Dietary intake and biomarkers of acrylamide exposure and risk of endometrial and ovarian cancer

A molecular epidemiologic study in the European Prospective Investigation into Cancer and Nutrition

Mireia Obón Santacana
REFERENCE LIST
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Dietary intake and biomarkers of acrylamide exposure and risk of endometrial and ovarian cancer
A molecular epidemiologic study in the European Prospective Investigation into Cancer and Nutrition


9. ANNEX

9.1 Publication 3: Supplemental table

Table 12. Supplemental table 1: Baseline characteristics of the 801 non-smoking postmenopausal women

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>P5</th>
<th>P25</th>
<th>Median</th>
<th>P75</th>
<th>P95</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lifestyle variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Age at recruitment (y)</td>
<td>58.79</td>
<td>6.30</td>
<td>49.29</td>
<td>54.33</td>
<td>58.83</td>
<td>63.06</td>
<td>69.44</td>
</tr>
<tr>
<td>Body Mass Index (kg/m²)</td>
<td>26.73</td>
<td>4.90</td>
<td>20.07</td>
<td>23.21</td>
<td>25.96</td>
<td>29.41</td>
<td>36.07</td>
</tr>
<tr>
<td>Alcohol at recruitment (g/d)</td>
<td>6.04</td>
<td>8.63</td>
<td>0.00</td>
<td>0.18</td>
<td>2.13</td>
<td>8.87</td>
<td>24.26</td>
</tr>
<tr>
<td><strong>Dietary variables (g/day)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total dietary fiber</td>
<td>22.45</td>
<td>7.02</td>
<td>12.28</td>
<td>17.76</td>
<td>21.73</td>
<td>26.28</td>
<td>34.70</td>
</tr>
<tr>
<td>Total proteins</td>
<td>83.02</td>
<td>25.34</td>
<td>45.70</td>
<td>65.42</td>
<td>81.00</td>
<td>97.23</td>
<td>128.04</td>
</tr>
<tr>
<td>Meat and meat products</td>
<td>90.88</td>
<td>48.77</td>
<td>21.05</td>
<td>56.34</td>
<td>84.03</td>
<td>121.54</td>
<td>175.53</td>
</tr>
<tr>
<td>Potatoes and other tubers</td>
<td>78.00</td>
<td>58.92</td>
<td>7.09</td>
<td>32.90</td>
<td>67.11</td>
<td>114.85</td>
<td>178.94</td>
</tr>
<tr>
<td>Vegetables</td>
<td>215.85</td>
<td>139.33</td>
<td>56.35</td>
<td>114.68</td>
<td>183.18</td>
<td>292.20</td>
<td>472.48</td>
</tr>
<tr>
<td>Olives</td>
<td>1.30</td>
<td>4.44</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>8.57</td>
<td>8.57</td>
</tr>
<tr>
<td>Fruits, nuts, seeds</td>
<td>289.73</td>
<td>179.12</td>
<td>69.58</td>
<td>161.15</td>
<td>259.53</td>
<td>376.37</td>
<td>628.21</td>
</tr>
<tr>
<td>Flour, flakes, starches, semolina</td>
<td>0.56</td>
<td>2.13</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.16</td>
<td>2.54</td>
</tr>
<tr>
<td>Pasta, rice, other grains</td>
<td>58.64</td>
<td>56.09</td>
<td>3.36</td>
<td>20.03</td>
<td>41.86</td>
<td>80.12</td>
<td>176.62</td>
</tr>
<tr>
<td>Cereal and cereal products</td>
<td>198.09</td>
<td>93.95</td>
<td>79.97</td>
<td>135.42</td>
<td>182.42</td>
<td>241.91</td>
<td>375.86</td>
</tr>
<tr>
<td>Bread, crisp bread, rusks</td>
<td>116.16</td>
<td>65.97</td>
<td>28.80</td>
<td>69.50</td>
<td>104.77</td>
<td>152.00</td>
<td>234.88</td>
</tr>
<tr>
<td>Breakfast cereals</td>
<td>17.25</td>
<td>45.85</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>11.17</td>
<td>115.10</td>
</tr>
<tr>
<td>Salty biscuits, aperitif biscuits, crackers</td>
<td>2.14</td>
<td>5.10</td>
<td>0.00</td>
<td>0.00</td>
<td>0.22</td>
<td>2.14</td>
<td>11.43</td>
</tr>
<tr>
<td>Dry cakes, biscuits</td>
<td>9.63</td>
<td>20.88</td>
<td>0.00</td>
<td>0.00</td>
<td>3.44</td>
<td>12.32</td>
<td>38.93</td>
</tr>
<tr>
<td>Pastries</td>
<td>0.91</td>
<td>2.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.99</td>
<td>4.62</td>
</tr>
<tr>
<td>Cakes and biscuits</td>
<td>46.57</td>
<td>47.92</td>
<td>0.00</td>
<td>15.35</td>
<td>34.43</td>
<td>63.76</td>
<td>128.57</td>
</tr>
<tr>
<td>Chocolate, candy bars, paste, confetti</td>
<td>6.26</td>
<td>11.21</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>8.04</td>
<td>25.00</td>
</tr>
<tr>
<td>Confectionery non-chocolate, candied fruits</td>
<td>2.57</td>
<td>7.10</td>
<td>0.00</td>
<td>0.00</td>
<td>0.13</td>
<td>1.67</td>
<td>12.90</td>
</tr>
<tr>
<td>Snacks</td>
<td>2.29</td>
<td>9.26</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.21</td>
<td>10.01</td>
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<tr>
<td>Olive oil</td>
<td>9.00</td>
<td>14.06</td>
<td>0.00</td>
<td>0.00</td>
<td>0.47</td>
<td>15.22</td>
<td>39.51</td>
</tr>
<tr>
<td>Deep frying fats</td>
<td>0.32</td>
<td>1.04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.03</td>
</tr>
<tr>
<td>Tea</td>
<td>220.49</td>
<td>318.36</td>
<td>0.00</td>
<td>0.00</td>
<td>41.42</td>
<td>375.00</td>
<td>855.00</td>
</tr>
<tr>
<td>Coffee</td>
<td>282.75</td>
<td>262.19</td>
<td>0.00</td>
<td>70.00</td>
<td>191.90</td>
<td>475.00</td>
<td>750.00</td>
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<tr>
<td>Decaffeinated coffee</td>
<td>38.39</td>
<td>110.55</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>3.57</td>
<td>250.00</td>
</tr>
<tr>
<td><strong>Energy intake (kcal/day)</strong></td>
<td>1,913.10</td>
<td>550.34</td>
<td>1,132.44</td>
<td>1,529.36</td>
<td>1,842.57</td>
<td>2,214.45</td>
<td>2,861.80</td>
</tr>
</tbody>
</table>

SD, Standard deviation; P5, 5th percentile; P25, 25th percentile; P75, 75th percentile; P95, 95th percentile
9.2 Ethical Approvals

International Agency for Research on Cancer

Dr E. Duell
Unit of Nutrition, Environment and Cancer
Cancer Epidemiology Research Program
Bellvitge Biomedical Research Institute (IDIBELL)
Catalan Institute of Oncology (ICO)
Avda Gran Via 199-203
08907 L’Hospitalet de Llobregat
Barcelona
Spain

Ref.: IEC 12-01

16th March 2012

Dear Dr Duell,

You submitted the following project for review by the IARC Ethics Committee (IEC):

Project No. 12-01

Biomarkers of acrylamide exposure and risk of endometrial and ovarian cancer:
a molecular epidemiologic study in EPIC

This project was evaluated by the IEC during its meeting on Wednesday, 22nd February 2012.
The members present were as follows:

E. Bayle (IARC)
J.-P. Boissel (IEC Chair, external member)
M. Guerrier (external member)
Y. Ikedoumi (external member)
M. Plummer (IARC)
A. Saxena (WHO)
E. Seleiro (IARC)
P.-J. Souquet (external member)
B. Sylla (IARC)
P. Vineis (IEC Vice-Chair, external member)
S. Haver-Legros (Secretary to the IEC)

The decision of the IEC concerning the above project is as follows:

Cleared after ethical review

Yours sincerely,

Professor J.-P. Boissel
Chair, IARC Ethics Committee
INFORME DEL COMITÉ ÉTICO DE INVESTIGACIÓN CLÍNICA
SOBRE PROYECTOS DE INVESTIGACIÓN

El Comité Ético de Investigación Clínica del Hospital Universitari de Bellvitge, mediante su procedimiento de revisión rápido de la documentación contemplado en las Normas de Funcionamiento Interno del Comité, ha evaluado la documentación presentada para el proyecto de investigación con nuestra ref. PR061/11, titulado:

"BIOMARKERS OF ACRYLAMIDE EXPOSURE AND RISK OF ENDOMETRIAL AND OVARIAN CANCER: A MOLECULAR EPIDEMIOLOGIC STUDY IN EPIC"

Presentado por el Dr. Eric Duell del Programa de Investigación en Epidemiología del Cáncer, de la Unidad deNutrición, Medio Ambiente y Cáncer del ICO – Fundació IDIBELL, como investigador principal, y vista la aprobación previa que consta en el Acta 07/11 de 7 de Abril de 2011, se ha acordado dar INFORME FAVORABLE al mencionado proyecto.

Fdo. Dr. Enric Sospedra Martínez
Secretario del CEIC

L’Hospitalet de Llobregat, 23 de Marzo de 2012
9.3 Curriculum Vitae and publications

PERSONAL INFORMATION:
- **Surname, name:** Obón Santacana, Mireia
- **Nationality:** Spanish
- **Date of birth:** 15th December 1988
- **E-mail:** mireia.obon@gmail.com

EDUCATION AND TRAINING:

<table>
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<tr>
<th>DATE</th>
<th>INSTITUTION</th>
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<tbody>
<tr>
<td>2006-2009</td>
<td>Ramon Llull University – Health Sciences Faculty</td>
<td>University title of Human Nutrition and Dietetics</td>
</tr>
<tr>
<td></td>
<td>Blanquerna</td>
<td>Award: Best academic expedient for years 2006 to 2009</td>
</tr>
<tr>
<td>2009-2010</td>
<td>Ramon Llull University – Health Sciences Faculty</td>
<td>Superior university title of Human Nutrition and Dietetics</td>
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<td></td>
<td>Blanquerna</td>
<td></td>
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<tr>
<td>2010-2012</td>
<td>University of Barcelona (Pharmacy Faculty)– Rovira i</td>
<td>Master’s in Nutrition and</td>
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<tr>
<td></td>
<td>Virgili University – University of Balearic Islands.</td>
<td>Metabolism – Investigation Line</td>
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<tr>
<td>2012–2016</td>
<td>University of Barcelona (Medicine Faculty) – Catalan</td>
<td>PhD candidate in Medicine, Cancer and Human Genetics Line</td>
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<tr>
<td></td>
<td>Institute of Oncology</td>
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SPECIAL COURSES:
- **Name of the course:** 1st, 2nd, and 3rd Nutrition Conference
- **Institution:** Catalan Nutritionist Association (ACDN)
- **Dates:** November 14th 2009, November 27th 2010, and November 12th 2011, Barcelona, Spain

- **Name of the course:** Epidemiologic Principles & Methods
- **Professors:** Dr. Kenneth Rothman y Dr. Elizabeth Hatch
- **Institution:** Medicine Faculty ‘A.Gemelli’; Università Cattolica del Sacro Cuore
- **Date:** November 4th – 8th 2013, Rome, Italy

- **Name of the course:** Diet and cancer: from prevention to survival
- **Institution:** The Graduate School VLAG in co-operation with the Department of Human Nutrition of Wageningen University, and the Wereld Kanker Onderzoek Fonds (WCRF NL)
- **Date:** October 1st-3rd 2014, Wageningen, The Netherlands

- **Name of the course:** Micronutrients genomics project & Microgennet Workshop program
- **Institution:** Vereniging European Nutrigenomics Organisation (NuGO) with the University of Barcelona
- **Date:** September 10th 2015, Barcelona, Spain

- **Name of the course:** Update in Breast Cancer: from prevention to log survival
- **Institution:** Spanish Association Against Cancer (AECC), Health Department of the Catalan Government, Bellvitge Hospital, and Catalan Institute of Oncology (ICO)
- **Date:** October 16th 2015, Barcelona, Spain

- **Name of the course:** Analysis of Genetic Epidemiology Studies
- **Institution:** Institute of Predictive and Personalized Medicine of Cancer in co-operation with the Catalan Institute of Oncology (ICO)
- **Date:** February 26th 2016, Badalona, Spain
Dietary intake and biomarkers of acrylamide exposure and risk of endometrial and ovarian cancer
A molecular epidemiologic study in the European Prospective Investigation into Cancer and Nutrition

− **Name of the course:** XIV Advanced oncology course on translational investigation and digestive tumors
− **Institution:** The Institute for Health Science Research Germans Trias i Pujol (IGTP), the Catalan Institute of Oncology (ICO), and the ‘Consell Català de Formació Continuada Professions Sanitàries’
− **Date:** May 12th-13th 2016, Badalona, Spain

**WORK EXPERIENCE:**
− **Position:** Clinical nutritionist
− **Date:** June 2010 – July 2011; January 2015 – July 2015
− **Institution:** Nutrition department, Vilafranca del Penedès Hospital, Barcelona, Spain

− **Position:** Nutritional epidemiologist (Pre-doctoral investigator)
− **Start date:** March 2012
− **End date:** January 2016
− **Institution:** Unit of Nutrition and Cancer, Cancer Epidemiology Research Program, Catalan institute of Oncology (ICO) - Bellvitge Biomedical Research Institute (IDIBELL), Barcelona, Spain

− **Position:** Nutritional epidemiologist
− **Start date:** January 2016
− **End date:** On going
− **Institution:** Institute of Predictive and Personalized Medicine of Cancer (IMPPC), Badalona, Spain

**TEACHING ACTIVITIES:**
− **Session:** “Nutrition and Health” workshop
− **Dates:** January 20th, 2010; January 27th, 2011; and January 12th, 2012
− **Institution:** Ramon Llull University – Health Sciences Faculty Blanquerna

− **Session:** “Professional work experience as a Nutritionist”
− **Dates:** May 14th, 2013
− **Institution:** Ramon Llull University – Health Sciences Faculty Blanquerna

− **Work done:** Prepare and develop a master online teaching module on “Molecular basis of cancer and potential anticarcinogenic diet agents”
− **Dates:** July 2014 – September 2015
− **Institution:** Fundación Universitaria Iberoamericana

**POSTERS:**
− **Title:** Dietary intake of acrylamide and pancreatic cancer risk in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort
− **Authors:** Obón-Santacana M; Lujan-Barroso L; Slimani N; Bueno-de-Mesquita HB*; Duell EJ*. *
  Contributed equally
− **Congress:** IUNS 20th International Congress of Nutrition
− **Date:** September 2013, Granada, Spain
- **Title:** Dietary intake of acrylamide and risk for endometrial and epithelial ovarian cancer in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort
- **Authors:** Obón-Santacana M; Kaaks R; Peeters PH; Duell EJ
- **Congress:** III World Congress of Public Health Nutrition
- **Date:** November 2014, Las Palmas de Gran Canaria, Spain

- **Title:** Acrylamide and glycidamide hemoglobin adduct levels and risk of endometrial and epithelial ovarian cancer in EPIC
- **Authors:** Obón-Santacana M; Lujan-Barroso L, Kaaks R; Peeters PH; Riboli; Duell EJ
- **Congress:** 12th European Nutrition Conference – FENS 2015
- **Date:** October 2015, Berlin, Germany

- **Title:** Nuts and seeds intake and pancreatic cancer risk in the EPIC cohort
- **Authors:** Obón-Santacana M; Friesling H; Jenab M; Riboli E; Bueno de Mesquita H.B; Duell EJ.
- **Congress:** 12th European Nutrition Conference – FENS 2015
- **Date:** October 2015, Berlin, Germany

- **Title:** GCAT|Genomes for Life: A prospective cohort study of the genomes of Catalonia
- **Authors:** Obón-Santacana M; Vilardell M; Carreras A; Duran X; Valeta G; Puig L; Perucho M; Moreno V*; de Cid R*; * Contributed equally.
- **Congress:** 49th European Human Genetics Conference – ESHG/EMPAG 2016
- **Date:** May 2016, Barcelona, Spain

**ORAL PRESENTATIONS:**
- **Title:** Dietary intake of acrylamide and pancreatic cancer risk in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort
- **Place:** CREAL (Center for Research in Environmental Epidemiology)
- **Date:** January 2013, Barcelona, Spain

- **Title:** Dietary intake of acrylamide and risk of endometrial and ovarian cancers in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort
- **Place:** International Workshop: Ovarian and Endometrial, and Breast cancer EPIC working group meeting, Naples, Italy.
- **Date:** October 2013

- **Title:** Dietary intake and biomarkers of acrylamide exposure and risk of endometrial and ovarian cancer in the EPIC study
- **Place:** 1st IDIBELL PhD day, Hospitalet del Llobregat, Spain.
- **Date:** November 2015

**SCIENTIFIC PUBLICATIONS:**


**AWARDS AND ACHIEVEMENTS**
- Scholarship awarded by “Red Temática de Investigación Cooperativa en Cáncer (RTICC), Spain” in order to attend to the “Epidemiologic Principles and Methods course” in Rome, Italy. November 2013
- Scholarship awarded by “Red Temática de Investigación Cooperativa en Cáncer (RTICC), Spain” in order to attend and present an oral communication in the International Workshop “Ovarian and Endometrial, and Breast cancer EPIC working group meeting” in Naples, Italy. October 2013
- Scholarship awarded by “Red Temática de Investigación Cooperativa en Cáncer (RTICC), Spain” in order to attend and present a poster in the International Congress “III World Congress of Public Health Nutrition”, in Las Palmas de Gran Canarias, Spain. November 2014
- Scholarship awarded by “Red Temática de Investigación Cooperativa en Cáncer (RTICC), Spain” in order to attend and present two posters in the 12th European Nutrition Conference – FENS 2015, in Berlin, Germany. October 2015

Barcelona, July 2016