

Microbiota-Diet Interaction Along Ageing

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Abstract: The human body is colonised by a vast array of microorganisms, the so-called microbiota. Every ecological niche present in our body harbours a characteristic microbiota. Among these, the intestinal microbiota is the more complex and diverse. During the last two decades our knowledge on the composition of the gut microbiota has increased enormously, as well as our understanding on its role in health maintenance. Now we know that this microbiota shown a large inter-individual variability and results essential for promoting the physiological homeostasis of the host, dysbiosis on this intestinal microbiota has been linked to an increased risk of disease and alterations on its composition have been described in several disease conditions. The diet is know to be the key factor in driving microbiota composition. This is a constant along life with the feeding pattern, breast milk of formula, being a critical driver for microbiota development in the infant and also diet-microbiota interactions being major forces in shaping the microbiota in the elderly. Dietary, microbiota and immune alterations are often present in aged individuals, thus providing potential targets for reducing morbidities and the physiological decline associated to advanced age. The increasingly elderly population together with the co-morbidities and its health-associated costs underline the interest for understanding the diet-microbiota interaction along ageing. This would allow developing improved interventions for health maintenance along this process. Unfortunately, the diet-microbiota interactions seems to be highly specific, being different in adults than in elderly subjects, likely due to the different basal microbiotas and diets among these two population groups. In addition, whereas we have detailed knowledge on the interactions between some specific foods, dietary components or nutrients and the microbiota we still do not fully understand the interaction of the general global diet and the microbiota. Taking into account that our diet is composed by thousands of compounds with, sometimes, opposite effects upon the gut microbiota to recognise the overall diet effect on the microbiota is of importance. Dietary indexes provide a tool for assessing the overall diet and its impact. Several indexes are available to this end, from dietary inflammatory indexes to overall diet quality or adequacy to Mediterranean diet indexes. However, it is not known which of these indexes better reflects the impact of the diet on the microbiota, although our results suggest that some of these indexes are of interest to this end.

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