**Supplemental Table 1.** Dietary intake, body weight and organ weight of rats1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0% n3 |  | 1% n3 |  | 2% n3 |  | 0% n3+E2 |  | 1% n3+E2 |  | 2% n3+E2 |  | P values |
| Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | E2 | n3 | E2 × n3 |
| Dietary intake (g/day) | 14∙96 |  | 0∙11 |  | 15∙22 |  | 0∙16 |  | 15∙13 |  | 0∙15 |  | 14∙34\* |  | 0∙10 |  | 14∙19\* |  | 0∙10 |  | 14∙35\* |  | 0∙03 |  | <0∙001 | 0∙738 | 0∙222 |
| Initial body weight (g) | 93∙31 |  | 1∙74 |  | 93∙56 |  | 1∙93 |  | 96∙13 |  | 2∙13 |  | 93∙44 |  | 2∙02 |  | 94∙13 |  | 2∙23 |  | 94∙38 |  | 2∙04 |  | 0∙831 | 0∙630 | 0∙832 |
| Final body weight (g) | 294∙13 |  | 3∙23 |  | 299∙00 |  | 2∙76 |  | 301∙00 |  | 3∙96 |  | 260∙31\* |  | 2∙22 |  | 263∙00\* |  | 3∙20 |  | 263∙50\* |  | 2∙84 |  | <0∙001 | 0∙247 | 0∙835 |
| Liver (mg/g body weight) | 21∙82 |  | 1∙00 |  | 21∙60 |  | 2∙21 |  | 21∙47 |  | 1∙56 |  | 24∙44\* |  | 1∙06 |  | 24∙27\* |  | 0∙55 |  | 24∙14\* |  | 0∙77 |  | <0∙001 | 0∙780 | 0∙998 |
| Uterus (mg/g body weight) | 0∙30 |  | 0∙02 |  | 0∙31 |  | 0∙02 |  | 0∙30 |  | 0∙03 |  | 1∙49\* |  | 0∙14 |  | 1∙54\* |  | 0∙17 |  | 1∙56\* |  | 0∙07 |  | <0∙001 | 0∙518 | 0∙590 |
| Visceral fat (mg/g body weight) | 13∙78 |  | 1∙38 |  | 14∙33 |  | 2∙03 |  | 14∙74 |  | 2∙22 |  | 10∙80\* |  | 1∙79 |  | 9∙82\* |  | 1∙08 |  | 9∙39\* |  | 1∙38 |  | <0∙001 | 0∙915 | 0∙147 |
| Kidney (mg/g body weight) | 5∙71 |  | 0∙19 |  | 5∙63 |  | 0∙35 |  | 5∙72 |  | 0∙25 |  | 6∙35\* |  | 0∙23 |  | 6∙38\* |  | 0∙14 |  | 6∙44\* |  | 0∙41 |  | <0∙001 | 0∙724 | 0∙846 |

10% , 1%, and 2% n3, 0%, 1%, and 2% n-3 PUFA diet with corn oil injection; 0%, 1%, and 2% n3+E2, 0%, 1%, and 2% n-3 PUFA diet with 17β-estradiol-3-benzoated (E2) injection; SEM, standard errors of mean

\*Values are significantly different (P<0.05) between corn oil and E2 injection for diets containing the same amount of n-3 PUFA

**Supplemental Table 2.** Serum and hepatic lipid profile1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0% n3 |  | 1% n3 |  | 2% n3 |  | 0% n3+E2 |  | 1% n3+E2 |  | 2% n3+E2 |  | P values |
|  Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | E2 | n3 | E2 × n3 |
| Serum |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TC (mmol/l) | 2∙69 |  | 0∙12 |  | 2∙47 | † |  | 0∙05 |  | 2∙18 | †,†† |  | 0∙07 |  | 2∙69 |  |  | 0∙07 |  | 2∙44 | † |  | 0∙06 |  | 2∙08 | †, †† |  | 0∙08 |  | 0∙486 | <0∙001 | 0∙791 |
| HDL-C (mmol/l) | 0∙71 |  | 0∙02 |  | 0∙71 |  |  | 0∙04 |  | 0∙71 |  |  | 0∙02 |  | 0∙93 | \* |  | 0∙05 |  | 0∙92 | \* |  | 0∙05 |  | 0∙96 | \* |  | 0∙02 |  | <0∙001 | 0∙890 | 0∙883 |
| LDL-C (mmol/l) | 1∙67 |  | 0∙10 |  | 1∙44 | † |  | 0∙06 |  | 1∙19 | †,†† |  | 0∙06 |  | 1∙47 | \* |  | 0∙07 |  | 1∙25 | \*,† |  | 0∙02 |  | 0∙97 | \*,†,†† |  | 0∙13 |  | <0∙001 | <0∙001 | 0∙968 |
| TG (mmol/l) | 0∙66 |  | 0∙04 |  | 0∙58 | † |  | 0∙03 |  | 0∙48 | †,†† |  | 0∙02 |  | 0∙58 | \* |  | 0∙02 |  | 0∙48 | \*,† |  | 0∙01 |  | 0∙41 | \*,†,†† |  | 0∙02 |  | <0∙001 | <0∙001 | 0∙947 |
| Liver |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TC (mg/g liver) | 2∙55 |  | 0∙06 |  | 2∙35 | † |  | 0∙07 |  | 2∙18 | †,†† |  | 0∙05 |  | 2∙12 | \* |  | 0∙03 |  | 1∙97 | \*,† |  | 0∙03 |  | 1∙81 | \*,†,†† |  | 0∙04 |  | <0∙001 | <0∙001 | 0∙751 |
| TG (mg/g liver) | 64∙84 |  | 4∙31 |  | 54∙77 | † |  | 3∙90 |  | 46∙11 | †,†† |  | 3∙83 |  | 27∙92 | \* |  | 1∙78 |  | 18∙78 | \*,† |  | 1∙43 |  | 13∙23 | \*,† |  | 0∙74 |  | <0∙001 | <0∙001 | 0∙781 |

10%, 1%, and 2% n3, 0%, 1%, and 2% n-3 PUFA diet with corn oil injection; 0%, 1%, and 2% n3+E2, 0%, 1%, and 2% n-3 PUFA diet with 17β-estradiol-3-benzoated (E2) injection; SEM, standard errors of mean; TC, total cholesterol; HDL-C, HDL cholesterol; LDL-C, LDL cholesterol

\*Values are significantly different (P<0.05) between corn oil and E2 injection for diets containing the same amount of n-3 PUFA

†Values are significantly different (P<0.05) among 0%, 1%, and 2% n3 within the corn oil and E2 injected groups

††Values are significantly different (P<0.05) between 1% and 2% n3 within the corn oil and E2 injected groups

**Supplemental Table 3.** Serum fatty acid composition1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fatty acids (%) | 0%n3 |  | 1%n3 |  | 2%n3 |  | 0%n3+E2 |  | 1%n3+E2 |  | 2%n3+E2 |  | P values |
| Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | Mean |  | SEM |  | E2 | n3 | E2 × n3 |
| 14 : 0 | 0∙51  |  | 0∙03 |  | 0∙53  |  |  | 0∙04 |  | 0∙57  |  |  | 0∙06 |  | 0∙35  | \* |  | 0∙02 |  | 0∙39  | \* |  | 0∙04 |  | 0∙42 | \* |  | 0∙01 |  | <0∙001 | 0∙270 | 0∙979 |
| 16 : 0 | 19∙64  |  | 0∙32 |  | 19∙78  |  |  | 0∙45 |  | 20∙09  |  |  | 0∙30 |  | 17∙93  | \* |  | 0∙25 |  | 18∙23  | \* |  | 0∙29 |  | 18∙68 | \* |  | 0∙22 |  | <0∙001 | 0∙169 | 0∙893 |
| 16 : 1n-7 | 1∙18  |  | 0∙04 |  | 1∙15  |  |  | 0∙04 |  | 1∙13  |  |  | 0∙05 |  | 0∙82  | \* |  | 0∙05 |  | 0∙87  | \* |  | 0∙05 |  | 0∙91 | \* |  | 0∙02 |  | <0∙001 | 0∙907 | 0∙318 |
| 18 : 0 | 15∙39  |  | 0∙26 |  | 16∙19  |  |  | 0∙33 |  | 15∙74  |  |  | 0∙22 |  | 17∙32  | \* |  | 0∙39 |  | 17∙48  | \* |  | 0∙30 |  | 17∙19 | \* |  | 0∙23 |  | <0∙001 | 0∙243 | 0∙529 |
| 18 : 1n-9 | 10∙78  |  | 0∙35 |  | 10∙33  |  |  | 0∙72 |  | 11∙01  |  |  | 0∙47 |  | 9∙29  | \* |  | 0∙71 |  | 8∙85  | \* |  | 0∙33 |  | 9∙23 | \* |  | 0∙20 |  | <0∙001 | 0∙533 | 0∙945 |
| 18 : 2n-6 | 11∙05  |  | 0∙19 |  | 11∙56  |  |  | 0∙24 |  | 11∙37  |  |  | 0∙21 |  | 10∙71  |  |  | 0∙37 |  | 10∙99  |  |  | 0∙22 |  | 11∙31 |  |  | 0∙13 |  | 0∙107 | 0∙126 | 0∙583 |
| 18 : 3n-3  | 0∙10  |  | 0∙02 |  | 0∙13  |  |  | 0∙02 |  | 0∙14  |  |  | 0∙04 |  | 0∙09  |  |  | 0∙01 |  | 0∙14  |  |  | 0∙04 |  | 0∙11 |  |  | 0∙02 |  | 0∙505 | 0∙247 | 0∙730 |
| 20 : 4n-6  | 33∙42  |  | 0∙67 |  | 26∙90  | † |  | 0∙72 |  | 22∙33 | †,†† |  | 0∙68 |  | 33∙80  |  |  | 0∙78 |  | 28∙21  | † |  | 0∙46 |  | 23∙03 | †,†† |  | 0∙36 |  | 0∙129 | <0∙001 | 0∙752 |
| 20 : 5n-3  | 0∙29  |  | 0∙11 |  | 2∙95  | † |  | 0∙21 |  | 5∙89 | †,†† |  | 0∙40 |  | 0∙17  |  |  | 0∙04 |  | 2∙47  | † |  | 0∙12 |  | 5∙36 | †,†† |  | 0∙46 |  | 0∙104 | <0∙001 | 0∙726 |
| 22 : 4n-6 | 0∙44  |  | 0∙03 |  | 0∙09  | † |  | 0∙01 |  | 0∙07 | † |  | 0∙01 |  | 0∙46  |  |  | 0∙02 |  | 0∙11  | † |  | 0∙01 |  | 0∙08 | † |  | 0∙01 |  | 0∙264 | <0∙001 | 0∙882 |
| 22 : 5n-6 | 2∙98 |  | 0∙31 |  | 0∙12 | † |  | 0∙01 |  | 0∙09 | † |  | 0∙01 |  | 6∙07 | \* |  | 0∙12 |  | 0∙09 | † |  | 0∙01 |  | 0∙08 | † |  | 0∙02 |  | <0∙001 | <0∙001 | <0∙001 |
| 22 : 5n-3  | 0∙05  |  | 0∙03 |  | 0∙62  | † |  | 0∙03 |  | 0∙93 | †,†† |  | 0∙07 |  | 0∙08  |  |  | 0∙04 |  | 0∙83  | \*,† |  | 0∙05 |  | 1∙22 | \*,†,†† |  | 0∙14 |  | 0∙004 | <0∙001 | 0∙185 |
| 22 : 6n-3  | 1∙39  |  | 0∙22 |  | 6∙60  | † |  | 0∙33 |  | 8∙09 | †,†† |  | 0∙21 |  | 1∙26  |  |  | 0∙02 |  | 9∙00  | \*,† |  | 0∙27 |  | 10∙23 | \*,†,†† |  | 0∙21 |  | <0∙001 | <0∙001 | <0∙001 |
| SFA | 36∙29  |  | 0∙31 |  | 36∙96  |  |  | 0∙22 |  | 36∙82  |  |  | 0∙27 |  | 35∙95  |  |  | 0∙26 |  | 36∙46  |  |  | 0∙44 |  | 36∙61 |  |  | 0∙38 |  | 0∙189 | 0∙117 | 0∙908 |
| MUFA | 12∙36  |  | 0∙35 |  | 12∙07  |  |  | 0∙70 |  | 12∙53  |  |  | 0∙45 |  | 10∙27  | \* |  | 0∙69 |  | 10∙25 | \* |  | 0∙32 |  | 10∙49 | \* |  | 0∙19 |  | <0∙001 | 0∙770 | 0∙958 |
| n-3 PUFA | 1∙83  |  | 0∙35 |  | 10∙30  | † |  | 0∙43 |  | 15∙05  | †,†† |  | 0∙61 |  | 1∙60  |  |  | 0∙05 |  | 12∙44  | \*,† |  | 0∙32 |  | 16∙93 | \*,†,†† |  | 0∙53 |  | 0∙001 | <0∙001 | 0∙013 |
| n-6 PUFA | 48∙67  |  | 0∙63 |  | 39∙64  | † |  | 0∙51 |  | 34∙67  | †,†† |  | 0∙62 |  | 51∙66  | \* |  | 0∙60 |  | 40∙14  | † |  | 0∙41 |  | 35∙26 | †,†† |  | 0∙31 |  | 0∙003 | <0∙001 | 0∙038 |
| n-6/n-3 PUFA | 30∙38  |  | 2∙97 |  | 3∙88  | † |  | 0∙12 |  | 2∙33  | † |  | 0∙11 |  | 32∙53  |  |  | 1∙18 |  | 3∙24  | † |  | 0∙07 |  | 2∙10 | † |  | 0∙08 |  | 0∙692 | <0∙001 | 0∙518 |

1 0%, 1%, and 2% n3, 0%, 1%, and 2% n-3 PUFA diet with corn oil injection; 0%, 1%, and 2% n3+E2, 0%, 1%, and 2% n-3 PUFA diet with 17β-estradiol-3-benzoated (E2) injection; SEM, standard errors of mean

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