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Continued …

- Smoking → coronary heart and other cardiovascular diseases, chronic respiratory diseases, pregnancy complications, and respiratory diseases in children [1], lung [1,2] / larynx [2,3] / bladder [2,4] / kidney [5] / pancreas [6] carcinoma, peptic ulcer [7,8]

[1] Giovino GA (2007) The tobacco epidemic in the United States. *Am. J. Prev. Med.* 33, S318-26; [2] Clavel J (2007) Progress in the epidemiological understanding of gene-environment interactions in major diseases: cancer. *C. R. Biol.* 330, 306-17; [3] La Vecchia C et al. (2008) Alcohol and laryngeal cancer: an update. *Eur. J. Cancer Prev.* 17, 116-24; [4] Janković S & Radosavljević V (2007) Risk factors for bladder cancer. *Tumori* 93, 4-12; [5] Lipworth L et al. (2006) The epidemiology of renal cell carcinoma. *J. Urol.* 176, 2353-8; [6] Hart AR et al. (2008) Pancreatic cancer: a review of the evidence on causation. *Clin. Gastroenterol. Hepatol.* 6, 275-82; [7] Halter F & Brignoli R (1998) *Helicobacter pylori* and smoking: two additive risk factors for organic dyspepsia. *Yale J. Biol. Med.* 71, 91-9; [8] Parasher G & Eastwood GL (2000) Smoking and peptic ulcer in the Helicobacter pylori era. *Eur. J. Gastroenterol. Hepatol.* 12, 843-53.

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Continued …

- Scarce ingestion of fibres → constipation, colon diverticulosis, colon carcinoma, stomach carcinoma, type 2-diabetes, metabolic syndrome and cardiovascular diseases [1], appendicitis [2,3]
- Altered conditions of sociality, stress of civilized condition → mental and psychiatric disorders [4,5]
- Scarce ingestion of calcium and reduced physical activity → osteoporosis [5,6], back pain [5]

[1] Trepel F (2004) [Dietary fibre: more than a matter of dietetics. II. Preventative and therapeutic uses][Article in German] *Wien. Klin. Wochenschr.* 116, 511-22; [2] Arnbjörnsson E (1983) Acute appendicitis and dietary fiber. *Arch. Surg.* 118, 868-70; [3] Adamidis D et al. (2000) Fiber intake and childhood appendicitis. *Int. J. Food. Sci. Nutr.* 51, 153-7; [4] Nesse RM & Williams GC (1994) *Why we get sick*. New York (USA), Times Books; [5] Eaton SB et al. (1988) *The paleolithic prescription: a program of diet & exercise and a design for living*. Ny (USA), Harper & Row; [6] National Institutes of Health, USA (2000) Osteoporosis prevention, diagnosis, and therapy. *NIH Consens. Statement.* 17, 1-45;

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Continued …

- Various factors → increased incidence of many types of cancer [1,2]
- Alcoholism → hepatic steatosis, steatohepatitis, cirrhosis [3], larynx carcinoma [4]
- Smoking and/or air pollution → chronic bronchitis [5], emphysema [6]
- Exposure to chemical substances artificially synthesized → allergic diseases [7]

[1] Eaton SB et al. (1988) *The paleolithic prescription: a program of diet & exercise and a design for living*. NY (USA), Harper & Row; [2] Greaves MF (2000) *Cancer: The Evolutionary Legacy*. Oxford (UK), Oxford Univ. Press; [3] Adachi M & Brenner DA (2005) Clinical syndromes of alcoholic liver disease. *Dig. Dis.* 23, 255-63; [4] La Vecchia C et al. (2008) Alcohol and laryngeal cancer: an update. *Eur. J. Cancer Prev.* 17, 116-24; [5] Viegi G et al. (2006) Epidemiology of chronic obstructive pulmonary disease: health effects of air pollution. *Respirology* 11, 523-32; [6] Taraseviciene-Stewart L & Voelkel NF (2008) Molecular pathogenesis of emphysema. *J. Clin. Invest.* 118, 394-402; [7] Kirchner DB (2002) The spectrum of allergic disease in the chemical industry. *Int. Arch. Occup. Environ. Health.* 75, S107-12.

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Continued …

- Excessive time spent focusing close up or in improper conditions of vision → myopia [1] (up to 70–90% of a population affected [2,3]), refractive defects (myopia, astigmatism, hyperopia) [4]

But, studying two groups of 6- and 7-year-old school children of Chinese ethnicity, the first living in Singapore and the other in Sydney, with only two significant differences (Sydney children made more near-work activity and spent more time in outdoor activities), it was observed that the prevalence of myopia was only 3.3% in Sydney children and 29.1% in Singapore children [5].
The idea that the direct exposition to natural light was the key factor has been confirmed by other studies [6,7].

[1] Fredrick DR (2002) Myopia. *BMJ.* 324, 1195-9; [2] Chow YC et al. (1990) Refractive errors in Singapore medical students. *Singapore Med J.* 31, 472–3; [3] Wong TY et al. (2000) Prevalence and risk factors for refractive errors in an adult Chinese population in Singapore. *Invest. Ophthalmol. Vis. Sci.* 41, 2486-94; [4] Kee CS & Deng L (2008) Astigmatism associated with experimentally induced myopia or hyperopia in chickens. *Invest. Ophthalmol. Vis. Sci.* 49, 858-67; [5] Rose KA et al. (2008) Myopia, lifestyle, and schooling in students of Chinese ethnicity in Singapore and Sydney. *Arch. Ophthalmol.* 126, 527-30; [6] Rose KA et al. (2008) Outdoor activity reduces the prevalence of myopia in children. *Ophthalmol.* 115, 1279-85; [7] Dirani M et al. (2009) Outdoor activity and myopia in Singapore teenage children. *Br. J. Ophthalmol.* 93, 997-1000.

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Continued …

- Reduced exposure to natural allergens from bacteria, viruses, helminths →

a) Alterations of TH1-mediated immune response (autoimmune diseases as Crohn's disease, ulcerative colitis, diabetes type I, multiple sclerosis, Guillain-Barrè syndrome, Hashimoto's disease and other thyroiditis, psoriasis, rheumatoid arthritis, temporal arteritis, etc.)
b) Alterations of TH2-mediated immune response (allergic diseases as hay fever, allergic asthma, eczema, etc.)
[Hygiene Hypothesis] [1-5]

Helminthic therapy (deliberate infestation with a helminth, or with its ova) is currently being studied as a promising treatment for several autoimmune diseases including Crohn's disease, multiple sclerosis, asthma, and ulcerative colitis.

[1] Strachan DP (2000) Family size, infection and atopy: the first decade of the "hygiene hypothesis". *Thorax* 55: S2–10.; [2] Grammatikos AP (2008) The genetic and environmental basis of atopic diseases. *Ann Med.* 40:482-95; [3] Folkerts G et al. (2000) Do common childhood infections 'teach' the immune system not to be allergic? *Immunol Today* 21: 118–20; [4] Bufford JD & Gern JE (2005) The hygiene hypothesis revisited. *Immunol Allergy Clin North Am* 25: 247–62; [5] Janeway C et al. (2001). *Immunobiology* (5th Ed.). NY and London, Garland Science.

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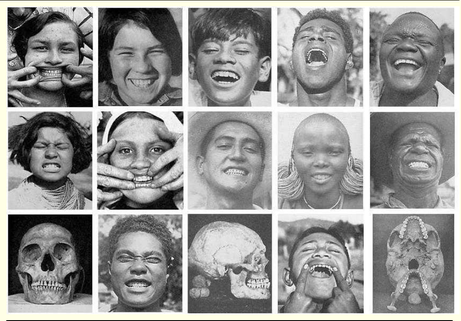
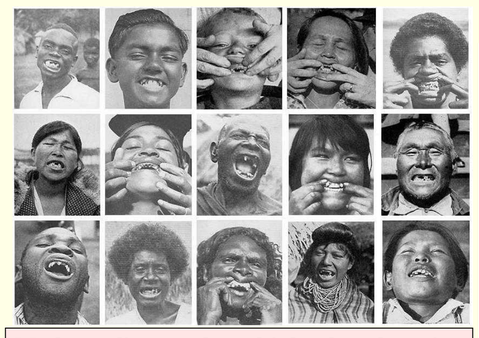
Excessive ingestion of simple and refined carbohydrates (in particular sugar), calcium deficiency and other dietary modifications → dental caries, pyorrhoea, changes in facial form, crowded teeth [1,2]



Ancestral dietary habits and "teeth ... excellent and free from dental caries" [2].



Modern diets and multiple dental caries, "crowding of the teeth", "changes in facial form", pyorrhoea [2].

[1] Eaton SB et al. (1988) *The paleolithic prescription: a program of diet & exercise and a design for living*. NY (USA), Harper & Row; [2] Price WA (1939) *Nutrition and Physical Degeneration*. NY – London, Paul B. Hoeber.

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From dr. Price's book [1], published in 1939:

In the quite isolated Swiss Loetschental valley, with ancient dietary habits: only 2.3% teeth with caries.
Analogous results in other less isolated Swiss valleys.

"Normal design of face and dental arches"

On the contrary, in almost all not isolated parts of Switzerland 95 to 98 per cent of the people suffered for dental caries.
"In the modernized districts of Switzerland tooth decay is rampant."
In St. Moritz valley, in a class of 16 children, there were 9.8 cavities per person.
In the same valley: "When parents were asked to permit their children to have one meal a day reinforced, according to a program that has proved adequate with my clinical groups in Cleveland, the objection was made that there was no use trying to save the teeth of the girls. The girls should have all their teeth extracted and artificial teeth provided before they were married …"

"very badly formed dental arches with crowding of the teeth. This deformity is not due to heredity"

[1] Price WA (1939) *Nutrition and Physical Degeneration*. New York – London, Paul B. Hoeber.

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Problems with wisdom teeth:

A consequence of the slowness of evolution?
"Wisdom teeth are vestigial third molars that human ancestors used to help in grinding down plant tissue. The common postulation is that the skulls of human ancestors had larger jaws with more teeth, which were possibly used to help chew down foliage to compensate for a lack of ability to efficiently digest the cellulose that makes up a plant cell wall. As human diet changed, a smaller jaw was selected by evolution, yet the third molars, or 'wisdom teeth', still commonly develop in human mouths. (Dubrow TJ et al. (1988). "Detailing the human tail". *Annals of plastic surgery* 20, 340–4. 1)" [1]

Or a consequence of dietary alterations of the ecological niche?
"… from 25 to 75 per cent of individuals in various communities in the United States have a distinct irregularity in the development of the dental arches and facial form … In a study of 1,276 skulls of … [pre-Colombian] Peruvians, I did not find a single skull with significant deformity of the dental arches." [2]
"I was able to examine a number of skulls from this cave which apparently represented a pre-Spanish period. … broad sweep of the dental arches and freedom from tooth decay. The third molars (wisdom teeth) are well developed and in normal position for mastication. … It is very evident that these individuals were provided with an adequate nutrition throughout the formative and growth periods, as well as during their adult life. " [2]

[1] Wikipedia, *Human vestigiality*; [2] Price WA (1939) *Nutrition and Physical Degeneration*. New York – London, Paul B. Hoeber.

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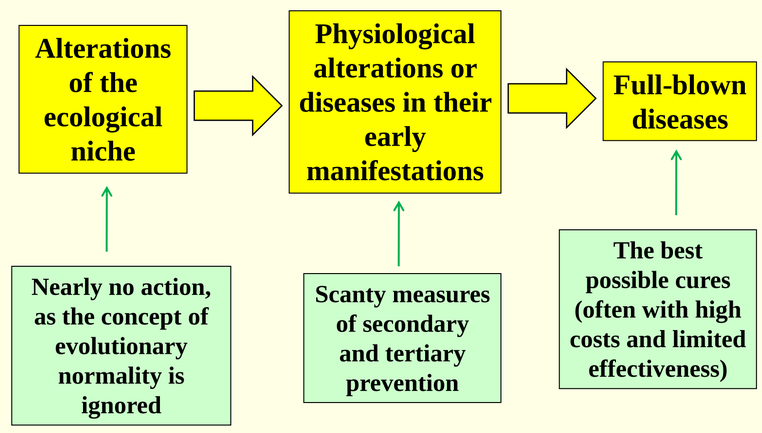
Modern (irresponsible) Medicine and Sanitary Policy



Effects of this sanitary policy:
a) Increasing and unrestrained alterations of our ecological niche
b) Exponential spreading of most of the diseases and of the related deaths
c) Exponential increase of the related costs with a bad cost / efficacy ratio

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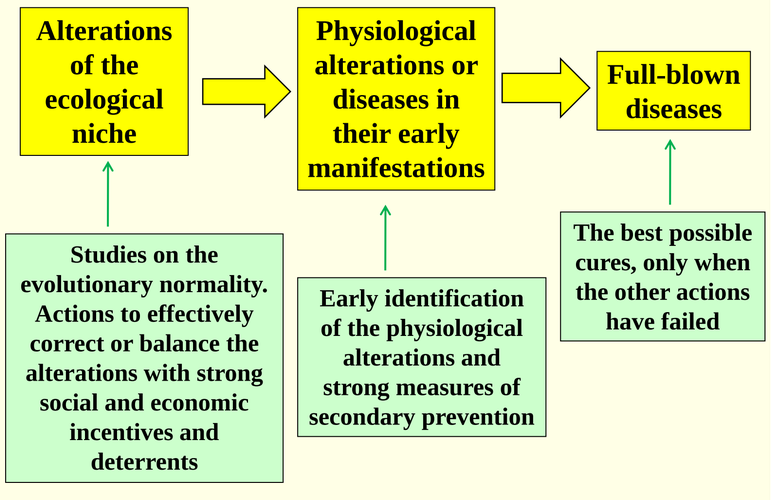
Future (desirable) Medicine and Sanitary Policy



Effects of this sanitary policy:
a) Increasing "normalization" of our ecological niche
b) Reduction of most of the diseases and of the related deaths
c) Reduction of the related costs with a better cost / efficacy ratio

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Conclusion

Modern Medicine is only partially scientific since, to all intents and purposes, it ignores Evolutionary Medicine, and in particular the concept of "normality" rationally defined in evolutionary terms.

Evolutionary Medicine is not at all a form of alternative medicine but, on the contrary, the pivotal chapter of a medicine truly grounded on scientific bases.

Nowadays, the physician is entirely lacking in the knowledge of the most elementary concepts of Evolutionary Medicine.

In fact, the sanitary policy of all modern states is managed in the total ignorance of the most elementary concepts of evolutionary theory.

…

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Conclusion - Continued

…
At the same time, evolutionary biologists are unaware of the extreme importance of these concepts for a rational organization of a system that should prevent, control and handle diseases.

No evolutionary biologist is included in the rolls of any national health system in any operating level.

The unwitting ignorance is deplorable but without direct blame.
On the contrary, it is culpable neglect to be inert, whereas one has the awareness that his own contribution is essential to prevent and contrast effectively diseases, sufferings and deaths.

This poster is on my personal pages too:
www.r-site.org/ageing
(e-mail: giacinto.libertini@tin.it)