



# Association between alcohol and caffeine consumption and nocturnal leg cramps in patients over 60 years old:

## A CASE-CONTROL STUDY

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Competing interests: None declared.

# Association Between Alcohol Consumption and Nocturnal Leg Cramps in Patients Over 60 Years Old: A Case-Control Study

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## ABSTRACT

**PURPOSE** Nocturnal leg cramps are a specific kind of cramps affecting almost one-half of patients aged 60 years and older. They reduce patients' quality of sleep and have a negative impact on their quality of life. The aim of this study was to evaluate the association between nocturnal leg cramps and the consumption of alcoholic beverages in patients aged 60 years and older attending general practices.

**METHODS** Case-control study with a Bayesian approach for sensitivity analysis. Participants were voluntary ambulatory patients aged 60 years and older consulting their family doctor. They were recruited in 67 general practices across the Alsace region. Cases (patients having cramps), were matched with controls (patients free from cramps) for age, sex, medical history, and medications known to trigger cramps. Alcohol consumption was assessed through a standardized food frequency questionnaire.

**RESULTS** We found an association between the global consumption of alcoholic beverages and nocturnal leg cramps (OR = 6.5, 95% credibility interval, 1.68-38.05; posterior probability 99.82%).

**CONCLUSION** We identified an association between alcohol consumption and nocturnal leg cramps among patients aged 60 years and older attending general practices. These findings have implications for the prevention of cramps.

*Ann Fam Med* 2018;16:296-301. <https://doi.org/10.1370/afm.2238>.

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Annals of Family Medicine 2018; 16:296-301





# Background

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- Nocturnal leg cramps: a common entity





# Background

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- Nocturnal leg cramps: a common entity
- Prevalence in patients  $\geq 60$  years in primary care:

46%

*Maisonneuve et al. BMC fam pract (2016) 17:111*

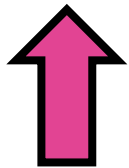


# Background

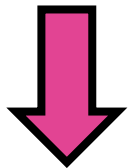
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- ❑ Nocturnal leg cramps: a common entity
- ❑ Prevalence in patients  $\geq 60$  years in primary care:

46%



Sleep disturbance



Health-related quality of life



# Background

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- ❑ Pathophysiology?
- ❑ Limited number of known associated factors
  - > standing
  - > lack of physical activity
  - > lack of squatting

- *Bahk et al. Fam Pract (2014) 31:7-19*
- *Hawke et al. Muscle Nerve (2013) 47:339-43*
- *Sonntag et al. Med Hypotheses (1988) 25: 35-41*



# Background

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- Pathophysiology?
- Limited number of known associated factors
- No safe and effective treatment

- *Sebo et al. Family Practice, 2014, Vol. 31, No. 1, 7–19*
  - *Bahk et al. Fam Pract (2014) 31:7-19*
  - *Hawke et al. Muscle Nerve (2013) 47:339-43*
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Associated factor  
supported by popular  
belief:



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# Objectives: explore the association between

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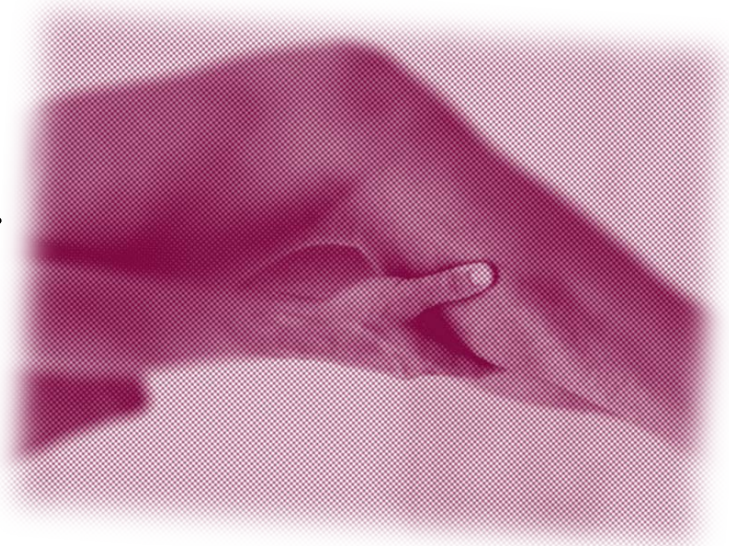
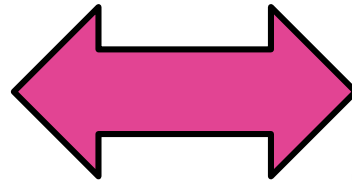
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**ALCOHOLIC BEVERAGES**

**NOCTURNAL LEG CRAMPS**



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# Methods

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Case-control study

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- In 67 general practices

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- ❑ Case-control study
- ❑ In 67 general practices
- ❑ 299 patients  $\geq 60$  years, consulting for any reason
- ❑ 140 matched in 70 pairs (cases: having cramps, controls: free from cramps), on gender, age and medication or condition potentially associated with cramps

# Methods

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Weekly alcohol use  
explored using the

E3N questionnaire from  
EPIC (European Prospective  
Investigation into Diet and  
Cancer)





## Les boissons : la bière

G



Volume du  
contenu représenté :

33 cl

H

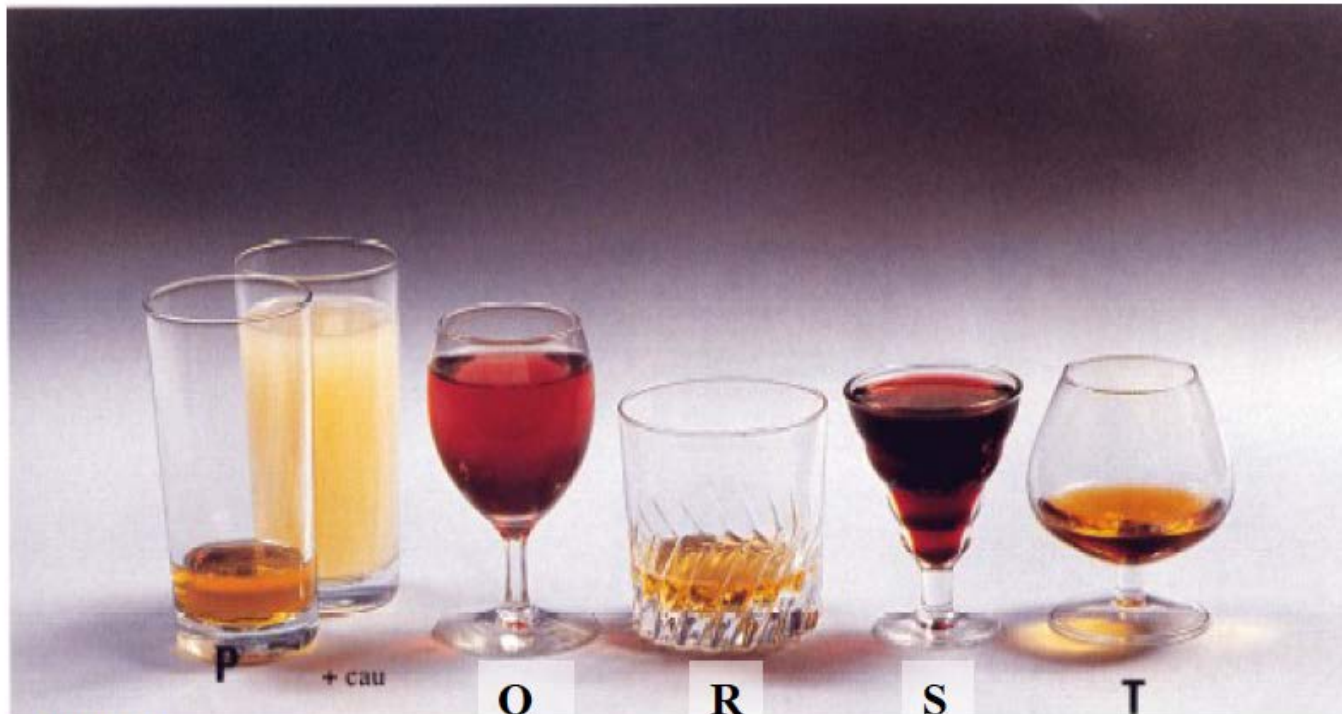


25 cl

Choisissez le type de verre qui se rapproche le plus de celui que vous utilisez habituellement.  
Indiquez la quantité que vous buvez par rapport au volume représenté dans le verre.  
Exemple : à l'apéritif avant le dîner, vous buvez du muscat dans le verre R et vous en buvez un volume correspondant à une fois et demie celui représenté dans ce verre.

Votre réponse sera :

Type de verre : (Photo page 34)  Nombre :  ,



Volume du  
Contenu représenté : 40 ml

140ml

40 ml

70 ml

40 ml



# Analysis

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Consumers and nonconsumers of alcoholic beverages were compared using Bayesian conditional logistic and hierarchical linear regressions to take into account the matching.

Bayesian inference was chosen because this statistical method enables the inclusion of prior information



# Results

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Median weekly alcohol use:

CASES: 94g (IQR 211)

CONTROLS: 66g (IQR 198)

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□ Median weekly alcohol use:

CASES: 94g (IQR 211)

CONTROLS: 66g (IQR 198)

□ Association with cramps

	OR	IC 95%
Alcohol at least once a week	6,5	[1,680;35,802]



# Results

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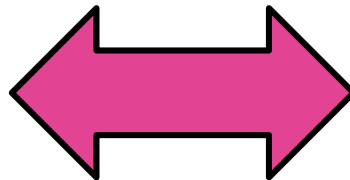
- ❑ Increase in relation to dose of alcohol not statistically significant
- ❑ Numbers too small to assess associations with specific types of alcohol

# Discussion

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- There is a relatively strong association

**Alcoholic beverages**



**Nocturnal leg cramps**





# Discussion

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- There is a relatively strong association between alcohol use and cramps
- Strength and limitations





# Discussion

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- ❑ There is a strong association between alcohol use and cramps
- ❑ Strength and limitations
- ❑ Implications for practice:
  - > Highlighting the relationship can favor prevention
  - > NLC discussion : a useful icebreaker to approach alcohol misuse

# Conclusion

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First study in primary care showing an association between alcohol consumption and nocturnal leg cramps in patients 60 years old and older

Future? Prospective studies in wider, international populations are needed to confirm a causal link

# Thank you!

If you have any questions:

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