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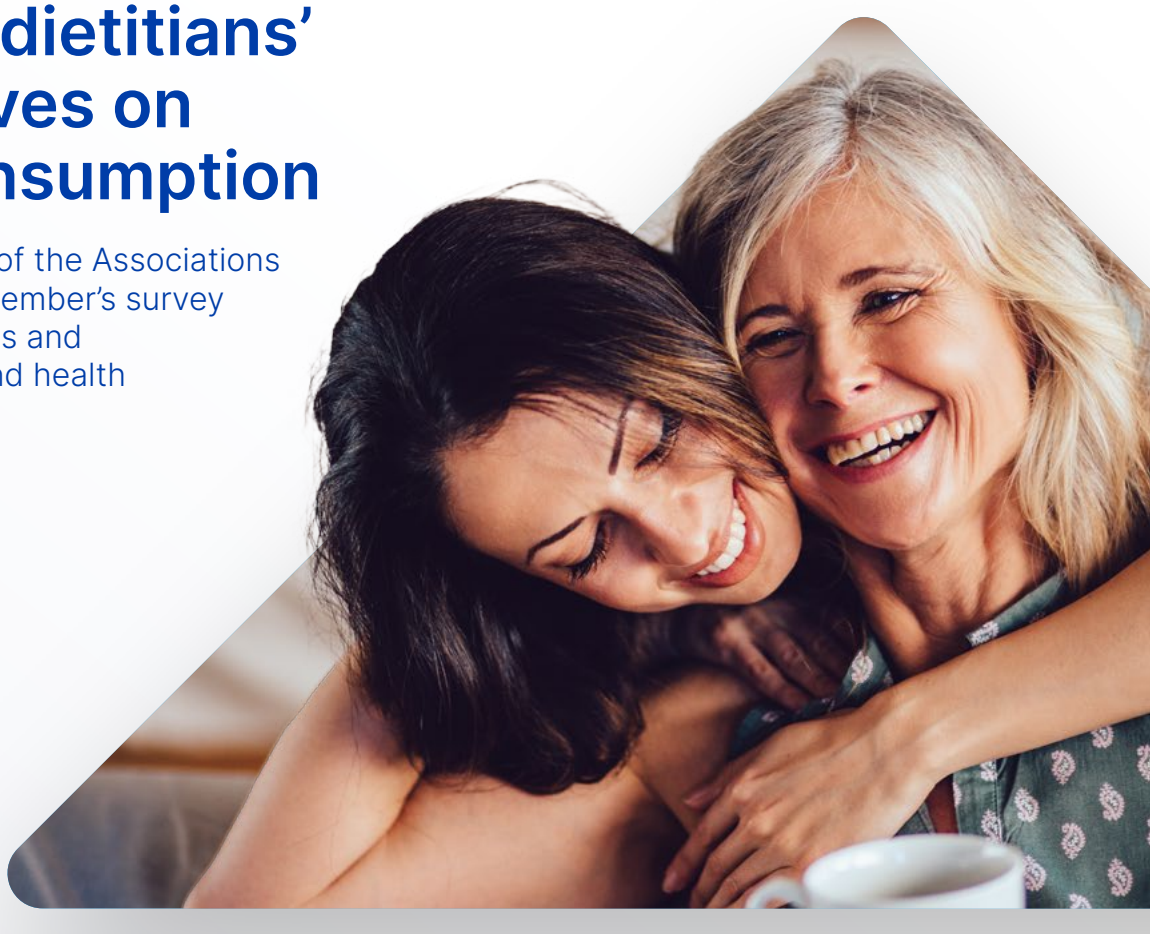
European dietitians' perspectives on coffee consumption

European Federation of the Associations of Dietitians (EFAD) member's survey into current awareness and attitudes on coffee and health



EFAD The European Federation of the Associations of Dietitians

coffee&health

from the institute for scientific information on coffee

Contents

1. Summary

The European Federation of the Associations of Dietitians (EFAD), supported by the Institute for Scientific Information on Coffee (ISIC), undertook a member's survey into current awareness and attitudes towards coffee and health. 585* dietitians from across 26** European countries completed the closed-response survey, with the aim of:

- **Understanding the general views of European dietitians in relation to coffee consumption and health**
- **Understanding the attitudes towards coffee consumption and health amongst their patients/clients**
- **Identifying what advice dietitians currently share with their patients/ clients on the role of coffee consumption**
- **Identifying views on the current awareness of emerging evidence into the associations between coffee consumption and non-communicable diseases**

Key findings from the survey of EFAD members include:

- The majority of dietitians believe coffee in moderation has clear health benefits
- Coffee consumption amongst their patients mainly falls into one of two categories; either ‘up to 3 cups of coffee a day’, or ‘3-5 cups a day’. Less than a quarter suggested their patients don’t drink coffee, and very few consume over five cups a day
- Awareness of associations between coffee consumption and health outcomes, including a range of non-communicable diseases, are often unknown amongst the dietitians who responded
- Patients who are pregnant are often advised to avoid coffee by dietitians, who also sometimes advise caution for specific populations such as those with GI disorders and adolescents
- Dietitians suggest that the general public are largely unaware of the potential health benefits of coffee

2. Introduction

Coffee is one of the most popular beverages in the world, with around 2 billion cups consumed every day in 2021[1]. Coffee beans are roasted and ground to deliver unique aromas, tastes and flavours that are enjoyed in a cup of coffee. One of the main compounds in coffee is caffeine, with a typical cup of coffee providing around 75mg of caffeine.

A vast amount of research has reviewed associations between coffee intake and health, in many cases concluding that a moderate intake of coffee is associated with a reduced risk of some non-communicable diseases including type 2 diabetes, and cardiovascular, liver and neurodegenerative diseases. Coffee (principally caffeine) is also associated with an increase in alertness and concentration. However, some individuals may experience some less desirable effects, such as wakefulness, particularly when coffee is consumed later in the day.

Emerging research has suggested a potential 'protective effect' on cardiometabolic activity, associated with the anti-inflammatory and antioxidant compounds found in coffee, including polyphenols, diterpenes, chlorogenic acids (CGAs), and caffeine[2]. Whilst a detailed understanding of the mechanisms is unclear, coffee remains an important consideration in relation to a number of inflammatory conditions[2].

EFAD, supported by ISIC, conducted a study of the view of 585* registered dietitians across Europe** during the summer of 2022 to assess their overall opinion on coffee and health, including awareness of specific associations between coffee and health and advice commonly given to patients about coffee consumption.

ISIC publish detailed evidence-based summaries of scientific research reviewing associations between coffee and health. These are available on the 'Coffee and Health' website, and specific links relating to the topics discussed in this report are provided in the 'About ISIC' section at the end of the report.

3. Foreword

“Dietitians have an important role in supporting clients in making healthy decisions about their lifestyle choices. At EFAD, we fully support our members in their pursuit to provide evidence-based advice to all clients and encourage continuous knowledge development. This survey has helped to identify the understanding around current knowledge of coffee and health and suggests that coffee continues to be a popular beverage of choice for clients. However there seem to be some differences between dietitians’ knowledge of the relationship between coffee and health, particularly in relation to non-communicable diseases. Sharing and discussing scientific research on the role of coffee and health can be valuable to further support dietitians in their daily practice”

WINEKE REMIJNSE
EFAD EXECUTIVE DIRECTOR

4. Findings

4.1. Coffee is a popular beverage throughout Europe, with dietitians across Europe reporting that the majority of their clients consume coffee regularly.

- **43% reported intakes amongst patients of up to 3 cups a day, and the same amount reported intakes of 3-5 cups a day. 14% suggested their patients don't drink coffee, and very few (2%) reported consumption levels over 5 cups a day.**

These intakes are broadly in line with the European Food Safety Authority's (EFSA) Scientific Opinion on the Safety of Caffeine[3], which states that 400mg of caffeine (approximately 3-5 cups of coffee) per day can be considered safe for most individuals. A cup of coffee typically provides around 75mg caffeine per day.

4.2. Moderate coffee consumption is considered to be beneficial to health by dietitians

- **62% of the dietitians surveyed believe that coffee consumption in moderation has clear health benefits for most individuals.**

This is supported by European research in over 500,000 participants which found a significant association between higher coffee consumption (calculated as more than 3 cups per day with 1 cup equal to 237ml) and lower risk of all-cause mortality[4]. The strongest associations were identified with digestive disease and mortality, mainly due to a lower risk of dying from liver conditions in both men and women[4,5]. Research has also considered associations between coffee intake and non-communicable disease such as type 2 diabetes[6] and cardiovascular disease (CVD)[7,8], and neurodegenerative conditions[9], with some beneficial associations observed.

4.3. The majority of dietitians acknowledge a positive association between coffee consumption and aspects of mental performance

- **86% of the dietitians surveyed agreed that a regular, moderate intake of coffee improves alertness, and 61% agreed that it improves mood.**

These findings reflect a previous consumer survey conducted by ISIC during the lockdown of 2020[10].

Research suggests that coffee and caffeine consumption are associated with improved mood, memory and cognitive function[11]. EFSA, in their review of the scientific research, concluded that a 75mg serving of caffeine had been demonstrated to increase attention[12].

4.4. Coffee consumption is considered to support sports performance

- **Two thirds (67%) of dietitians who responded agreed that coffee consumption is associated with an improvement in sports performance with half (51%) of dietitians stating that coffee may be beneficial prior to exercise.**

This is line with EFSA which concluded that there is an association between caffeine consumption and an increase in endurance performance, endurance capacity and a reduction in the rated perceived effort or exertion during exercise[12].

Further specific research findings into the impact of coffee in a number of different sports concluded that improvements can be seen in alertness and reaction time generally[13], performance and accuracy in tennis[14], enhanced physical performance in football[15,16] and improved performance in middle distance running[17,18].

4.5. The associations between coffee intake and key non-communicable diseases are often unknown amongst dietitians

- **Cardiovascular disease - 39% of respondents agreed that regular, moderate coffee consumption may be associated with a reduced risk of cardiovascular disease (CVD), although 38% were unsure of an association. Furthermore, almost half (49%) considered coffee consumption to be associated with raised blood pressure.**

Overall, the scientific research concludes that there is no association between moderate coffee drinking (<400mg caffeine per day[3]) and an increased risk of CVD[7,8], including no long-term adverse effects on blood pressure, although caffeine consumption has been observed to acutely raise blood pressure in the short-term[19]. Some research has suggested that potential cardioprotective effects are observed for overall risk of CVD and CVD mortality risk[5,20]. Furthermore, both the European Society of Hypertension (ESH)[21] and the European Society of Cardiology (ESC)[22] have officially highlighted these potential benefits.

- **Type 2 diabetes - 30% of the dietitians surveyed consider coffee is associated with a reduced risk of type 2 diabetes, with a majority (43%) being unsure of an association.**

Compelling evidence suggests that moderate coffee consumption of either caffeinated or decaffeinated coffee is associated with a statistically significant reduced risk of developing type 2 diabetes[6]. Whilst a plausible explanation for this association is still lacking, some research suggests coffee components including chlorogenic acids and trigonelline may be key[6].

- **Neurodegenerative conditions – 41% of respondents consider coffee consumption to be associated with a reduced risk of cognitive decline, whilst a larger proportion (46%) were unsure of any association.**

Research suggests that a lifelong, regular and moderate intake of coffee/caffeine may have an effect on physiological, age-related cognitive decline[23,24]. Further research suggests that coffee consumption may be associated with a reduced risk of development of Alzheimer's[25,26] and Parkinson's[26,27] diseases, although further work is required in this area.

4.6. The potential associations between coffee consumption and health are not widely known by the general public

- **Only 25% of dietitians believe their patients are aware of the potential benefits of coffee consumption.**

However, previous research conducted by ISIC revealed that coffee has garnered significantly more scientific and media attention over the last year, with a huge increase observed in global searches on the health benefits of coffee in general (650% in 2021/22) and more specifically in black coffee (1,450% over the same period)[28]. Despite the interest in online

information, there is clearly an opportunity to improve knowledge and awareness amongst the general public, based on credible scientific information from experts including dietitians.

4.7. Time of day for coffee consumption

- **The time of day when coffee consumption may be helpful was also considered. 25% of respondents suggested coffee could be beneficial as the first drink of the day or the first drink at work, by contrast almost all respondents (99%) considered coffee drinking least helpful before bedtime.**

EFSA have concluded that a 75mg serving of caffeine is associated with an increase in attention[29]. Caffeine works as an adenosine receptor antagonist with a similar structure to adenosine; caffeine may bind to the adenosine receptors, acting as an imposter and blocking the actions of adenosine, leading to feelings of alertness[9,30]. This effect may cause sleep disturbance in some[31,32], but may also help in situations that require increased alertness, e.g. night shifts, long distance driving, and jet lag[33-37].

4.8. Coffee and hydration

- **Just over a quarter (28%) of respondents stated that they consider that coffee might be helpful as a source of fluid in the diet, whilst in contrast, just over a third (36%) consider it to cause dehydration.**

Whilst there is some indication of a short-term diuretic effect of caffeine, this effect does not counter-balance the effects of the fluid intake from coffee drinking[38]. Coffee drinks typically contain 80-90% water and drinking caffeinated coffee in moderation can therefore help to maintain adequate fluid balance[39].

4.9. Dietitians advise some groups to limit coffee intake

The survey results revealed that there are some conditions where dietitians routinely advise their patients to limit intakes of coffee and caffeine.

- **Pregnancy - almost half (46%) of respondents reported that they advise avoidance of coffee consumption during pregnancy.**

It is widely accepted that any effects of coffee consumption on reproductive health are likely to be linked to caffeine rather than to coffee consumption per se, and to date the evidence regarding coffee intake and some pregnancy issues remains inconclusive[40]. EFSA in their 'Scientific Opinion on Caffeine', published in 2015, advised that pregnant women should limit their caffeine intake to 200mg per day[3]. This is in line with the National Health Service (NHS) in the UK[41] and the March of Dimes in the USA[42], who both advise an upper limit for pregnant women of 200mg of caffeine per day from all sources. A regular cup of coffee contains approximately 75mg caffeine.

- **GI disorders - coffee is often considered to be associated with some GI problems and just over half (55%) of dietitians surveyed stated they advised those with GI disorders to avoid coffee.**

Coffee is a complex variable mixture of many compounds whose effects on the digestive tract may vary according to their origin, processing, bioavailability, and possible synergistic and/or antagonistic effects[43,44,45].

Research in this area suggests that there is no association between coffee intake and conditions such as dyspepsia, reflux disease, peptic and duodenal ulcers, gastritis and IBS[46]. There is evidence to suggest that coffee drinking is associated with a reduced risk of gallbladder and liver disease[47-49]. Further research suggests that coffee may help to stimulate the digestive process, particularly the digestive hormone gastrin and hydrochloric acid present in gastric juice, both of which may help the breakdown of food in the stomach[44].

More recently, interest has focused on gut microbiota with studies suggesting that polyphenols present in coffee may induce positive changes in the composition of the gut microbiota, mainly at the population level of Bifidobacteria, that support the immune system[49].

- **Adolescents - a quarter (26%) of respondents also expressed caution about coffee intake in adolescents.**

Caffeine can be provided by a number of different beverages and foods including coffee in this age group. The effect of caffeine on alertness and concentration could be useful for this age group, whilst the association between daily caffeine intake, reduced sleep quality, and increased daytime sleepiness could be an issue. Indeed, EFSA recommend that regular caffeine consumption (up to about 3mg/kg per day) does not appear to cause issues but higher caffeine intakes (10mg/kg/day) may increase anxiety and adversely affect sleep patterns in adolescents[3].

5. Conclusion

Overall, these results provide a detailed review of the awareness of associations between coffee intake and health amongst European dietitians, concluding that coffee is a popular beverage choice for patients. However, gaps do exist in the knowledge of associations with some health conditions amongst those who responded.

Opportunities exist to support the sharing of scientific information with dietitians across Europe to ensure that the knowledge of associations between coffee and health is evidence-based, particularly in areas of type 2 diabetes, CVD and neurodegenerative diseases. The awareness of the role of coffee in supporting alertness and concentration, and sports performance are also key areas of knowledge.

Research suggests that certain population groups be advised to limit their intakes of caffeine. For instance, those who are pregnant are advised by EFSA to limit intakes to 200mg caffeine per day, and this is echoed by the dietitians who share this advice. Others, who were identified by the dietitians surveyed as individuals who may be advised to limit coffee and caffeine on a case-by-case basis, included those with GI problems and adolescents. Although research in these areas is mixed, dietitians have the skills to advise on an individual basis appropriate to the needs of specific patients.

6. Notes

*Of 585 recipients, 329 reported being currently employed in clinical services, including oncology, diabetes, weight management, gastroenterology, geriatrics, paediatrics, critical care, inpatient services, surgery, allergy and food intolerance. The remaining 256 reported current employment in sports, education, wellbeing, food services and/or are freelance.

**Countries included Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, North Macedonia, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Turkey and the UK.

Questions asked were:

1. What is your overall view on coffee as a choice of beverage? (tick one)

- ☐ Unlimited coffee intake is acceptable
- ☐ Coffee in moderation has some clear health benefits
- ☐ 3-5 cups of coffee a day can be part of a healthy balanced diet
- ☐ After water, coffee is the preferred beverage in a healthy balanced diet
- ☐ No more than 3 cups of coffee a day should be consumed
- ☐ Coffee intake should be limited to once a day
- ☐ Coffee should be avoided

2. Do you specifically advise any patient groups to avoid coffee? (tick all that apply)

- ☐ Cardiovascular disease (CVD)
- ☐ Stomach issues
- ☐ Elderly
- ☐ Athletes
- ☐ Cancer
- ☐ Cognitive decline
- ☐ Overweight
- ☐ Osteoporotic
- ☐ Pregnant women
- ☐ Adolescents
- ☐ Other (please specify)

3. How aware do you think your patients are about the impact of coffee consumption on their health? (tick one)

- ☐ Very aware
- ☐ Aware
- ☐ Unaware
- ☐ Not sure

4. Have you seen an increase in patients asking about the health impact of coffee since the onset of the pandemic in 2020? (tick one)

- ☐ Yes, I've seen a significant increase in the number of questions regarding coffee consumption and health
- ☐ Yes, I've seen some increase in the number of questions regarding coffee consumption and health
- ☐ No, I've not seen any increase in the number of questions regarding coffee consumption and health
- ☐ No, this is not something my patients have ever asked about
- ☐ Not sure

5. Which of the following statements do you agree with? (tick one)

- ☐ The majority of my patients drink a moderate amount of coffee per day (approx. 3-5 cups)
- ☐ The majority of my patients don't drink coffee
- ☐ The majority of my patients drink less than 3 cups of coffee a day
- ☐ The majority of my patients drink over 5 cups a day and I advise them to cut down
- ☐ N/A I don't have a view on this

6. Are there specific times when you consider coffee might be helpful? (tick all that apply)

- ☐ Before exercise
- ☐ As the first drink of the day
- ☐ As the first drink at work
- ☐ As a source of fluid
- ☐ After lunch
- ☐ Mid-morning
- ☐ Mid-afternoon
- ☐ Bedtime

7. To what extent do you agree or disagree with the following statements regarding coffee and various health conditions?

- Strongly agree
- Agree
- Not sure
- Disagree
- Strongly disagree

a. Regular moderate intake of coffee is associated with...
b. Improved alertness and concentration
c. Increased bone fractures
d. Reduced risk of type 2 diabetes
e. Increased stomach/gut problems such as IBS
f. Improved sports performance
g. Increased heartburn
h. Reduced risk of CVD
i. Raised blood pressure
j. Improved liver function
k. Dehydration
l. Improved mood
m. Reduced risk of cognitive decline, Alzheimer's and Parkinson's disease
n. Raised cholesterol
o. Increased risk of cancer

6.1. About EFAD

Established in 1978, The European Federation of the Associations of Dietitians (EFAD) is a not-for-profit organisation that aims to be 'The Voice of European Dietetics', by supporting the leadership role of registered dietitians in positively impacting the nutritional health of their clients, patients and the wider community. EFAD ensures every European citizen has access to safe and appropriate dietary and nutritional interventions.

EFAD members represent more than 35,000 registered dietitians, across 28 European countries. As well as a further 40 education associate members from two further EU countries.

For more information about the important work of EFAD, please visit efad.org.

6.2. About ISIC

The Institute for Scientific Information on Coffee (ISIC) is a not-for-profit organisation founded in 1990. ISIC is devoted to the study and disclosure of science related to coffee and health, including:

- **Study** of scientific matters related to coffee and health
- **Evaluation** of studies and scientific information about coffee and health
- **Support** of independent scientific research on coffee and health
- **Dissemination** of balanced coffee and health scientific evidence and knowledge to a broad range of stakeholders

ISIC respects scientific research ethics in all its activities and all of ISIC's communications are based on sound science and rely on scientific studies derived from peer-reviewed scientific journals and other publications.

ISIC members are six of the major European coffee companies: illycaffè, Jacobs Douwe Egberts, Lavazza, Nestlé, Paulig, and Tchibo.

For more information about ISIC and to view the latest research into coffee, caffeine and health, please visit our **new** website www.coffeeandhealth.org.

The relationship between coffee and a number of specific health-related topics have been considered in this report, and further detailed evidence-based summaries are available on the ISIC website. The links below provide direct access to specific scientific research summaries on the topics covered.

Cardiovascular disease

Type 2 diabetes

Neurodegenerative conditions

Mental performance

Hydration and fluid balance

Pregnancy

GI function

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