ “Keeping Track of the Anthropocene: Endocrine Disruption Tracker Tool” in panel “Posthumanism/ New Materialism,” 11th European Feminist Research Conference *Social Change in a Feminist Perspective: Situating Gender Research in Times of Political Contention*, University of Milano-Bicocca, 15–18 June 2022, <https://11efrc.unimib.it/>

The ongoing results of research presented in the article have been shared at several prominent conferences and invited lectures, including:

- “Endocrine Disruption Tracker Tool” in the panel “Making and Doing Hormonal Theory,” at *EASST 2024: Making and Doing Transformations*, Vrije Universiteit Amsterdam, July 16–19, 2024. <https://www.easst4s2024.net/>
- “The Sadness of the Anthropocene” in the panel “Metabolic and Endocrine Disruptions,” at *Leakage: Inaugural Conference of STSing 2024*, TU Dresden, Germany, March 19–22, 2024. <https://sts-leakage.org/>
- “Getting Angry with Environmental Chemicals” in the panel “Collaborating with Matter: Explorations of New Feminist Materialism in Multiple Lifeworlds,” at *STS-CH Science, Expertise, and other Modes of Knowledge: Trends, Patterns, and Prospects*, Swiss Association for the Studies of Science, Technology & Society, University of Basel, August 31–September 1, 2023. <https://sts-ch.org/sts-ch-2023/>
- “Getting Angry With Environmental Chemicals,” at *Earth Sensations: Affects, Sensibilities and Attachments in an Era of Climate Change*, Aarhus Institute of Advanced Studies, Aarhus University, Denmark, October 13–14, 2022. <https://aias.au.dk/events/earth-sensations>
- “Getting Sad with Environmental Chemicals,” invited lecture for *Thinking Through Materialities: Insights from and for Gender Studies and Cultural Anthropology*, University of Basel, October 18, 2023. <https://genderstudies.philhist.unibas.ch/de/aktuelles/news/details/ringvorlesung-thinking-through-materialities-insights-from-and-for-gender-studies-and-cultural-anthropology/>
- “Mé chemické já: o životě s toxickými chemickými látkami (a navzdory jim)” [My Chemical Self: On Life With and Despite Toxic Chemicals], at *Antropologie, tělo a biotechnologie* [Anthropology, Body, and Biotechnologies], Faculty of Social Studies, Masaryk University, Brno, November 29, 2022.

→ “Endocrine Disruption Tracker Tool,” at Toxic Futures and the Creative Process, Planet B — Module for Sustainability and Civilizational Issues, UMPRUM, October 27, 2022. <https://www.umprum.cz/en/web/about-umprum/sustainability/planet-b/toxic-futures-and-the-creative-process>

Additionally, the research was further developed during the Vienna Ethnography Lab: Relating Risks, organized by the Department of Social and Cultural Anthropology, University of Vienna, September 28–30, 2022. <https://ksa.univie.ac.at/en/departement/events/vienna-ethnography-laboratories/>

Journal

Matter: Journal of New Materialist Research is a scientific, open-access, peer-reviewed journal dedicated to fostering interdisciplinary dialogue and reflection on new materialism. The journal is indexed in ERIH PLUS, MIAR, and Latindex. Additionally, it is included in several bibliographical databases and open-access repositories, such as Dialnet, CRUE-REBIUN, CrossRef, BASE (Bielefeld University Library), PKP Index (Public Knowledge Project), ROAD, and RACO (Revistes Catalanes amb Accés Obert).

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Getting angry with endocrine-disrupting chemicals

Lenka Veselá

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Abstract

Endocrine-disrupting chemicals are industrially manufactured compounds that have the capacity to mimic or interfere with biosynthesis, metabolism, and the functions of bodily produced hormones. The ubiquity and persistence of endocrine-disrupting chemicals in the environment have raised concerns about their impacts on human as well as nonhuman life. How do these chemicals affect us? How do we interact with them? And how do we respond to the risks that they pose? My inquiry into how chemical endocrine disruptors affect us focuses upon the ways in which they can influence our emotions. I bring attention to how being exposed to them can disrupt our brain chemistry, and therefore our emotions, too. With the help of the Endocrine Disruption Tracker Tool—a speculative instrument for a collective investigative practice that I have created—I look into what we can learn about endocrine disruption if we consider how are emotions are affected. I have developed this tool to help me, my research participants, and a broader community of interested people to address the exigencies of our lives, as affected by involuntary chemical exposure, and to construct responsive care relations—paving the way for new approaches to research, ethics, and politics that are embodied, experientially and materially grounded, in their concerns about endocrine-disrupting chemicals.



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Enfadarse con las sustancias químicas alteradoras endocrinas



Lenka Veselá

SEVENTH ISSUE
Situating research on
art, technological
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Accés (English)

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Las sustancias químicas alteradoras endocrinas son compuestos fabricados industrialmente que tienen la capacidad de imitar o interferir en la biosíntesis, el metabolismo y las funciones de las hormonas producidas por el organismo. La ubicuidad y persistencia de las sustancias químicas alteradoras endocrinas en el medio ambiente han suscitado preocupación por su impacto en la vida humana y no humana. ¿Cómo nos afectan estas sustancias químicas? ¿Cómo interactuamos con ellas? ¿Y cómo respondemos a los riesgos que plantean? Mi investigación sobre cómo nos afectan los alteradores endocrinos químicos se centra en cómo pueden influir en nuestras emociones. Atiendo a cómo la exposición a ellos puede alterar nuestra química cerebral y, por tanto, también nuestras emociones. Con la ayuda de la herramienta Endocrine Disruption Tracker -un instrumento especulativo para una práctica de investigación colectiva que he creado- examino lo que podemos aprender sobre la alteración endocrina si consideramos cómo se ven afectadas nuestras emociones. He desarrollado esta herramienta para ayudarme a mí, a los participantes en mi investigación y a una comunidad más amplia de personas interesadas a abordar las exigencias de nuestras vidas, afectadas por la exposición involuntaria a sustancias químicas, y a construir relaciones de cuidado receptivas, allanando el camino para nuevos enfoques de la investigación, la ética y la política que estén encarnados, basados en la experiencia y el material, en sus preocupaciones sobre las sustancias químicas que alteran el sistema endocrino.



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Enfadar-se amb les substàncies químiques alteradores endocrines

Lenka Veselá



SEVENTH ISSUE
Situating research on art, technological practices and literature



Accés (English)

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Les substàncies químiques alteradores endocrines són composts fabricats industrialment que tenen la capacitat d'imitar o interferir en la biosíntesi, el metabolisme i les funcions de les hormones produïdes per l'organisme. La ubiqüitat i persistència de les substàncies químiques alteradores endocrines en el medi ambient han suscitat preocupació pel seu impacte en la vida humana i no humana. Com ens afecten aquestes substàncies químiques? Com interactuem amb elles? I com responem als riscos que plantegen? La meua recerca sobre com ens afecten els alteradors endocrins químics se centra en com poden influir en les nostres emocions. Atenc a com l'exposició a ells pot alterar la nostra química cerebral i, per tant, també les nostres emocions. Amb l'ajuda de l'eina Endocrine Disruption Tracker - un instrument especulatiu per a una pràctica de recerca col·lectiva que he creat- examino el que podem aprendre sobre l'alteració endocrina si considerem com es veuen afectades les nostres emocions. He desenvolupat aquesta eina per a ajudar-me a mi, als participants en la meua recerca i a una comunitat més àmplia de persones interessades a abordar les exigències de les nostres vides, afectades per l'exposició involuntària a substàncies químiques, i a construir relacions de cura receptives, aplanant el camí per a nous enfocaments de la recerca, l'ètica i la política que estiguin encarnats, basats en l'experiència i el material, en les seves preocupacions sobre les substàncies químiques que alteren el sistema endocrí.



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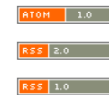


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