References

Alexander, Hinne, M., Kim, Goltstein, L., Jeroen van Reeuwijk, Nicole de Leeuw, Janneke Schuurs-Hoeijmakers, Pfundt, R., Diets, I. J., Joery den Hoed, Elke de Boer, der, C., Jansen, S., Bon, van, Jonis, N., Ockeloen, C. W., Anneke T. Vulto-van Silfhout, Tjitske Kleefstra, Koolen, D. A., & Campeau, P. M. (2023). PhenoScore quantifies phenotypic variation for rare genetic diseases by combining facial analysis with other clinical features using a machine-learning framework. *Nature Genetics, 55*(9), 1598–1607. https://doi.org/10.1038/s41588-023-01469-w

Barlevy, D., Furrer, R. A., Kalapatapu, A., Martinez, A., Lencz, T., Carmi, S., Lázaro-Muñoz, G., & Pereira, S. (2025). Eugenics and polygenic embryo screening: Public, clinician, and patient perceptions of conditions versus traits. *Genetics in Medicine, 27*(9), 101507. https://doi.org/10.1016/j.gim.2025.101507

Bissonnette, J. (2016, March 4). *New genetic technology could help the pro-life cause*. *Crisis Magazine*. https://crisismagazine.com/opinion/new-genetic-technology-could-help-the-pro-life-cause

Canadian Charter of Rights and Freedoms, s 7, Part 1 of the *Constitution Act,* 1982, being Schedule B to the Canada Act 1982 (UK), 1982, c11. https://www.justice.gc.ca/eng/csj-sjc/rfc-dlc/ccrf-ccdl/check/art7.html

Canadian Institutes of Health Research. (2022). *Strategic plan 2022–2027: Sequencing our future* [PDF]. https://cihr-irsc.gc.ca/e/documents/ig-strat-plan-2022-2027-en.pdf

Duncan, E. J., Gluckman, P. D., & Dearden, P. K. (2014). Epigenetics, plasticity, and evolution: How do we link epigenetic change to phenotype? *Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, 322*(4), 208–220. https://doi.org/10.1002/jez.b.22571

Denbow, J. (2019). Good Mothering Before Birth: Measuring Attachment and Ultrasound as an Affective Technology. *Engaging Science, Technology, and Society, 5*, 1-20. https://doi.org/10.17351/ests2019.238

Dash, H. R. (2020, August). *DNA phenotyping: Future of forensic DNA typing* [PDF]. Scribd. https://www.scribd.com/document/852995388/DNA-Phenotyping-Future-of-Forensic-DNA-Typing

Granja, R., & Machado, H. (2020). Forensic DNA phenotyping and its politics of legitimation and contestation: Views of forensic geneticists in Europe. *Social Studies of Science, 53*(6), 030631272094503. https://doi.org/10.1177/0306312720945033

Gray, K. J., Wilkins-Haug, L. E., Herrig, N. J., & Vora, N. L. (2019). Fetal phenotypes emerge as genetic technologies become robust. *Prenatal Diagnosis, 39*(9), 811–817. https://doi.org/10.1002/pd.5532

Genetic Non-Discrimination Act, S.C. 2017, c. 3.
https://laws-lois.justice.gc.ca/eng/annualstatutes/2017_3/page-1.html

Hallowell, N., Parker, M., & Nellåker, C. (2018). Big data phenotyping in rare diseases: some ethical issues. *Genetics in Medicine, 21*(2), 272–274. https://doi.org/10.1038/s41436-018-0067-8

Harris, S., Gilmore, K., Hardisty, E., Lyerly, A. D., & Vora, N. L. (2018). Ethical and counseling challenges in prenatal exome sequencing. *Prenatal Diagnosis, 38*(12), 897–903. https://doi.org/10.1002/pd.5353

Kaye, D. K. (2023). Addressing Ethical Issues Related to Prenatal Diagnostic Procedures. *Maternal Health, Neonatology and Perinatology, 9*(1). https://doi.org/10.1186/s40748-023-00146-4

MacLean, C. E., & Lamparello, A. (2014). Forensic DNA phenotyping in criminal investigations and criminal courts: assessing and mitigating the dilemmas inherent in the science. *Recent advances in DNA & gene sequences*, *8*(2), 104–112. https://doi.org/10.2174/2352092209666150212001256

National Academies of Sciences, Engineering, and Medicine. (2024). *Law Enforcement Use of Probabilistic Genotyping, Forensic DNA Phenotyping, and Forensic Investigative Genetic Genealogy Technologies: Proceedings of a Workshop*. Washington, DC: The National Academies Press. https://doi.org/10.17226/526

Naqvi, S., Hoskens, H., Wilke, F., Weinberg, S. M., Shaffer, J. R., Walsh, S., Shriver, M. D., Wysocka, J., & Claes, P. (2022). Decoding the Human Face: Progress and Challenges in Understanding the Genetics of Craniofacial Morphology. *Annual Review of Genomics and Human Genetics, 23*(1), 383–412. https://doi.org/10.1146/annurev-genom-120121-102607

Peipert, B. J., Adashi, E. Y., Penzias, A., & Jain, T. (2023). Global in vitro fertilization utilization: How does the United States compare? *Fertil Steril Rep, 4*(3), 326-327. https://doi.org/10.1016/j.xfre.2023.06.005

Personal Health Information Protection Act, S.O. 2004, c. 3, Sched. A. https://www.ontario.ca/laws/statute/04p03#BK9

Personal Information Protection and Electronic Documents Act, S.C. 2000, c. 5. https://laws-lois.justice.gc.ca/eng/acts/p-8.6/page-7.html

Richmond, S., Howe, L. J., Lewis, S., Stergiakouli, E., & Zhurov, A. (2018). Facial Genetics: A Brief Overview. *Frontiers in Genetics, 9*. https://doi.org/10.3389/fgene.2018.00462

Schneider, P. M., Prainsack, B., & Kayser, M. (2019). The Use of Forensic DNA Phenotyping in Predicting Appearance and Biogeographic Ancestry. *Deutsches Aerzteblatt Online, 117*(51-52). https://doi.org/10.3238/arztebl.2019.0873

Spiegel M, A. M. (2019). The Jeremiah Metzger Lecture: A Brief History of Eugenics in America: Implications for Medicine in the 21st Century. *Transactions of the American Clinical and Climatological Association*, 130, 216. https://pmc.ncbi.nlm.nih.gov/articles/PMC6736015/

U.S. Food and Drug Administration. (2024, September 19). *Ultrasound imaging*.

https://www.fda.gov/radiation-emitting-products/medical-imaging/ultrasound-imaging