



PROJECT DELIVERABLE REPORT

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** Type: R – Report; P – Prototype; D – Demonstrator; - O - Other



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ENPADASI

European Nutrition Phenotype Assessment and Data Sharing Initiative

JOINT PROGRAMMING INITIATIVE – A HEALTHY DIET FOR A HEALTHY LIFE EUROPEAN NUTRITION PHENOTYPE ASSESSMENT AND DATA SHARING INITIATIVE

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JOINT PROGRAMMING INITIATIVE – A HEALTHY DIET FOR A HEALTHY LIFE EUROPEAN NUTRITION PHENOTYPE ASSESSMENT AND DATA SHARING INITIATIVE

PREPARED BY

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BACKGROUND

Within ENPADASI, the task 6.2, part of the Work Package 6 “Training”, aims to provide a resource of SOPs for collecting and running data, including a multitude of phenotypic outcomes, from different types of nutritional studies, both intervention and observational. The final goal is to create an important reference for scientists in the nutrition field, facilitating combined analysis in the future, beyond the life cycle of ENPADASI. SOPs to be integrated within the DASH-IN infrastructure are expected to cover all relevant aspects of nutrition studies, taking into consideration the information deriving from WP2 and, in particular, from task 2.1, collecting and describing available datasets.

This document describes the approach followed to identify the relevant aspects in nutritional studies requiring dedicated SOPs, to collect already existing SOPs, and to create a repository of SOPs to be implemented/integrated by users and above all, to be shared.

METHODOLOGY FOR THE DEFINITION OF SOPs FOR DATA COLLECTION

The work for this deliverable was organized in three consecutive steps:

1. A literature review of intervention and observational nutritional studies published in the last months was performed to identify the general settings;
2. Based on the available settings as well as the information retrieved from D2.1.1, we identified the major aspects in nutritional studies, covering from subject enrolment to data collection and management, which may benefit from a sharing of SOPs in order to standardize future studies, making them more reliable but, above all, directly comparable;
3. A provisional list of topics was proposed to the ENPADASI consortium for consideration.

STEP 1. SYSTEMATIC LITERATURE REVIEW

We carried out a systematic literature review to identify the existing settings in nutritional studies.

The following syntax was used for the PubMed search of nutritional studies:

```
("nutritional status"[MeSH Terms] OR ("nutritional"[All Fields] AND "status"[All Fields]) OR "nutritional status"[All Fields] OR "nutrition"[All Fields] OR "nutritional sciences"[MeSH Terms] OR ("nutritional"[All Fields] AND "sciences"[All Fields]) OR "nutritional sciences"[All Fields]) OR ("diet"[MeSH Terms] OR "diet"[All Fields]) AND ("clinical trials as topic"[MeSH Terms] OR ("clinical"[All Fields] AND "trials"[All Fields] AND "topic"[All Fields]) OR "clinical trials as topic"[All Fields] OR "trial"[All Fields]).
```

Among the items obtained from this search, we selected papers reporting studies on humans in which the effect of a dietary regime was explored, or the effects of the administration of specific food item(s) were evaluated. Papers for which the full text was not accessible were excluded. There was no other limitations.



STEP 2. IDENTIFICATION OF STUDY ASPECTS REQUIRING SOPS

For selected papers, we carried out a systematic screening of the study aspects that are extremely relevant in nutritional studies and should therefore be standardized through dedicated SOPs, in the perspective of comparison with other studies:

- Was the dietary intake recorded and how?
- Was the physical activity recorded and how?
- Were other questionnaires administered?
- What anthropometric measures were collected?
- What samples were collected and how was the sampling and management (including storage/transport and sample preparation)?
- What analyses were conducted and on which samples?
- Was the compliance to the (eventual) intervention assessed and how?

An example of the results of our literature screening is in Table 1. Only nutritional studies published in early 2017 are shown.



Table 1. Example of our literature search and screening approach.

Year of publication	Author	Journal	Title	Assessment of diet	Assessment of diet												
					compliance assessment	lifestyle and physical activity assessment	socio-economic variables assessment	anthropometric measurement	blood pressure measurement	blood collection and analyses	serum analyses	plasma analyses	urine collection and analyses	feces collection and analyses			
2017	Paquette et al.	Brit J Nutr	Strawberry and cranberry polyphenols improve insulin sensitivity in insulin-resistant, non-diabetic adults: a parallel, double-blind, controlled and randomised clinical trial	FFQ	yes			yes	yes	yes	yes	yes					
2017	Soare et al.	Metabolism	Treatment of reactive hypoglycemia with the macrobiotic Ma-pi 2 diet as assessed by continuous glucose monitoring: The MAHYP randomized crossover trial		yes			yes					yes				
2017	Boers et al.	Brit J Nutr	Efficacy of fibre additions to flatbread flour mixes for reducing post-meal glucose and insulin responses in healthy Indian subjects					yes		yes	yes	yes	yes				
2017	Davis et al.	J Nutr	A Mediterranean Diet Reduces F2-Isoprostanes and Triglycerides among Older Australian Men and Women after 6 Months.		yes			yes		yes		yes					
2017	Duthie et al.	Eur J Nutr	Effect of increasing fruit and vegetable intake by dietary intervention on nutritional biomarkers and attitudes to dietary change: a randomised trial	FFQ	yes			yes	yes	yes	yes		yes				
2017	Imai et al.	Diabetes Res Clin Pract	Divided consumption of late-night-dinner improves glycemic excursions in patients with type 2 diabetes: A randomized crossover clinical trial.	24h food record				yes		yes		yes		yes			
2017	Fernández-Castillejo et al.	Mol Nutr Food Res	Phenol-enriched olive oils modify paraoxonase-related variables: a Randomized, Crossover, Controlled Trial.								yes	yes	yes				
2017	Davis et al.	Nutrients	Older Australians Can Achieve High Adherence to the Mediterranean Diet during a 6 Month Randomised Intervention; Results from the Medley Study	self-reported 3-day weighed food records	yes			yes	yes	yes						yes	
2017	Fulton et al.	Brit J Nutr	The effect of increased fruit and vegetable consumption on selected macronutrient and micronutrient intakes in four randomised-controlled trials	diet diary				yes									



Year of publication	Author	Journal	Title	Assessment of diet	compliance assessment	lifestyle and physical activity assessment	socio-economic variables assessment	anthropometric measurement	blood pressure measurement	blood collection and analyses	serum analyses	plasma analyses	urine collection and analyses	feces collection and analyses
2017	Young et al.	Brit J Nutr	Blood fatty acid changes in healthy young Americans in response to a 10-week diet that increased n-3 and reduced n-6 fatty acid consumption: a randomised controlled trial.	30-day FFQ				yes		yes		yes		
2017	Rogers et al.	Nutrition & Metabolism	The role of a dairy fraction rich in milk fat globule membrane in the suppression of postprandial inflammatory markers and bone turnover in obese and overweight adults: an exploratory study					yes	yes	yes	yes	yes		
2017	Maki et al.	J Nutr	Replacement of Refined Starches and Added Sugars with Egg Protein and Unsaturated Fats Increases Insulin Sensitivity and Lowers Triglycerides in Overweight or Obese Adults with Elevated Triglycerides.	3-d diet records	yes			yes	yes	yes	yes			
2017	Texeira et al.	Food Funct	The impact of dark chocolate intake on arterial elasticity in individuals with HIV/AIDS undergoing ART: a randomized, double-blind, crossover trial.		yes		yes	yes	yes	yes				
2017	Spring et al.	Obesity	Effects of an abbreviated obesity intervention supported by mobile technology: The ENGAGED randomized clinical trial	dietary records	yes			yes						
2017	Dias et al.	Eur J Clin Nutr	Effect of diets rich in either saturated fat or n-6 polyunsaturated fatty acids and supplemented with long-chain n-3 polyunsaturated fatty acids on plasma lipoprotein profiles.	3-d diet records	yes			yes		yes		yes		
2017	Kim et al.	Nutr Res	Weight loss achieved using an energy restriction diet with normal or higher dietary protein decreased the number of CD14++CD16+ proinflammatory monocytes and plasma lipids and lipoproteins in middle-aged, overweight, and obese adults.					yes		yes		yes		
2017	Hageman et al.	J Obesity	Web-Based Interventions Alone or Supplemented with Peer-Led Support or Professional Email Counseling for Weight Loss and Weight Maintenance in Women from Rural Communities: Results of a Clinical Trial	FFQ		yes		yes	yes	yes				
2017	Guo et al.	Nutrients	Polyphenol Levels Are Inversely Correlated with Body Weight and Obesity in an Elderly Population after 5 Years of Follow Up (The Randomised PREDIMED Study)	FFQ		yes	yes	yes	yes				yes	



Year of publication	Author	Journal	Title	Assessment of diet	compliance assessment	lifestyle and physical activity assessment	socio-economic variables assessment	anthropometric measurement	blood pressure measurement	blood collection and analyses	serum analyses	plasma analyses	urine collection and analyses	feces collection and analyses
2017	Garcia-Layana et al.	Nutrients	The Effect of a Mediterranean Diet on the Incidence of Cataract Surgery	FFQ		yes	yes	yes	yes		yes	yes		
2017	van der Made et al.	Sci Rep	One-year daily consumption of buttermilk drink containing lutein-enriched egg-yolks does not affect endothelial function in fasting and postprandial state.					yes		yes	yes	yes		
2017	Trepanowski et al.	JAMA Int Med	Effect of Alternate-Day Fasting on Weight Loss, Weight Maintenance, and Cardioprotection Among Metabolically Healthy Obese Adults A Randomized Clinical Trial					yes	yes	yes		yes		
2017	Jaske et al.	Biomed Res International	Effects of an Ad Libitum Consumed Low-Fat Plant-Based Diet Supplemented with Plant-Based Meal Replacements on Body Composition Indices	dietary questionnaire /dietary diary	yes	yes		yes						
2017	Moran et al.	Obesity	The effect of a lifestyle intervention on pregnancy and postpartum dietary patterns determined by factor analysis	FFQ		yes		yes						
2017	Hernandez-Alonso et al.	J Nutr Biochem	Effect of pistachio consumption on the modulation of urinary gut microbiota-related metabolites in prediabetic subjects.		yes			yes		yes		yes	yes	
2017	Terashima et al.	Asian Pac J Clin Nutr	Eating glutinous brown rice for one day improves glycemic control in Japanese patients with type 2 diabetes assessed by continuous glucose monitoring.					yes		yes		yes		
2017	Di Renzo et al.	Eur Rev Med Pharmacol Sci.	Post-prandial effects of hazelnut-enriched high fat meal on LDL oxidative status, oxidative and inflammatory gene expression of healthy subjects: a randomized trial.					yes		yes	yes			
2017	Davis et al.	Am J Clin Nutr	A Mediterranean diet lowers blood pressure and improves endothelial function: results from the MedLey randomized intervention trial.	self-reported 3-day weighed food records	yes			yes	yes					
2017	Tometich et al.	Support Care Cancer	Effects of diet and exercise on weight-related outcomes for breast cancer survivors and their adult daughters: an analysis of the DAMES trial	24-h diet recall				yes						



Year of publication	Author	Journal	Title	Assessment of diet	compliance assessment	lifestyle and physical activity assessment	socio-economic variables assessment	anthropometric measurement	blood pressure measurement	blood collection and analyses	serum analyses	plasma analyses	urine collection and analyses	feces collection and analyses
2017	Bennet et al	Gut	Multivariate modelling of faecal bacterial profiles of patients with IBS predicts responsiveness to a diet low in FODMAPs	4-day food diary										yes
2017	Embree et al.	BMJ Open Diabetes Res Care	Successful long-term weight loss among participants with diabetes receiving an intervention promoting an adapted Mediterranean-style dietary pattern: the Heart Healthy Lenoir Project.	FFQ and other		yes		yes	yes	yes		yes		
2017	Becerra-Tomas et al.	Clin Nutr	Legume consumption is inversely associated with type 2 diabetes incidence in adults: A prospective assessment from the PREDIMED study	FFQ		yes	yes	yes	yes	yes				
2017	Gonciuleia et al.	J Clin Lipidol	The effect of dietary protein source on serum lipids: Secondary data analysis from a randomized clinical trial		yes			yes	yes	yes	yes	yes		
2017	Fathi et al.	J Clin Lipidol	Kefir drink causes a significant yet similar improvement in serum lipid profile, compared with low-fat milk, in a dairy-rich diet in overweight or obese premenopausal women: A randomized controlled trial	self-reported 3-day weighed food records	yes			yes		yes	yes			
2017	Berk et al.	Diabetologia	Effect of diet-induced weight loss on lipoprotein(a) levels in obese individuals with and without type 2 diabetes					yes	yes	yes		yes		
2017	Skreden et al.	BMC Pregnancy Childbirth	Changes in fruit and vegetable consumption habits from pre-pregnancy to early pregnancy among Norwegian women	FFQ				yes						
2017	Hernaes et al.	Mol Nutr Food Res	The Mediterranean Diet decreases LDL atherogenicity in high cardiovascular risk individuals: a randomized controlled trial	Med Diet Adherence questionnaire	yes	yes		yes	yes	yes		yes		
2017	Hidaka et al.	Clin Nutr ESPEN	An empirically derived dietary pattern associated with breast cancer risk is validated in a nested case-control cohort from a randomized primary prevention trial	FFQ, DHQ				yes		yes		yes		
2017	Tang et al.	Clin Rheumatol	DASH diet and change in serum uric acid over time							yes	yes			



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Year of publication	Author	Journal	Title	Assessment of diet	compliance assessment	lifestyle and physical activity assessment	socio-economic variables assessment	anthropometric measurement	blood pressure measurement	blood collection and analyses	serum analyses	plasma analyses	urine collection and analyses	feces collection and analyses
2017	Tagliabue et al.	Clin Nutr ESPEN	Short-term impact of a classical ketogenic diet on gut microbiota in GLUT1 Deficiency Syndrome: A 3-month prospective observational study		yes					yes				yes
2017	Adjibade et al.	J Nutr	The Inflammatory Potential of the Diet Is Associated with Depressive Symptoms in Different Subgroups of the General Population	24-h diet recall		yes	yes	yes						
2017	Liu et al.	J Nutr	Acute Peanut Consumption Alters Postprandial Lipids and Vascular Responses in Healthy Overweight or Obese Men					yes		yes	yes			
2017	Damsgaard et al.	J Nutr	Whole-Grain Intake, Reflected by Dietary Records and Biomarkers, Is Inversely Associated with Circulating Insulin and Other Cardiometabolic Markers in 8- to 11-Year-Old Children	7-d dietary recall	yes	yes	yes	yes	yes	yes	yes	yes		
2017	Kim et al.	Nutrients	Effects of Two Different Dietary Patterns on Inflammatory Markers, Advanced Glycation End Products and Lipids in Subjects without Type 2 Diabetes: A Randomised Crossover Study	self-reported 3-day weighed food records	yes			yes		yes	yes	yes		
2017	Selma et al.	Clin Nutr	The gut microbiota metabolism of pomegranate or walnut ellagitannins yields two urolithin-metabotypes that correlate with cardiometabolic risk biomarkers: Comparison between normoweight, overweight-obesity and metabolic syndrome					yes	yes	yes	yes	yes	yes	yes
2017	Ranjan et al	Diabetes Obes Metab	Short-term Effects of Low Carbohydrate Diet on Glycaemic Parameters and Cardiovascular Risk Markers in Patients with Type 1 Diabetes - A Randomised Open-label Cross-over Trial.	self-reported 3-day food records					yes	yes		yes	yes	
2017	Bray et al.	Clin Obes	Markers of dietary protein intake are associated with successful weight loss in the POUNDS Lost trial	24-h diet recall				yes					yes	
2017	Ptomey et al.	J Appl Res Intellect Disabil	Weight management in adults with intellectual and developmental disabilities: A randomized controlled trial of two dietary approaches	3-day food records	yes	yes		yes						



STEP 3. DEFINITION OF A PROVISIONAL LIST OF TOPICS FOR THE ORGANIZATION OF SOPS

Based on the information on the main aspects of nutritional studies that may benefit from dedicated SOPs, retrieved 1) through the literature review/screening approach exemplified above, 2) in the deliverable D2.1.1 of the ENPADASI project (WP Leader Lars Ove Dragsted) providing the list of datasets available regarding observational and intervention studies participating in ENPADASI, we created a provisional list of topics for SOPs organization/management (Table 2). Specifically, in addition to our literature search, we revised the template circulated to all WP2 partners and DEDIPAC partners willing to participate in ENPADASI, and filled in with key information (general description, measurements, biological samples and laboratory measurements, storage and data sharing) on their nutrition studies (cross-sectional, longitudinal, case-control, ...) to be shared in ENPADASI.

Table 2. Provisional list of topics for the organization of SOPs.

ENROLMENT
Advertising for recruitment of volunteers
Taking written informed consent from adult volunteers (how to inform the volunteer)
Taking written informed consent in case of minors (how to inform the legal guardian of the volunteers)
Taking written informed consent in case of elderly (how to inform the volunteer or the legal guardian of the volunteers in case of dementia)
Taking personal information from volunteers (gender, ethnicity, age)
Taking personal information from volunteers in case of minors (e.g., how to express age for infants/toddler)
Taking personal information from elderly caregivers
ANTHROPOMETRIC MEASUREMENT
Measuring weight in case of adults, infants/toddlers, or elderly unable to stand



Measuring height in case of adults, infants/toddlers, or elderly unable to stand

Measuring hip circumference in case of adults or elderly unable to stand

Measuring waist circumference in case of adults or elderly unable to stand

Calculating BMI in case of adults, infants/toddlers, children or elderly

Calculating waist:hip ratio in case of adults or elderly

Measuring blood pressure diastolic/systolic and heart rate

QUESTIONNAIRE

Collecting information on alcohol intake

Collecting information on tobacco consumption

Collecting information on physical activity or grade of sedentary behaviour

Collecting information on sleep habits

Collecting information on socio-economic status of the volunteers

Collecting information on present and past health status (anamnesis?)

Collecting information on present and past use of medication

Assessing cognitive function in the elderly (Standardized Mini Mental State Examination, Geriatric Depression Scale...)

Assessing depression in adults

Assessing food-related compulsive behaviours?



FOOD FREQUENCY QUESTIONNAIRE

Assessing food frequency in adults (quantitative, semiquantitative, non-quantitative, three days assessment, one-day assessment,)

Assessing food frequency in elderly (quantitative, semiquantitative, non-quantitative, three days assessment, one-day assessment,)

Assessing food frequency in children (quantitative, semiquantitative, non-quantitative, three days assessment, one-day assessment,)

SAMPLING

Collection of blood in adults

Collection of blood in elderly

Collection of blood in infants/children

Separation of serum and plasma

Storing/Transport of whole blood

Storing/Transport of plasma for NMR-based metabolomics

Storing/Transport of plasma for lipidomic analysis

Storing/Transport of serum

Storing/Transport of serum for lipidomic analysis

Collection of saliva samples

Collection of saliva using buccal swabs in infants/children



Storing/Transport of saliva/swab samples

Collection of urine

Collection of urine from children/toddlers

Collection of urine from elderly (in case of incontinency)

Storing/Transport of urine samples

Collection of faecal samples

Collection of faecal samples from infants/toddlers

Storing/Transport of faecal samples for NMR-based metabolomic studies

Storing/Transport of faecal samples for lipidomic studies

Storing/Transport of faecal samples for DNA/RNA microbiota studies

Storing/Transport of faecal samples for culturing microbiota studies

ANALYSIS

Bacterial DNA extraction from faeces

Bacterial RNA extraction from faeces

Bacterial DNA extraction from saliva samples

Microbial diversity analysis by next generation sequencing

Metagenomics on faecal samples



Metatranscriptomics on faecal samples

Metaproteomics on faecal samples

Metabolomics analysis on urine

Metabolomics analysis on faeces

Metabolomics analysis on saliva

Metabolomics analysis on plasma/serum

Assessment of glucose fasting values

Assessment of insulin fasting values

Plasma lipid analysis

IN CASE OF INTERVENTION STUDY: COMPLIANCE ASSESSMENT

Compliance assessment by phone call

Compliance assessment by repeated food frequency questionnaire

Compliance assessment by canteen involvement in schools, working places, hospital, or nursing homes

DATA MANAGEMENT

Data ownership

Data safety and licenses

Metadata sharing



This list was circulated among the main partners involved in Task 6.2 (Lars Ove Dragsted, Catherine Hughes, Lorraine Brennan, Janette Walton, Laura Kehoe, Eha Nurk, Miriam Ryan, Duccio Cavalieri, Jildau Bouwman), for feedback and with the specific request to indicate for which topic SOPs were already available, taking into account the most recent EU projects in which they are/were involved. The result of this survey is shown in Table 3, demonstrating that EU projects and joint initiatives on large cohorts, combining transdisciplinary research areas of molecular nutrition, nutrigenomics, systems biology, etc., can act as an important source of standardization for procedures, allowing for a better comparability of nutritional studies. Indeed, the partners who gave a positive feedback and were willing to share the SOPs they had available were involved in the EU FP7 projects NU-AGE and MyNewGut (still ongoing), in the Irish National Adult Nutrition Survey (NANS) and the NUGO Association of Universities and Research Institutes. Furthermore, it should be noted that the SOPs already available from previous/still ongoing projects/consortia (particularly, those from NANS) covered almost all relevant topics identified. Still uncovered were the topics related to particular categories of individuals (i.e. minors: infants, toddlers, children, and the elderly) as well as topics concerning the management (collection, storing/transport and metabolomics) of samples still underexplored and underutilized in nutritional studies, such as saliva or buccal swabs, and (as expected) the most recent omics techniques (metagenomics, metatranscriptomics, metaproteomics, metabolomics and lipidomics). Unfortunately, no SOPs were available also for the topics related to the compliance assessment, which is instead a key issue in nutritional intervention studies.

Table 3. Availability of partners in sharing SOPs from EU projects or consortia.

	NUAGE	MYNEWGUT	NANS	NUGO
ENROLLEMENT				
Advertising from recruitment of volunteers		x	x	
Taking written informed consent from adult volunteers (how to inform the volunteer)		x		
Taking written informed consent in case of minors (how to inform the legal guardian of the volunteers)		x		
Taking written informed consent in case of elderly (how to inform the volunteer or the legal guardian of the volunteers in case of			x	



dementia)				
Taking personal information from volunteers (gender, ethnicity, age)			X	
Taking personal information from volunteers in case of minors (e.g. how to express age for infants/toddler)				
Taking personal information from elderly caregivers				
ANTROPOMETRIC MEASUREMENT				
Measuring weight in case of adults, infants/toddlers, or elderly unable to stand		X	X	
Measuring height in case of adults, infants/toddlers, or elderly unable to stand		X	X	
Measuring hip circumference in case of adults or elderly unable to stand			X	
Measuring waist circumference in case of adults or elderly unable to stand			X	
Calculating BMI in case of adults, infants/toddlers, children or elderly			X	
Calculating waist:hip ratio in case of adults or elderly			X	
Measuring blood pressure diastolic/systolic and heart rate		X	X	
QUESTIONNAIRE				



Collecting information on alcohol intake			X	
Collecting information on tobacco consumption			X	
Collecting information on physical activity or grade of sedentary behaviour			X	
Collecting information on sleep habits			X	
Collecting information on socio-economical status of the volunteers			X	
Collecting information on present and past health status (anamnesis?)			X	
Collecting information on present and past use of medication			X	
Assessing cognitive function in the elderly (Standardized Mini Mental State Examination, Geriatric Depression Scale...)				
Assessing depression in adults				
Assessing food-related compulsive behaviours?				
FOOD FREQUENCY QUESTIONNAIRE				
Assessing food frequency in adults (quantitative, semiquantitative, non-quantitative; three days assessment, one-day assessment;)			X	
Assessing food frequency in elderly (quantitative, semiquantitative, non-quantitative; three days assessment, one-day			X	



assessment;)				
Assessing food frequency in children (quantitative, semiquantitative, non-quantitative; three days assessment, one-day assessment;)				
SAMPLING				
Collection of blood in adults		X	X	
Collection of blood in elderly			X	
Collection of blood in infants/children				
Separation of serum and plasma			X	X
Storing/Transport of whole blood			X	
Storing/Transport of plasma for NMR-based metabolomics		X	X	X
Storing/Transport of plasma for lipidomic analysis		X	X	
Storing/Transport of serum			X	
Storing/Transport of serum for lipidomic analysis		X	X	
Collection of saliva samples				
Collection of saliva using buccal swab in infants/children				
Storing/Transport of saliva/swab samples				



Collection of urine		X	X	X
Collection of urine from children/toddlers				
Collection of urine from elderly (in case of incontinency)				
Storing/Transport of urine samples		X	X	X
Collection of faecal samples	X	X		
Collection of faecal samples from infants/toddlers				
Storing/Transport of faecal samples for NMR-based metabolomic studies		X		
Storing/Transport of faecal samples for lipidomic studies		X		
Storing/Transport of faecal samples for DNA/RNA microbiota studies	X	X		
Storing/Transport of faecal samples for culturing microbiota studies		X		
ANALYSIS				
Bacterial DNA extraction from faeces	X	X		
Bacterial RNA extraction from faeces		X		
Bacterial DNA extraction from saliva samples				
Microbial diversity analysis by next generation	X	X		



sequencing				
Metagenomics on faecal samples				
Metatranscriptomics on faecal samples				
Metaproteomics on faecal samples				
Metabolomics analysis on urine			X	X
Metabolomics analysis on faeces				
Metabolomics analysis on saliva				
Metabolomics analysis on plasma/serum			X	X
Assessment of glucose fasting values			X	
Assessment of insulin fasting values			X	
Plasma lipid analysis				
IN CASE OF INTERVENTION STUDY: COMPLIANCE ASSESSMENT				
Compliance assessment by phone call				
Compliance assessment by repeated food frequency questionnaire				
Compliance assessment by canteen involvement in schools, working places, hospital, or nursing homes				
DATA MANAGEMENT				



Data ownership		X	X	
Data safety and licenses		X	X	
Metadata sharing		X	X	

CREATION OF A SOPS REPOSITORY WITHIN THE DASH-IN INFRASTRUCTURE

The last part of the work foresees the creation of a dedicated webpage within the DASH-IN infrastructure in which SOPs identified through the survey summarized in step 3, deriving from the most recent EU projects and other relevant joint initiatives, can be uploaded and shared among the members of the ENPADASI consortium.

Specifically, a webpage entitled “SOPs for intervention or observational nutritional studies” is being created within DASH-IN. The provisional list of SOPs topics, as defined in step 3, will appear (and it will be implemented/integrated with information coming from future nutritional studies) and SOPs documents (word or pdf file) will be uploaded by users for sharing. The aim is to create an interactive SOPs repository, allowing users to 1) download already existing SOPs for their use in nutritional studies, 2) update the list of topics requiring SOPs, 3) upload novel SOPs for already existing or new topics, 4) sharing relevant information on which SOPs should be better utilized in which context, with the final goal to standardize all relevant procedures in nutritional studies according to internationally shared guidelines.

CONCLUSIONS

In conclusion, a list of topics requiring SOPs has been defined and is being entered into the web database DASH-IN together with already existing SOPs, available from the most recent EU projects and other relevant joint initiatives dealing with nutrition studies and covering a multitude of phenotypic outcomes. The SOPs repository has been specifically designed to be shareable, interactive, updatable and implementable, in the perspective of representing an important reference for future research in the field of nutrition.