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Editorial

The Genetic Tango: Genes in Your Food and Genes in You! Lets' Talk; the Year Is 2048

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The new Austin Journal of Nutritional and Food Sciences allows this author to speculate on the field of nutrition in the year 2048. I was born in 1948, which means I will be 100 years old in 2048. From the time when I was young, when 'Food was Food' and we ate to enjoy and grow to be healthy and strong; to the time that 'Food is Medicine' proves 'what goes around, comes around.' Hippocrates taught during his life from 460-370 BC, "Let food be thy medicine and medicine be thy food". Hippocrates argued among the ancient Greeks that disease were not a punishment inflicted by the Gods, but rather the product of environmental factors, diet, and living habits.With the coming of the genomic age for foods and the genomic age of humans, nothing could be truer.

In 2048, it is not your Grandmothers cookbook anymore. The food pyramid, and basic food groups are long ago forgotten. Days Gone Bye! The chemicals and genes now in your food, which interact with the chemicals and genes in you, are all that matter now. Food, in 2048 is more than nutrition; more than the sum total of the vitamins, minerals, neurotransmitters, carbohydrates, hormones, fats, lipids and proteins. More than the preservatives, tastes, flavors and fragrances; more than the textures, calories and fiber. More than the Five Star restaurants and fast food outlets can charge for your personal enjoyment or busy lifestyle. Foods, and what they contain, in 2048, will be comprised of genetic activators, suppressors, modifiers, allelic predictors and epidemiologic gene associations, and biological response modifiers. Even the chemicals your grandmother or grandfather ate and are now imprinted on your mothers' and your own DNA, and it may matter more than what you eat in your life, or what you ate in the total determination of your lifetime health outcomes? And of course your grandfather's obesity matters to your children's DNA. Medicine in 2048 long-agoushered in the field of personalize medicine, which yielded enormous positive impact on overall human health with designer and genetic modifying drugs and genetic diagnostics and specific gene therapies. The blossoming field of personalized genetic and genomic nutrition started to translate into our own personalized food-disease-gene-deactivators, food-transcription-factors, diet-gene--silencing and diet-gene-activation regimens. Diet-disease imprinting is now known and understood. We learned that obese parents' could transmit negative genetic factors to their children and maybe grandchildren and can now be prevented. Methods are explored to reverse engineer such effects by use dietary agents in the reversal of chronic diseases, which are the scourge of modern society and costing more than 75% of all health costs in 2048 but now improving. In 2048, Fathers and mothers began realized they had could be positively imprinting their children's and grandchildren's DNA, which can have potent transgenerational epigenetic disease prevention or disease reduction benefits. One size does not fit all; each person must eat to fit their genomic health potential. It has been discovered during this time that chemicals and genes in our diet could control the onset, incidence, progression or severity of many of the chronic diseases globally. Such scientific evidence has been profoundly helpful to control the majority of the health expenditures of modern society. Just at this time in 2048 we find that we understand how we can use our diets to engineer, modify and restore our full health potential. 2,418 years after Hippocrates, we have finally achieved the goal to use 'Food as our Medicine'.

By the 2048 timeframe we will understand the interactions between food chemicals, post-harvest processing effects on vital nutrients; the effect of cooking and upon longer term storage is it packaged, frozen or dried. The human variability versus the dietary variability versus the environmental variability all matter. We'll understand how the foods we eat alter, generate and regenerate the microbiome in our guts and in and on our bodies, and within the ecological niche in which we choose to live. How antibacterial agents in our medicines alter our microbiomes and thus our nutrition. Microbes and their metabolites control and modify many of our most common and chronic diseases and play a strong role in reducing the massive cost of chronic disease in the global economy.

Our genomes and our unique genetic polymorphisms are the true essence of human beings. Health and disease genes are responsible for our inherited traits. Many genes are able to be modified; most are not. Non-modifiable genes, such as our age, sex, family history may predispose to disease; in the future might we be able to change these or mitigate by diet. In the future genetically modified foods may be engineered to yield molecular cures for diabetes, cancer, heart disease, and hundreds of other maladies. GMOs might not just be measured by bushels per acre; but maybe benefit all of humanity by easing our global burden of disease.

The science of nutrigenomics now provides a molecular understanding of how common dietary chemicals in our foods affect your health by altering the conformational structure of your individual genetic makeup. Whether or not you may be beneficially impacted by chocolate, red wine, vitamin d receptor, exercise, salt, broccoli, anti-oxidants, omega-3 oils, omega-6 oils, soluble or insoluble dietary fiber or a host of thousands of other chemicals will be decided by your unique individual profile and your lifestyle choices. Whether you enjoy the taste of something healthful to eat or not depends upon your genetic taste receptors. Whether or not you are a super-taster, or non-taster will matter because it may cause you to eat, or avoid exactly the kinds of nutrients you may require to adjust your genome or modify your chosen lifestyle. The future is now.

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