

Profile

Elizabeth Pearce: maintaining the fight against iodine deficiency



You could say that Elizabeth Pearce was meant for endocrinology. Both her parents were in academic medicine, serving as professors at the University of Minnesota. Her father was a pulmonologist, and her mother was an endocrinologist. Aside from her mother's influence, Pearce found intellectual excitement in "working out mechanisms and pathways based on lab results". She also appreciates how endocrinology is "a whole-body specialty that allows for long-term relationships with patients". A recent past-president of the American Thyroid Association, she serves as a Professor of Medicine in the Endocrinology, Diabetes and Nutrition section at the Boston University School of Medicine, where she also directs the endocrinology fellowship programme.

Raised in Minneapolis, she headed to Boston for her higher education, obtaining her bachelors and medical degrees from Harvard University and also earning a masters degree in epidemiology from the Boston University School of Public Health. In 2003, she completed her endocrinology fellowship at Boston University under the guidance of renowned thyroid specialist Lewis Braverman, who led her to focus on the thyroid as a sub-specialty.

The origins of many thyroid problems are still a mystery. Pearce says the causes are "likely complex, resulting from interactions between genetic susceptibility and environmental factors". Also remaining unclear are the reasons why females are five-to-eight times more likely than males to encounter thyroid problems. However, thyroid issues arising from iodine deficiency have a well-established pathology. Also evident is the level of disaster which such issues have unleashed. Fortunately, recent years have seen a general worldwide decline in iodine deficiency: Pearce—who serves as North

America's regional coordinator for the Iodine Global Network—says the planet currently has 21 iodine-deficient nations, which is less than one-fifth the amount in 1993, when 110 nations met the criteria.

Despite such major improvement, iodine deficiency still remains the most widespread preventable cause of intellectual impairments on a global level. Also, Pearce expresses concern about how the pandemic, with its corresponding lockdowns and travel restrictions, has "disrupted food supply chains and the ability to monitor food fortification programs". She adds how such circumstances, especially in low and middle-income countries, might impact salt iodisation, which is the preferred method of enhancing iodine intake on a large scale.

Recommended daily iodine intake is 150 mcg for non-pregnant adults, 220 mcg for pregnant women, and 290 mcg for women in lactation. Pearce relates how the USA has actually seen a decline in the use of iodised salt. And, strangely enough, the USA has never mandated salt iodisation, so the choice to iodise or not still remains with individual salt producers. Pearce wishes to see the USA adopt salt iodisation legislation "similar to what currently exists in 124 other countries around the globe".

About a century ago, much of the northern USA was referred to as the "goiter belt", owing to the prevalence of iodine deficiency. In many of these regions, the majority of school-aged children showed perceptible thyroid enlargement. The introduction of iodised salt eradicated this problem by the 1940s. Over ensuing decades, Pearce believes "there has been a loss of awareness of the effects of iodine deficiency on the part of medical providers, policy-makers, and the general public". Alarmed by these circumstances, she advocated for the

inclusion of iodine in prenatal multi-vitamin preparations in the USA and for greater awareness of the importance of iodine nutrition for vulnerable groups.

Aside from her ongoing involvement with iodine nutrition in the USA and globally, Pearce—who received the 2011 Van Meter Award for her contributions to thyroid research—maintains interests in hypothyroidism, hyperthyroidism, the effects of subclinical thyroid dysfunction on the cardiovascular system, and thyroidal issues due to environmental endocrine disruptors. She says there is increased awareness of the adverse impact of endocrine disruptors. Furthermore, regulations designed to reduce exposure to these agents have begun to appear in the USA. "This field of science is still relatively young", she adds. "There is a huge number of chemicals which are known or potential endocrine disruptors but which have not been well studied".

Pearce, whose husband works in finance and whose two sons are in college, was actually an archaeology major as an undergraduate and continues to take an interest in the subject. She also enjoys singing, reading, cooking, and (in the pre-COVID era) travel. When she is not occupied with mentoring endocrinology fellows at work, there is a good chance she is busy endeavouring to combat iodine deficiency. About as well as anyone, she knows the consequences: "Because of the importance of adequate thyroid hormone for fetal brain development, even mild iodine deficiency in pregnancy has been linked to lower IQ in children". As she points out, it is "astonishingly inexpensive" to iodise salt – between 0.02 and 0.05 US\$ per person per year. The costs of deficiency, however, can range from high to catastrophic.

Ray Cavanaugh



Lancet Diabetes Endocrinol 2021

Published Online

April 19, 2021

[https://doi.org/10.1016/S2213-8587\(21\)00114-5](https://doi.org/10.1016/S2213-8587(21)00114-5)

For more on **Lewis Braverman** see **Obituary** *Lancet* 2019; **394**: 378

For more on **thyroid disease** see <https://my.clevelandclinic.org/health/diseases/8541-thyroid-disease>

For more on **salt iodisation** see https://www.who.int/elena/titles/guidance_summaries/salt-iodization/en/