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SCIENTIFIC OPINION

Scientific Opinion on the substantiation of a health claim related to iodine and contribution to normal cognitive development pursuant to Article 14 of Regulation (EC) No 1924/2006

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

Following an application from Specialised Nutrition Europe (formerly IDACE), submitted pursuant to Article 14 of Regulation (EC) No 1924/2006 via the Competent Authority of France, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on the scientific substantiation of a health claim related to iodine and contribution to normal cognitive development. The food constituent, iodine, which is the subject of the health claim, is sufficiently characterised. Contribution to normal cognitive development is a beneficial physiological effect for infants and young children. A claim on iodine and contribution to normal cognitive and neurological function in the general population has already been assessed with a favourable outcome. In addition, there is a large body of evidence indicating a crucial role for iodine in growth and development. The Panel notes the well established role of iodine in preventing iodine deficiency disorders such as retarded mental and physical development in children and adolescents, and impaired mental function and reduced cognitive capacity for people of all ages. The Panel concludes that a cause and effect relationship has been established between the dietary intake of iodine and contribution to normal cognitive development.

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KEY WORDS

iodine, infants, children, cognitive development, neurological development, health claims
SUMMARY

Following an application from Specialised Nutrition Europe (formerly IDACE), submitted for authorisation of a health claim pursuant to Article 14 of Regulation (EC) No 1924/2006 via the Competent Authority of France, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on the scientific substantiation of a health claim related to iodine and contribution to normal cognitive development.

The scope of the application was proposed to fall under a health claim referring to children’s development and health.

The food constituent that is the subject of the health claim is iodine, which is an essential nutrient and is measurable in foods by established methods. The Panel considers that iodine is sufficiently characterised.

The claimed effect proposed by the applicant refers to the importance of iodine for normal cognitive development. The target population proposed by the applicant is infants and young children from birth to three years of age. The Panel considers that contribution to normal cognitive development is a beneficial physiological effect for infants and young children.

A claim on iodine and contribution to normal cognitive and neurological function in the general population has already been assessed with a favourable outcome. In addition, there is a large body of evidence indicating a crucial role for iodine in growth and development.

The Panel notes the well established role of iodine in preventing iodine deficiency disorders such as retarded mental and physical development in children and adolescents, and impaired mental function and reduced cognitive capacity for people of all ages.

The Panel concludes that a cause and effect relationship has been established between the dietary intake of iodine and contribution to normal cognitive development.

The following wording reflects the scientific evidence: “Iodine contributes to normal cognitive development”.

The Panel considers that in order to bear the claim, follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC; nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC; processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC; other foodstuffs intended for infants and young children should provide at least 15 % of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC. Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. A Tolerable Upper Intake Level for iodine has been established for children, and has been set at 200 µg/day for children of 1-3 years of age.
TABLE OF CONTENTS

Abstract .................................................................................................................................................. 1
Summary ................................................................................................................................................... 2
Table of contents ...................................................................................................................................... 3
Background ............................................................................................................................................... 4
Terms of reference .................................................................................................................................... 4
EFSA Disclaimer ................................................................................................................................. 4
Information provided by the applicant ................................................................................................. 5
Assessment ............................................................................................................................................... 6
1. Characterisation of the food/constituent ............................................................................................. 6
2. Relevance of the claimed effect to human health ............................................................................... 6
3. Scientific substantiation of the claimed effect ................................................................................... 6
4. Panel’s comments on the proposed wording ...................................................................................... 7
5. Conditions and restrictions of use ...................................................................................................... 7
Conclusions .............................................................................................................................................. 7
Documentation provided to EFSA .......................................................................................................... 8
References ................................................................................................................................................. 8
BACKGROUND
Regulation (EC) No 1924/2006\(^4\) harmonises the provisions that relate to nutrition and health claims, and establishes rules governing the Community authorisation of health claims made on foods. As a rule, health claims are prohibited unless they comply with the general and specific requirements of this Regulation, are authorised in accordance with this Regulation, and are included in the lists of authorised claims provided for in Articles 13 and 14 thereof. In particular, Articles 14 to 17 of this Regulation lay down provisions for the authorisation and subsequent inclusion of reduction of disease risk claims and claims referring to children’s development and health in a Community list of permitted claims.

According to Article 15 of this Regulation, an application for authorisation shall be submitted by the applicant to the national competent authority of a Member State, which will make the application and any supplementary information supplied by the applicant available to the European Food Safety Authority (EFSA).

STEPS TAKEN BY EFSA
- The application was received on 14/02/2008.
- The scope of the application was proposed to fall under a health claim referring to children’s development and health.
- On 26/03/2008, during the validation process of the application, EFSA sent a request to the applicant asking it to provide missing information.
- On 26/07/2013, EFSA received the missing information as submitted by the applicant.
- The scientific evaluation procedure started on 17/10/2013.
- During its meeting on 11/12/2013, the NDA Panel, having evaluated the data submitted, adopted an opinion on the scientific substantiation of a health claim related to iodine and contribution to normal cognitive development.

TERMS OF REFERENCE
EFSA is requested to evaluate the scientific data submitted by the applicant in accordance with Article 16 of Regulation (EC) No 1924/2006. On the basis of that evaluation, EFSA will issue an opinion on the scientific substantiation of a health claim related to iodine and contribution to normal cognitive development.

EFSA DISCLAIMER
The present opinion does not constitute, and cannot be construed as, an authorisation for the marketing of iodine, a positive assessment of its safety, nor a decision on whether iodine is, or is not, classified as a foodstuff. It should be noted that such an assessment is not foreseen in the framework of Regulation (EC) No 1924/2006.

It should also be highlighted that the scope, the proposed wording of the claim, and the conditions of use as proposed by the applicant may be subject to changes, pending the outcome of the authorisation procedure foreseen in Article 17 of Regulation (EC) No 1924/2006.

INFORMATION PROVIDED BY THE APPLICANT

Applicant’s name and address: Specialised Nutrition Europe (formerly IDACE), 9-31 Avenue des Nerviens, 1040 Brussels, Belgium.

Food/constituent as stated by the applicant
According to the applicant, the food constituent for which the claim is made is iodine.

Health relationship as claimed by the applicant
According to the applicant, iodine has an essential role in the development of the nervous system of the fetus and the infant. Lack of iodine can lead to disturbances of fetal development, manifesting itself as cretinism or, in milder cases, mental retardation, goitre and growth impairment.

Wording of the health claim as proposed by the applicant
The applicant has proposed the following wording for the health claim: “iodine is important for cognitive development”.

As equivalent alternative wordings, the applicant has also proposed: “iodine contributes to/is involved in/is important for/plays an important role for/is necessary for/participates to/is needed for/supports the (cognitive) development of/the (normal) function of senses/neural systems”.

Specific conditions of use as proposed by the applicant
According to the applicant, the target population is infants and young children from birth to three years of age.

According to the applicant, the quantity needed to achieve the claimed effect is:

- For follow-on formulae, the content in iodine should be within the range set in Directive 2006/141/EC.

- For dietary foods for special medical purposes, the content in iodine should be within the range set in Directive 1999/21/EC.

- For processed cereal-based foods and baby foods, the content in iodine should be within the range set in Directive 2006/125/EC.

- For processed cereal-based foods and baby foods, the content in iodine should reach at least 15 % of the Nutrient Reference Values set in Directive 2006/125/EC, i.e. 15 % of 70 µg per 100 g or 100 ml or per serving, as reconstituted.

- For foods intended for infants and young children other than follow-on formulae, processed cereal-based foods and baby foods, the content in iodine should reach at least 15 % of the Nutrient Reference Values set in Directive 2006/141/EC, i.e. 15 % of 80 µg per 100 ml product ready for use.
Iodine and normal cognitive development

ASSESSMENT

1. **Characterisation of the food/constituent**

The food constituent that is the subject of the health claim is iodine, which is an essential nutrient and is measurable in foods by established methods.


The Panel considers that the food constituent, iodine, which is the subject of the health claim, is sufficiently characterised.

2. **Relevance of the claimed effect to human health**

The claimed effect proposed by the applicant refers to the importance of iodine for normal cognitive development. The target population proposed by the applicant is infants and young children from birth to three years of age.

The Panel considers that contribution to normal cognitive development is a beneficial physiological effect for infants and young children.

3. **Scientific substantiation of the claimed effect**

The applicant performed a literature search in PubMed, HighWire and Scirus, using the search terms “iodine”, “growth”, “development”, “brain”, “mental”, “cognitive”, “infant”, “children” and “clinical studies”. Further pertinent references were searched for in the retrieved literature. The search focussed on randomised controlled trials and on reviews/pooled analyses/meta-analyses in the target population of the claim. In addition, one (mechanistic) animal study was included.

The applicant identified three human studies (Bleichrodt et al., 1988; Cao et al., 1994; Choudhury and Gorman, 2003) and one animal study (Mitchell et al., 1998) as being pertinent to the health claim. In addition, the applicant indicated eight reviews (Kasper, 1987; Pharoah, 1993; Kretchmer et al., 1996; Suter, 2002; Black, 2003; Dunn, 2003; Verhoeff et al., 2003; Thamm et al., 2007), three expert assessments (JHCI, 2003; SCF, 2003; EFSA NDA Panel, 2010) and three “other” references (Van den Briel et al., 2000; Zimmermann et al., 2006; Wijaya-Erhardt et al., 2007) as relevant for the claim.

The Panel has already assessed a claim on iodine and contribution to normal cognitive and neurological function with a favourable outcome (EFSA NDA Panel, 2010). The target population was the general population.

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In addition, there is a large body of evidence indicating a crucial role for iodine in growth and development (Sadler et al., 1999; Garrow et al., 2000; WHO, 2001; IoM, 2002; Strain and Cashman, 2009). A wide spectrum of iodine deficiency disorders has been observed, depending on the degree of deficiency and the life stage at which the deficiency occurs. These disorders include goitre, hypothyroidism and impaired mental function, including the most severe forms of endemic cretinism (congenital, severe, irreversible mental and growth retardation). Other symptoms of severe iodine deficiency disorders (arising from iodine deficiency in the fetus) include deaf-mutism, squint, disorders of stance and gait, and dry skin and swollen subcutaneous tissue (Delange, 2000; EVM, 2003; WHO, 2007).

The Panel notes the well established role of iodine in preventing iodine deficiency disorders such as retarded mental and physical development in children and adolescents, and impaired mental function and reduced cognitive capacity for people of all ages (WHO, 2001).

The Panel concludes that a cause and effect relationship has been established between the dietary intake of iodine and contribution to normal cognitive development.

### 4. Panel’s comments on the proposed wording

The Panel considers that the following wording reflects the scientific evidence: “Iodine contributes to normal cognitive development”.

### 5. Conditions and restrictions of use

The Panel considers that in order to bear the claim:

- follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC;
- nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC10;
- processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC;
- other foodstuffs intended for infants and young children should provide at least 15 % of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC.

Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. A Tolerable Upper Intake Level (UL) for iodine has been established for children, and has been set at 200 μg/day for children of 1-3 years of age (SCF, 2002).

### CONCLUSIONS

On the basis of the data presented, the Panel concludes that:

- The food constituent, iodine, which is the subject of the health claim, is sufficiently characterised.

The claimed effect proposed by the applicant refers to the importance of iodine for normal cognitive development. The target population proposed by the applicant is infants and young children from birth to three years of age. Contribution to normal cognitive development is a beneficial physiological effect for infants and young children.

A cause and effect relationship has been established between the dietary intake of iodine and contribution to normal cognitive development.

The following wording reflects the scientific evidence: “Iodine contributes to normal cognitive development”.

In order to bear the claim, follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC; nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC; processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC; other foodstuffs intended for infants and young children should provide at least 15% of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC. Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. The Tolerable Upper Intake Level has been set at 200 µg/day for children of 1-3 years of age.

**DOCUMENTATION PROVIDED TO EFSA**


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Iodine and normal cognitive development


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