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Dietary intake of long chain n-3 polyunsaturated fatty acids in adults with asthma

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Background – Increases in the prevalence of asthma may be explained by changes in the dietary intake of long chain omega-3 polyunsaturated fatty acids (LCn-3 PUFA’s), which are shown to have anti-inflammatory properties.

Objective – To evaluate the dietary intake of LCn-3 PUFA’s in adult women with and without asthma and to examine the effect of inhaled corticosteroid use (ICS) on dietary intake.

Design – We recruited asthmatic women (n=34) and non-asthmatic controls (n=26). Participants completed a food frequency questionnaire and dietary analysis was determined using Foodworks software, Xyris, QLD.

Outcomes – There were no significant differences in age and BMI between the asthmatic and non-asthmatic control groups. Asthmatic women had lower lung function compared to controls (Mean ± SEM) (FEV1%; 96 ± 2% vs. 100 ± 1%, P=0.51). The median (Q1-Q3) inhaled corticosteroid dose for asthmatic women was 625 (287.5-1000) µg/day. A significant difference in the dietary intake of LCn-3 PUFA’s between asthmatic and non-asthmatic controls was observed (Mean (g/day) ± SEM) (Asthma: 0.16 ± 0.42, Control: 0.05 ± 0.005, P=0.02). The control group had a lower LCn-3 PUFA intake compared to the Australian average (0.159 g/day) (1). Further subgroup analysis showed that there was no significant difference in dietary intake of asthmatic women using ICS compared to asthmatic women who were steroid naïve.

Conclusions – An unexpected elevation in the LCn-3 PUFA intake was seen in these asthmatic women. This may be likely to represent an increased awareness of the health benefits associated with LCn-3 PUFA consumption in asthma, leading to an increased dietary intake. These results also indicate that the non-asthmatic control group are failing to meet Australian intake recommendations for LCn-3 PUFA’s.

References

P08

Knowledge and consumption of long chain n-3 polyunsaturated fatty acids (LCn-3PUFA) in young adult tertiary students

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Background – LCn-3PUFA are known to have beneficial effects on human health. However, changes to the human diet in the past 150 years appear to have resulted in reduced intakes of LCn-3PUFA which now fall well short of an adequate intake for optimal health.

Objective – To examine awareness of and intake of LCn-3PUFA major food sources by young adult consumers.

Design – Questionnaires about knowledge and consumption of omega-3 fats were completed by 78 tertiary students (28 male and 50 female). Demographic variables were considered as influences on behaviour.

Outcomes – Intake of LCn-3PUFA (ALA, EPA and DHA) was considerably lower in females (60 mg/day) than in males (100 mg/day). These intakes were both lower than the average Australian adult intakes (females 159 mg/day and males 222 mg/day), and much lower than the recommended 430 mg/day for females and 610 mg/day for males. Seventy four percent of participants did not know about the best food sources of n-3 PUFA or the potential health benefits of consuming these fatty acids.

<table>
<thead>
<tr>
<th>Fatty Acid</th>
<th>Australian adult intake (mg/d)</th>
<th>Student intake (mg/d) (n=28)</th>
<th>Australian adult intake (mg/d)</th>
<th>Student intake (mg/d) (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:5n-3 (EPA)</td>
<td>66</td>
<td>20</td>
<td>47</td>
<td>10</td>
</tr>
<tr>
<td>22:6n-3(DHA)</td>
<td>124</td>
<td>70</td>
<td>90</td>
<td>40</td>
</tr>
<tr>
<td>EPA+DPA+DHA</td>
<td>222</td>
<td>10</td>
<td>159</td>
<td>60</td>
</tr>
<tr>
<td>18:3n-3 (ALA)</td>
<td>1380</td>
<td>420</td>
<td>987</td>
<td>280</td>
</tr>
<tr>
<td>Total n-3PUFA</td>
<td>1602</td>
<td>520</td>
<td>1146</td>
<td>340</td>
</tr>
</tbody>
</table>

Conclusions – The low intake of LCn-3PUFA by young adults is a concern. It is possible that awareness and consumption increases with age, as reflected in the Australian adult population. Consideration should be given to promotions targeting young adults to ensure an adequate consumption to maximise the health benefits in later years.