



Responsibility: Ulysses, Defend your Operative Memory

Mario Ciampolini*

Preventive Gastroenterology Unit, Department of Paediatrics, Università di Firenze (Retired), Florence, Italy

***Corresponding Author:** Mario Ciampolini, Preventive Gastroenterology Unit, Department of Paediatrics, Università di Firenze (Retired), Florence, Italy.

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Abbreviations

IH: Initial Hunger consists of gastric pangs or mind or physical weakness. In sedentary adults and in children, IH corresponds to a BG of 76.6 ± 3.7 mg/dL; HMP: Initial Hunger Meal Pattern: Energy intake is adjusted to three arousals of IH per day; BG: Blood Glucose, an index of energy availability in blood for the whole body. It is measured before three daily meals; OM: Operative Memory; BBB: Blood Brain Barrier

The best definition for the operative memory (OM) was from Cicero: *Tene rem, (acta), verba sequentur*. Have an image, a conception under attention and linked words, events and acts shall emerge from the periphery of your attention. We may also say: maintain an imagination under attention, linked words, events and facts shall appear. Your attention may remain centered on the focused object and you may feel the presence of collateral events that may be centered soon or later to complete your presentation. You can soon bring the early focused image under attention again together with linked images and words. So Cicero did not break own attention with an empty interval in speaking and the attention of followers did not go freely away: in own mind the listener had no prompt alternative to the acts of the speaker and remained attentive; Cicero was thus fascinating. At your age was like this for me, but not now since many decades. Now, you Ulysses have the greatest OM in your life and the most definite events of hunger. You can easily decide to either defend and improve your health and attention or "laissez faire", i.e. follow the general trend. No responsibility marked the choices before adolescence (before 12 - 16 yrs). Children 6 - 12 years old had a mean BG of 100 mg/dL at meal onset, whereas around 76 mg/dL at 18 years of age, without difference between either being trained or not. You, as well as your parents, want a responsible search for a woman and a responsible balance (to expenditure) in energy intake. In both circumstances, your acts are followed by consequences (feed backs) that invest you directly. The expenses are in charge of you and you have to decide alone or mainly alone. Energy intake slows absorption that implies bacterial growth, overall inflammation and cerebral deterioration (microglia increase) if blood brain barrier (BBB) is overwhelmed. Earlier or

later, instead, all your OM will be useful. How can we delay the deterioration? The persistence and increases of the association arousals are related to repetition. Repetition reduces deteriorations. Yet irreversible deterioration is more complex. Immune events from inflamed body tissues imply cumulated irreversible disconnections in the brain. The brain is different from other organs because of a defense barrier from blood (BBB). Inside the barrier is not different from other body organs and neurons may be damaged by local immune events. In most people the barrier seems efficient but the efficiency is variable across people and during life.

Variations in microglia amount suggest that the BBB is permeable. Immune events on neurons may develop during overall Inflammation that is so frequent and devastating in the human body. The condition of convalescence from a systemic illness or the massive overall invasion by antigens from small intestine may involve the brain. Immune events on neurons deteriorate operative memory in subsequent episodes. After decades, your acts and words are disconnected. Linked acts and events emerge in lower number and even cease to emerge; the promoting act disappears before emergence of related links.

The disconnection between the focused image and linked records depends on age inasmuch as you accumulate many more events of deterioration in 50 years of life than in a month or two. Immune events and not the age cause deterioration. OM is protected by BBB from immune damage. I partially lost this protection and regained the protection by maintenance of Initial Hunger Meal Pattern (IHMP, please, go to the paragraph before the last). Through IHMP implementation, I diminished the antigen amount that was ready to cross the BBB. IHMP acts on bacteria on intestinal mucosa and diminishes mucosal stimulation and overall inflammation.

The convalescent state allows heavy physical exercise that is harmless, but also allows prompt relapse of the initial illness at any infection. Overall inflammation is the period after an inflammatory illness and may persist one month or perhaps a year or a week only. In this period, the body has to eliminate foreign molecules that are numerous after initial rapid killing of invading infection. The initial, provoking inflammation episode may be flu, pneumonia or an

intestinal inflammation. Over half immune cells of the human body are located in the intestinal mucosa: this suggests that overall inflammation and tissue deterioration depend largely on intestinal happenings, on the progression of digestion, on the amount of immune stimulation by bacteria on intestinal mucosa. A meal may be richer in energy than planned intention and this prolongs the interval before the following arousal of Initial Hunger (= long digestion) for a slow absorption. An increased permanence of nutrients in the small intestine allows larger bacteria growth and larger proliferation of immunogenic bacterial species. The immunogenic species are only 10 or 100 of thousand species in the alimentary canal. Ten species when absorption is rapid. Unhampered intestinal bacterial growth of one or two immunogenic species increases and prolongs the overall inflammation in all body ("convalescent state") [1-4]. After cumulated events throughout life, twenty - thirty percent of old people arrive to a disconnected thinking and acting from focused objective. Their operative memory becomes interrupted or even suppressed.

Ulysses, you can find Initial Hunger (IH) by meal suspension for a few hours, one - 6 hours [5-9]. You may feel gastric emptiness, mental or body weakness. You have to learn this sensation and ménage to have the sensation before taking any meal. This rule becomes a method of regulating energy intake, i.e., you must eat not as much as you can, but in an amount that allows reemergence of IH after few hours. This objective ought to be present at every meal and this presence is the measure of your responsibility. Three IH events per day correspond to the best energy intake, best balance and to the best anthropometric measures you can have. The meal contents have to be measured in proportion to the expenses between meals. In this evaluation of the needed food per meal, you cannot be precise, but the attempted evaluation is much more effective than no attempt at all. I studied about thirty adolescents of your age. Twenty of them found and recognized Initial Hunger (IH) by themselves before any training (see video, [10]). These adolescents used IH as an indication for a good energy balance and a good energy intake. Three events of IH per day is my recommendation to minimize body tissues deterioration. The difference from no emergence of IH at all corresponds to an energy intake difference of about 20% - 30% [7-10]. On the other hand, no hunger emergence consequent to no consumption produced neither fainting nor body growth impairment.

Half one century ago, energy intake and percentage of energy consumed as fat were largely studied on the development of malignancies in the experimental animal. Fats percentage out of all energy and the total energy intake decrease insulin sensitivity and prolong high BG and high MBG. Events of overall inflammation become much more frequent and intense and involve vascular endothelia. The involvement of brain endothelia means disruption of BBB and microglia increase. Microglia are brain cells that help maintain the integrity and normal functioning of brain tissue. Dysfunction of these cells, as may occur in disease, is linked to neurodevelopmental disorders and neurodegenerative conditions. Aging is also as-

sociated with inflammation driven by microglia in specific regions of the brain. Eggen [11,12] and his collaborators investigated the impact of high- and low-fat diets on inflammation and microglial markers in a specific brain region - the hypothalamus - of 6-month-old mice. They further looked at the effect of low- or high-fat diets on the microglia of 2-year-old mice, which were also given a lifelong exercise regime (voluntary running wheel) or lifelong restricted diets (a 40% reduction in calories). "Aging-induced inflammatory activation of microglia could only be prevented when mice were fed a low-fat diet in combination with limited caloric intake," says Eggen. "A low-fat diet per se was not sufficient to prevent these changes." The researchers also found that exercise was significantly less effective than caloric restriction at preventing these changes, although work by others has shown that exercise is associated with reducing the risk of other diseases. "Nevertheless, these data do show that, in mice, the fat content of a diet is an important parameter in terms of the detrimental effects of aging on the brain, as well as caloric intake," says Eggen. "Only when fat content and caloric intake are limited, can aging-induced changes in microglia be prevented".

You have not to spare your now excellent immune efficiency in a hope for a slow OM decrease. You have to maintain your immune efficiency as a stable habit in face of changing situations in your life, you are strong and healthy at sixteen and recognition of IH is quite easy now but conditioning factors may disturb and involve yourself incessantly and induce in erroneous eating that transiently reduces immune efficiency like during convalescence. You have to remain aware on immune debilitating factors that you can contrast with contrary intervention [11,12]. All factors of intestinal absorption slowdown must be avoided as much as possible or may be reduced by contrary actions. Infection onsets cannot be planned. These onsets must be promptly treated in the respiratory tract with prompt rest and with a warm ambient. At the same time, you have to suppress caloric intake to speedy nutrient absorption and to prevent an additional inflammatory front inside intestine. Through awareness you will defend yourself against events that condition your energy intake. After the age of 60, IH becomes difficult to distinguish. In front of conditioning factors, we are alone and are defended by what we have observed and learned. Like Ulysses!

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