Author’s response to reviews

Title: Common risk indicators for oral diseases and obesity in 12-year-olds: a South Pacific cross sectional study

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Author’s response to reviews:

Dear editor,

We submit the revised R3 version of our manuscript.

Editor Comments:

(1) We note that you state the following regarding ethics approval for your study: "By the time the study was performed, there was no ethical committee in NC"

As we would have expected this type of study to have received ethics approval from a french committee, we require that you please discuss your study now with an ethics committee and obtain confirmation that this would not have required ethics approval.

This sentence should not be detached from the end of the paragraph. All competent authorities for ethical approvals gave their consent for this study. They are political issues about the administrative independency of New-Caledonia. To avoid political conflicts, ethical approvals
had to be obtained independently from all the organizations that are cited and not only from a single formal ethical committee as it is organized in France.

To avoid confusion, we deleted the sentence.

Reviewer reports:

Mumtaz Mazicioglu (Reviewer 3):

*Newly added information and revisions are all welcome

*I am still not sure about the masticatory function to be in hypothesis and the method to detect it. Other than posterior functional dental units masticatory performance must have other parameters to be explained; including systemic diseases.

We understand the doubts of the reviewer as the knowledges on the relationships between dental status and nutrition are on the common limits between neurobiology, physiology, behavioural, oral health and food sciences scientific domains.

During oral food processing, the teeth are not simple tools that mechanically reduce the food to particles and mix saliva and the food to produce an easy-to-swallow bolus. They are also essential to the neuromotor control of chewing and swallowing, through the periodontal and pulpal sensory receptors that are triggered during interarch contacts [1]. The number of PFU is related to the number of interarch contacts. Periodontal mechano-reception provides feedback on the magnitude, direction and rate of occlusal load application for sensory perception and motor function. Thus, any dental disease that affects the numbers, the structure or the position of the teeth is assumed to have an impact on chewing and swallowing. Few studies may control all factors.

Numerous studies demonstrated the existence of links between periodontal or caries disease and nutritional status in children and young adults, but chewing difficulties are rarely considered as explaining factors for feeding problems. Many reports have suggested that a poor oral health impairs masticatory function and leads to inadequate food selection [1]. Given the dominant role of food as an entraining stimulus for metabolic rhythms, the timing of daily food intake and the
fidelity of food entrainment mechanisms are likely to have clinical relevance [2]. The relationships between mastication and digestion have previously been investigated in different ways. Increasing mastication shortens the time needed by the stomach to comminute food particles to a diameter small enough to pass through the pylorus [3]. Mastication is also involved in maintaining good motility in the digestive tract by enhancing physiological gastric motion through the activation of parasympathetic nervous activity [4–9]. Moreover, adequate mastication facilitates the initial steps of digestion by stimulating saliva production and activating the cephalic controls that initiate the assimilation of foods [10,11].

Chewing ability in persons with obesity could affect links between nutrition and feeding behaviour. Previous studies on feeding attitudes demonstrated that obese subjects eat faster than their lean peers and suggested that a lack of oral stimulations could be related to energetic metabolism [12,13]. It has been suggested that low activity of the autonomous nervous system explains a decrease in the thermogenic response to food in individuals with obesity [14,15]. It was also shown that the palatability of the meal had an effect on the cephalic phase of dietary thermogenesis and that this effect is significantly decreased in obese subjects compared with non-obese ones [16]. Patients with morbid obesity who have undergone bariatric surgery are thus encouraged to chew slowly in order to slow down food intake and optimize the digestion process.


5. Kaneko H, Sakakibara M, Mitsuma T, Morise K. Possibility of postprandial
electrogastrography for evaluating vagal/nonvagal cholinergic activity in humans,
through simultaneous analysis of postprandial heart rate variability and serum

mastication on regional cerebral blood flow in humans examined by positron-emission
tomography with 15O-labelled water and magnetic resonance imaging. Arch Oral Biol.

7. Farella M, Bakke M, Michelotti A, Marotta G, Martina R. Cardiovascular responses in


10. Mattes RD. Physiologic responses to sensory stimulation by food: nutritional


13. Bellisle F, Rolland-Cachera MF, Deheeger M, Guilloud-Bataille M. Obesity and food
intake in children: evidence for a role of metabolic and/or behavioral daily rhythms.


To avoid extensive additional revisions, we added the following sentence to discussion section (page 11, line 238):

Interactions between dental status and nature of food have dominant role as an entraining stimulus for metabolic rhythms, the timing of daily food intake and the fidelity of food entrainment mechanisms. During food oral processing, the teeth are not simple tools that mechanically reduce the food to particles and mix saliva and the food to produce an easy-to-swellbolus. They are also essential to the neuromotor control of chewing and swallowing, through the periodontal and pulpal sensory receptors that are triggered during interarch contacts. The number of PFU is related to the number of interarch contacts. In nutrition studies, chewing difficulties are rarely considered as explaining factors for food selection and feeding behavior.

*As authors referred to de Onis; "-2SD ≤BMI-for-age ≤ 1SD" is not the same index as "-2SD ≤BMI Z score ≤ 1SD". It should be explained.

*Additionally the rationale of selecting "" is not explained nor in 21th reference of the revised manuscript or the original reference given in (5th) the 21th reference. The rationale is not explained.

We agree with the reviewer the reference is not good. We modified the text accordingly and inserted two references (Page 5, line 73):
For each child, weight and height were collected and BMI-for-age Z-scores were calculated based on the updated WHO reference (21,22). Children with BMI Z-score between ≥-2 and ≤+1 were classified as normal weight; those with Z-score between > +1 and ≤ +2 were considered overweight; and those with Z-score > +2 as obese.


22. de Onis M. Update on the implementation of the WHO child growth standards. World Rev Nutr Diet. 2013;106:75-82.

We reduced the abstract to 350 words, and we also add the keyword: Children