

Estimating the cardiovascular mortality burden attributable to the European Common Agricultural Policy on dietary saturated fats

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Objective To estimate the burden of cardiovascular disease within 15 European Union countries (before the 2004 enlargement) as a result of excess dietary saturated fats attributable to the Common Agricultural Policy (CAP).

Methods A spreadsheet model was developed to synthesize data on population, diet, cholesterol levels and mortality rates. A conservative estimate of a reduction in saturated fat consumption of just 2.2 g was chosen, representing 1% of daily energy intake. The fall in serum cholesterol concentration was then calculated, assuming that this 1% reduction in saturated fat consumption was replaced with 0.5% monounsaturated and 0.5% polyunsaturated fats. The resulting reduction in cardiovascular and stroke deaths was then estimated, and a sensitivity analysis conducted.

Findings Reducing saturated fat consumption by 1% and increasing monounsaturated and polyunsaturated fat by 0.5% each would lower blood cholesterol levels by approximately 0.06 mmol/l, resulting in approximately 9800 fewer coronary heart disease deaths and 3000 fewer stroke deaths each year.

Conclusion The cardiovascular disease burden attributable to CAP appears substantial. Furthermore, these calculations were conservative estimates, and the true mortality burden may be higher. The analysis contributes to the current wider debate concerning the relationship between CAP, health and chronic disease across Europe, together with recent international developments and commitments to reduce chronic diseases. The reported mortality estimates should be considered in relation to the current CAP and any future reforms.

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Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Cardiovascular diseases (CVDs) are the main cause of death in Europe, accounting for 49% of all deaths (and 30% of all premature deaths before the age of 65).¹ Although age-specific mortality rates from CVDs have halved in western Europe in the last 20 years, the prevalence of CVD is actually increasing due to an ageing population.¹ CVD is estimated to cost the European Union (EU) €169 billion annually.² Apart from smoking, the main risk factors for CVD are raised cholesterol and blood pressure.³ Diet thus plays a dominant role in promoting or preventing CVD.

Policy decisions made at the European level can impact directly and indirectly on food availability and consumption at the national level. The EU Common Agricultural Policy (CAP) has had a major influence on agriculture and nutrition across Europe, not least

through increasing the availability and consumption of products containing saturated fats. Currently, the CAP annual budget is approximately €45 billion, representing around 45% of the overall EU budget.⁴

The original CAP objectives are firstly to ensure an adequate supply of food to the population, and secondly to prevent rural poverty.^{4,5} However, direct financial support to farmers who produced milk and beef plus subsidies⁴ resulted in “mountains” and “lakes” of unsold food and drink, which the European Commission (EC) has subsequently been attempting to reduce through several CAP reforms. The EC then needed to dispose of this excess produce, principally as fats hidden in processed foods.^{6,7}

EU support for the dairy industry exceeds €16 billion, including €500 million per year on domestic con-

sumption aid for butter alone. This is equivalent to 1.5 kg per EU citizen per year, or 4 g per day.⁸ The school milk subsidy scheme introduced by the EC⁹ likewise means that a child drinking full-fat rather than skimmed milk will consume an additional 1.5 kg of saturated fat every year approximately 4 g per day.¹⁰ British children obtain 23% of their daily saturated fat intake from full-fat milk.^{11,12}

These full-fat dairy products are a significant source of saturated fat to the population, potentially increasing coronary heart disease (CHD) and obesity. Although some studies have suggested that consumption of full-fat milk does not increase the risk of coronary death, these have methodological limitations.^{13,14}

Therefore CAP, while established on the basis of sound public health principles, may now have become a

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hazard to public health throughout the EU and may be promoting inequalities in health through the types of food consumed. This might controversially be described as “a system designed to kill Europeans through CHD”.¹⁵

The large reduction in CHD mortality in North Karelia and throughout Finland principally reflected a decrease in mean population serum cholesterol level. Reduction in consumption of dairy fat in the Finnish population contributed substantially to this cholesterol reduction¹⁶ and the total energy intake from saturated fats fell from 21% in 1972 to 14% in 1997, with a compensatory increase in polyunsaturated fats from 3.5% to 5%.¹⁷ More recently, Poland reported a 7% reduction in saturated fat consumption in 10 years.¹⁸ Furthermore, Lock and Pomerleau estimated that everyone eating the minimum recommended level of 400 g of fruit and vegetables per person per day would prevent approximately 7% CHD and 4% of strokes, representing 50 000 deaths per year in the pre-2004 EU countries.^{19,20}

We therefore aimed to estimate the burden of CVD as a result of excess dietary saturated fats attributable to CAP. We focussed on the 15 countries in the EU, prior to the 2004 enlargement, as the additional 10 European Urban Research Association (EURA) countries would not have been exposed to CAP.

Methods

Following Marshall,²¹ we developed a spreadsheet model to synthesize data on population, diet, cholesterol levels, and cardiovascular mortality rates and risk factor levels. Average consumption of saturated fat across the 15 EU countries is 13.1% (Table 1), higher

Table 1. Percentage of total energy consumption from saturated fat in 15 EU countries, 1998^a

| Country | % |
|------------------------|--------------------|
| Austria | 13.9 |
| Belgium and Luxembourg | 14.5 |
| Denmark | 12.6 |
| Finland | 14.4 |
| France | 15.5 |
| Germany | 13.7 |
| Greece | 11.1 |
| Ireland | 13.5 |
| Italy | 11.8 |
| Netherlands | 14.6 |
| Portugal | 10.6 |
| Spain | 10.9 |
| Sweden | 12.8 |
| United Kingdom | 13.5 |
| Average | 13.1 |
| Range | 10.6 – 15.5 |

^a Latest available data.

than the population goals of less than 10% of energy consumption. Existing evidence indicates that dietary changes can result in a population reduction in saturated fat consumption. In Finland, saturated fat consumption fell by 5% in 15 years.²² Having observed the substantial 5% and 7% reductions in saturated fat consumption in Finland and Poland, we chose a conservative reduction of just 1%. We hypothesized that without CAP subsidies for dairy products, (e.g. butter, full-fat milk), per capita saturated fat consumption would have been 1% lower (2.2 g less), and that monounsaturate and polyunsaturate intake would each have been 0.5% higher (reflecting a compensatory increase in vegetable oils).

Using Clarke's equation,²³ this would decrease serum cholesterol by approximately 0.063 mmol/l. Law's²⁴ meta-analysis was used to estimate the

resulting fall in CHD deaths, using age and sex-specific values. The most recent year for reporting the number of CHD and stroke deaths in the 15 EU countries was obtained from WHO.²⁵

The number of cardiovascular deaths attributable to CAP was then calculated by multiplying the predicted change in the CHD death rate, for the 0.063 mmol/l cholesterol fall, by the actual number of CHD deaths in Europe. For example, the change in CHD death rate for cholesterol fall in men aged 65–74 years = 0.021 x 52663 = 1104 deaths.

A similar procedure was then followed for calculating stroke deaths. The stroke mortality burden attributable to CAP was calculated using the 10% fall per 1.0 mmol/l fall in cholesterol low-density lipoprotein (LDL)²⁴ quantified in the Law 2003 meta-analysis.²⁶ The overall change in stroke

Table 2. CHD and stroke mortality in Europe, 2000

| Category | CHD | | Stroke | | Total CHD and stroke deaths attributable to CAP ^a (range) |
|--------------|---------------|--|---------------|--|--|
| | no. of deaths | no. of deaths attributable to CAP ^a (range) | no. of deaths | no. of deaths attributable to CAP ^a (range) | |
| Men | 308 094 | 6 075 (820–6 845) | 153 095 | 1 004 (504–1 481) | 7 079 (1 323–8 325) |
| Women | 280 394 | 3 746 (445–4 205) | 237 927 | 2 020 (286–2 313) | 5 766 (731–6 521) |
| Total | 588 490 | 9 822 (1 265–11 050) | 391 020 | 3 024 (790–3 794) | 12 844 (2 054–14 846) |

CAP, Common Agricultural Policy; CHD, coronary heart disease.

^a Minimum and maximum estimates presented in parentheses.

Table 3. CHD and stroke mortality attributable to CAP in 15 EU countries

| Age groups (years) | CHD | | | Stroke | | | Combined CHD-stroke | | |
|--------------------|-------------|------|------|-------------|------|------|---------------------|------|------|
| | Best | Min. | Max. | Best | Min. | Max. | Best | Min. | Max. |
| Men | | | | | | | | | |
| All ages | 6075 | 820 | 6485 | 1004 | 504 | 1481 | 7079 | 1323 | 8325 |
| < 35 | 42 | 6 | 47 | 11 | 5 | 16 | 53 | 11 | 63 |
| 35–44 | 262 | 35 | 295 | 28 | 14 | 41 | 290 | 49 | 336 |
| 45–54 | 653 | 88 | 735 | 60 | 30 | 88 | 712 | 118 | 823 |
| 55–64 | 964 | 130 | 1086 | 83 | 42 | 122 | 1047 | 304 | 2033 |
| 65–74 | 1560 | 210 | 1758 | 187 | 94 | 275 | 1747 | 304 | 2033 |
| > 75 | 2595 | 350 | 2923 | 636 | 319 | 938 | 3231 | 669 | 3861 |
| Premature < 75 | 3522 | 476 | 3968 | 379 | 190 | 558 | 3901 | 666 | 4527 |
| Women | | | | | | | | | |
| All ages | 3757 | 447 | 4217 | 2029 | 291 | 2327 | 5785 | 737 | 6546 |
| < 35 | 11 | 2 | 12 | 9 | 5 | 14 | 20 | 7 | 26 |
| 35–44 | 39 | 5 | 43 | 21 | 11 | 32 | 60 | 15 | 76 |
| 45–54 | 97 | 12 | 109 | 35 | 18 | 53 | 132 | 29 | 162 |
| 55–64 | 200 | 24 | 225 | 46 | 23 | 70 | 246 | 47 | 294 |
| 65–74 | 561 | 67 | 630 | 129 | 65 | 196 | 690 | 132 | 825 |
| > 75 | 2839 | 337 | 3188 | 1781 | 165 | 1950 | 4620 | 502 | 5138 |
| Premature < 75 | 918 | 110 | 1030 | 248 | 291 | 377 | 1165 | 236 | 1409 |

CAP, Common Agricultural Policy; CHD, coronary heart disease.

mortality for a 0.063 mmol/l fall in cholesterol was therefore approximately 0.6% in both men and women (min. 0.3%, max. 0.9%).²⁶

A probabilistic sensitivity analysis was then conducted. We performed a Monte Carlo simulation allowing the parameters based on the Clarke equation and Law meta-analysis to vary stochastically. We generated 1000 iterations of the calculations for the numbers of deaths attributable to CAP. We then calculated point estimates and 95% confidence intervals. Results

were stratified by age and sex, and individual EU country.

Results

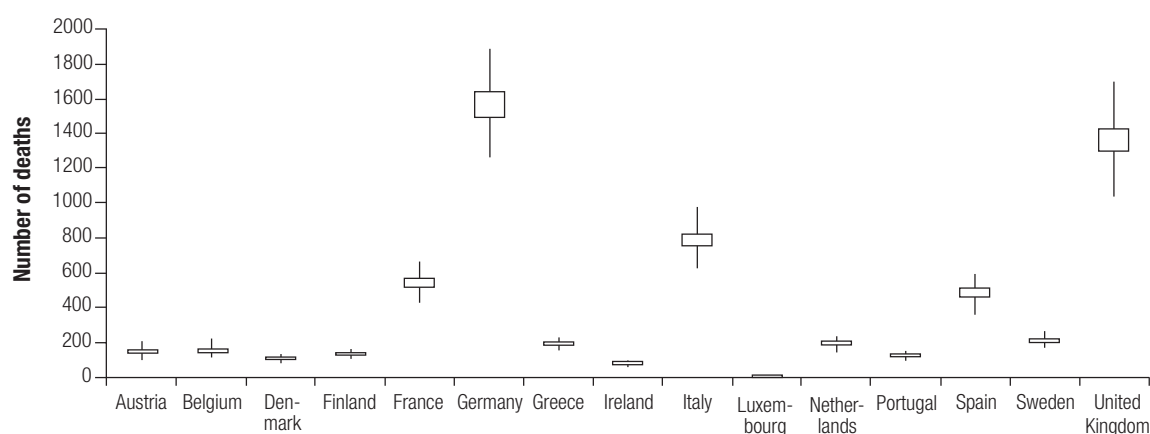
In 2000, the 15 EU member states reported 588 490 coronary heart disease deaths and 391 020 stroke deaths per annum.

The stated dietary intake assumptions (1% less saturated fat, 0.5% more monounsaturated and 0.5% more polyunsaturated fat) would have lowered blood cholesterol levels by

approximately 0.06 mmol/l. This in turn would have resulted in some 9822 fewer CHD deaths (minimum estimate 1265, maximum estimate 11 050) and 3024 fewer stroke deaths (min. estimate 790, max. estimate 3794) each year. Of this total, 4388 (min. estimate 578, max. estimate 4939) were CHD premature deaths (under 75 years) and 607 (min. estimate 471, max. estimate 906) were stroke premature deaths (Table 2 and Table 3).

Table 3 provides an overview of CHD and stroke mortality across the

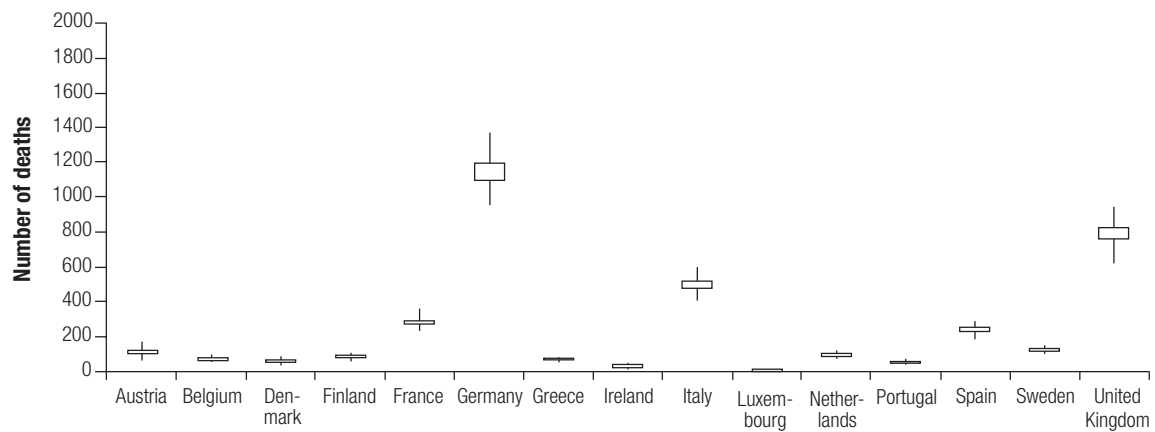
Fig. 1. Male CHD mortality attributable to CAP in 15 EU countries^a



CAP, Common Agricultural Policy; CHD, coronary heart disease.

^a Sensitivity analysis showing best, maximum and minimum estimates.

Fig. 2. Female CHD mortality attributable to CAP in 15 EU countries^a



CAP, Common Agricultural Policy; CHD, coronary heart disease.

^a Sensitivity analysis showing best, maximum and minimum estimates.

15 EU countries by age. Approximately half the specific mortality in men and women attributable to CAP was premature, occurring below the age of 75 years.

Fig. 1, Fig. 2, Fig. 3 and Fig. 4 show the excess deaths for each country; the burden was greatest in France, Germany, Italy, Spain and the United Kingdom. The data is presented in Table 4 (available at: <http://www.who.int/bulletin/volumes/86/7/08-053728/en/index.html>).

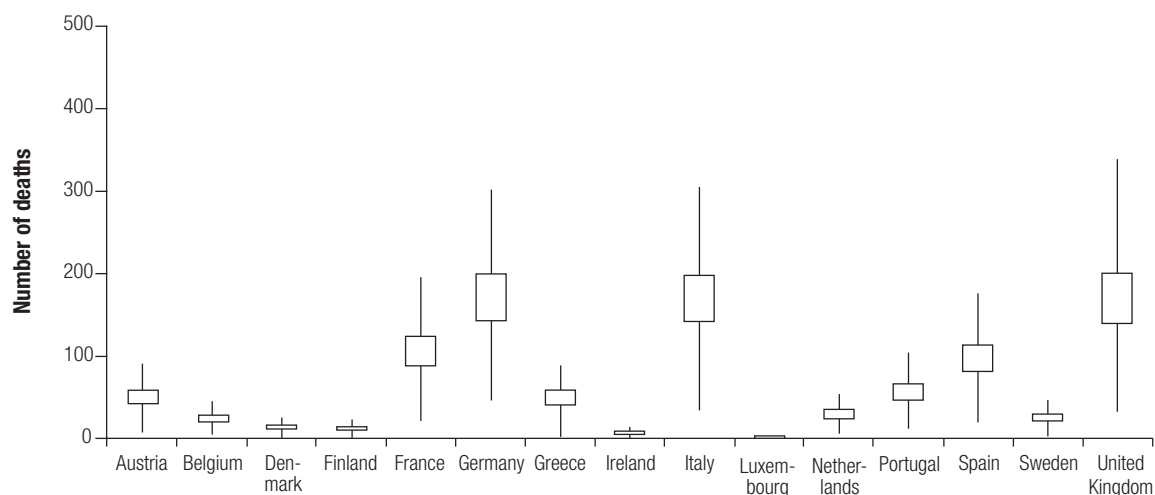
Discussion

This is perhaps the first study to quantify the impact of the CAP subsidies for dairy and meat commodities on

cardiovascular mortality. The estimated mortality contribution attributable to CAP was approximately 9800 additional CHD deaths and 3000 additional stroke deaths within the EU, half of them premature. These results were robust in the sensitivity analysis. Furthermore, these were very conservative estimates, assuming a 1% reduction in saturated fat energy intake, rather than the 5% and 7% observed in Finland and Poland. By applying data from the Nurses Health Study conducted in the United States of America, the true mortality burden may be higher still.²⁷ Reducing the number of CHD and stroke deaths by primary prevention at the population level is obviously preferential to measures targeted at in-

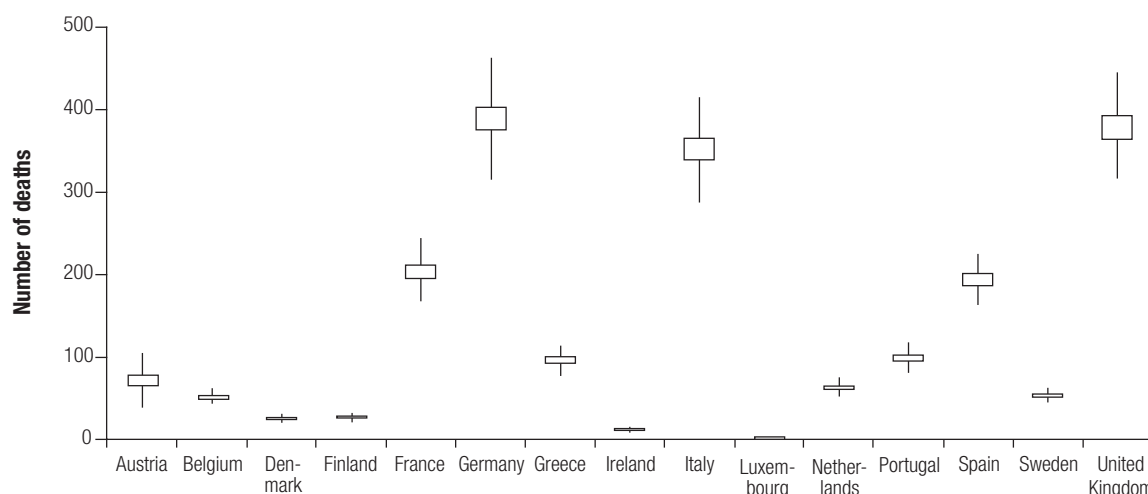
dividuals at high risk or secondary prevention therapies. The importance of reducing the consumption of saturated fat, leading to reduced cholesterol levels is also well established.²⁴ This analysis contributes to the current wider debate concerning the relationship between CAP, health and chronic disease across Europe together with recent international developments and commitments to reduce chronic diseases.²⁸⁻³⁰ It complements the findings of Joffe & Robertson³¹ and Pomerleau & Lock^{19,20} on the role of fruit and vegetables in the diet. However, consideration of how policy may directly impact upon a reduction in CHD and stroke deaths is currently underresearched.

Fig. 3. Male stroke mortality attributable to CAP in 15 EU countries^a



CAP, Common Agricultural Policy.

^a Sensitivity analysis showing best, maximum and minimum estimates.

Fig. 4. Female stroke mortality attributable to CAP in 15 EU countries^a

CAP, Common Agricultural Policy.

^a Sensitivity analysis showing best, maximum and minimum estimates.

Recent evidence of the potentially powerful impact of reducing dietary saturated fats is graphically illustrated by the recent large falls in CHD mortality in Poland, between 1990 and 2002 (by 38% in men and 42% in women). This reduction across socioeconomic groups was attributed to the abolition of national food subsidies for saturated fats and the emergence of new, competitive markets, greatly increasing consumption of polyunsaturated vegetable oils. Ironically, this beneficial decline could now be threatened as Poland implements CAP after joining the EU in 2004.³²

Our results suggest that changes in CAP subsidies would particularly benefit France, Germany, Italy, Spain and the UK. Furthermore, the “French

Paradox” of high saturated fat consumption but apparently low CVD levels may reflect both undercertification of ischaemic heart disease deaths, and a time lag effect due to previous low animal fat consumption.³³ *Eurohealth* recently devoted a whole edition to CAP health issues, recommending CAP reforms to reduce consumption of saturated fats and increase consumption of vegetable oils, fruit and vegetables.³⁴

There are limitations in this study. The data quality for CHD mortality and the year of latest available statistics from EU countries varied within countries. Furthermore, although CAP subsidies have a potentially powerful effect on markets, other factors may contribute, including the role of mar-

keting and the globalization of food cultures (such as fast food consumption and supermarkets). Although we assumed that lag times were minimal, this is consistent with the very rapid changes seen in Poland, and also in statin trials. We also used a relatively simple methodology which would benefit from further refinements, for instance, to model socioeconomic variables. However, we based our calculations on very conservative estimates; the actual CVD mortality attributable to the CAP could be even greater. Furthermore, the methodology was transparent and easily replicated.

In conclusion, CAP reforms are urgently required. ■

Competing interests: None declared.

Résumé

Estimation de la charge de mortalité cardiovasculaire imputable à la Politique agricole commune de l'UE concernant les graisses saturées dans l'alimentation

Objectif Estimer la charge de morbidité cardiovasculaire dans 15 pays de l'Union européenne (avant l'élargissement de 2004) due à l'excès de matières grasses saturées dans l'alimentation, imputable à la Politique agricole commune (PAC).

Méthodes On a développé un modèle sous forme de feuille de calcul pour faire la synthèse des données sur la population, les régimes alimentaires, le taux de cholestérol et les taux de mortalité. On a estimé prudemment la réduction de la consommation de matières grasses saturées à 2,2 g à peine, soit 1 % de la ration énergétique quotidienne. On a ensuite calculé la baisse résultante du taux de cholestérol sérique, en supposant que cette réduction de 1 % de la consommation de graisses saturées était remplacée par une consommation

supplémentaire de 0,5 % de matières grasses mono-insaturées et de 0,5 % de matières grasses polyinsaturées. Puis on a calculé la baisse résultante du nombre de décès par cardiopathies et par accident vasculaire cérébral et on a réalisé une analyse de sensibilité.

Résultats Une diminution de la consommation de matières grasses saturées de 1 % et une augmentation de la consommation de matières grasses mono-insaturées et de celle de matières grasses polyinsaturées de 0,5 % chacune devraient conduire à une baisse du taux de cholestérol sanguin d'approximativement 0,06 mmol/l, d'où environ 9800 décès par cardiopathie ischémique et 3000 décès par accident vasculaire cérébral de moins chaque année.

Conclusion La charge de morbidité cardiovasculaire imputable à la PAC semble importante. En outre, les présents calculs reposent sur des estimations prudentes et la charge de mortalité vraie peut être plus forte. Cette analyse contribue au débat actuel plus large sur les relations entre la PAC, la santé et

les maladies chroniques en Europe, dans le contexte des événements internationaux récents et des engagements des pays à réduire les maladies chroniques. Les estimations rapportées pour la mortalité doivent être considérées en relation avec la PAC actuelle et ses réformes futures éventuelles.

Resumen

Estimación de la carga de mortalidad cardiovascular atribuible a la Política Agrícola Común europea en relación con las grasas saturadas alimentarias

Objetivo Estimar en 15 países de la Unión Europea (antes de la ampliación de 2004) la carga de enfermedades cardiovasculares debida al exceso de grasas saturadas alimentarias atribuible a la Política Agrícola Común (PAC).

Métodos Mediante una hoja de cálculo se desarrolló un modelo para sintetizar los datos sobre la población, la dieta, los niveles de colesterol y las tasas de mortalidad. Se estableció como estimación prudente una reducción del consumo de grasas saturadas de sólo 2,2 g, lo que equivale al 1% del aporte calórico diario. Partiendo de ese dato se calculó la caída de la concentración de colesterol sérico, suponiendo que esa reducción del 1% del consumo de grasas saturadas se compensaría con un 0,5% de grasas monoinsaturadas y un 0,5% de grasas poliinsaturadas. Por último, se estimó la reducción resultante de las defunciones por causas cardiovasculares y cerebrovasculares y se realizó un análisis de sensibilidad.

Resultados Reduciendo el consumo de grasas saturadas en un

1% y aumentando un 0,5% el de las monoinsaturadas y otro tanto el de las poliinsaturadas se lograría reducir los niveles sanguíneos de colesterol en 0,06 mmol/l aproximadamente, lo que se traduciría en unas 9800 muertes menos por cardiopatía coronaria y unas 3000 muertes menos por accidente cerebrovascular cada año.

Conclusión La carga de enfermedades cardiovasculares atribuible a la PAC parece considerable. Además, las cifras se han calculado por lo bajo, de modo que la verdadera carga de mortalidad podría ser mayor. Este análisis viene a alimentar el amplio debate en curso sobre la PAC, la salud y las enfermedades crónicas en Europa, en el marco de las últimas iniciativas y compromisos tendentes a combatir ese tipo de enfermedades. Las estimaciones de la mortalidad aportadas deberían tenerse en cuenta en relación tanto con la PAC actual como con cualquier reforma de la misma que se haga en el futuro.

ملخص

تقدير عبء الوفيات القلبية الوعائية الذي يُعزى إلى السياسة الزراعية الأوروبية المشتركة المعنية بالدهون الغذائية المشبعة

مقدارها 0.5% من الدهون الوحيدة اللاتشبع و0.5% من الدهون المتعددة اللاتشبع يؤدي لخفض مستويات الكوليسترول بمقدار 0.06 ميلي/مول، وإلى نقص يقرب من 9800 وفاة بين المصابين بالأمراض القلبية التاجية و3000 وفاة بين مرضى السكتات كل عام.

الاستنتاج: إن عبء الأمراض القلبية الوعائية الذي يعزى إلى السياسة الزراعية المشتركة يبدو جسيماً، وبالإضافة إلى ذلك فإن هذه التقديرات هي تقديرات متحفظة، إذ إن العبء الحقيقي للوفيات قد يزيد عن ذلك، ويساهم التحليل في الجدول الحالي والمتسع النطاق حول العلاقة بين السياسة الزراعية المشتركة والصحة والأمراض المزمنة في جميع أرجاء أوروبا، إلى جانب التطورات الدولية والالتزامات بخفض وطأة الأمراض المزمنة. وينبغي الأخذ بالحسبان تقديرات الوفيات المبلغ عنها والمتعلقة بالسياسات الحالية للزراعة المشتركة والإصلاحات المستقبلية المرتقبة.

الهدف: تقدير عبء الأمراض القلبية الوعائية ضمن 15 بلداً من بلدان الاتحاد الأوروبي (قبل توسع الاتحاد عام 2004)، والناجمة عن زيادة الدهون الغذائية المشبعة التي تُعزى إلى السياسة الزراعية المشتركة.

الطريقة: أعد الباحثون نموذجاً لجدول بيانات لتجميع المعطيات الخاصة بالسكان والنظام الغذائي ومستويات الكوليسترول فيه ومعدلات الوفيات. واختار الباحثون تقديراً معتدلاً لتخفيض مقداره 2.2 غراماً فقط في استهلاك الدهون المشبعة، وذلك يمثل 1% من المدخول اليومي من الطاقة؛ ثم حسبوا الانخفاض الناجم عن ذلك في تركيز الكوليسترول، بافتراض أن نقصاً في استهلاك الدهون المشبعة مقداره 1% قد حل محله استهلاك 0.5% من الدهون الوحيدة اللاتشبع و0.5% من الدهون المتعددة اللاتشبع. ثم قدر الباحثون بعد ذلك الانخفاض في وفيات السكتة والأمراض القلبية الدماغية وأجروا تحليلاً للحساسية.

الموجودات: إن إنقاص استهلاك الدهون المشبعة بمقدار 1% مع زيادة

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Table 4. CHD and stroke mortality attributable to CAP in 15 EU countries

| Country | Condition | Men | | | | | | Women | | | | | |
|----------------|-----------|-------------|------|------|------------------------|------|------|-------------|------|------|------------------------|------|------|
| | | Total | | | Premature (< 75 years) | | | Total | | | Premature (< 75 years) | | |
| | | Best | Min. | Max. | Best | Min. | Max. | Best | Min. | Max. | Best | Min. | Max. |
| Austria | CHD | 141 | 18 | 71 | 71 | 9 | 80 | 118 | 14 | 132 | 19 | 2 | 21 |
| | Stroke | 51 | 25 | 76 | 7 | 3 | 10 | 72 | 22 | 94 | 38 | 19 | 57 |
| Belgium | CHD | 149 | 20 | 171 | 98 | 13 | 113 | 80 | 10 | 90 | 27 | 3 | 31 |
| | Stroke | 25 | 12 | 35 | 11 | 5 | 15 | 52 | 8 | 59 | 7 | 3 | 10 |
| Denmark | CHD | 105 | 14 | 118 | 54 | 7 | 61 | 70 | 8 | 78 | 16 | 2 | 18 |
| | Stroke | 14 | 7 | 21 | 7 | 3 | 10 | 26 | 4 | 30 | 4 | 2 | 6 |
| Finland | CHD | 133 | 18 | 149 | 78 | 10 | 88 | 93 | 12 | 105 | 17 | 2 | 19 |
| | Stroke | 13 | 7 | 19 | 6 | 3 | 10 | 26 | 4 | 30 | 4 | 2 | 6 |
| France | CHD | 543 | 71 | 613 | 310 | 40 | 350 | 291 | 35 | 326 | 62 | 8 | 69 |
| | Stroke | 106 | 52 | 164 | 42 | 21 | 65 | 204 | 28 | 233 | 22 | 11 | 35 |
| Germany | CHD | 1565 | 206 | 1743 | 907 | 119 | 1011 | 1149 | 135 | 1299 | 237 | 28 | 268 |
| | Stroke | 172 | 83 | 256 | 77 | 37 | 114 | 390 | 51 | 440 | 38 | 19 | 56 |
| Greece | CHD | 192 | 25 | 216 | 138 | 18 | 155 | 79 | 9 | 88 | 32 | 4 | 36 |
| | Stroke | 50 | 26 | 78 | 18 | 9 | 28 | 97 | 13 | 110 | 11 | 5 | 16 |
| Ireland | CHD | 75 | 10 | 85 | 45 | 6 | 51 | 40 | 5 | 45 | 11 | 1 | 12 |
| | Stroke | 7 | 4 | 11 | 3 | 1 | 5 | 13 | 2 | 16 | 2 | 1 | 3 |
| Italy | CHD | 433 | 55 | 485 | 233 | 30 | 262 | 899 | 113 | 1005 | 826 | 105 | 924 |
| | Stroke | 558 | 85 | 639 | 528 | 71 | 594 | 202 | 98 | 304 | 184 | 89 | 277 |
| Luxembourg | CHD | 356 | 46 | 401 | 355 | 46 | 400 | 6 | 1 | 7 | 6 | 1 | 7 |
| | Stroke | 3 | 1 | 4 | 3 | 0 | 4 | 1 | 1 | 2 | 1 | 1 | 2 |
| Netherlands | CHD | 121 | 17 | 136 | 74 | 10 | 83 | 228 | 31 | 256 | 210 | 29 | 236 |
| | Stroke | 114 | 19 | 134 | 108 | 16 | 125 | 38 | 19 | 58 | 34 | 17 | 53 |
| Portugal | CHD | 139 | 19 | 158 | 109 | 15 | 124 | 141 | 18 | 157 | 128 | 16 | 144 |
| | Stroke | 87 | 19 | 105 | 15 | 13 | 88 | 68 | 34 | 101 | 61 | 31 | 90 |
| Spain | CHD | 388 | 52 | 437 | 259 | 35 | 292 | 548 | 71 | 615 | 504 | 66 | 567 |
| | Stroke | 284 | 48 | 330 | 264 | 38 | 301 | 117 | 58 | 174 | 106 | 52 | 157 |
| Sweden | CHD | 287 | 39 | 326 | 242 | 33 | 275 | 237 | 31 | 268 | 222 | 29 | 251 |
| | Stroke | 140 | 20 | 157 | 136 | 18 | 151 | 30 | 16 | 45 | 28 | 14 | 41 |
| United Kingdom | CHD | 824 | 106 | 936 | 479 | 62 | 543 | 1591 | 203 | 1803 | 1453 | 187 | 1649 |
| | Stroke | 852 | 122 | 965 | 822 | 107 | 921 | 209 | 103 | 309 | 190 | 93 | 279 |

CAP, Common Agricultural Policy; CHD, coronary heart disease.