Conclusions of the Working Group (WG) and the Expert Committee (CES) on Human Nutrition

The aim of this study was to identify and characterise the epidemiological links between the different types of vegetarian diets and health, using a systematic review of the literature with an assessment of the weight of evidence. This systematic review identified 131 articles published up to May 2019 that met the inclusion criteria set by the WG and the CES on Human Nutrition. For some health effects, the number of indicators assessed in the literature was very limited (for many health effects it was even non-existent).

Analysis of all the articles (chapter on health) showed, with a moderate weight of evidence, that a vegetarian diet, compared with a diet including animal flesh, was associated with a lower risk of diabetes.

For the other associations analysed in the identified articles, the weight of evidence was limited or could not be estimated, so it is likely that new studies could lead to a modification of the concerned conclusions.

A higher health risk for vegetarians was observed with osteoarticular health and hypospadias, with a limited weight of evidence. A lower risk for vegetarians was observed with ischaemic heart disease, ovulatory disorders, certain types of cancer (prostate, stomach, haematological, all sites), and certain ophthalmological and gastrointestinal diseases, with a limited weight of evidence.

Also with a limited weight of evidence, there was no association between the vegetarian diet and numerous health outcomes (head circumference at birth, certain cardiometabolic risk factors, breast cancer, colorectal cancer, urinary tract cancer, certain hepatobiliary diseases and mortality).

In the absence of sufficient studies of good quality, or indeed studies of any kind, the WG and the CES were unable to assess the link between a vegetarian diet, compared with a diet including animal flesh, and the other health outcomes.

Regarding the examination of the link between vegetarian diets and nutritional status, the WG based its assessment on markers of biological impact. Markers of exposure were only used to help interpret the results obtained. With a moderate or limited weight of evidence, the nutrients for which the markers of biological impact showed a lower status in vegetarians were iron, iodine, and vitamins B6 and B12. Serum homocysteine concentrations were higher. Vegetarian diets were also found to be less favourable than diets that include animal flesh with regard to vitamin D status and calcium and phosphorus balance. In addition, the markers of biological impact for vitamin B2 showed a lower status in vegans.

With a limited weight of evidence, the vegetarian diet was not associated with markers of biological impact for copper, selenium and zinc.

In the absence of sufficient studies of good quality, studies of any kind or markers of biological impact, the WG was unable to assess the link between a vegetarian diet, compared with a diet including animal flesh, and the other nutrients.

In particular, this analysis helped identify nutrients where there was a risk of inadequate intake in the context of spontaneous consumption by vegetarians, as observed in epidemiological studies. These concern iron, iodine, vitamins B6 and B12, vitamin D and calcium and phosphorus balance and, more specifically for vegans, vitamin B2.

As fatty acids have no markers of biological impact, the WG did not assess the status of these nutrients. However, as vegetarian diets exclude fish, which is the main contributor to intakes of eicosapentaenoic acid and docosahexaenoic acid, individuals following a vegetarian diet could be at risk of inadequate intake of these nutrients.

The results of this literature review will be taken into account in the choice of parameters to be used as constraints in the optimisation process.