

A New Age in Metabolism

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The wonder years of Warburg, Krebs and others was eclipsed with a general neglect of metabolism except at the margins; metabolic abnormalities affecting the minority. Slumber of a half century has been awoken by the scourge of metabolic syndrome initially limited to type 2 diabetics, then the industrialized world, but now moving as one of the most far reaching epidemics in our history with consequences that may rival the plagues of antiquity. Instead of poor hygiene brought about though city living, the new plague attacks though new lifestyle changes, reduced physical activity and altered diet, that we are no more adapted to than sanitation centuries ago. As with the plagues, the solution is not direct, because the changes of modern life are multifaceted, sanitation need to be followed by antibiotics, vaccines and toxic waste clean-up

in order to return people to the health found before city life. Modern life is not just more calories but different intake patterns of meal size and nutrient density and wholesale migration from different climatic zones with different selection pressure. The greatest health challenges facing our species are the resulting heart stroke, cancer and Alzheimer diseases. These diseases threaten our future financially and socially. Recent progress in linking these conditions to mitochondria increases the awareness that these are metabolic diseases that must be understood as such. The enabling technology of genomics and metabolomics offers a future of unbiased analysis as important as Jenner's vaccine and Fleming's antibiotic to help our species to understand the essential factors needed to adapt to environmental change.

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