IFST Guidelines for Ethical and Professional Practices for the Sensory Analysis of Foods

The Institute of Food Science & Technology, on the advice of the former Professional Food Sensory Group (now the Sensory Science Special Interest Group), has authorised the following statement, issued in October 2020, replacing that issued in June 2015, January 2010 and May 2005.

These guidelines have been drawn up by the Institute of Food Science and Technology, and are designed to cover the use of the techniques of sensory analysis or sensory evaluation of food and ingredients in research or quality control. They are not designed to cover the use of the techniques for large-scale surveys, for which the guidelines from the Market Research Society should be referred to (Ref. 1). These principles can also be extended to non-foods, including fragrances and products for which skin absorption can occur. Testing with children must not be carried out without reference to Guidelines for Research issued by the National Children's Bureau (Ref. 2).

The principles described below should be given full consideration in the design and execution of sensory tests.

1. General Principles

1.1. The scope of permitted tests using human subjects, and levels of authorisation to sanction tests, should be defined in a written Organisation Ethical Policy.

1.2. All test procedures should be carried out in such a way as to reduce any risks to the health of the participants, whether Organisation employees, trained external assessors or consumers.

1.3. Test participants should be volunteers, either through contractual agreement or on an *ad hoc* basis.

2. Specific issues

2.1. The Organisation Ethical Policy should be drawn up with reference to the ACNFP (Advisory Committee on Novel Foods and Processes) Guidelines on the conduct of taste trials involving novel foods or foods produced by novel processes (Ref. 3). The principle underlying these Guidelines is that *"those carrying out the trial are satisfied, after taking suitable professional advice, that it poses no hazard to human health"*.

2.2. All tests should be subject to a basic risk assessment. These will include tests carried out on foods produced, stored and prepared under standard and approved conditions, and which are unlikely to need any specific requirements. Other foods might comprise: novel foods, foods containing non-approved ingredients; foods produced using novel processes; ingredients not normally consumed unless incorporated into foods; and foods containing pharmacologically active ingredients. Risk assessments should be made with reference to 2.6 and should include the allergen content of foods as required to meet Regulation (EU) 1169/2011 (Ref. 4).

2.3. All staff involved in the preparation and testing of food and drink for sensory and consumer evaluation will have received appropriate training for their role, and have received food hygiene training at least to the Basic Food Hygiene Certificate level.

2.4. Assessors should give informed consent to tests on non-standard foods, and should be allowed to withdraw from the panel at any time, without penalty or having to give a reason. The work should

be described in such detail as is appropriate, given the purpose of the work, and any information that might be relevant to possible unidentified hazards should be explained. This is particularly relevant in, for example, sensory Quality Control testing, in which there is a small but finite risk of unknown hazards.

2.5. Recording of data on assessors should be in accordance with the provisions of relevant data protection legislation of the country concerned.

2.6. Potential adverse effects on the health of assessors should be avoided, and if the risk cannot be avoided, it should be minimised. Specific considerations regarding risks to health are given below. Examples of potential risks to health are given in Appendix I.

- Assessor recruitment procedures should be designed to identify known health problems, underlying conditions, allergies and intolerances, and may include occupational health and/or medical assessment and clearance to participate. Particular care must be taken in the case of exposure to novel foods to elicit information concerning potential allergic reactions, for example by seeking information on the atopic status of the subject and any family history of atopy.
- Assessors' continuing health should be considered. A procedure should be in place to review assessors' health prior to each test to confirm they are fit to participate. Assessors carrying out regular testing, such as through participation in a sensory panel, should have regular health reviews to ensure they remain fit to participate.
- Test samples and products should be microbiologically safe, and if necessary the tests should be approved by a food microbiologist or should be subject to microbiological testing. This is particularly important for shelf-life and accelerated shelf-life testing.
- Test samples and products should also be assessed for potential chemical and physical hazards.
- Products which have been returned from a consumer should never be tested on volunteer assessors as the composition cannot be verified as safe. Products retained from a batch where there has been a consumer complaint should not be consumed by or exposed to assessors without risk assessment.
- Tests should be designed to minimise the amount consumed for health and nutritional reasons. In particular, tests on ingredients should consider the risks of consumption above normal levels.
- Chronic effects on health should be considered, for example in long-term testing on alcoholic beverages. If appropriate, medical tests should be included as part of panel screening procedures. Records of consumption should be kept and health monitored on an ongoing basis.
- Preparation and serving of food test samples should adhere to good hygiene practices and safety standards (Ref. 5), including assessing the health of food handlers, for example, to exclude those recent with recent gastro-intestinal illness.

2.7. Any adverse reactions occurring during a test must be reported and long-term studies must be monitored for any developing adverse effects.

2.8. Misleading of assessors should be minimised. It is sometimes necessary to mislead assessors as to the nature of the samples or of the experiment, but this must be clearly justified and the reasons recorded in advance of the experiment.

2.9. Pain, distress or discomfort to assessors should be avoided if possible. If significant pain, distress or discomfort is involved, the assessors should be warned, and local ethical approval should be sought. In particular, invasive procedures should be minimised. If, for example, the use of anaesthetics on the tongue is proposed, or non-clinical x-ray, medical advice should be taken and this should be consistent with the Organisation Ethical Policy.

2.10. Testing with vulnerable groups can necessitate specific considerations. For example:

- Parental approval should be given for testing with children below the age of 16.
- Testing with potentially vulnerable people, including those who cannot give informed consent, requires consideration of additional ethics concerns or issues (Ref. 6).
- Testing with vulnerable adults, including the elderly and children, requires care and discretion in order to reduce the risk of apparent intimidation. For example, elderly subjects often feel more comfortable when accompanied by a friend/caregiver.
- Testing with people likely to have impaired immune systems and other medical conditions, including learning disabilities, requires medical advice.

2.11. The principles described in this statement should also be applied when presenting food and drink samples for the purpose of training courses and practical demonstrations.

References

1. MRS https://www.mrs.org.uk/pdf/mrs%20code%20of%20conduct%202014.pdf
2. NCB https://www.ncb.org.uk/sites/default/files/field/attachment/NCB%20guidelines%20CYP.pdf
3. ACNFP https://acnfp.food.gov.uk/sites/default/files/mnt/drupal_data/sources/files/multimedia/pdfs/acnfp2002.pdf
4. EU https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32011R1169
5. IFST https://www.ifst.org/sites/default/files/Sensory%20Consumer%20Science%20Research%20Guidelines%20in%20response%20to%20COVID-19_with%20Intro%20240920%20%282%29.pdf
6. ESRC https://esrc.ukri.org/funding/guidance-for-applicants/research-ethics/frequently-raised-topics/research-with-potentially-vulnerable-people/

Appendix I. Examples of risks of potential adverse effects on health from sensory testing of food products

This appendix should NOT be used as the sole basis for a risk assessment of a food sensory test.

The table below gives examples of some potential risks to health of sensory testing of food products and steps that might be taken to reduce these risks. These are in addition to risks already named in the guidelines. It is not an exhaustive list and is for illustrative purposes only. More than one risk may apply to a test. The necessity of gaining prior approval through an ethical panel, and the need for pre- or post-test medical assessment and/or dental assessment should be considered as part of the risk assessment.

Category	Risk	Examples of potential causes	Examples of risk reduction
Short-term health effects due to increased consumption	Acute effects occurring during test	Burn from chilli. Pain from frozen products, such as ice lollies. Light headedness, e.g., from smelling alcoholic beverages, flavours diluted in alcohol, etc.. Injury from ingesting samples that are too hot or too cold.	Ensure temperature of samples are within safe range upon ingestion. Minimise duration of sample assessment and size of sample set. Leave long enough breaks between test samples for recovery. Ensure assessors are seated during test if light headedness is a risk
	Health-related side-effects occurring shortly after consumption	Excessive amounts of fructose may cause diarrhoea. Excessive amounts of caffeine may cause jitters, heart palpitations, etc.. Chewing/holding sample in mouth for prolonged period may cause excess stomach acid and related symptoms.	Minimise amount of sample tested. Expectorate sample where possible. Avoid exceeding dose known to cause side effect.
	Impairment of cognitive abilities	Intoxication from alcoholic beverages. Drowsiness from pharmaceutical products.	Minimise amount of sample tested. Expectorate sample where possible. Ensure assessors are seated during test if drowsiness is a rick Take appropriate steps after test session to minimise risks, such as use of breathalyser, provision of transport home, etc..
Longer-term health effects due to	Weight gain	All foods, and especially those with a high calorific value, such as fats, oils, meal	Minimise amount of sample tested.

increased consumption		replacements, etc..	Expectorate sample where possible. Consider long term calorie intake over multiple sessions compared to recommended calorie intake. Request assessors consume fewer calories as part of their normal diet.
	Adverse effects on health, e.g., raised cholesterol levels, increased blood pressure, etc..	Foods high in particular substances, e.g., salt, fat, cholesterol, etc..	Consider long term intake over multiple sessions compared to recommended intake. Request assessors make adjustment to normal diet to compensate. Regular health checks.
	Excessive consumption of a nutrient, e.g, vitamin, mineral, etc.	Fortified products. Products naturally high in a particular nutrient.	Minimise amount of sample tested. Expectorate sample where possible. Do not exceed maximum daily recommended dose, taking in to account amount assessors may consume as part of their diet.
	Excessive consumption of an ingredient	Test products used to investigate the inclusion or variation of an ingredient.	Minimise amount of sample tested. Expectorate sample where possible. Do not exceed maximum daily recommended dose, taking in to account amount assessors may consume as part of their diet.
Dental and In-Mouth Health	Potential growth of harmful bacteria	Sugary foods and beverages, sticky foods, etc.	Avoid prolonged holding in mouth. Thorough rinsing with water after testing. Provision of teeth cleaning facilities after testing if appropriate.
	Discoloration of enamel	Tea, coffee, red wine, smoking-related products, ingredients in mouthwashes, medications, etc.	Minimise duration of sample assessment. Assess by sipping through a straw if possible. Avoid prolonged holding in mouth. Thorough rinsing with water after testing.
	Damage to enamel	Acidic foods, such as carbonated beverages.	Minimise duration of sample assessment.

			Assess by sipping through a straw if possible. Avoid prolonged holding in mouth. Thorough rinsing with water after testing.
	Mechanical damage of teeth	Breakage of teeth caused by hard foods, such as toffee brittle, boiled sweets; and sticky or gummy foods, such as chewy toffee, gummy candy. Wearing of teeth caused by prolonged exposure to gritty substances, less refined wheat-based products, some tooth products containing abrasives, etc.	Select assessors with appropriate dental health. Request subjects do not bite/chew excessively hard or sticky products. Minimise duration of sample assessment if wearing of teeth is a risk. Regular dental checks.
	Repetitive strain injury of jaw muscles	Chewing gum chewed for a prolonged period and/or to a set chewing frequency.	Regular health checks. Limit the time assessor is a member of the panel.
Breathing	Protocols affecting the ability to breath	Use of nose plugs. Pinching nose. Inhalation of powders when assessing aroma.	Assessor health check for ear, nose and throat problems, asthma, etc. Avoid swallowing with nose closed. Give precise instructions. Limit duration of sample assessment. Use containers that prevent particulates being inhaled.
Hearing	Protocols affecting hearing	Use of headphones.	Set noise volume on headphones at safe levels prior to and during testing. Avoid excessively loud or high pitched noises.