## Coca-Cola Health and Wellness Advisory Council

## Position Statement on the Non-nutritive Sweeteners Aspartame and Acesulphame K

*Prepared by Coca-Cola Health and Wellness Advisory Council*
*August 2007*

For a detailed outline of the methodology used to develop this position statement, please see appendix 1.

***Purpose***

The purpose of this review was to form a position statement on the non-nutritive sweeteners asparatame and acesulphame K that can be used by The Coca-Cola Company as a reference for providing evidence based advice to the public (and health professionals where necessary) on the role of these sweeteners in the diet. If individuals choose to consume foods and beverages containing non-nutritive sweeteners, it is recommended they be included in moderation as part of an overall healthy diet and lifestyle that also includes regular physical activity.

***Background***

Low- or reduced-kilojoule sweeteners (referred to throughout this statement as non-nutritive sweeteners) are widely consumed in Australia and New Zealand. A recent report by Food Standards Australia New Zealand (FSANZ) found that approximately 66% of Australians and 70% of New Zealanders consume non-nutritive sweeteners with around 51% consuming them in the form of diet sparkling beverages [1]. Consumers often select foods and beverages with these sweeteners to achieve a sweet taste without the extra kilojoules sugar provides, to reduce their chances of tooth decay, or to assist with the management of conditions such as diabetes [2]. There are a variety of non-nutritive sweeteners approved for use in beverages in Australia and New Zealand. These include saccharin, aspartame, acesulphame K, sucralose, neotame, alitame, thaumatin and cyclamate [1]. A combination of aspartame and acesulphame K is often used to sweeten diet sparkling beverages. This position statement reviews the health effects and safety of these two sweeteners.

***Aspartame***

Aspartame was discovered in 1965. It is one of the most widely used non-nutritive sweeteners as its taste is very similar to that of sucrose (table sugar) [2]. The United States Food and Drug Administration (USFDA) approved aspartame for use in carbonated beverages in 1983 [3] and approved it for use as a general purpose sweetener in 1996. The National Health and Medical Research Council approved aspartame for use in Australia in 1986. According to a recent report by FSANZ, the mean daily exposure to aspartame in Australia is well below the acceptable daily intake (ADI) (table 1) [1]. The ADI of aspartame is 40mg/kg body weight per day, which was determined by the WHO/FAO Joint Expert Committee on Food Additives (JECFA) [4]. This amount was derived from the estimated level that caused no toxic effect in rats. To reach the ADI for aspartame, a person weighing 70kg would need to consume 2.8g per day. This amount is equivalent to approximately 20 cans of diet sparkling beverage or over 100 standard 1g packets of sweetener. Aspartame provides 16 kilojoules per gram – the same as protein and sugar – however it is around 180 times sweeter than sugar so only small amounts are needed to sweeten a food or beverage [2].

Many aspartame-containing products carry a label indicating that these products should not be used in baking or cooking. This is not intended as a health warning; it is because aspartame loses

most of its sweetness when it is heated [2]. Aspartame breaks down in the digestive tract into phenylalanine, methanol and aspartic acid, which undergo normal digestion in the body. These breakdown products are found naturally in a variety of foods. For example, methanol is found in many plant products and fruit juice, and phenylalanine and aspartic acid occur naturally in foods as protein components [2]. Aspartame is safe for all to consume except individuals with the rare metabolic disease phenylketonuria (PKU) who lack the enzyme necessary for digesting phenylalanine, one of the components of aspartame.

There have been numerous claims of adverse health effects following consumption of aspartame, however these are based on anecdotal evidence or have arisen from unsubstantiated scientific studies and observations. Anecdotal reports claim an association between aspartame and neurological symptoms such as headaches and seizures [5, 6] while much of the scientific literature critical of aspartame usage focuses on its role in cancer and body weight regulation/appetite. These areas are reviewed below.

- **Neurological symptoms**

Most of the anecdotal reports relating to aspartame use and adverse health effects claim that use of the sweetener causes a range of behavioural and neurological problems such as headaches and seizures [2]. Many of these claims are thought to be based on the mistaken belief that consuming aspartame can cause blood levels of aspartic acid and/or phenylalanine to rise to high levels that can trigger neurological symptoms [2]. However, research into aspartame and brain function has shown no consistent effects of large amounts of aspartame on brain neurotransmitter systems [7, 8]. In 1984, the USFDA requested assistance from the Centers for Disease Control and Prevention (CDC) to evaluate an increase in aspartame-related complaints the FDA had received in late 1983 [9]. The CDC concluded that there was no evidence for the existence of serious, widespread or adverse health consequences associated with the use of aspartame. Similarly in Australia and New Zealand, when approving the use of aspartame, FSANZ reviewed the USFDA data and also found a lack of evidence that aspartame had negative health effects, and as a result permitted its use in certain products within the context of the requirements of the Australia New Zealand Food Standards Code [10].

- **Cancer**

Aspartame's role in cancer has been debated since an early study proposed a link between increasing brain cancer rates in the US and aspartame's introduction to the food supply in 1981 [11]. This study received widespread media attention despite its methodological flaws. The authors linked the then recent increase in brain tumours to the introduction of aspartame into food and beverages [11]. This observation was received with criticism from the scientific community as there was no evidence that individuals who developed brain tumours actually consumed aspartame. In addition, if aspartame were to be the causative factor in the increase in brain tumours, there would have been a latent effect [12], that is, brain tumours would not have increased for many years after the introduction of aspartame into foods and beverages. More recent scientific reviews have failed to show an association between aspartame use and brain cancer [12-14]. A European review of case-control studies found no association between aspartame and brain tumours [14], and a case-control study in the US concluded that children with brain tumours were no more likely to have consumed aspartame than were children in the control group [15]. A 2004 review of studies on aspartame and health risks also concluded that "despite unscientific articles in the mass media and scientific press, there is no evidence that the sweetener aspartame bears a carcinogenic risk" [12]. In 2006, results from a rat study by the European Ramazzini Foundation (ERF) were released that linked aspartame consumption with an increased risk of certain cancers [16]. However, an extensive review of this study by the FDA showed that the data did not demonstrate cancer incidence was directly related to aspartame

consumption [17]. A second study released in 2007 by the same research group supported their original findings [18], and once again received extensive media attention. The FDA is currently reviewing the evidence presented in this new study.

- **Body weight regulation, appetite and hunger**

There have been suggestions that aspartame and other non-nutritive sweeteners may increase carbohydrate cravings following consumption, leading to possible weight gain. These assumptions stem from an early study that indicated hunger ratings increased following consumption of aspartame [19]. Participants in the study were separated into two groups; one given an aspartame-containing drink, and the other water. A significant increase in hunger ratings was found 40-60 minutes following ingestion of aspartame. The authors argued that any kilojoule savings achieved with aspartame were false and likely to be offset by increased energy intake at subsequent meals [19]. Some additional research has also found a stimulating effect of aspartame on appetite [20, 21], however a number of confounding factors have been identified such as time, sweetener concentration and gender, meaning that even if the studies showed a positive association, the results cannot be directly attributed to the intake of aspartame. Most of the literature on aspartame and appetite consists of short-term studies of only a few hours to a few days in duration and there are currently no long-term studies that adequately assess the effects of aspartame on appetite. In addition, the majority of the more recent scientific literature does not support the claims that aspartame has a stimulating effect on appetite [22-24]. Other research has suggested that aspartame neither increases nor decreases appetite, energy intake or body weight compared with consumption of sucrose [25]. A number of reviews have also failed to show a direct link between aspartame intake and appetite [26, 27].

In long-term intervention studies that involve energy restriction, the inclusion of non-nutritive sweeteners such as aspartame has been shown to increase compliance to a low energy diet and help maintain weight loss [28]. One study compared weight loss after three years following either consumption of, or abstinence from aspartame, and found those consuming aspartame lost significantly more weight and regained significantly less weight than those who were abstaining [28]. One review on the effectiveness of aspartame in helping with weight control concluded that using foods and drinks sweetened with aspartame instead of those sweetened with sucrose is an effective way to maintain and lose weight without reducing the palatability of the diet [29]. A recent review on aspartame and body weight has found that although there is a lack of conclusive evidence on aspartame's role in appetite, when aspartame is added to diet beverages, the energy density of the beverage is reduced, indicating that diet beverages sweetened with aspartame may be the best use of non-nutritive sweeteners in the conext of a weight control strategy [30]. Based on the available scientific evidence, aspartame does not appear to increase food intake, hunger, appetite or weight gain. The American Dietetic Association's position on the intake of non-nutritive sweeteners such as aspartame in relation to weight management is that "Individuals who wish to lose weight may choose to use non-nutritive sweeteners but should do so within the context of a sensible weight management program including a balanced diet and exercise" [31].

Despite anecdotal reports and popular allegations relating its use to adverse health effects, aspartame has been found in the majority of the scientific literature to have no detrimental effects on human health and may assist long-term compliance to a low energy diet.

***Acesulphame potassium (K)***

Acesulphame K was discovered in 1967. It is approximately 200 times sweeter than sugar and is heat stable [32], allowing it to be used in cooking and baking as well as a sweetener for foods and beverages. Unlike aspartame, acesulphame K is not metabolised by the body, hence it provides no

kilojoules. It also has no influence on potassium intake even though it does contain potassium as its name suggests [31]. Acesulphame K is generally used in combination with other sweeteners as it can have a bitter aftertaste when used on its own [33]. When small amounts of acesulphame K are mixed with other non-nutritive sweeteners the resulting taste is similar to that of sucrose [34]. In Australia and New Zealand, it is commonly used in combination with aspartame to flavour diet sparkling beverages.

Acesulphame K underwent rigorous safety testing prior to its approval for use in foods and beverages in the US, Australia and New Zealand. The USFDA approved its use in non-alcoholic beverages in 1998 [35] and as a general purpose sweetener in 2003 [36]. In Australia and New Zealand, acesulphame K was approved for use in 1987. Acesulphame K has had no human health problems associated with its use, and has been consumed for over 20 years in many countries around the world. One breakdown product of acesulphame K, acetoacetamide, is known to be toxic if consumed in very large doses. However, the amount of this substance that could be present in an acesulphame K-sweetened product is extremely small and negligible. In approving its use, the USFDA therefore concluded no further testing of acesulphame K was necessary [2].

Over fifty scientific studies on the effect of acesulphame K in the body support its safety as a non-nutritive sweetener. Intake of acesulphame K in Australia and New Zealand is estimated to be well below the ADI of 15mg/kg body weight per day, (table 1) [1], as determined by the JECFA [37]. This amount was derived from the estimated level that caused no toxic effect in rats.

**Table 1: Average Australian and New Zealand intakes of aspartame and acesulphame K [1]**

| Sweetener | Acceptable Daily Intake (mg/kg of body weight per day) | Current intake in Australia (mg/kg of body weight per day) | Current intake in New Zealand (mg/kg of body weight per day) |
|---|---|---|---|
| **Aspartame** | 40 | 2.56 ($max^m$ 7.46) | 1.69 ($max^m$ 5.38) |
| **Acesulphame K** | 15 | 0.53 ($max^m$ 1.39) | 0.39 ($max^m$ 1.59) |

***Non-nutritive sweeteners during pregnancy***

For ethical reasons, scientific studies on the consumption of intense sweeteners during pregnancy and lactation have only been conducted in animals. The breakdown products of aspartame are phenylalanine, aspartic acid and methanol and these substances do not cause toxic effects in the body. Phenylalanine does cross the human placenta, although maternal phenylalanine levels after consumption of aspartame have been consistently below toxic levels [38]. Toxicity from aspartic acid is non-existent as it does not cross the human placenta [39]. Methanol toxicity is also not a concern during pregnancy as methanol levels in maternal serum are only slightly elevated following consumption [39]. Although there have not been human studies on the safety of consuming aspartame or acesulphame K during pregnancy, the lack of adverse reports suggests that they are safe. Research on non-nutritive sweetener consumption during pregnancy in rats has concluded that there are no data to indicate that consumption of aspartame or acesulphame K produces any adverse effects to either the mother or foetus. The American Dietetic Association and the American Pregnancy Association also agree that consumption of aspartame and acesulphame K during pregnancy is safe [31, 40].

***Non-nutritive sweeteners in diabetes***

In Australia and New Zealand, non-nutritive sweetener consumption amongst people with diabetes is more common than in the general population, with aspartame being the most widely used non-nutritive sweetener [1]. In Australia, people with diabetes and impaired glucose

tolerance consume more acesulphame K than their New Zealand counterparts [1]. The safety of aspartame use in people with diabetes has been widely researched and it has been consistently shown that consumption of aspartame, even at three times the acceptable daily intake, has no effect on glycaemic control [41] or insulin levels [41, 42]. Due to their low kilojoule content, aspartame and acesulphame K can also be useful for people with diabetes who are trying to lose weight. Consumption of aspartame and aceulphame K is supported by the American Diabetes Association [43] as well as Diabetes Australia [44].

***Non-nutritive sweeteners in children***

Children can safely consume aspartame and acesulphame K within ADI levels. Due to their smaller size and relatively higher sparkling beverage intake compared to adults, it is likely that children will also have higher relative intakes of these non-nutritive sweeteners per kilogram of body weight per day [31]. A recent survey by FSANZ found that consumption is well below the ADI for aspartame and acesulphame K in children [1]. Data from other countries also indicates that overall consumption of these non-nutritive sweeteners by children is well below the ADI [45]. A review on aspartame intake specifically found that average consumption in children was well below the ADI in various countries around the world, including Australia [45]. There is a wide range of non-nutritive sweeteners in use in Australia and New Zealand, meaning intake of any one sweetener is likely to be less than in countries with limited sweeteners available in the food supply. Many of the approved sweeteners are blended in beverages, reducing the risk of any individual non-nutritive sweetener exceeding ADI levels in children [31].

***Non-nutritive sweeteners and dental health***

It is well established that a person's diet can impact on their dental health. There is a large evidence base showing that frequent consumption of sugars such as sucrose can lead to an increased risk of tooth decay. Research in the area of dental health suggests that replacing sugar in foods with non-nutritive sweeteners such as aspartame and acesulphame K may lead to a reduction in the incidence of tooth decay [46]. To date no research interventions have addressed the effect of aspartame and acesulphame K on dental health in humans. Rat studies have found that compared to sucrose, intake of non-nutritive sweeteners such as aspartame results in a lower incidence of tooth decay and may even be protective [47]. Studies conducted *in vitro* have supported this finding [48]. However drinks containing non-nutritive sweeteners are still acidic and there is clear evidence that the acid alone can dissolve tooth enamel when these drinks are sipped frequently such as in sipper bottles or baby bottles [49-51]. The overall composition of a beverage should therefore be considered when assessing the impact of a product on dental health.

***Evidence-based key messages:***

- Aspartame and acesulphame K can safely be consumed as general purpose, non-nutritive sweeteners by the general population.
- Foods and beverages containing non-nutritive sweeteners can be consumed in moderation as part of a healthy, balanced diet and lifestyle that also includes regular physical activity.
- Those with phenylketonuria (PKU) should avoid products sweetened with aspartame.
- Foods and beverages sweetened with aspartame and/or acesulphame K, along with other non-nutritive sweeteners, can be particularly useful in the diet of people with diabetes and those aiming to lose weight or maintain weight loss.
- Aspartame and acesulphame K are safe to use during pregnancy.
- Aspartame and acesulphame K can be used to replace added sugars in the diet in an effort to reduce the risk of tooth decay, however the impact on dental health will be determined by the overall composition of the food or beverage within which the sweetener is added.

***Summary***
Despite popular allegations linking the use of non-nutritive sweeteners such as aspartame and acesulphame K to adverse health effects such as cancer, neurological symptoms and effects on appetite, the scientific literature does not support these theories. Consumption of these non-nutritive sweeteners can exert a beneficial effect for certain people, in particular those with diabetes and those interested in managing their weight, due to their low kilojoule content and sweet taste. Overall, when consumed within acceptable daily intake levels as currently done in Australia and New Zealand, aspartame and acesulphame K have been shown to have no association with adverse health effects and can be an enjoyable addition to the diets of those who are concerned with their dental health, limiting their kilojoule intake or controlling their blood glucose levels.

***Developed by the Coca-Cola Health and Wellness Advisory Council, August 2007.***

## Appendix 1
## Methodology used to develop Coca-Cola's position statement on the artificial sweeteners aspartame and acesulphame K

Coca-Cola Asia Pacific requested the Coca-Cola Health and Wellness Advisory Council develop a position statement on the non-nutritive sweeteners aspartame and acesulphame K. Food & Nutrition Australia (FNA) were asked to develop a draft position statement for review and sign off by the other members of the Health and Wellness Advisory Council.

The first step in the development of the position statement was a literature review undertaken by FNA on the use of aspartame and acesulphame K and their effects on health. Steps taken in the literature review are outlined below. Once the literature review had been completed, FNA developed a draft position statement that was circulated for review by all Health and Wellness Advisory Council members. The draft was edited according to feedback received, further reviewed and signed off by all members of the Council including:

- Professor Garry Egger
- Professor Andrew Hills
- Professor Paul Nestel
- Associate Professor Peter Clifton
- Associate Professor Bernadette Drummond
- Lesley Sanderson
- Susie Burrell
- Sharon Natoli

***Steps taken in literature search***

- A literature search was conducted using MEDLINE and SCIRUS to find relevant articles. The keywords "aspartame" and "acesulfame K" were used, along with:
    - Pregnancy
    - Diabetes
    - Dental health/caries
    - Safety
    - Cancer
    - Appetite
    - Hunger
    - Weight loss/gain

- The literature search produced 50+ articles
- CCA also provided copies of a number of articles to search through
- FNA initially read abstracts of seemingly relevant articles to determine if further investigation was warranted
- Articles that appeared relevant were selected for use if they either:
    1. Met the selection criteria *(see next section)* or
    2. Contained scientific evidence about aspartame or acesulphame K that was supported in the literature – 1 observational study and 7 experimental studies met criteria, and 10 journal articles that did not meet criteria were used as supporting evidence (this was done for numerous reasons – either no controlled studies had been done in the area, or the study was not an experimental or observational study but still contained scientific evidence).
- Review articles were used for background information and support where relevant (14 articles were used).
- Documents from the CDC, USFDA, FAO/WHO, FSANZ and the ADA were referred to in the document as they were determined to be relevant to the use of non-nutritive sweeteners (13 articles were used). Organisations such as the CDC, USFDA and FSANZ often conduct extensive literature reviews and consider anecdotal reports when determining their position on the use of non-nutritive sweeteners. The ADA used the data from such organisations when developing their position statements.
- One scientific reference book was used.
- Two non-scientific websites were also referred to when alluding to anecdotal evidence in the media (e.g. the internet).
- Three articles were used when referring to facts about aspartame and acesulphame K.
- See appendix 2 for listings of all articles used in the position paper.

***Journal selection criteria***

The criteria used for selecting journal articles to support information in the position statement were based on those in the Joanna Briggs Institute's *Observational Critical Appraisal Form* and *Experimental Critical Appraisal Form*.

***Observational Criteria Appraisal:***

1. Is this study based on a random or pseudo-random sample?
2. Are the criteria for inclusion in the sample clearly defined?
3. Were the outcomes assessed using objective criteria?
4. If comparisons are being made, was there sufficient description of the groups?
5. Was an appropriate statistical analysis used?

Articles were selected for inclusion if they met 4 out of 5 of the above criteria.

***Experimental Criteria Appraisal:***

1. Were the participants randomised to study groups?
2. Other than the research intervention, were participants in each group treated the same?
3. Were the outcomes measured in the same manner for all participants?
4. Were groups comparable at entry?
5. Was an appropriate statistical analysis used?
6. Were outcomes measured in a reliable way?
7. Was there adequate follow-up of participants?

Articles were selected for inclusion if they met 5 out of 7 of the above criteria. Articles that did not meet these criteria were still used in the document if they contained scientific evidence on aspartame or acesulphame K.

## Appendix 2
## Observational and experimental studies included in the position statement

**Table 1: Observational criteria check**

| Study | Criteria 1 | Criteria 2 | Criteria 3 | Criteria 4 | Criteria 5 |
|---|---|---|---|---|---|
| Drewnoswski 1994 | Yes | Yes | **No** | N/A | Yes |

**Table 2: Experimental criteria check**

| Study | Criteria 1 | Criteria 2 | Criteria 3 | Criteria 4 | Criteria 5 | Criteria 6 | Criteria 7 |
|---|---|---|---|---|---|---|---|
| Soffritti 2007***** | **No** | Yes | Yes | Yes | Yes | Yes | Yes |
| Belpoggi 2006***** | **No** | Yes | Yes | Yes | Yes | Yes | Yes |
| Spiers 1998 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Tordoff 1990 | Yes | Yes | Yes | Yes | Yes | **No** | Yes |
| Blackburn 1997 | Yes | Yes | Yes | Yes | Yes | **No** | **No** |
| Colagiuri 1989 | Yes | Yes | Yes | **No** | Yes | Yes | Yes |
| Okuno 1986 | **No** | Yes | Yes | Yes | **No** | Yes | Yes |

***** Animal study

***Articles that did not meet criteria but contained substantiated information***


1. Mishiro, Y. and H. Kaneko, *Effect of a dipeptide, aspartame, on lactic acid production in human whole saliva.* J Dent Res, 1977. 56(11): p. 1427.
2. Das, S., et al., *Cariostatic effect of aspartame in rats.* Caries Res, 1997. 31(1): p. 78-83.
3. London, R.S., *Saccharin and aspartame. Are they safe to consume during pregnancy?* J Reprod Med, 1988. 33(1): p. 17-21.
4. Kuhn, C., et al., *Bitter taste receptors for saccharin and acesulfame K.* J Neurosci, 2004. 24(45): p. 10260-5.
5. Black, R.M., L.A. Leiter, and G.H. Anderson, *Consuming aspartame with and without taste: differential effects on appetite and food intake of young adult males.* Physiol Behav, 1993. 53(3): p. 459-66.
6. Olney, J.W., et al., *Increasing brain tumor rates: is there a link to aspartame?* J Neuropathol Exp Neurol, 1996. 55(11): p. 1115-23.
7. Holt, S.H., N. Sandona, and J.C. Brand-Miller, *The effects of sugar-free vs sugar-rich beverages on feelings of fullness and subsequent food intake.* Int J Food Sci Nutr, 2000. 51(1): p. 59-71
8. Van Wymelbeke, V., et al., *Influence of repeated consumption of beverages containing sucrose or intense sweeteners on food intake.* Eur J Clin Nutr, 2004. 58(1): p. 154-61.
9. Gurney, J.G., et al., *Aspartame consumption in relation to childhood brain tumor risk: results from a case-control study.* J Natl Cancer Inst, 1997. 89(14): p. 1072-4.
10. Reid, M. and R. Hammersley, *The effect of blind substitution of aspartame-sweetened for sugar-sweetened soft drinks on appetite and mood.* British Food Journal, 1998. 100(5): p. 254-9.


***Review articles included in position statement***

1. Hunty, A., S. Gibson, and M. Ashwell, *A review of the effectiveness of aspartame in helping with weight control.* British Nutrition Foundation Bulletin, 2006. 31: p. 115-128.
2. Gallus, S., et al., *Artificial sweeteners and cancer risk in a network of case-control studies.* Ann Oncol, 2007. 18(1): p. 40-4.
3. Weihrauch, M.R. and V. Diehl, *Artificial sweeteners--do they bear a carcinogenic risk?* Ann Oncol, 2004. 15(10): p. 1460-5.
4. Butchko, H.H., et al., *Aspartame: review of safety.* Regul Toxicol Pharmacol, 2002. 35(2 Pt 2): p. S1-93.
5. Rolls, B.J., *Effects of intense sweeteners on hunger, food intake, and body weight: a review.* Am J Clin Nutr, 1991. 53(4): p. 872-8.
6. Renwick, A.G., *Intense sweeteners, food intake, and the weight of a body of evidence.* Physiol Behav, 1994. 55(1): p. 139-43.
7. Kroger, M., K. Meister, and R. Kava, *Low-calorie Sweeteners and Other Sugar Substitutes: A Review of the Safety Issues.* Comprehensive Reviews in Food Science and Food Safety, 2006. 5: p. 35-47.
8. Yost, D.A., *Clinical safety of aspartame.* Am Fam Physician, 1989. 39(2): p. 201-6.
9. Bowen, W.H., *Food components and caries.* Adv Dent Res, 1994. 8(2): p. 215-20.
10. Bellisle, F. and A. Drewnowski, *Intense sweeteners, energy intake and the control of body weight.* Eur J Clin Nutr, 2007. **61**(6): p. 691-700.
11. Lussi, A., T. Jaeggi, and D. Zero, *The role of diet in the aetiology of dental erosion.* Caries Res, 2004. **38 Suppl 1**: p. 34-44.
12. Renwick, A.G., *The intake of intense sweeteners - an update review.* Food Addit Contam, 2006. **23**(4): p. 327-38.
13. Tahmassebi, J.F., et al., *Soft drinks and dental health: a review of the current literature.* J Dent, 2006. **34**(1): p. 2-11
14. Sheiham, A., *Dietary effects on dental diseases.* Public Health Nutr, 2001. **4**(2B): p. 569-91.

***Professional organisations referred to in position statement***

1. Food Standards Australia and New Zealand, *Consumption of Intense Sweeteners in Australia and New Zealand.* 2004.
2. US Food and Drug Administration, *Food additives permitted for direct addition to food for human consumption: aspartame. Final rule.* Fed. Reg., 1983. 48: p. 31376-82.
3. Joint FAO/WHO Expert Committee on Food Additives, *Toxicological Evaluation of Certain Food Additives.* WHO Food Additives Series, 1983. 16.
4. Centers for Disease Control, *Evaluation of consumer complaints related to aspartame use.* MMWR Morb Mortal Wkly Rep, 1984. 33(43): p. 605-7.
5. United States Food and Drug Administration, *Food additives permitted for direct addition to food for human consumption; acesulfame potassium. Final Rule.* Federal Register, 1988. 53: p. 28379-83.
6. United States Food and Drug Administration, *Food additives permitted for direct addition to food for human consumption; acesulfame potassium. Final rule.* Federal Register, 2003. 68: p. 75411-3
7. Joint FAO/WHO Expert Committee on Food Additives, *Toxicological Evaluation of Certain Food Additives.* WHO Food Additives Series, 1983. 18: p. 12-14.
8. *Position of the American Dietetic Association: use of nutritive and nonnutritive sweeteners.* J Am Diet Assoc, 2004. 104(2): p. 255-75.
9. American Pregnancy Association, *Artificial sweeteners during pregnancy*. 2007.
10. Australia New Zealand Food Authority, *Food Standards Code.* Canberra, 2006. Information Australia.
11. United States Food and Drug Administration, *FDA Statement on European Aspartame Study*. CFSAN/Office of Food Additive Safety, 2007.

12. American Diabetes Association, *www.diabetes.org*. 2007.
13. Diabetes Australia, *http://www.diabetesaustralia.com.au/home/index.htm*. 2007.

***Book used as a reference in position statement***

1. Schomer, D.L., P. Spiers, and L. Sabounjian, *Evaluation of behaviour, cognition, mood, and electroencephalograms in normal adults and potentially vulnerable populations.*, in *The Clinical Evaluation of a Food Additive: Assessment of Aspartame.*, H.H.B. C. Tschanz, W.W. Stargel and F.N. Kotsonis, Editor. 1996, CRC Press: Boca Raton, FL. p. 217-233.

***Non-scientific references used in position statement***

1. Sweetpoison.com, *Aspartame Dangers Revealed*, in *Aspartame Dangers Revealed* *http://www.sweetpoison.com/*. 2006.
2. 321Recipes.com, *Aspartame Warning* *http://www.321recipes.com/aspartame.html*. 2007.

***References used for facts about aspartame and acesulphame K***

1. Meyer, S. and W.E. Riha, *Optimizing sweetener blends for low-calorie beverages.* Food Technology, 2002. 56(7): p. 42-45.
2. Nabors, L.O., *Sweet choices: sugar replacements for foods and beverages.* Food Technology, 2002. 56(7): p. 28-32.
3. Blundell, J.E. and A.J. Hill, *Paradoxical effects of an intense sweetener (aspartame) on appetite.* Lancet, 1986. 1(8489): p. 1092-3.

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4. Joint FAO/WHO Expert Committee on Food Additives, *Toxicological Evaluation of Certain Food Additives.* WHO Food Additives Series, 1983. **16**.
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6. 321Recipes.com, *Aspartame Warning* *http://www.321recipes.com/aspartame.html*. 2007.
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