Table S1. The search strategy used in different databases.

Medline via OVID	#1 exp dietary fiber/
	#2 dietary fiber*.tw
	#3 dietary fibre*.tw
	#4 Roughage*.tw
	#5 wheat bran*.tw
	#6. whole grain*.tw
	#7 alimentary fiber*.tw
	#8 alimentary fibre*.tw
	#9 biomarker*.tw
	#10 biologic marker*.tw
	#11 bioindicator*.tw
	#12 biological marker*.tw
	#13 exp biological marker/
	#14 biological indicator*.tw
	#15 1 or 2 or 3 or 4 or 6 or 7 or 8
	#16 9 or 10 or 11 or 12 or 13 or 14
	#17 15 and 16
	#18 17 not (exp animals/ not humans.sh.)
EMBASE via OVID	#1 exp dietary fiber/
	#2 dietary fiber*.tw
	#3 dietary fibre*.tw
	#4 Roughage*.tw
	#5 wheat bran*.tw
	#6. whole grain*.tw
	#7 alimentary fiber*.tw
	#8 alimentary fibre*.tw
	#9 biomarker*.tw
	#10 biologic marker*.tw
	#11 bioindicator*.tw
	#12 biological marker*.tw
	#13 exp biological marker/
	#14 biological indicator*.tw
	#15 1 or 2 or 3 or 4 or 6 or 7 or 8
	#16 9 or 10 or 11 or 12 or 13 or 14
	#17 15 and 16
	#18 17 not ((exp animal/ or nonhuman/) not exp human/)
Web of Science	# 1 TS = ("dietary fiber*" or "dietary fibre*" or roughage* or "whole grain*" or "alimentary fiber*" or "alimentary fibre*" or "wheat bran*")
	#2 TI = ("Biological marker*" or "Biomarker*" or "Biologic marker*" or "Biological indicator*" or Bioindicator* or "biologic marker*")
	#3 #2 AND #1
The Cochrane database	#1 "dietary fiber*":ti,ab,kw
	#2 "dietary fibre":ti,ab,kw
	#3 "roughage":ti,ab,kw
	#4 "wheat bran":ti,ab,kw
	#5 "whole grain":ti,ab,kw
	#6 alimentary fiber*:ti,ab,kw
	#7 alimentary fibre:ti,ab,kw
	#8 MeSH descriptor: [Dietary Fiber] explode all trees
	#9 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8
	#10 MeSH descriptor: [Biomarkers] this term only

	#11 biomarker*:ti,ab,kw
	#12 biologic marker*:ti,ab,kw
	#13 bioindicator*:ti,ab,kw
	#14 biological marker*:ti,ab,kw
	#15 biological indicator*:ti,ab,kw
	#16 #10 or #11 or #12 or #13 or #14 or #15
	#17 #9 and #16

Table 2. Quality assessment and the assessment of the risk of bias in the included studies.

Study		Methods				Assessment			Analyses						
Author	Study design	Total Sample size	Reported inclusion and exclusion criteria	Reported health status	Well-described intervention/set-up	Qualified assessor	Blinded assessor	Adjusted for potential confounders	Same apparatus (calibration) for all participants	Valid questionnaire for the study	Recall period for grain intake in questionnaire	Time period assessed by questionnaire	Blood samples within 24 h since last intervention day?	Fasting blood samples?	Type of urine collection
Ampatzoglou, 2015 [36]	RCT X-over non-blinded	33	Y	Y	Y	Y	-	N	Y	-	<3 d	6 w	Y	Y	#
Biltoft-Jensen, 2016 [37]	RCT X-over non-blinded	750	Y	Y	Y	Y	-	Y	Y	-	<3 d	3 m	N	Y	#
Landberg, 2008 [38]	RCT X-over non-blinded	30	N	N	Y	-	-	Y	Y	-	1 d	6 w	Y	Y	#
Landberg, 2009 [39]	RCT X-over n/blinded	16	N	Y	Y	-	N	Y	Y	-	7 d	1 d	Y	Y	24 h
Linko, 2005 [40]	RCT X-over non-blinded	39	Y	Y	Y	-	-	N	-	-	-	8 w	-	-	#
Hanhineva, 2014 [62]	RCT X-over non-blinded	12	Y	Y	N	Y	-	N	Y	#	#	#	Y	Y	#
Magnusdottir, 2013 [41]	RCT parallel non-blinded	158	Y	Y	Y	Y	-	Y	N	-	1 d	18-24 w	-	-	#
McKeown, 2016 [42]	RCT X-over non-blinded	19	Y	Y	Y	-	N	Y	-	-	3 d	6 d	Y	Y	24 h
Wu, 2015 [43]	RCT parallel non-blinded	16	Y	Y	Y	-	-	N	Y	-	1 d	<4 w	-	Y	#
Landberg, 2009 [44]	RCT X-over non-blinded	17	Y	Y	Y	Y	N	Y	Y	-	1 d	6 w	#	Y	#
Ross, 2012 [45]	RCT parallel non-blinded	266	Y	Y	Y	Y	N	Y	-	Y	1 d	16 w	-	Y	#
Knudsen, 2014 [46]	Case–Control Nested	900	Y	Y	Y	-	-	Y	Y	Y	-	-	-	Y/N	#
Drake, 2014 [60]	Case–Control Nested	2927	Y	Y	N	Y	-	Y	Y	-	<1 d	1 d	-	N	#

Meija, 2015 [56]	Case–Control Unmatched	31	Y	Y	Y	Y	-	N	Y	-	<1 d	1 d	Y	Y	12 h
Aubertin-Leheudre, 2008 and 2010 [34,59]	Cohort	56	Y	Y	Y	Y	-	Y	Y	Y	1 d	1 d	Y	Y	72 h
Aubertin-Leheudre, 2010 [52]	Cohort	60	Y	Y	Y	Y	-	Y	Y	Y	1 d	1 d	Y	Y	72 h
Andersson, 2011 [35]	Cohort	72	Y	Y	Y	-	-	N	-	-	1 d	1 d	N	Y/N	#
Linko, 2005 [51]	Cohort	9	N	N	N	N	-	N	-	/	-	1-2 w	y	Y	#
Landberg, 2012 [54]	Cohort	104	Y	N	Y	Y	N	Y	-	-	1 yr	1 yr	#	#	spot
Marklund, 2013 [55]	Cohort	66	Y	N	Y	Y	-	Y	Y	-	<1 d	<1 d	#	#	24 h
Soderholm, 2009 [61]	Cohort	15	Y	Y	Y	-	-	N	Y	#	#	#	Y	Y	#
Ross, 2004 [57]	Cohort	1	N	N	N	Y	-	#	N	Y	#	#	#	#	12 h
Landberg, 2018 [33]	Cohort	40	Y	N	Y	Y	-	Y	Y	Y	<1 d	<1 d	#	#	spot
Wierzbicka, 2017 [32]	Cohort	69	Y	N	Y	-	-	N	-	Y	<1 d	<1 d	Y	-	24 h
Wang, 2017 [63]	Cohort	12	Y	Y	Y	-	-	#	Y	#	#	#	#	#	48 h at 8 intervals
Zhu, 2014 [58]	Cohort	12	Y	Y	Y	-	-	N	Y	#	#	#	#	#	24–36 h
Wu, 2018 [47]	Cohort	258	Y	N	Y	-	-	Y	-	-	1 yr	1 yr	N	Y	#
Landberg, 2011 [48]	Cross-sectional	360	N	N	N	-	-	Y	Y	-	1 yr	1 yr	Y	N	#

Study	Type	N													
Guyman, 2008 [53]	Cross-sectional	99	Y	Y	Y	Y	-	Y	Y	-	<3 m	<3 m	#	#	12 h
McKeown, 2016 [49]	Cross-sectional	190	Y	Y	Y	-	-	Y	Y	-	< 1 d	1 yr	-	-	#
Jansson, 2010 [50]	Cross-sectional	20	N	N	N	-	N	N	Y	-	1 yr	1 yr	-	F*	#
Bondia-Pons, 2013 [64]	Untargeted metabolomic RCT- X-over n/blinded	20	Y	Y	Y	Y	-	-	Y	-	1 d	4 w	#	#	24 h
Johansson-Persson, 2013 [65]	Untargeted metabolomic RCT-X-over n/blinded	25	Y	Y	Y	-	Y	N	Y	-	1 d	5 w	Y	Y	#
Hanhineva, 2015 [66]	Untargeted metabolomic RCT- Parallel n/blinded	106	Y	Y	Y	-	-	-	Y	-	1 d	3 w	y	y	#
Zhu, 2016 [67]	Untargeted metabolomic Cohort	12	Y	Y	Y	-	-	N	Y	#	#	#	#	#	2 × 24-h urine at 6 time points
Coulomb, 2015 [68]	Untargeted metabolomic Cohort	1	N	N	Y	-	-	N	Y	#	#	#	#	#	24 h
Garcia-Aloy, 2014 [69]	Untargeted metabolomic Cross-sectional	155	Y	N	Y	-	-	N	Y	Y	1 m	1 m	#	#	Spot urine
Hanhineva, 2015 [70]	Untargeted metabolomic Cross-sectional	66			Y	-	-	N	Y	-	1 d	1 d	#	#	24 h

Note: Abbreviation: (-), not reported; (#), not applicable; d, day; h, hours; RCT, randomized controlled trial; x-over, cross over design; N, no; w, week; Y, yes; yr, year;