

Posters

Omega-3 polyunsaturated fatty acid composition of Sydney rock oyster in different seasons

XQ Su, HT Mateos

School of Biomedical Sciences, Victoria University, Melbourne, VIC 8001

Background - The richest food source of long chain n-3 polyunsaturated fatty acid (PUFA) is seafood. Previous studies showed that n-3 PUFA composition varied between the seasons. However, there has been no report on the seasonal variation of fatty acid composition of Sydney rock oyster, *Saccostrea commercialis*.

Objective - To measure the fatty acid composition of Australian commercial oyster species, *Saccostrea commercialis* in different seasons.

Design - Five to eight samples of oysters were analysed bimonthly for a whole year. The total lipid was extracted with chloroform-methanol (2:1, v/v) containing butylated hydroxytoluene. The fatty acid methyl esters were prepared by saponification using KOH, followed by transesterification in BF₃ in methanol. The fatty acid methyl esters were separated by gas liquid chromatography. One-way ANOVA and Tukey HSD multiple comparisons were performed to determine differences in individual fatty acid levels between different seasons.

Outcomes - Oysters harvested in late summer (February), autumn (April) and winter (August) had a higher percentage composition of total n-3 PUFA than samples from early winter (June) and summer (December) ($P < 0.05$). Higher composition of both EPA and DHA were recorded from February to April, and August to October. August samples also showed the lowest composition of SFA.

Fatty Acids	February	April	June	August	October	December
20:5n-3 (EPA)	14.4 ± 0.7	14.0 ± 0.9	13.4 ± 1.0	15.6 ± 1.0	14.2 ± 0.8	12.2 ± 1.9**
22:6n-3 (DHA)	16.0 ± 2.6	18.6 ± 3.2	14.5 ± 1.3	17.2 ± 1.0	15.8 ± 1.2	15.0 ± 2.0**
Total n-3 PUFA	41.1 ± 2.7	42.9 ± 3.3	36.9 ± 2.1	43.3 ± 1.4	39.5 ± 1.9	36.9 ± 3.0**
Total n-6 PUFA	6.1 ± 0.4	6.3 ± 0.4	5.3 ± 0.6	6.4 ± 0.4	6.7 ± 0.7	5.5 ± 0.6**
Total SFA	36.9 ± 1.4	34.7 ± 1.9	39.2 ± 2.6	31.9 ± 1.6	36.7 ± 2.0	43.3 ± 4.0**
Total MUFA	15.9 ± 2.1	16.1 ± 2.9	18.6 ± 1.0	18.3 ± 0.9	17.1 ± 0.8	14.2 ± 1.5**

Values are mean ± SD. ** $P < 0.01$.

Conclusion - Composition of n-3 PUFA in oysters is related to the season when animals are harvested and this may be attributed to several factors such as water temperature, food availability and reproductive activities.

Nutrient intake and plate waste from an Australian residential care facility

JA Grieger, CA Nowson

School of Exercise and Nutrition Sciences, Deakin University, Burwood, Victoria, Australia

Background - The risk of developing nutritional deficiencies appears to be high among the institutionalised elderly, but few studies have assessed the food waste (plate waste), energy, and nutrient intake among residents in Australian residential care facilities.

Objectives - To determine the plate waste, energy, and nutrient intake, from elderly residents living in a long-term care facility.

Subjects - Forty five High Level Care (HLC) and 21 Low Level Care (LLC) residents.

Design - Single, whole day assessment of plate waste, energy, and nutrient intake, using a visual rating plate waste scale.

Outcomes - Mean plate wastage from main meals was 23%, which was similar to that wasted at mid meals (17%). The lowest mean wastage occurred at breakfast (10%) in comparison with lunch (24%, $P < 0.001$) and dinner (29%, $P < 0.001$). The mean (SD) daily energy served in HLC was lower than energy served in LLC (7.4 (1.2) MJ vs. 8.2 (1.8) MJ, $P = 0.042$). The mean daily energy intake in HLC was 5.8 (1.8) MJ, which was no different to the intake in LLC (6.0 (2.2) MJ). Seventy-nine percent of residents consumed less than 7.5 MJ per day, with no difference between HLC and LLC. The mean calcium intake was 781 (352) mg, with no difference between HLC and LLC, and the median vitamin D intake was 2.26 [inter-quartile range, 1.88] µg. The mean energy intake from mid-meal snacks was 863 (512) kJ.

Conclusion - On the day of measurement, three-quarters of the group were at risk of consuming an inadequate energy intake, and low intakes of calcium and vitamin D. Although wastage was not excessive and energy served was adequate, the amount of food eaten was insufficient to meet energy and nutrient requirements for a significant number of residents.