



Food for Teeth

BY **DR. SURINDER ARORA**

Weston A Price was a dentist and explorer. Born in Cleveland in 1870, he made it his mission to uncover the causes of dental decay and malformation of craniofacial structures. He travelled the world, visiting indigenous communities, comparing primitive tribes on their native diets with those from the same community but had been exposed to modern day processed foods. The conclusions he drew were startling and controversial for his era — evidence-based medicine is now supporting many of his findings.

Weston published 'Nutrition and Physical Degeneration' in 1939, discussing in great detail his observations on his voyage of discovery. The initial thought behind this research was the need for controls in clinical studies. A vast number of the population in America at that time had been introduced to the modern day diet (now known

as the standard American diet) and thus no comparison could be drawn in the area of traditional versus processed nutrient sources and their effects. A pertinent question was asked – can modern society study and adopt programs developed through centuries of experience from the primitives in order to restore optimum health? Could these practices be the saviour for future generations?¹

It appears that the industrial revolution in the 19th century sparked a shift of living conditions from rural to urban and possibly contributing to a 'progressive decline' in the health of modern civilisation since the 1930s. With this came convenience and packaged foods to meet the demands of the population shift and industrialized mass production changed the face of eating at that time. During World War II, further developments were made to feed soldiers and civilians.

Reference

¹ Weston A Price, *Nutrition and Physical Degeneration*, 1939

Diet and caries

A summary of Weston Price's findings are shown below:

The percentage of teeth affected by dental caries (with dental cavities) in Traditional and Modernized Groups

Group	Traditional Diet (%)	Modernised Diet (%)	Traditional Diet
Swiss	4.6	29.8	Local, natural foods including whole rye bread, summer-made cheese, fresh milk of goats or cows and plant foods Foods had a high content of vitamins and minerals not found in modern civilizations Meat was eaten only once a week with occasional greens and potatoes
Gaelics	1.2	30	Fish and sea food Oat products with barley were available with limited vegetables
Eskimo	0.09	13	Fish, fish eggs, salmon, whale, greens, berries, sea plants, organs of sea animals, caribou and ground nuts Occasionally cranberries, flowers and sorrel grass preserved in seal oil were available (high in Vitamin A)
Northern Indians	0.16	21.5	Game buffalo, deer, sheep, goat, antelope, moose elk, bear and smaller animals like beavers and rabbits, snakes, lizards, turtles, alligators, fish, shellfish and wild birds The whole of the animal was eaten, including the heart, kidneys and liver, which provided Vitamin C
Melanesians	0.38	29	Seafood, native plants and fruits, coconuts
Polynesians	0.32	21.9	Soft and hard shelled seafood, raw or cooked underground Native plants e.g. taro
Africans	0.2	6.8	Land animals such as cattle and goats Fish, insects, corn millet, kefir, corn, sweet potato, beans, bananas
Australian Aborigines	0	70.9	Kangaroo, wallaby, birds and bird eggs, rodents, insects, roots, stems, seeds of grasses, leaves and berries
Coastal Peruvians	0.04	40+	Llama, alpaca, guinea pigs and grains
Amazon Jungle Indians	0	40+	Fish, birds, fowl and eggs Native plants e.g. yucca



While Weston's methodology may not hold up to the rigour of modern day evidence-based studies, there does appear to be a correlation between dental caries and an influx of modernized refined foods.

This is certainly not to say that these foods are required for health today but it does suggest that moving back to basics and whole real foods diet with the consideration of lifestyle factors may shift us back to optimum health. Some of the key similarities in all of these groups were:

- Diet high in whole foods
- High in minerals including calcium, magnesium, and zinc
- Limited refined or processed products
- Plenty of fat soluble vitamins A, D, E and K2 (vital for mineral absorption and protein use)
- Active lifestyles and factors such as an essence of community spirit

Cordaine et al 2005 found that it is apparent that 'novel foods (processed dairy products, cereals, refined cereals, refined sugars, refined vegetable oils, fatty meats, salt, and combinations of these foods) introduced as staples during the Neolithic and Industrial

Eras fundamentally altered several key nutritional characteristics of ancestral diets and ultimately had far-reaching effects on health and well-being.⁵ The full article fully explains each area and there is no doubt that nutrient deficiencies lead to poor development and disease.

These foods have gradually displaced the minimally processed wild plant and animal foods in hunter-gatherer diets and have adversely affected the following dietary indicators:

- Glycemic load
- Fatty acid composition
- Macronutrient composition
- Micronutrient density
- Acid-base balance
- Sodium-potassium ratio
- Fiber content

Food affects formation

A common finding amongst the native tribes were that they had well formed facial structures and jaw bones with little malfunction. Their bodies were strong and lean. Toothbrushing was often uncommon and their mouths had a very low incidence of dental disease. Straight, well-formed teeth prevailed with enough space for eruption in the oral cavity.

On the contrary when a modernised diet was introduced, there was a significant increase in dental caries, crooked teeth, deformed, narrow arches and facial bones as well as narrow nostrils. Rampant caries was reported in several communities. Disease was generally higher with observation in the Gaelic community of an increased incidence of tuberculosis.

The modernised diet reported consisted of white bread, cereal flours, sweetened milk, chocolate, canned goods, sweetened fruits, vegetable fats, jams, marmalades, syrups, confectionary, canned juices and coffee with a reduction in dairy product

Reference

⁵ Cordaine et al *Origins and evolution of the Western diet: health implications for the 21st century Am J Clin Nutr February 2005 vol. 81 no. 2 341-35* <http://ajcn.nutrition.org/content/81/2/341.full> Accessed August 2017

consumption. The infiltration of modernised foods made their way to these communities as trade and transport links developed. When children left the environment and went away to work or study, they were often exposed to a modernised diet. This exposure had immediate consequences that could be noted between siblings. As trade such as sugar plantations and pearl exchange progressed, the infiltration of processed foods heightened.

It was evident that the quality of foods was of importance with dairy and butter having a much higher mineral and vitamin content than their modern day equivalents.

Weston A Price clearly indicates that nutrition has a key role in deformity and dental disease. Although sugar plus bacteria sitting on tooth structure leads to dental plaque and all sorts of oral disease, it has not been drilled into us (mind the pun) that dietary choices and nutrition are important elements to discuss with patients. This is not just relating to dental disease, but also to formation of the craniofacial structures.

Prevention


Today, the Diabetic Society in Singapore states that one out of 9 people aged 18 to 69 has diabetes. That's about 11.3% of the population - more than 400,000 people!²

The National Health Survey of Singapore 2010 released by the ministry of health states that more than 10% of adults are now classed as obese. 'The proportion of obese adults aged 18-69 years was 6.9% in 2004 and 10.8% in 2010.'³

Dr. Margaret Chan, Director General of the World Health Organization (WHO), describes these diseases as a 'slow motion disaster'. Chronic diseases such as heart disease, cancer, diabetes and chronic respiratory diseases are increasing in incidence globally. The risk factors for these diseases include tobacco use, alcohol abuse, diet and physical activity. It is estimated that 40 million people die from these diseases every year (this equates to 70% of all deaths world wide).⁴

Dr. Chan reports that prevention has two main barriers:

- Doctors are taught to diagnose, treat and cure disease rather than prevent them
- Economic operators strongly influence lifestyle factors that lie in non-health care sectors including: tobacco usage, alcohol consumption, unhealthy dietary products and physical exercise.

The issue is vast. With so many factors at play, where do we even start? We are globally in a healthcare system where prevention simply does not pay. Perhaps educating ourselves as professionals and our patients to a healthier sustainable smile could be a start? 

Dr. Surinder Arora qualified as a Dentist in the UK and is also an Integrative Health Coach. She is now based in Singapore and has a keen interest in public health, nutrition and well being. Out of working hours she enjoys boxing, travelling, healthy eating and yoga.



References

² The Diabetes Society <http://www.diabetes.org.sg> Accessed August 2017

³ Ministry of Health, National Health Survey 2010 https://www.moh.gov.sg/content/moh_web/home/Publications/Reports/2011/national_health_survey2010.html Accessed August 2017

⁴ World Health Organization Non-communicable diseases: the slow motion disaster. Ten years in public health 2007-2017 <http://www.who.int/publications/10-year-review/ncd/en/index2.html> Accessed August 2017