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## **Nutritional contribution of plant foods to human diet in evolution**

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## Stellingen behorende bij het proefschrift

### *Nutritional Contribution of Plant Foods to Human Diet in Evolution,*

Stephanie L. Schnorr, Universiteit Leiden, 22 March 2016

1. While plant foods are undoubtedly a core component of past and present human diets, regular access to meat is still largely heralded as the defining factor that enabled development of traits uniquely ascribed to more derived hominins or archaic and modern humans. However, the complexities of acquisition and processing gives plant foods an equitable stake in the claim as meat in the genesis of *Homo*
2. According to caloric based optimal foraging, humans should always cook tubers and other starchy plant foods long enough to accomplish both gelatinization and softening. But, since Hadza (and others) prefer to 'undercook' or not cook some foods, then this is likely a historical legacy, and we should investigate what effect perpetually overcooked food has on our health.
3. As we build more sophisticated tools or develop new technologies to model biological systems, specifically human physiology, then it is necessary to bear in mind that "Models should be as simple as possible, but not simpler". Meaning, we should strive to obtain results that answer questions about how nature works, but after a certain point, there are diminishing returns on defining random noise, and model stability is eventually compromised.
4. Microbiota sourced from living people is currently commercialized as a health product or as medical stock. The therapeutic prospects are so far extremely efficacious at alleviating illnesses. However, there is an ethical and moral balance to strike, and it remains to be seen who will lead these initiatives, who will mediate, and who will benefit. Anthropologists will be faced with protecting endangered communities and their rights in 'biological harvesting'.
5. Estimations about behavior based on optimality models are probably blind to culture, which can frequently have a counter-intuitive effect on how resources are accessed or managed. In the case with roasting tubers in sub-Saharan Africa, prolonged cooking would reduce the water content, which is an adverse effect, since water is a very desirable aspect of tubers and USOs in hot arid climates.
6. Food softening has drastically reduced the human jaw from early hominins and even archaic humans, and the shape of the jaw impacts tooth eruption and occlusion. Modern dentistry should advocate a daily quota of tough food consumption, especially for young children and juveniles.
7. Microbial metabolism produces nutrients that are not available by any other means (or only in extremely low quantities). Microbes are the dominant biomass on earth, and provisioning for the world-wide human population should harness microbial nutrient production to help not only with improving diet quality in poor nations, but also to replenish deplete soils and reduce our reliance on genetically modified foods.
8. Advanced food processing techniques is akin to the agricultural revolution by the way in which they shaped human diet. Human ancestors transformed inedible and indigestible food into local dietary staples that trained the human palate to prefer refined food. Therefore, we need to put more effort into understanding traditional plant food processing to make a compendium of what we know about prehistoric processing technology.
9. Primary school curriculum should include classes on how to recognize native edible and poisonous plants, and to learn the seasonal cycles of plant food availability in their region.