Supplementary information

Supplementary Table S1. List of oxylipins (total or free) analyzed in our prior and current dietary intervention. Oxylipins highlighted in yellow were not measured previously. They were measured in the present study. Asterisk (*) indicates that the oxylipin was measured but not detected.

Oxylipins	Ramsden et al, 2013 [21]	Ramsden et al, 2017 [38]	Domenichiello et al, 2020 [23]	Ramsden et al, 2021 [24]	Current study
Docosahexaenoic acid (DHA, 22:6 n-3)-derived oxylipins					
13(14)-EpDPE	/	/	/	/	free (plasma)
16(17)-EpDPE	/	/	free (plasma)	/	free (plasma)
19(20)-EpDPE	/	/	free (plasma)	/	free (plasma)
10(11)-EpDPE	/	/	/	/	free (plasma)*
7(8)-EpDPE	/	/	/	/	free (plasma)*
7,8-DiHDPE	/	/	/	/	free (plasma)*
10,11-DiHDPE	/	/	/	/	free (plasma)
13,14-DiHDPE	/	/	/	/	free (plasma)
16,17-DiHDPE	/	/	/	/	free (plasma)
19,20-DiHDPE	/	/	/	/	free (plasma)
4-HDHA	/	/	free (plasma)	total (plasma), free (serum)	/
7-HDHA	/	/	free (plasma)	/	/

10-HDHA	/	/	/	total (plasma), free (serum)	/
14-HDHA	/	/	free (plasma)	total (plasma), free (serum)	/
17-HDHA	free (plasma)	/	free (plasma)	total (plasma), free (serum)	/
RvD1	/	/	free (plasma)	/	/
RvD2	free (plasma)	/	/	/	/
Eicosapentaneoic acid (EPA, 20:5 n-3)-derived oxylipins					
18-HEPE	free (plasma)	/	free (plasma)	/	/
12-HEPE	/	/	/	/	free (plasma)*
8(9)-EpETE	/	/	/	/	free (plasma)*
11(12)-EpETE	/	/	/	/	free (plasma)*
14(15)-EpETE	/	/	/	/	free (plasma)*
17(18)-EpETE	/	/	/	/	free (plasma)*
8,9-DiHETE	/	/	/	/	free (plasma)*

11,12-DiHETE	/	/	/	/	free (plasma)*
14,15-DiHETE	/	/	/	/	free (plasma)*
17,18-DiHETE	/	/	/	/	free (plasma)*
Resolvin E1	/	/	/	/	free (plasma)*
α-linolenic acid (ALA, 18:3 n-3)-derived oxylipins					
9-HOTrE	/	/	free (plasma)	/	free (plasma)
13- HOTrE	/	/	free (plasma)	/	/
9(10)-EpODE	/	/	/	/	free (plasma)
12(13)-EpODE	/	/	/	/	free (plasma)
15(16)-EpODE	/	/	/	/	free (plasma)
9,10-DiHODE	/	/	/	/	free (plasma)
12,13-DiHODE	/	/	/	/	free (plasma)*
15,16-DiHODE	/	/	/	/	free (plasma)
Arachidonic acid (AA, 20:4 n-6)-derived oxylipins					
5-HETE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)
8-HETE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)

9-HETE	total (plasma)	/	/	/	free (plasma)*
11-HETE	total (plasma)	/	free (plasma)	/	free (plasma)
12-HETE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)
15-HETE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)
19-HETE	/	/	/	/	free (plasma)*
20-HETE	/	/	free (plasma)	/	free (plasma)*
5,6-DiHETrE	/	/	/	/	free (plasma)*
8,9-DiHETrE	/	/	/	/	free (plasma)
11,12-DiHETrE	/	/	/	/	free (plasma)
14,15-DiHETrE	/	/	/	/	free (plasma)*
5(6)-EpETrE	/	/	/	/	free (plasma)*
8(9)-EpETrE	/	/	free (plasma)	/	free (plasma)
11(12)-EpETrE	/	/	/	/	free (plasma)
14(15)-EpETrE	/	/	free (plasma)	/	free (plasma)

5-oxo-ETE	/	/	free (plasma)	/	free (plasma)*
15-oxo-ETE	/	/	/	/	free (plasma)*
PGF2α	/	/	/	/	free (plasma)
PGE2	/	/	/	free (serum)	free (plasma)*
PGD2	/	/	/	/	free (plasma)*
PGB2	/	/	/	/	free (plasma)*
PGJ2	/	/	/	/	free (plasma)*
15-deoxy-PGJ2	/	/	/	/	free (plasma)*
TXB2	/	/	/	free (serum)	free (plasma)*
LTB4	/	/	/	free (serum)	free (plasma)*
LXA4	/	/	/	/	free (plasma)*
6-keto-PGF1a	/	/	/	/	free (plasma)*

Cysteinyl LTs	/	/	/	free (serum)	/
Di-homo-gamma-linolenic acid (DGLA, 20:3 n-6)-derived oxylipins					
15(S)-HETrE	/	/	/	/	free (plasma)
Linoleic acid (LA, 18:2 n-6)-derived oxylipins					
9-HODE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)
13-HODE	total (plasma)	/	free (plasma)	total (plasma), free (serum)	free (plasma)
9-oxo-ODE	total (plasma)	/	/	/	free (plasma)
13-oxo-ODE	total (plasma)	/	/	/	free (plasma)*
9(10)-EpOME	/	/	free (plasma)	/	free (plasma)
12(13)-EpOME	/	/	free (plasma)	total (plasma), free (serum)	free (plasma)
9,10-DiHOME	/	/	free (plasma)	/	free (plasma)
12,13-DiHOME	/	/	free (plasma)	total (plasma), free (serum)	free (plasma)
9,10,13-TriHOME	/	/	/	total (plasma), free (serum)	free (plasma)
9,12,13-TriHOME	/	/	/	total (plasma), free (serum)	free (plasma)
9H-12,13E-LA	/	free (plasma)	/	total (plasma)	/
9K-12,13E-LA	/	free (plasma)	/	/	/

11H-12,13E-LA	/	free (plasma)	/	total (plasma)	/
11H-9,10E-LA	/	free (plasma)	/	total (plasma), free (serum)	/
13H-9,10E-LA	/	free (plasma)	/	total (plasma), free (serum)	/

Supplementary Table S2. Parent ion, product ion, and retention time (RT) of 34 oxylipins detected by UPLC-MS/MS in this cohort. Optimization parameters derived from Hennebelle et al.[35]

Oxylipins	**Abbreviation**	**Parent ion m/z**	**Product ion m/z**	**RT**
Docosahexaenoic acid (DHA, 22:6 n-3)-derived oxylipins				
13(14)-epoxydocosapentaenoic acid	13(14)-EpDPE	343.2	193.2	15.49
16(17)-epoxydocosapentaenoic acid	16(17)-EpDPE	343.2	233.2	15.37
19(20)-epoxydocosapentaenoic acid	19(20)-EpDPE	343.2	241.2	14.84
10,11-dihydroxydocosapentaenoic acid	10,11-DiHDPE	361.2	153.2	10.5
13,14-dihydroxydocosapentaenoic acid	13,14-DiHDPE	361.2	193.2	10.23
16,17-dihydroxydocosapentaenoic acid	16,17-DiHDPE	361.2	233.2	9.66
19,20-dihydroxydocosapentaenoic acid	19,20-DiHDPE	361.2	273.2	9.48
α-linolenic acid (ALA, 18:3 n-3)-derived oxylipins				
9- hydroxyoctadecatrienoic acid	9-HOTrE	293.2	171.2	10.19
9(10)-epoxyoctadecadienoic acid	9(10)-EpODE	293.3	171.2	12.98
12(13)-epoxyoctadecadienoic acid	12(13)-EpODE	293.2	183.1	13.32
15(16)-epoxyoctadecadienoic acid	15(16)-EpODE	293.3	235.2	12.65

9,10-dihydroxyoctadecadienoic acid	9,10-DiHODE	311.2	201.2	7.29
15,16-dihydroxyoctadecadienoic acid	15,16-DiHODE	311.2	223.2	7.22
Arachidonic acid (AA, 20:4 n-6)-derived oxylipins				
5-hydroxyeicosatetraenoic acid	5-HETE	319.2	115.2	14.44
8-hydroxyeicosatetraenoic acid	8-HETE	319.2	155.2	13.57
11-hydroxyeicosatetraenoic acid	11-HETE	319.2	167.2	13.2
12-hydroxyeicosatetraenoic acid	12-HETE	319.2	179.2	13.57
15-hydroxyeicosatetraenoic acid	15-HETE	319.2	219.2	12.46
8,9-dihydroxyeicosatrienoic acid	8,9-DiHETrE	337.2	127.1	10.65
11,12-dihydroxyeicosatrienoic acid	11,12-DiHETrE	337.2	167.1	10.15
8(9)-epoxyeicosatrienoic acid	8(9)-EpETrE	319.2	155.2	15.98
11(12)-epoxyeicosatrienoic acid	11(12)-EpETrE	319.3	167.2	15.76
14(15)-epoxyeicosatrienoic acid	14(15)-EpETrE	319.2	219.3	15.1
Prostaglandin F2-α	PGF2α	353.2	309.2	4.54
Di-homo-gamma-linolenic acid (DGLA, 20:3 n-6)-derived oxylipins				
15(S)-hydroxyeicosatrienoic acid	15(S)-HETrE	321.2	221.2	14.17
Linoleic acid (LA, 18:2 n-6)-derived oxylipins				
9-hydroxyoctadecadienoic acid	9-HODE	295.2	171.1	12.3
13-hydroxyoctadecadienoic acid	13-HODE	295.2	195.2	12.22
9-oxo-octadecadienoic acid	9-oxo-ODE	293.2	185.1	13.38
9(10)-epoxyoctadecamonoenoic acid	9(10)-EpOME	295.3	171.1	15.16
12(13)-epoxyoctadecamonoenoic acid	12(13)-EpOME	295.3	195.2	14.9
9,10-dihydroxyoctadecamonoenoic acid	9,10-DiHOME	313.2	201.2	8.82
12,13-dihydroxyoctadecamonoenoic acid	12,13-DiHOME	313.2	183.2	8.45

9,10,13-trihydroxyoctadecamonoenoic acid	9,10,13-TriHOME	329.2	171.1	4.57
9,12,13-trihydroxyoctadecamonoenoic acid	9,12,13-TriHOME	329.2	211.1	4.49

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