**Appendix S1: SUPPLEMENTARY METHODS**

*The Dutch Dietary Guidelines (DDG) Index*

Fruits, vegetables, legumes, whole-grain products, unsalted nuts, fish, soft margarine, liquid cooking fats, vegetable oil, and tea are given a higher quality score in the DDG index, see Supplementary Table 2.1 Red and processed meat, alcohol and sugar-sweetened beverages yield a lower dietary quality score.For sufficient consumption of the food items a cut-off score was used determined by the Dutch dietary guidelines. Participants were scored as adhering, awarded with 1 point, or not adhering, awarded with 0 points, to the recommended amount of intake per food item. To determine the overall DDG index the sum of all scores was calculated, with a range from 0 (i.e. no adherence) to 13 (i.e. complete adherence).

*The Lifelines Diet Score (LLDS)*

The Lifelines Diet Score (LLDS) is based on the 2015 Dutch Dietary Guidelines, and consists of 12 food groups.2 Nine food groups are considered to have positive health effects (vegetables, fruit, whole grain products, legumes & nuts, fish, oil & soft margarines, unsweetened dairy, coffee and tea), and three food groups and considered to have negative health effects (red and processed meat, butter & hard margarines, and sugar-sweetened beverages). Intake (gram/1,000kcal/food group) per food group was categorized into quintiles. For positive food groups 0 points were awarded to the lowest quintile of intake and 4 point to the highest quintile, while for negative groups the points were awarded inversely (lowest quintile 4 points and highest quintile 0 points). Subsequently scores were summed, resulting in a LLDS ranging from 0 to 48 points, as explained in Supplementary Table 3.

*The alternate Mediterranean diet (aMED) score*

To calculate the aMED, the nutritional intake per individual of a positive food group (fruit, legumes, vegetables, nuts, whole grains, fish and ratio monounsaturated:saturated fat) or a negative food group (red, processed meat) was ranked.3 When participants had an intake of a positive food item above the median, they received one point, and with an intake below the median they were awarded no points. Conversely, when a participant had an intake of a negative food item below the median they received one point, and when they had an intake above the median, they were awarded no points. A different scoring system was used for alcohol, as participants who used a moderate alcohol intake between 5 and 15 grams/day were given one point, since this intake is regarded as beneficial. Due to missing data, the monounsaturated and saturated ratio could not be calculated. For our data, the overall applied aMED score ranged from zero to eight.

*Physical activity (PA) scores*

PA was measured at baseline through the validated Short questionnaire to Assess Health-enhancing physical activity (SQUASH) score, developed by the ‘Dutch National Institute of Public Health and the Environment.4PA was based on an average week in the last months, and regarded commuting, leisure time, household and work/school. For each of those four categories, three main aspects were assessed: frequency, durations, and intensity, resulting in three categories: light intensity PA, moderate PA and vigorous intensity PA in minutes per week.

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**Supplementary Table 1.** Categorization of food items into food groups.

|  |  |  |
| --- | --- | --- |
| FOOD GROUP | DUTCH ITEM NAME | ENGLISH ITEM NAME |
| Alcoholic beverages | Bier  Gedestilleerde dranken  Overige soorten alcoholische dranken  Rode wijn  Sherry/port/vermout/Madeira  Witte wijn | Beer |
|  | Distilled drinks |
|  | Other types of alcohol |
|  | Red wine |
|  | Sherry/port/vermouth |
|  | White wine |
| Artificially Sweetened Products | Lichte frisdranken/limonade zonder suiker | Soda with artificial sugar |
|  | Overige soorten zuiveldrank | Other types of sugar free drinks |
| Butter and hard  margarines | Jus  Overige soorten smeersel (brood)  Roomboter/margarine (brood) | Gravy  Other types of spread  Spreadable butter/margarine |
| Coffee | Koffie | Coffee |
| Cheese | 20+/30+kaas/smeerkaas | Cheese(/spread) 20+/30+ |
|  | 40+ kaas/smeerkaas | Cheese(/spread) 40+ |
|  | 48+volvette kaas/smeerkaas | Cheese(/spread) 48+ |
|  | Kaas tussendoor | Cheese as a snack |
|  | Kaas bij maaltijd | Cheese added to meals |
|  | Roomkaas/buitenlandse kaas | Cream cheese or foreign cheese |
| Dairy | Chocolademelk | Chocolate milk |
|  | Drinkyoghurt/ zuiveldrank met smaak en suiker | Drinkable yoghurt |
|  | Koffie melk | Normal coffee creamer |
|  | Halvamelk | Reduced fat coffee creamer |
|  | Karnemelk | Butter milk |
|  | Kwark/vruchtenkwark | Quark or curd |
|  | Magere melk | Low-fat milk |
|  | Magere naturel yoghurt | Low-fat unsweetened yoghurt |
|  | Magere(vruchten) yoghurt | Low-fat fruit yoghurt |
|  | Overige soorten vla/yoghurt/kwark | Other types of pudding/yoghurt/quark |
|  | Roomijs/ijs op melkbasis | Milk-based ice-cream |
|  | Slagroom | Whipped cream |
|  | Volle koffiemelk | Full-fat coffee creamer |
|  | Volle melk | Full-fat milk |
|  | Volle naturel yoghurt | Full-fat natural yoghurt |
|  | Volle vla | Full-fat pudding |
| Eggs | Gebakken of gekookt ei | Fried/bakes or boiled eggs |
| Fruit | Vers fruit | Fresh fruit |
| Fish | Lekkerbekje/kibbeling | Fried fish |
|  | Magere vis | Low-fat fish |
|  | Overige soorten vis | Other types of fish |
|  | Vette vis | Fatty fish |
|  | Vis zelf bereid met vet | Self-cooked fish |
| Legumes and Nut | Peulvruchten | Legumes |
|  | Pinda’s/noten bij maaltijd | Peanuts/nuts added to meals |
|  | Pinda’s/noten tussendoor | Peanuts/ nuts as snacks |
|  | Pindakaas | Peanut butter |
| Oils and Soft margarines | Dressing/ sla saus | Dressing/salad sauce |
|  | Halvanaise/fritessaus/niet-rode sauzen | Fry sauce/not red |
|  | Halvanaise/fritessaus/niet-rode sauzen (snacks) | Fry sauce added to snacks |
|  | Halvarine (brood) | Low-fat margarine |
|  | Mayonaise | Mayonnaise |
|  | Mayonaise(snacks) | Mayonnaise added to snacks |
| Potatoes | Gekookte aardappelen/puree | Cooked potatoes/ mashed |
| Red and Processed Meat | Biefstuk/rosbief/runderlap etc. | Steak, beef chunks etc. |
|  | Blinde vink/ doorregen runderlap etc. | Beef (other) |
|  | Gehakt | Ground beef |
|  | Hamlap/nasivlees/schnitzel etc. | Pork steaks |
|  | Overige soorten vlees of gevogelte | Other types of meat |
|  | Overige soorten vleeswaren (brood) | Other types of meat on bread |
|  | Rookworst | Smoked sausage |
|  | Slavink/speklap/spekjes etc. | Bacon/pork belly etc. |
|  | Varkensfiletlap/karbonade etc. | Porkchops |
|  | Worst/speksoorten (brood) | Smoked meat on bread |
|  | Worst/vleeswaren tussendoor | Smoked meat as a snack |
| Refined Grain Products | Beschuit/knäkerbröd/crackers | Crackers |
|  | Croissants/andere broodjes | Croissants/other breads |
|  | Muesli/cruesli/granen voor pap | Muesli |
|  | Pasta | Pasta |
|  | Rijst | Rice |
| Savory & Ready Products | Chinees/Indische kant & klaarmaaltijden | Chinese and Indian ready-made meals |
|  | Chips/zoutjes | Chips |
|  | Fastfood maaltijden | Fast food meals |
|  | Frites/gebakken aardappelen | Fries/ fried potatoes |
|  | Overige soorten kant & klaarmaaltijden | Other types of ready-made meals |
|  | Pizza | Pizza |
|  | Salades op stokbrood/toast | Spread on bread or toast |
|  | Sandwichspread/salade (brood) | Sandwich spreads |
|  | Warme hartige snacks | Warm/fried snacks |
|  | Warme sauzen | Warm sauces |
| Soup | Soep met peulvruchten | Soup with legumes |
|  | Soep zonder peulvruchten | Soup without legumes |
| Sugar-sweetened beverages | Alcoholvrij bier | Alcohol beer |
|  | Frisdranken/limonade met suiker | Soft drinks / lemonade with sugar |
|  | Kant en klaar drinkontbijt | Ready-made breakfast drinks |
|  | Vruchtensap/-drank | Fruit juice / drink |
| Sugary Products | Appelmoes | Applesauce |
|  | Cake/grote koeken | Cake/ large cookies |
|  | Candybars | Candy bars |
|  | Chocolade | Chocolate |
|  | Beleg met chocolade | Chocolate sprinkles |
|  | Gebak/taart | Pasty and pie |
|  | Kant en klaar pap | Ready-made porridge or pudding |
|  | Kleine koekjes/biscuits | Small cookies/bars |
|  | Ontbijtkoek/koekrepen/voedingsbiscuits | Breakfast cookies/bar |
|  | Overige soorten zoet beleg | Other types of sweet sandwich spread |
|  | Snoep | Candy |
|  | Suiker in koffie | Sugar added to coffee |
|  | Suiker/honing in thee | Sugar added to tea |
|  | Suiker/siroop in yoghurt etc. | Sugar/syrup added to yoghurt |
| Tea | Thee | Tea |
| Vegetables | Gekookte groente met boter | Cooked vegetables with butter |
|  | Gekookte groente zonder boter | Cooked vegetables without butter |
|  | Gewokte groente | Fried vegetables |
| White, unprocessed meat | Kip | Chicken |
| Whole grain products | Gesneden brood | Sliced bread |

**Supplementary Table 2.** Categorization of food items into the Dutch Dietary Guidelines Index.

|  |  |
| --- | --- |
| **Dutch Dietary Guidelines Index** | **Included food frequency questionnaire items per group** |
| Vegetables (≥200g/day) | Boiled vegetables with butter, fried vegetables without butter, fried or boiled vegetables |
| Fruits (≥200 g/day) | Fresh fruit |
| Legumes and nuts (≥150g/week) | Legumes, peanut butter, peanuts and nuts added to dinner, peanuts and nuts as snack |
| Fish (≥100 g/week) | Low-fat fish, fatty fish, salty herring, other types of fish, fried fillet of haddock, fish home-cooked with fat (fish prepared fat) |
| Whole grain products (≥90 g/day)  Whole grains ≥50% of total grains | Sandwich bread, all types  Bread, cereals, potatoes and legumes |
| Red and processed meat (<300 g/week) | Bacon, pork belly etc., smoked sausage, cold cuts varieties (beef and pork), cold cuts as snack, minced meat, other types of meat and poultry, beef steak, beef olives, pork steak, pork chops |
| Tea ( ≥450 mL/day)  Alcohol ( ≤10 g/day)  Unsaturated fats and oils ( ≥50% of total fats)  Unsweetened dairy ( ≥350 g/day)  Sugar containing beverages ( ≤150  mL/day) | Tea  Red wine, white wine, fortified wines (sherry, port, vermouth, madeira), beer, spirits, other types of alcoholic beverages  Low-fat margarine, other dressings, oil-based dressings, mayonnaise, mayonnaise added to snacks  Reduced-fat milk, whole milk, buttermilk, low-fat milk, low-fat unsweetened yoghurt, whole yoghurt, regular milk added to coffee, other types of dairy drinks  Non-alcoholic beer, fruit juices, sodas, sweetened dairy drink, chocolate milk, breakfast drinks |

**Supplementary Table 3.** Categorization of food items into the Lifelines Diet Score.

|  |  |
| --- | --- |
| **Lifelines Diet Score** | **Included food frequency questionnaire items per group** |
| Vegetables | Boiled vegetables with butter, fired vegetables without butter, fired or boiled vegetables |
| Fruit | Fresh fruit |
| Whole grains | Sandwich bread, all types |
| Legumes and nuts | Legumes, peanut butter, peanuts and nuts added to dinner, peanuts and nuts as snack |
| Fish | Low-fat fish, fatty fish, salty herring, other types of fish, fired fillet of haddock, fish home-cooked with fat (fish prepared fat) |
| Oils and soft margarines | Low-fat margarine, other dressings, oil-based dressings, mayonnaise, mayonnaise added to snacks |
| Unsweetened dairy | Reduced-fat milk, whole milk, buttermilk, low-fat milk, low-fat unsweetened yoghurt, whole yoghurt, regular milk added to coffee, other types of dairy drinks |
| Red and processed meat  Butter and hard margarins  Sugar-sweetened beverages  Coffee  Tea | Bacon, pork belly etc., smoked sausage, cold cuts varieties (beef and pork), cold cuts as snack, minced meat, other types of meat and poultry, beef steak, beef olives, pork steak, pork chops  Butter or margarine, other types of margarine, sandwich spread, gravy  Non-alcoholic beer, fruit juices, sodas, sweetened dairy drink, chocolate milk, breakfast drinks  Coffee  Tea |

**Supplementary Table 4.** Categorization of food items into the alternate Mediterranean diet score.

|  |  |
| --- | --- |
| **Component alternate**  **Mediterranean diet** | **Included food frequency questionnaire items per group** |
| M/S ratio | No data available |
| Legumes | Legumes |
| Fruits | Fresh fruit, fruit juices |
| Vegetables | Boiled vegetables with butter, fired vegetables without butter, fried or boiled vegetables |
| Nuts | Peanut butter, peanuts and nuts added to dinner, peanuts and nuts as snack |
| Whole grains | Sandwich bread, all types |
| Fish | Low-fat fish, fatty fish, salty herring, other types of fish, fried fillet of haddock, fish home-cooked with fat (fish prepared fat) |
| Red and processed meat  Alcohol | Bacon, pork belly etc. smoked sausage, cold cuts varieties (beef and pork), cold cuts as snack, minced meat, other types of meat and poultry, beef steak, beef olives, pork steak, pork chops  Red wine, white wine, fortified wines (sherry, port, vermouth, madeira), beer, spirits, other types of alcoholic beverages |

Abbreviations: M/S ratio = monounsaturated fat/ saturated fat