

Protocol Version 2

Continuous update of the epidemiological evidence on food, nutrition, physical activity and the risk of skin cancer. Narrative review.

Prepared by: CUP team, Imperial College London, June 2016

Introduction for the reviewers:

The most common forms of skin cancer are usually divided into two types: melanoma and non-melanoma skin cancer (NMSC).

The most common types of NMSC are squamous cell carcinoma (SCC) and basal cell carcinoma (BCC). Both originate from epidermal cells.

The risks of BCC and SCC have shown to have a positive association with exposure to Solar UV radiation and a negative association with the degree of skin pigmentation.

It is common for someone to have multiple NMSC, whereas that is rare for other neoplasms. It will be possible to find studies in which the NMSC is not the first diagnosed (e.g. prevalence).

Summary of judgements of the 2007 Second Expert Report on skin cancer

- Probable: arsenic in drinking water (search if updated review has been published)
- Limited suggestive decreases: retinol
- Limited suggestive increases: selenium supplements

1. Research question

The research topic is:

The associations between food, nutrition and physical activity and the risk of skin cancer.

The main objective is:

To summarize the evidence from prospective studies and randomised controlled trials on the association between foods, nutrients, vitamin, minerals, physical activity, overweight and obesity with the risk of skin cancers in men and women.

2. Review team

Name	Current position at IC	Role within team
Teresa Norat	Principal Research Fellow	Principal investigator
Snieguole Vingeliene	Research Assistant	Supervisor of data extraction and report preparation. Reviewer
Elli Polemiti	Research Assistant	Reviewer
Christophe Stevens	Database manager	Systematic search, article selection, data extraction

3. Timeline

List of tasks and deadlines for the continuous update on skin cancer:

Task	Deadline
Start Medline search of relevant articles published from June 30 2005	30 June 2016
Select papers for data extraction	30 August 2016
End data extraction	15 October 2016
Prepare narrative review and do limited number of analysis	October-November 2016
Finish writing report	20 December 2016
Send report for review to CUP secretariat	20 December 2016

4. Search strategy

Search strategy for skin cancer

a) Pubmed

Searching for all studies relating to skin:

1. Exp Skin neoplasms
2. Exp Melanoma
3. Exp Basal cell carcinoma
4. Exp squamous cell carcinoma

5. skin adj4 (cancer\$ or neoplasm\$ or tumo?r\$).tw
6. basal cell adj4 carcinoma\$.tw
7. squamous cell adj4 carcinoma\$.tw
8. melanoma\$.tw
9. text word for basal cell epithelioma
10. text word for squamous cell epithelioma
11. or/1-11

b) Hand searching for cited references

b1) The review team will also hand search the references of reviews and meta-analyses identified during the search.

b2) The database manager will identify the papers than are in the database for more than one cancer site (“multi-cancer paper”). The database manager will check if data on skin cancer has been extracted from these papers. The database manager will give that references of the “multi-cancer” papers for which no data on skin cancer was extracted to the reviewers who will verify in the corresponding pdf that the paper has no data on skin cancer.

5. Study selection criteria for the update

5.1 Inclusion criteria

The articles to be included in the review:

- Have to present results on an exposure/intervention relevant to the CUP
- Must have as outcome of interest incidence or mortality for skin cancer*
- Have to present results from an epidemiologic study in men and women of one of the following types⁺:
 - Randomized controlled trial
 - Group randomized controlled trial (Community trial)
 - Prospective cohort study
 - Nested case-control study
 - Case-cohort study
 - Historical cohort study
- Have any publication date

* In the 2005 SLR the most frequent skin cancers identified were:

- 1) basal cell carcinoma, basal cell epithelioma
- 2) squamous cell carcinoma of skin, squamous cell epithelioma

- 3) melanoma, cutaneous melanoma (sometimes subdivided in inasive melanoma and melanoma in situ)
- 4) skin cancer, skin neoplasms, skin tumour, skin tumour, non melanoma skin cancer (usually melanoma is not included in this category).

5.2 Exclusion criteria

Studies with cases of anatomical localisations other than to skin cancer. Example: ocular melanoma.

Studies of skin cancer in patients with Aids (e.g. Kaposi's sarcoma and AIDs)

6. Article selection

All references obtained with the search in PubMed will be imported in a Reference Manager Database using the filter Medline.

Additionally, customized fields will be implemented in the RefMan database (see Section 6.1).

The article selection will follow three steps:

1. The database manager did the search and exported it to RefMan. The database manager tagged the field User Def 1 (exclusion) indicating the articles that should be excluded based on an algorithm under test.
2. The reviewers will assess first the titles and abstracts of the studies not excluded by the algorithm.
3. If a paper reports outcomes for more than one cancer site, the reviewer will extract the data for the other cancer sites in the database, using the WCRF code of the cancers in question

6.1 Reference Manager Files

Five customized fields will be created in the reference manager database. They will be used to indicate if the study was selected upon reading of title, abstract, or entire article, the study design of included articles, the status of data extraction of the included article, the WCRF code assigned and for excluded articles, the reason for exclusion (**Table 1**)

Table 1. User-defined fields to be created in Reference Manager during article selection and data extraction.

Field	Use	Terms used	Notes
User Def 1	Indicate if article is relevant to the CUP review	Excludedabti; Included; excluded;	Excludedabti means excluded basing on abstract and title of the article. Without "abti" means full text is reviewed.
User Def 2	If excluded, reasons	No associations of interest;	No associations of interest include situations

		No original data/duplicates; Commentary; Foreign article in [language] Not adequate study design Pooled studies/meta-analyses	such as “out of the research topic”, “no measure of relationship”, “no specific outcome”
User Def 3	Study design	Randomized controlled trial (RCT) Prospective cohort study Retrospective cohort study Nested case-control study Case cohort study Population-based case-control study Hospital-based case-control study Case-control study- other type of controls or control type unclear	The CUP only extract data from RCT, cohort/cohort based studies. Case-control studies are identified but the data is not extracted to the database.
User Def 4	WCRF code of the article	This is done during the data extraction	WCRF codes are assigned automatically in the application when performing extraction.
User Def 5	Other notes, name of study	Indicate if includes more than one anatomical localization	

7. Data extraction

(Due to time limitations, the review team may use an alternative quick data extraction, in which the study author, publication year, study name, exposures investigated –one per column- will be extracted in an excel file. This is because the CUP review will be only narrative. No meta-analysis will be included. In this case the data extraction will be done after the report is prepared.

Meta-analysis of case-control studies, cohort studies and RCT will be included in the CUP review)

The IC team will update the WCRF-AICR central database.

Data extracted will include study design, characteristics of study population, mean age, distribution by sex, country, recruitment year, methods of exposure assessment, definition of exposure, definition of outcome, method of outcome assessment, study size, length of follow up, lost to follow-up, analytical methods and whether methods for correction of measurement error were used.

The ranges, means or median values for each level of the exposure categories will be extracted as reported in the paper.

For each result, the reviewer will extract the covariates included in the analytical model and the matching variables. Measures of association, number of cases and number of comparison individuals or person years for each category of exposure will be extracted for each model used in the analyses. Stratified and subgroup analyses, and results of interaction analyses will also be extracted.

When indicated, the reviewer should also extract for each result:

- Type of cancer:

Basal cancer

SCC

NMSC

Melanoma

All skin cancer

-Whether the skin cancer is the first (incident) or not

(This is based in the 2005 SLR. Other classifications may be identified and the protocol amended correspondingly)

Note on adjustment factors: vary important not to miss any data related to sun exposure or skin colour.

7.1 Study identifier

The unique identifier for an article will be constructed using a 3-letter code to represent the cancer site: SKI (skin cancer), followed by a 5-digit number that will be allocated in sequence automatically by the interface during data extraction.

Appendix 3 Exposure codes

1 Patterns of diet

1.1 Regionally defined diets

*1.1.1 Mediterranean diet

Include all regionally defined diets, evident in the literature. These are likely to include Mediterranean, Mesoamerican, oriental, including Japanese and Chinese, and “western type”.

1.2 Socio-economically defined diets

To include diets of low-income, middle-income and high-income countries (presented, when available in this order). Rich and poor populations within low-income, middle-income and high-income countries should also be considered. This section should also include the concept of poverty diets (monotonous diets consumed by impoverished populations in the economically-developing world mostly made up of one starchy staple, and may be lacking in micronutrients).

1.3 Culturally defined diets

To include dietary patterns such as vegetarianism, vegan diets, macrobiotic diets and diets of Seventh-day Adventists.

1.4 Individual level dietary patterns

To include work on factor and cluster analysis, and various scores and indexes (e.g. diet diversity indexes) that do not fit into the headings above.

1.5 Other dietary patterns

Include under this heading any other dietary patterns present in the literature, that are not regionally, socio-economically, culturally or individually defined.

1.6 Breastfeeding

1.6.1 Mother

Include here also age at first lactation, duration of breastfeeding, number of children breast-fed

1.6.2 Child

Results concerning the effects of breastfeeding on the development of cancer should be disaggregated into effects on the mother and effects on the child. Wherever possible detailed information on duration of total and exclusive breastfeeding, and of complementary feeding should be included.

1.7 Other issues

For example results related to diet diversity, meal frequency, frequency of snacking, dessert-eating and breakfast-eating should be reported here. Eating out of home should be reported here.

2 Foods

***2.0.1 Plant foods**

2.1 Starchy foods

2.1.1 Cereals (grains)

*** 2.1.1.0.1 Rice, pasta, noodles**

*** 2.1.1.0.2 Bread**

*** 2.1.1.0.3 Cereal**

** Report under this subheading the cereals when it is not specified if they are wholegrain or refined cereals (e.g. fortified cereals)*

2.1.1.1 Wholegrain cereals and cereal products

*** 2.1.1.1.1 Wholegrain rice, pasta, noodles**

*** 2.1.1.1.2 Wholegrain bread**

*** 2.1.1.1.3 Wholegrain cereal**

2.1.1.2 Refined cereals and cereal products

*** 2.1.1.2.1 Refined rice, pasta, noodles**

*** 2.1.1.2.2 Refined bread**

*** 2.1.1.2.3 Refined cereal**

2.1.2 Starchy roots, tubers and plantains

*** 2.1.2.1 Potatoes**

2.1.3 Other starchy foods

**Report polenta under this heading*

2.2 Fruit and (non-starchy) vegetables

Results for “fruit and vegetables” and “fruits, vegetables and fruit juices” should be reported here. If the definition of vegetables used here is different from that used in the first report, this should be highlighted.

2.2.1 Non-starchy vegetables

This heading should be used to report total non-starchy vegetables. If results about specific vegetables are reported they should be recorded under one of the sub-headings below or if not covered, they should be recorded under ‘2.2.1.5 other’.

2.2.1.1 Non-starchy root vegetables and tubers

***2.2.1.1.1 Carrots**

2.2.1.2 Cruciferous vegetables

2.2.1.3 Allium vegetables

2.2.1.4 Green leafy vegetables (not including cruciferous vegetables)

2.2.1.5 Other non-starchy vegetables

*2.2.1.5.13 Tomatoes

*2.2.1.5.1 Fresh beans (e.g. string beans, French beans) and peas

Other non-starchy vegetables' should include foods that are botanically fruits but are eaten as vegetables, e.g. courgettes. In addition vegetables such as French beans that do not fit into the other categories, above.

If there is another sub-category of vegetables that does not easily fit into a category above eg salted root vegetables (ie you do not know if it is starchy or not) then report under 2.2.1.5. and note the precise definition used by the study. If in doubt, enter the exposure more than once in this way.

2.2.1.6 Raw vegetables

This section should include any vegetables specified as eaten raw. Results concerning specific groups and type of raw vegetable should be reported twice i.e. also under the relevant headings 2.2.1.1 –2.2.1.5.

2.2.2 Fruits

*2.2.2.0.1 Fruit, dried

*2.2.2.0.2 Fruit, canned

*2.2.2.0.3 Fruit, cooked

2.2.2.1 Citrus fruit

2.2.2.1.1 Oranges

2.2.2.1.2 Other citrus fruits (e.g. grapefruits)

2.2.2.2 Other fruits

*2.2.2.2.1 Bananas

*2.2.2.2.4 Melon

*2.2.2.2.5 Papaya

*2.2.2.2.7 Blueberries, strawberries and other berries

*2.2.2.2.8 Apples, pears

*2.2.2.2.10 Peaches, apricots, plums

*2.2.2.2.11 Grapes

If results are available that consider other groups of fruit or a particular fruit please report under 'other', specifying the grouping/fruit used in the literature.

2.3 Pulses (legumes)

*2.3.1 Soya, soya products

*2.3.1.1 Miso, soya paste soup

*2.3.1.2 Soya juice

*2.3.1.4 Soya milk

*2.3.1.5 Tofu

*2.3.2 Dried beans, chickpeas, lentiles

*2.3.4 Peanuts, peanut products

Where results are available for a specific pulse/legume, please report under a separate heading.

2.4 Nuts and Seeds

To include all tree nuts and seeds, but not peanuts (groundnuts). Where results are available for a specific nut/seed, e.g. brazil nuts, please report under a separate heading.

2.5 Meat, poultry, fish and eggs

Wherever possible please differentiate between farmed and wild meat, poultry and fish.

2.5.1 Meat

This heading refers only to red meat: essentially beef, lamb, pork from farmed domesticated animals either fresh or frozen, or dried without any other form of preservation. It does not refer to poultry or fish.

Where there are data for offal (organs and other non-flesh parts of meat) and also when there are data for wild and non-domesticated animals, please show these separately under this general heading as a subcategory.

2.5.1.1 Fresh Meat

2.5.1.2 Processed meat

*2.5.1.2.1 Ham

*2.5.1.2.1.7 Burgers

*2.5.1.2.8 Bacon

*2.5.1.2.9 Hot dogs

*2.5.1.2.10 Sausages

Repeat results concerning processed meat here and under the relevant section under 4. Food Production and Processing. Please record the definition of 'processed meat' used by each study.

2.5.1.3 Red meat

- *2.5.1.3.1 Beef
- *2.5.1.3.2 Lamb
- *2.5.1.3.3 Pork
- *2.5.1.3.6 Horse, rabbit, wild meat (game)

Where results are available for a particular type of meat, e.g. beef, pork or lamb, please report under a separate heading.

Show any data on wild meat (game) under this heading as a separate sub-category.

2.5.1.4 Poultry

Show any data on wild birds under this heading as a separate sub-category.

- *2.5.1.5 Offals, offal products (organ meats)

2.5.2 Fish

- *2.5.2.3 Fish, processed (dried, salted, smoked)

- *2.5.2.5 Fatty Fish

- *2.5.2.7 Dried Fish

- *2.5.2.9 White fish, lean fish

2.5.3 Shellfish and other seafood

2.5.4 Eggs

2.6 Fats, oils and sugars

2.6.1 Animal fats

- *2.6.1.1 Butter

- *2.6.1.2 Lard

- *2.6.1.3 Gravy

- *2.6.1.4 Fish oil

2.6.2 Plant oils

2.6.3 Hydrogenated fats and oils

- *2.6.3.1 Margarine

Results concerning hydrogenated fats and oils should be reported twice, here and under 4.3.2 Hydrogenation

2.6.4 Sugars

This heading refers to added (extrinsic) sugars and syrups as a food, that is refined sugars, such as table sugar, or sugar used in bakery products.

2.7 Milk and dairy products

Results concerning milk should be reported twice, here and under 3.3 Milk

- *2.7.1 Milk, fresh milk, dried milk

- *2.7.1.1 Whole milk, full-fat milks

*2.7.1.2 Semi skimmed milk, skimmed milk, low fat milk, 2% Milk

*2.7.2 Cheese

*2.7.2.1 Cottage cheese

*2.7.2.2 Cheese, low fat

*2.7.3 Yoghurt, buttermilk, sour milk, fermented milk drinks

*2.7.3.1 Fermented whole milk

*2.7.3.2 Fermented skimmed milk

*2.7.7 Ice cream

2.8 Herbs, spices, condiments

*2.8.1 Ginseng

*2.8.2 Chili pepper, green chili pepper, red chili pepper

2.9 Composite foods

Eg, snacks, crisps, desserts, pizza. Also report any mixed food exposures here ie if an exposure is reported as a combination of 2 or more foods that cross categories (eg bacon and eggs). Label each mixed food exposure.

*2.9.1 Cakes, biscuits and pastry

*2.9.2 Cookies

*2.9.3 Confectionery

*2.9.4 Soups

*2.9.5 Pizza

*2.9.6 Chocolate, candy bars

*2.9.7 Snacks

3 Beverages

3.1 Total fluid intake

3.2 Water

3.3 Milk

For results concerning milk please report twice, here and under 2.7 Milk and Dairy Products.

3.4 Soft drinks

Soft drinks that are both carbonated and sugary should be reported under this general heading. Drinks that contain artificial sweeteners should be reported separately and labelled as such.

3.4.1 Sugary (not carbonated)

3.4.2 Carbonated (not sugary)

The precise definition used by the studies should be highlighted, as definitions used for various soft drinks vary greatly.

*3.5 Fruit and vegetable juices

*3.5.1 Citrus fruit juice

*3.5.2 Fruit juice

*3.5.3 Vegetable juice

*3.5.4 Tomato juice

3.6 Hot drinks

3.6.1 Coffee

3.6.2 Tea

Report herbal tea as a sub-category under tea.

3.6.2.1 Black tea

3.6.2.2 Green tea

3.6.3 Maté

3.6.4 Other hot drinks

3.7 Alcoholic drinks

3.7.1 Total

3.7.1.1 Beers

3.7.1.2 Wines

3.7.1.3 Spirits

3.7.1.4 Other alcoholic drinks

4 Food production, preservation, processing and preparation

4.1 Production

4.1.1 Traditional methods (*to include 'organic'*)

4.1.2 Chemical contaminants

Only results based on human evidence should be reported here (see instructions for dealing with mechanistic studies). Please be comprehensive and cover the exposures listed below:

4.1.2.1 Pesticides

4.1.2.2 DDT

4.1.2.3 Herbicides

4.1.2.4 Fertilisers

4.1.2.5 Veterinary drugs

4.1.2.6 Other chemicals

- 4.1.2.6.1 Polychlorinated dibenzofurans (PCDFs)
- 4.1.2.6.2 Polychlorinated dibenzodioxins (PCDDs)
- 4.1.2.6.3 Polychlorinated biphenyls (PCBs)
- 4.1.2.7 Heavy metals
 - 4.1.2.7.1 Cadmium
 - 4.1.2.7.2 Arsenic
- 4.1.2.8 Waterborne residues
 - 4.1.2.8.1 Chlorinated hydrocarbons
- 4.1.2.9 Other contaminants

Please also report any results that cover the cumulative effect of low doses of contaminants in this section.

- 4.2 Preservation
 - 4.2.1 Drying
 - 4.2.2 Storage
 - 4.2.2.1 Mycotoxins
 - 4.2.2.1.1 Aflatoxins
 - 4.2.2.1.2 Others
 - 4.2.3 Bottling, canning, vacuum packing
 - 4.2.4 Refrigeration
 - 4.2.5 Salt, salting
 - 4.2.5.1 Salt
 - 4.2.5.2 Salting
 - 4.2.5.3 Salted foods
 - 4.2.5.3.1 Salted animal food
 - 4.2.5.3.2 Salted plant food
 - 4.2.6 Pickling
 - 4.2.7 Curing and smoking
 - 4.2.7.1 Cured foods
 - 4.2.7.1.1 Cured meats
 - 4.2.7.1.2 Smoked foods

For some cancers e.g. colon, rectum, stomach and pancreas, it may be important to report results about specific cured foods, cured meats and smoked meats. N-nitrosamines should also be covered here.

4.3 Processing

4.3.1 Refining

Results concerning refined cereals and cereal products should be reported twice, here and under 2.1.1.2 refined cereals and cereal products.

4.3.2 Hydrogenation

Results concerning hydrogenated fats and oils should be reported twice, here and under 2.6.3 Hydrogenated fats and oils

4.3.3 Fermenting

4.3.4 Compositional manipulation

4.3.4.1 Fortification

4.3.4.2 Genetic modification

4.3.4.3 Other methods

4.3.5 Food additives

4.3.5.1 Flavours

Report results for monosodium glutamate as a separate category under 4.3.5.1 Flavours.

4.3.5.2 Sweeteners (non-caloric)

4.3.5.3 Colours

4.3.5.4 Preservatives

4.3.5.4.1 Nitrites and nitrates

4.3.5.5 Solvents

4.3.5.6 Fat substitutes

4.3.5.7 Other food additives

Please also report any results that cover the cumulative effect of low doses of additives.

Please also report any results that cover synthetic antioxidants

4.3.6 Packaging

4.3.6.1 Vinyl chloride

4.3.6.2 Phthalates

4.4 Preparation

4.4.1 Fresh food

4.4.1.1 Raw

Report results regarding all raw food other than fruit and vegetables here. There is a separate heading for raw fruit and vegetables (2.2.1.6).

4.4.1.2 Juiced

4.4.2 Cooked food

- 4.4.2.1 Steaming, boiling, poaching
- 4.4.2.2 Stewing, casseroles
- 4.4.2.3 Baking, roasting
- 4.4.2.4 Microwaving
- 4.4.2.5 Frying
- 4.4.2.6 Grilling (broiling) and barbecuing
- 4.4.2.7 Heating, re-heating

Some studies may have reported methods of cooking in terms of temperature or cooking medium, and also some studies may have indicated whether the food was cooked in a direct or indirect flame. When this information is available, it should be included in the SLR report.

Results linked to mechanisms e.g. heterocyclic amines, acrylamides and polycyclic aromatic hydrocarbons should also be reported here. There may also be some literature on burned food that should be reported in this section.

5 Dietary constituents

Food constituents' relationship to outcome needs to be considered in relation to dose and form including use in fortified foods, food supplements, nutrient supplements and specially formulated foods. Where relevant and possible these should be disaggregated.

- 5.1 Carbohydrate
 - 5.1.1 Total carbohydrate
 - 5.1.2 Non-starch polysaccharides/dietary fibre
 - 5.1.2.1 Cereal fibre
 - 5.1.2.2 Vegetable fibre
 - 5.1.2.3 Fruit fibre
 - 5.1.3 Starch
 - 5.1.3.1 Resistant starch
 - 5.1.4 Sugars
 - *5.1.5 Glycemic index, glycemic load

This heading refers to intrinsic sugars that are naturally incorporated into the cellular structure of foods, and also extrinsic sugars not incorporated into the cellular structure of foods. Results for intrinsic and extrinsic sugars should be presented separately. Count honey and sugars in fruit juices as extrinsic. They can be natural and unprocessed, such as honey, or refined such as table sugar. Any results related to specific sugars e.g. fructose should be reported here.

- 5.2 Lipids
 - 5.2.1 Total fat
 - 5.2.2 Saturated fatty acids

5.2.3 Monounsaturated fatty acids

5.2.4 Polyunsaturated fatty acids

5.2.4.1 n-3 fatty acids

Where available, results concerning alpha linolenic acid and long chain n-3 PUFA should be reported here, and if possible separately.

5.2.4.2 n-6 fatty acids

5.2.4.3 Conjugated linoleic acid

5.2.5 Trans fatty acids

5.2.6 Other dietary lipids, cholesterol, plant sterols and stanols.

For certain cancers, e.g. endometrium, lung, and pancreas, results concerning dietary cholesterol may be available. These results should be reported under this section.

5.3 Protein

5.3.1 Total protein

5.3.2 Plant protein

5.3.3 Animal protein

5.4 Alcohol

This section refers to ethanol the chemical. Results related to specific alcoholic drinks should be reported under 3.7 Alcoholic drinks. Past alcohol refers, for example, to intake at age 18, during adolescence, etc.

*5.4.1 Total Alcohol (as ethanol)

*5.4.1.1 Alcohol (as ethanol) from beer

*5.4.1.2 Alcohol (as ethanol) from wine

*5.4.1.3 Alcohol (as ethanol) from spirits

*5.4.1.4 Alcohol (as ethanol) from other alcoholic drinks

* 5.4.1.5 Total alcohol (as ethanol), lifetime exposure

* 5.4.1.6 Total alcohol (as ethanol), past

5.5 Vitamins

*5.5.0 Vitamin supplements

*5.5.0.1 Vitamin and mineral supplements

*5.5.0.2 Vitamin B supplement

5.5.1 Vitamin A

5.5.1.1 Retinol

5.5.1.2 Provitamin A carotenoids

5.5.2 Non-provitamin A carotenoids

Record total carotenoids under 5.5.2 as a separate category marked Total Carotenoids.

5.5.3 Folates and associated compounds

*5.5.3.1 Total folate

*5.5.3.2 Dietary folate

*5.5.3.3 Folate from supplements

Examples of the associated compounds are lipotropes, methionine and other methyl donors.

5.5.4 Riboflavin

5.5.5 Thiamin (vitamin B1)

5.5.6 Niacin

5.5.7 Pyridoxine (vitamin B6)

5.5.8 Cobalamin (vitamin B12)

5.5.9 Vitamin C

5.5.10 Vitamin D (and calcium)

5.5.11 Vitamin E

5.5.12 Vitamin K

5.5.13 Other

If results are available concerning any other vitamins not listed here, then these should be reported at the end of this section. In addition, where information is available concerning multiple vitamin deficiencies, these should be reported at the end of this section under 'other'.

5.6 Minerals

5.6.1 Sodium

5.6.2 Iron

5.6.3 Calcium (and Vitamin D)

5.6.4 Selenium

5.6.5 Iodine

5.6.6 Other

Results are likely to be available on other minerals e.g. magnesium, potassium, zinc, copper, phosphorus, manganese and chromium for certain cancers. These should be reported at the end of this section when appropriate under 'other'.

5.7 Phytochemicals

5.7.1 Allium compounds

5.7.2 Isothiocyanates

- 5.7.3 Glucosinolates and indoles
- 5.7.4 Polyphenols
- 5.7.5 Phytoestrogens eg genistein
- 5.7.6 Caffeine
- 5.7.7 Other

Where available report results relating to other phytochemicals such as saponins and coumarins. Results concerning any other bioactive compounds, which are not phytochemicals should be reported under the separate heading 'other bioactive compounds'. Eg flavonoids, isoflavonoids, glycoalkaloids, cyanogens, oligosaccharides and anthocyanins should be reported separately under this heading.

- 5.8 Other bioactive compounds

6 Physical activity

- 6.1 Total physical activity (overall summary measures)

- 6.1.1 Type of activity

- 6.1.1.1 Occupational

- 6.1.1.2 Recreational

- 6.1.1.3 Household

- 6.1.1.4 Transportation

- 6.1.2 Frequency of physical activity

- *6.1.2.1 Frequency of occupational physical activity

- *6.1.2.2 Frequency of recreational physical activity

- 6.1.3 Intensity of physical activity

- *6.1.3.1 Intensity of occupational physical activity

- *6.1.3.2 Intensity of recreational physical activity

- 6.1.4 Duration of physical activity

- *6.1.4.1 Duration of occupational physical activity

- *6.1.4.2 Duration of recreational physical activity

- 6.2 Physical inactivity

- 6.3 Surrogate markers for physical activity e.g. occupation

7 Energy balance

- 7.1 Energy intake

- *7.1.0.1 Energy from fats

- *7.1.0.2 Energy from protein

*7.1.0.3 Energy from carbohydrates

*7.1.0.4 Energy from alcohol

*7.1.0.5 Energy from all other sources

7.1.1 Energy density of diet

7.2 Energy expenditure

8 Anthropometry

8.1 Markers of body composition

8.1.1 BMI

8.1.2 Other weight adjusted for height measures

8.1.3 Weight

8.1.4 Skinfold measurements

8.1.5 Other (e.g. DEXA, bio- impedance, etc)

8.1.6 Change in body composition (including weight gain)

8.2 Markers of distribution of fat

8.2.1 Waist circumference

8.2.2 Hips circumference

8.2.3 Waist to hip ratio

8.2.4 Skinfolds ratio

8.2.5 Other e.g. CT, ultrasound

8.3 Skeletal size

8.3.1 Height (and proxy measures)

8.3.2 Other (e.g. leg length)

8.4 Growth in fetal life, infancy or childhood

8.4.1 Birthweight,

8.4.2 Weight at one year