International Osteoporosis Foundation Survey

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Purpose of Research

- *To assess current awareness of osteoporosis in terms of:*
  - *Knowledge about the condition, its prevalence and causes*
  - *Risk factors*
  - *Extent of personal risk*
  - *How diet can help to prevent development of the condition*

Methodology

Data Collection Dates: 8th May – 26th June 2006

Mode: Online

Sample Size & Design: 1,200 interviews among the worldwide employees of the IPG (Interpublic Group) and their friends & family;

Estimated Margin of Error: ±6 percent at 95% confidence level

Notes: Numbers may not total 100% due to rounding

Denotes correct answer

Executive Summary

- **There were varying levels of awareness and knowledge around osteoporosis:**
  - The vast majority of respondents knew that calcium is important for building bones, that osteoporosis is characterised by brittle bones (95%), that poor diet is a contributing factor (85%) and that women are most at risk (81%).
  - Respondents had a reasonable sense of their own personal risk: Half (53%) think they are at least somewhat at risk from osteoporosis.
  - Two in five respondents (41%) know somebody personally with the condition and one in four (26%) knows a family member with it.
  - One in four (23%) claims they know a lot about the condition and a similar number (24%) knows that it affects one in three women.
- **Drinking alcohol and smoking were the least well-known risk factors for the condition's development.**
- **Although calcium was a widely known bone-building nutrient (99%), a much smaller majority (65%) knew that Vitamin D also had this property.**
- **Not surprisingly, dairy products were the foods most commonly associated with being good sources of calcium.**
  - However, there was only limited knowledge that steamed tofu and almonds contain good levels of this nutrient.
- **Overall, knowledge of the Vitamin D content of foods was sketchy.**
  - While three in five (59%) knew that sunlight is a good source of Vitamin D, the presence of this nutrient in oily fish, eggs, liver, red meat and cod liver oil is less well-known.
  - American respondents were more likely to think that milk and other dairy products contained Vitamin D and this may be due to the enrichment of milk with this nutrient in the USA. It may be that respondents also assumed that other dairy products such as cheese, ice cream and yogurt were also enriched with Vitamin D, because American respondents also tended to believe Vitamin D was present in these foods as well.
- **It should be noted that despite some seemingly encouraging nutritional knowledge of our respondents, this does not mean that they are actually taking any practical steps to increase their calcium or Vitamin D intake. In the same vein, despite a sizeable proportion of respondents thinking they are likely to develop osteoporosis, they may not currently be taking, or willing to take, steps to counter this threat.**
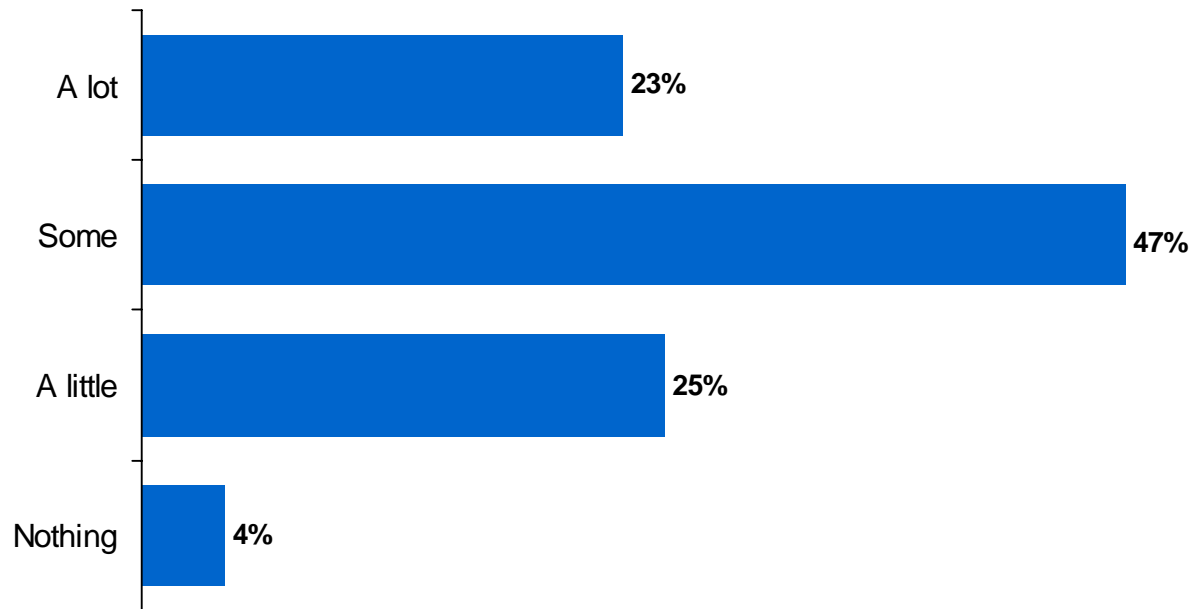
Awareness of osteoporosis

Awareness of osteoporosis

All respondents

One in four (23%) claimed to know a lot about osteoporosis and only 4% said they knew nothing.

Q1. Before today, how much had you heard about osteoporosis? (% saying…)

A lot	23%
Some	47%
A little	25%
Nothing	4%

Awareness of osteoporosis – sub-group analysis

<u>Gender</u>
- There were no gender differences.

<u>Age</u>
- Those aged 50+ (49%) were more likely than the under 50s (19%) to claim they had heard "a lot" about osteoporosis.

<u>Region</u>
- Those in North America were more likely that those in Europe to report having heard "a lot" (29% vs. 17%) or "some" (52% vs. 42%) about osteoporosis.

<u>Country</u>
- Respondents living in the USA were more likely than those in the UK to report having heard "a lot" (30% vs. 15%) or at least "some" (82% vs. 57%) about osteoporosis.

Description of osteoporosis

All respondents

The vast majority (95%) knew that osteoporosis can be described as brittle bones.

Q2. Which of the following do you think best describes osteoporosis? (% saying…)

Category	Percent
Brittle bones	95%
Don't know/I'd prefer not to say	3%
None of these	1%
Liver disease	0%
Severe headaches	0%
Skin condition	0%
Kidney mafunction	0%
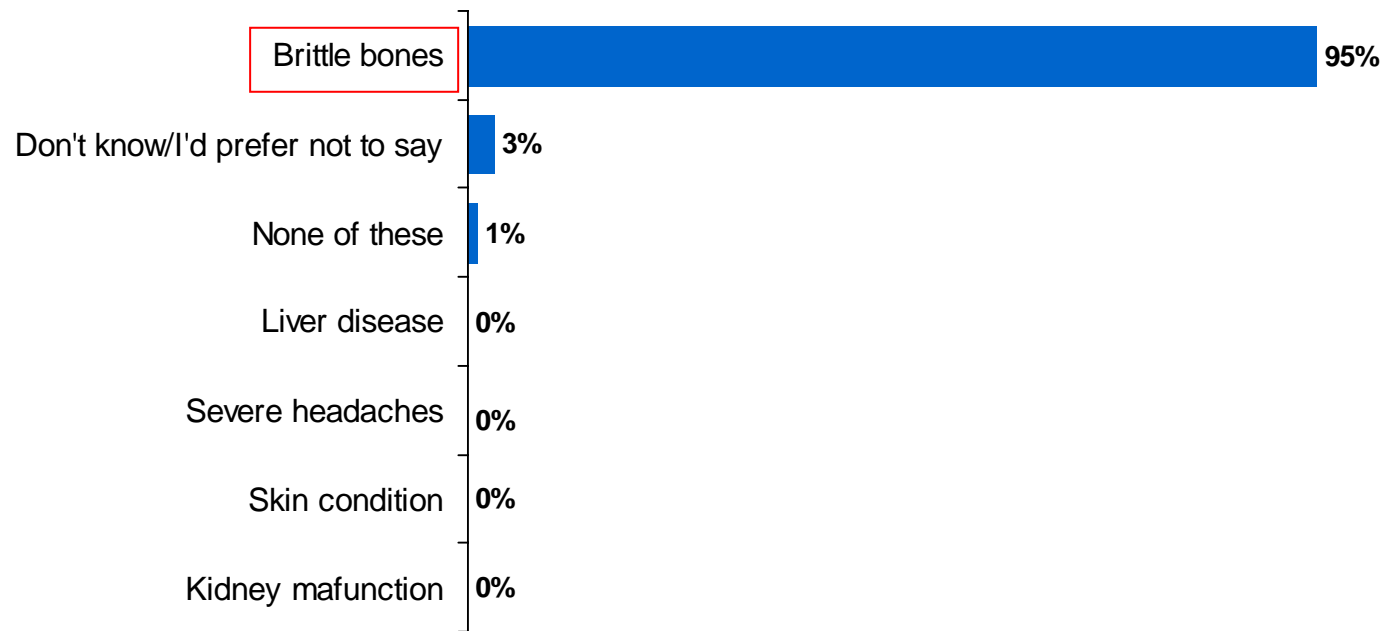
Understanding of osteoporosis – sub-group analysis

Gender
- There were no gender differences.

Age
- There were no age differences.

Region
- There were no region differences.

Country
- There were no country differences.

Knowledge of osteoporosis

Perceived personal risk of osteoporosis

All respondents

Only around half of respondents (53%) thought they were likely to develop osteoporosis at some point in the future.

Q3. Osteoporosis is a disease in which the density and quality of bone are reduced, leading to weakness of the skeleton and increased risk of fracture, commonly referred to as brittle bones.
At your best guess, how likely do you think it is that you will develop osteoporosis at some point in your life? (% saying…)
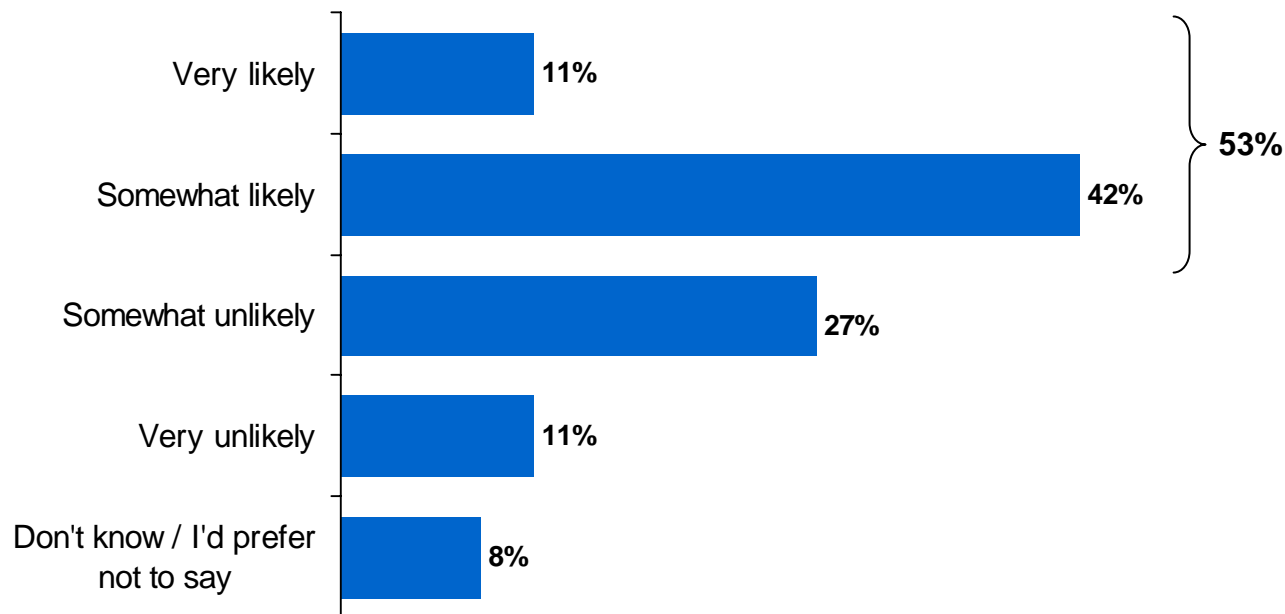
Category	Percentage
Very likely	11%
Somewhat likely	42%
Somewhat unlikely	27%
Very unlikely	11%
Don't know / I'd prefer not to say	8%

Very likely + Somewhat likely = 53%

Perceived personal risk of osteoporosis – sub-group analysis

Gender
- Women were more likely to report feeling at risk of developing osteoporosis with 61% stating it is at least somewhat likely, compared to just 32% of men.

Age
- Under 30s (47%) were less likely than those aged 50+ (63%) to think that it is very or somewhat likely that they will develop osteoporosis at some point.

Region
- While three in five respondents (60%) in North America thought it likely (very or somewhat) they will develop osteoporosis, just under half (46%) of European respondents shared this view.

Country
- Three in five respondents in the USA (62%) thought it likely that they will develop osteoporosis, but just under half of those in the UK (47%) agreed with this.

Sex differences in osteoporosis risk

All respondents

The vast majority (81%) of respondents correctly stated that women are more likely to be affected, although one in seven (14%) thought the risk is equal between sexes.

Q4. As far as you know, who is most likely to be affected by osteoporosis? (% saying…)

Mostly men, 1%

Don't know, 3%

Both men and women equally, 14%

Mostly women, 81%
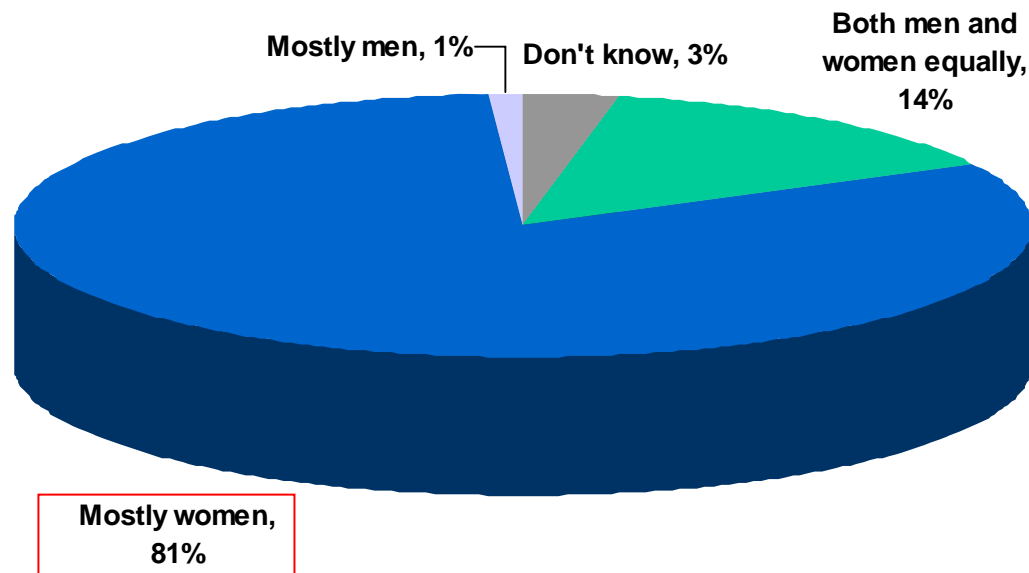
Sex differences in osteoporosis risk– sub-group analysis

Gender
- Women (85%) were more likely than men (72%) to think that women are the sex most likely to be affected by osteoporosis.

Age
- Those aged 50 and above (95%) are more likely than the under 30s (74%) to know that osteoporosis mainly affects women.

Region
- Those in North America were more likely than their European counterparts to think that osteoporosis mainly affects women (89% vs. 75%). Conversely, European residents were more likely than those from North American to perceive an equal risk between men and women (18% vs. 9%).

Country
- The vast majority (91%) of those living in the USA thought that osteoporosis predominantly affects women, whereas three in four (74%) in the UK thought this was the case.
- Those living in the UK (19%) were more likely than those in the USA (8%) to think that the condition affects men and women equally.

Perceived incidence of osteoporosis among women

All respondents

While a quarter (24%) of respondents correctly identified the incidence of osteoporosis as one in three women, three in five (60%) thought it was less.

Q5. As far as you know, what proportion of women does osteoporosis affect at some time in their lives? (% saying…)

Category	Percentage
1 in 3 women	24%
1 in 10 women	37%
1 in 50 women	14%
1 in 100 women	7%
1 in 1000 women	2%
Don't know / I'd prefer not to say	16%
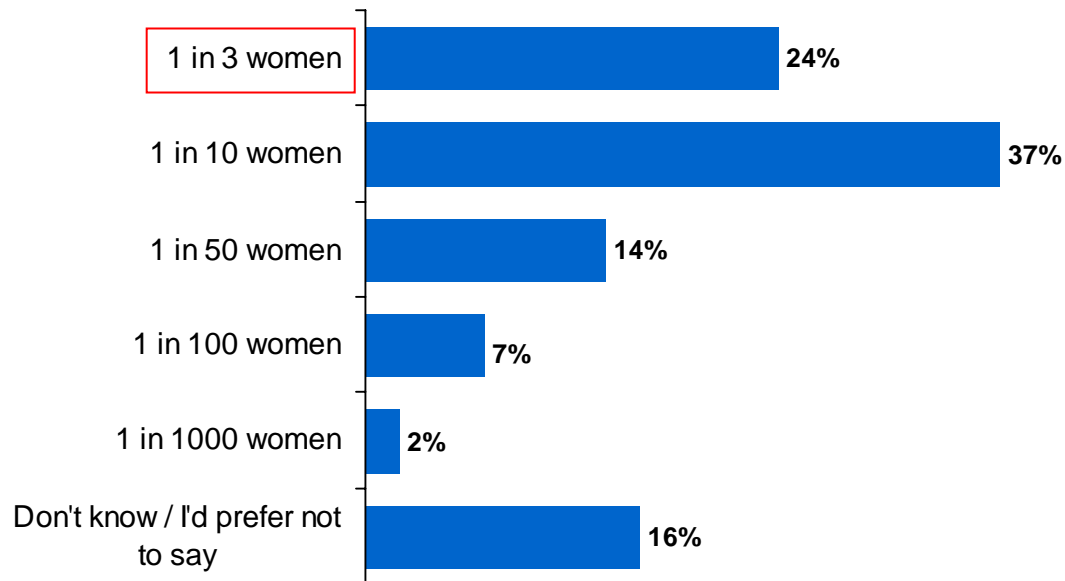
Perceived incidence of osteoporosis among women– sub-group analysis

Gender
- There were no gender differences.

Age
- There were no age differences.

Region
- Respondents in North America were more likely than those in Europe to know that osteoporosis affects one in three women (29% vs. 20%).

Country
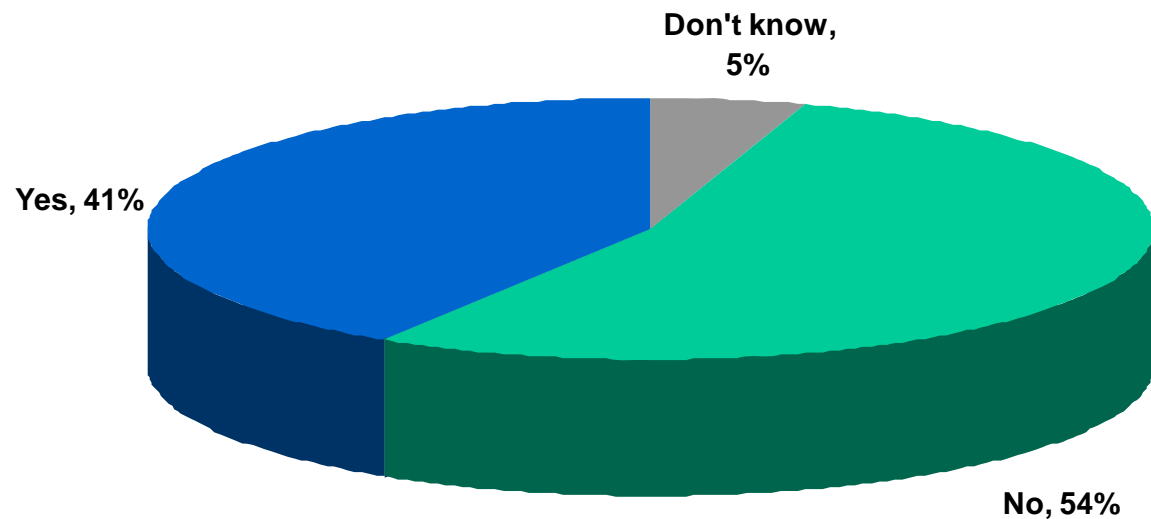- Almost one in three (31%) US residents correctly identified the incidence of osteoporosis in women, compared to only one in five (20%) of those living in the UK.

Knowing a sufferer of osteoporosis

All respondents

Two in five (41%) know somebody who has osteoporosis.

Q6. Do you know anybody personally who has osteoporosis? (% saying…)

Pie chart:
- **Don't know, 5%**
- **Yes, 41%**
- **No, 54%**

Knowing a sufferer of osteoporosis – sub-group analysis

Gender
- Women (45%) were more likely than men (30%) to report knowing someone who has osteoporosis.

Age
- Just one in three (32%) of those under 30 said they knew somebody with osteoporosis compared to almost half (47%) of those aged 30 and over.
- This effect was even more pronounced amongst those aged 50 and above, where three in five (60%) knew a sufferer compared to just two in five (38%) of under 50s.

Region
- North American respondents were more likely than those in Europe to know somebody who has osteoporosis (46% vs. 37%).

Country
- Almost half (47%) of US residents reported knowing somebody who suffers from osteoporosis. In the UK, this figure was just one in three (34%).

Having a family member with osteoporosis

All respondents

One in four (26%) respondents reported having a family member with the condition.

Q7. Does anyone in your family have osteoporosis? (% saying…)

Don't know, 10%

Yes, 26%

No, 64%
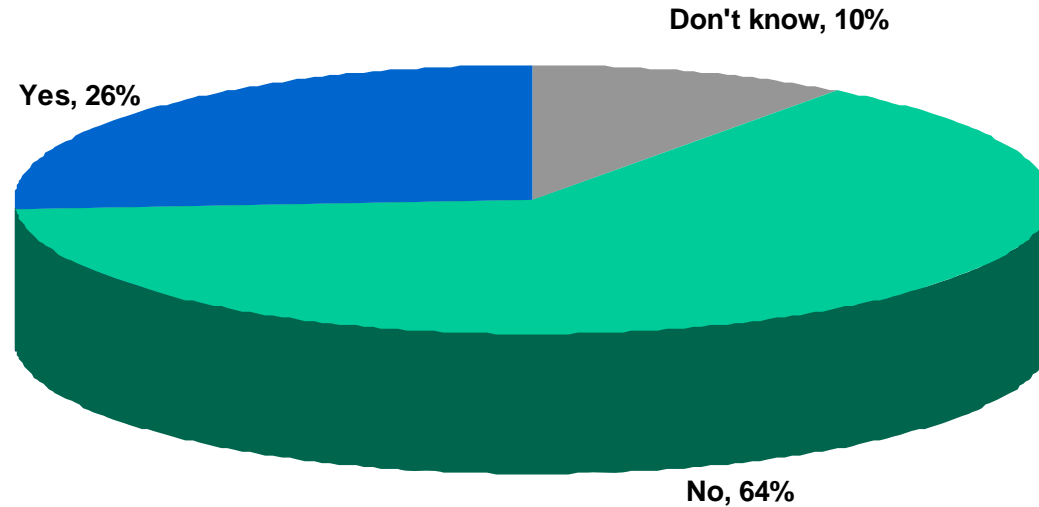
Having a family member with osteoporosis – sub-group analysis

Gender
- There were no gender differences.

Age
- Over 50s (33%) were more likely than those aged under 30 (19%) to have a family member suffering from osteoporosis.

Region
- One in three (32%) North American respondents reported a family member having osteoporosis compared to just one in five (22%) European residents.

Country
- Just as respondents in the USA were more likely than those in the UK to know someone with osteoporosis, they were also more likely to have a family member suffering from the condition (33% vs. 19%).

Risk factors for Osteoporosis

Osteoporosis myths

All respondents

Respondents were most likely (67%) to challenge the statement that osteoporosis only affects women after the menopause. Around one in two respondents (48%-51%) correctly disputed myths about the incidence, risk factors and hereditary nature of the condition.

Q8-12. As far as you know, are the following statements true or false? (% saying…)

Don't know

Statement	False	True	Don't know
Osteoporosis only affects women after menopause	67%	20%	**14%**
Breast cancer is more common among women than osteoporosis	51%	20%	**30%**
Drinking plenty of water can reduce the risk of osteoporosis	51%	18%	**31%**
Osteoporosis is not hereditary	49%	26%	**25%**
With modern medical care, osteoporosis is becoming less and less common	48%	30%	**22%**

True

False

All the statements are "False"

Osteoporosis myths – sub-group analysis

Gender
- Women were more likely than men to think that:
  - Osteoporosis is hereditary (55% vs. 34%)
  - Osteoporosis doesn't only affect women after menopause (70% vs. 57%)
  - Drinking plenty of water cannot reduce the risk of osteoporosis (55% vs. 42%)

Age
- Those aged 50 and over (63%) were more likely that those aged under 40 to know that breast cancer is not more common among women than osteoporosis (47%).

Region
- Compared to Europeans, North Americans were erroneously less likely to agree that breast cancer is more common among women than osteoporosis (14% vs. 25%).
- However, North Americans were correct compared to Europeans in terms of:
  - being less likely to agree that osteoporosis is not hereditary (17% vs. 30%).
  - are more likely to disagree that drinking plenty of can reduce the risk of osteoporosis (57% vs. 48%).
- Those respondents living in the Asia/Pacific region were more likely than those in North America to agree erroneously that osteoporosis is not hereditary.

Country
- US residents had a greater understanding of osteoporosis risk than those in the UK:
  - Two in three (60%) indicated that breast cancer is not more common among women than osteoporosis, compared to two in five (41%) in the UK.
  - A similar proportion (63%) disputed the assertion than osteoporosis is not hereditary (vs. 47% in the UK).
  - And drinking plenty of water was not seen as a way to reduce the risk of osteoporosis for 57% of US respondents and 46% in the UK.

Awareness of risk factors for osteoporosis

All respondents

The most well-known risk factors were poor diet (85%), lack of exercise (75%), genetics (63%) and the menopause (60%). Relatively few (14% and 28%) erroneously thought that poor posture or pollution could increase the risk of developing the condition.

Q13. Which of the following factors do you think can increase your risk of osteoporosis? (% saying…)

Factor	%
Poor diet	85%
Lack of exercise	75%
Genetics / family medical history	63%
Menopause	60%
Smoking	49%
Drinking alcohol	39%
Poor posture	28%
Pollution	14%
Don't know / I'd prefer not to say	4%

Incorrect answers (Poor posture, Pollution)
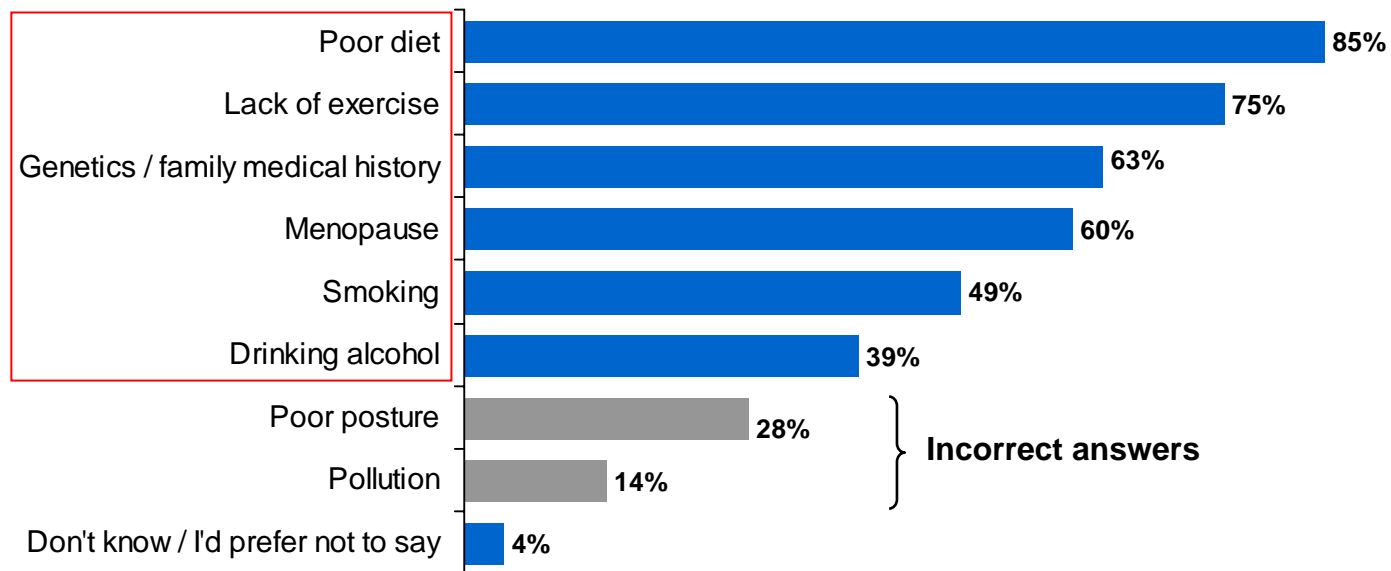
Awareness of risk factors for osteoporosis – sub-group analysis

Gender
- Women were more likely than men to think that genetics/family medical history (67% vs. 54%) and menopause (64% vs. 51%) can increase an individual's risk of developing osteoporosis.

Age
- Smoking was identified as a risk factor by three in five (61%) of those aged 50 and above compared to just under half (46%) of under 40s.
- The menopause also split opinion with three in four (75%) of those aged 40+ thinking that it can increase the risk of osteoporosis compared to 54% of under 40s. This knowledge increased with age as 76% of 50+ respondents know it is a risk factor compared to just 58% of under 50s.

Region
- Respondents living in North America were more likely than those in Europe to correctly identify the following factors can increase the risk of osteoporosis:
  - Smoking (57% vs. 43%)
  - Drinking alcohol (44% vs. 34%)
  - Lack of exercise (83% vs. 70%)
  - Genetics / family medical history (78% vs. 55%)
  - Menopause (69% vs. 56%).
- However, they were also more likely to be under the impression that pollution (19% vs. 10%) and poor posture (34% vs. 21%) are risk factors.
- While three in four (78%) of those in North America thought that genetics/family medical history are risk factors for osteoporosis, just two in five in Asia/Pacific (42%) and Middle East/Africa (43%) thought that this is the case .

Country
- The respondents based in the USA were generally more aware than those in the UK about the lifestyle risks factors of osteoporosis, especially:
  - Lack of exercise (83% vs. 72%), genetics / family medical history (80% vs. 60%) menopause (71% vs. 54%) and smoking (59% vs. 46%).

Concern about personal risk for developing osteoporosis

All respondents

A majority of respondents felt that they should be worrying about the risks of osteoporosis despite having a good diet and not being in the most "at risk" demographic groups. However, this does not mean that they are actually taking steps to avoid developing the condition.

Q18. Which of the following statements do you agree with? (% saying…)

	Disagree	Agree	Don't know
I have a good diet , so I don't need to worry very much about osteoporosis	69%	24%	7%
Osteoporosis mainly affects older women, so it's not something I need to worry about	77%	16%	7%
No-one in my family has osteoporosis, so I don't need to worry very much about osteoporosis	82%	10%	8%

Agree
Disagree

All correct answers are "Disagree"

27
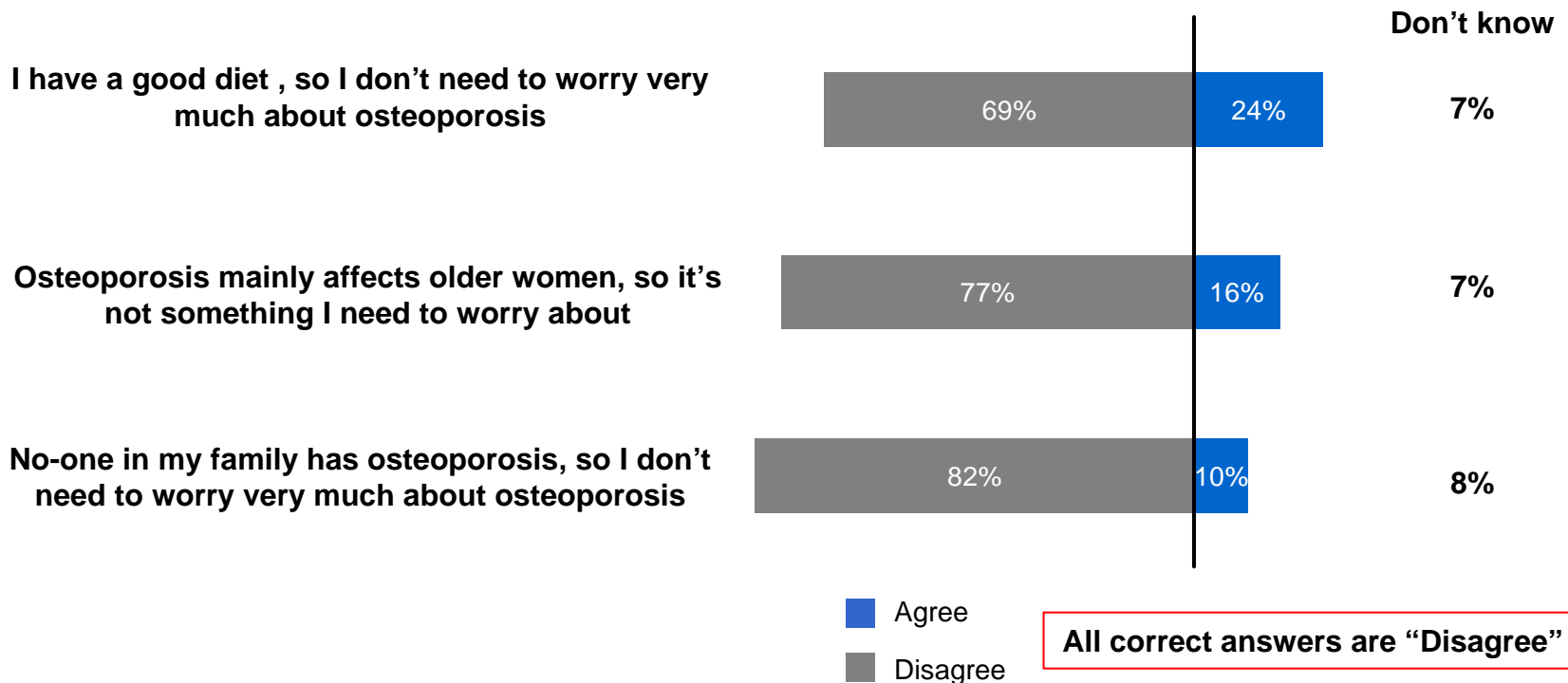
Concern about personal risk for developing osteoporosis – sub-group analysis

<u>Gender</u>
- Women were more likely than men to disagree with all three statements:
  - I have a good diet, so I don't need to worry very much about osteoporosis (73% vs. 58%)
  - Osteoporosis mainly affects older women, so it's not something I need to worry about (83% vs. 62%)
  - No-one in my family has osteoporosis, so I don't need to worry very much about osteoporosis (86% vs. 72%)

<u>Age</u>
- There were no age differences.
  - Despite a general trend towards older respondents being more likely to dispute the statements, none of these findings were statistically significant.

<u>Region</u>
- Respondents in North America were more likely than those in Europe to disagree that:
  - I have a good diet, so I don't need to worry very much about osteoporosis (80% vs. 58%)
  - No-one in my family has osteoporosis, so I don't need to worry very much about osteoporosis (88% vs. 76%)
  - Osteoporosis mainly affects older women, so it's not something I need to worry about (82% vs. 73%)

<u>Country</u>
- The vast majority of those living in the USA disagreed that they don't have to worry about osteoporosis because they have a good diet (80%) or because no-one in their family has it (88%) compared to smaller proportions of respondents in the UK (57% and 73%).

Nutrition to combat development of osteoporosis

Nutrients needed for strong bones

All respondents

Almost all respondents (99%) knew that calcium is important for building bones and two in three (65%) correctly identified Vitamin D. Also, protein was correctly selected by three in five (59%).

Q14. Which of the following nutrients do you think are important for building bones? (% saying…)

Don't know

Nutrient	No	Yes	Don't know
Calcium		99%	**1%**
Vitamin D	9%	65%	**26%**
Protein	17%	59%	**24%**
Vitamin C	30%	37%	**33%**
Vitamin A	22%	36%	**42%**
Vitamin B	22%	35%	**42%**
Vitamin E	28%	29%	**43%**
Fibre	37%	28%	**35%**
Selenium	18%	24%	**58%**

Yes
No
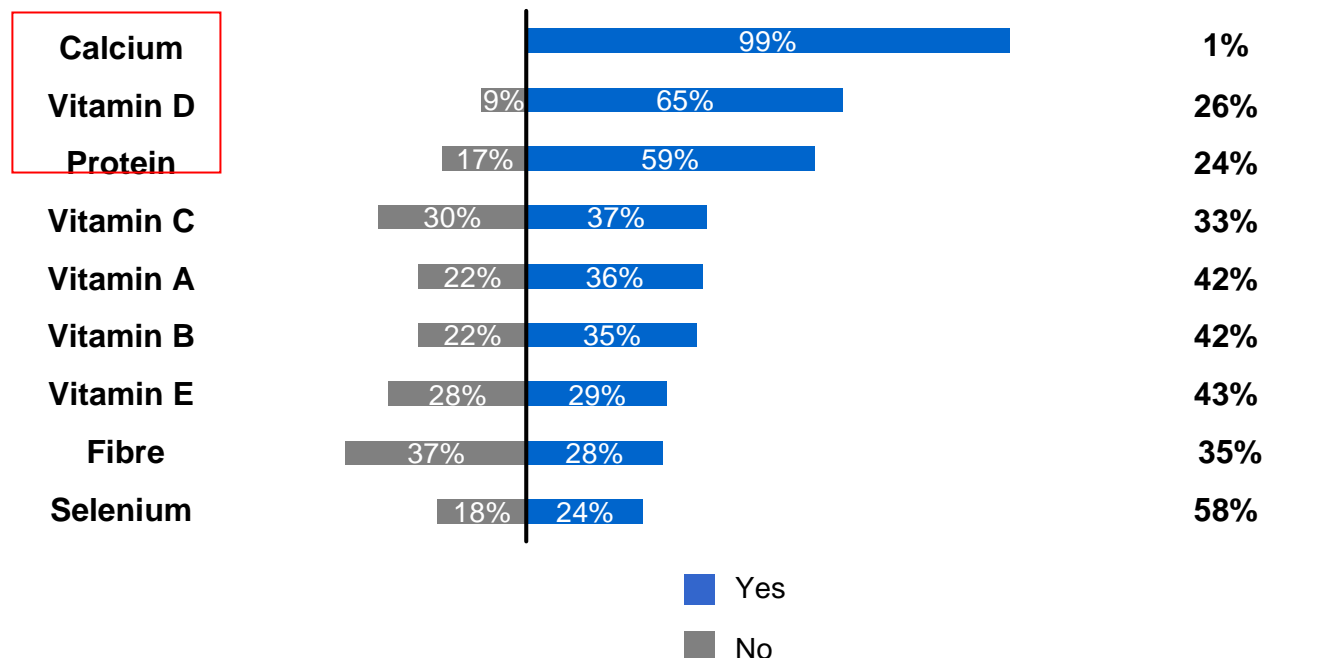
Nutrients needed for strong bones – sub-group analysis

Gender
- Women (68%) were more likely than men (56%) to think that Vitamin D is important for building bones.

Age
- There were no age differences.

Region
- Respondents in North America were more likely than those in Europe to think that the following nutrients are important for building bones:
  - Vitamin D (79% vs. 52%) [Correct]
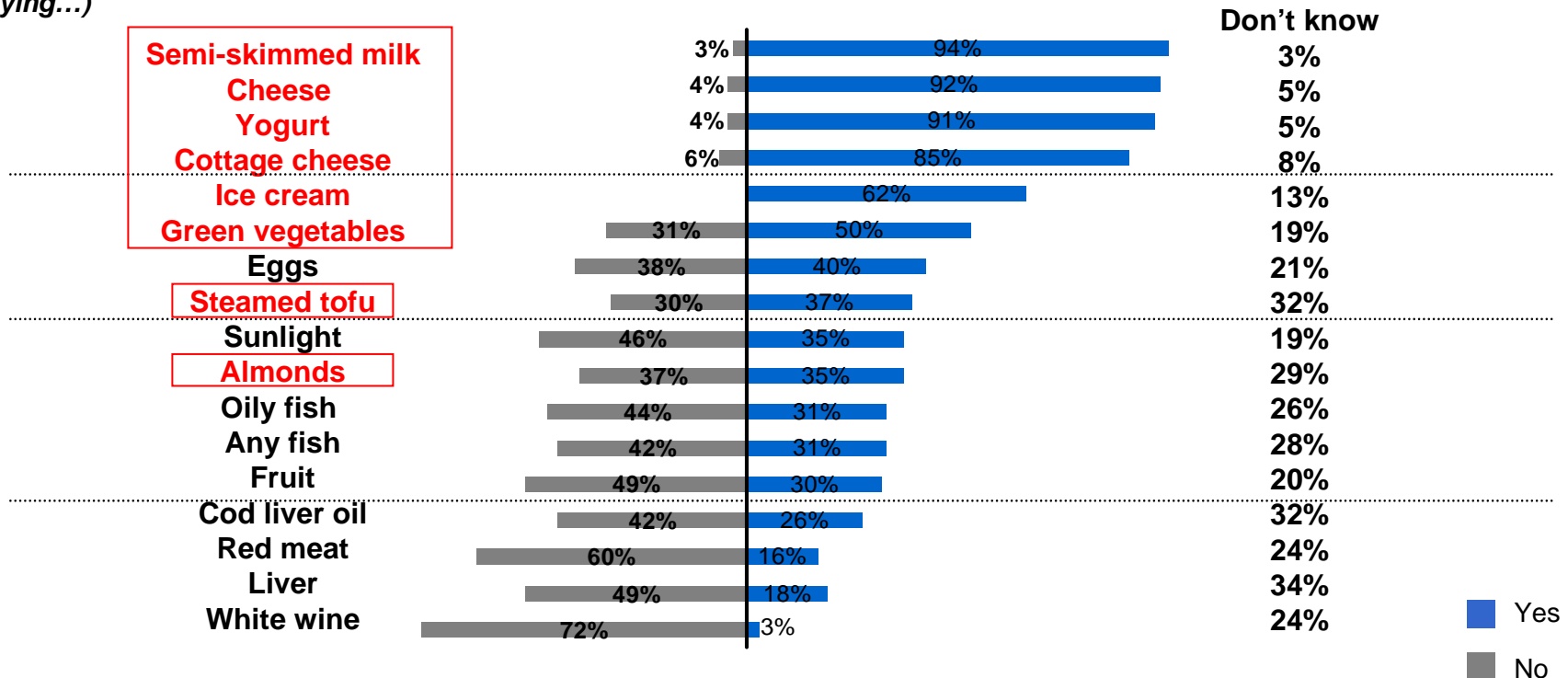 - Protein (67% vs. 52%) [Correct]

Country
- The vast majority (80%) of those in the USA correctly identified Vitamin D as being good for building bones, compared to just 55% in the UK.
- However, they were also more likely than those in the UK to think that protein plays an important role in bone-building (67% vs. 54%).

Good sources of calcium

All respondents

Dairy products were the best known sources of calcium with between 62% and 94% of respondents agreeing with this. Half (50%) of respondents knew that green vegetables contain calcium, but only one in three thought that steamed tofu or almonds contain this nutrient.

Q15. Calcium is important for building bones. Which of the following do you think are good sources of calcium? (% saying…)

Food	No	Yes	Don't know
Semi-skimmed milk	3%	94%	3%
Cheese	4%	92%	5%
Yogurt	4%	91%	5%
Cottage cheese	6%	85%	8%
Ice cream		62%	13%
Green vegetables	31%	50%	19%
Eggs	38%	40%	21%
Steamed tofu	30%	37%	32%
Sunlight	46%	35%	19%
Almonds	37%	35%	29%
Oily fish	44%	31%	26%
Any fish	42%	31%	28%
Fruit	49%	30%	20%
Cod liver oil	42%	26%	32%
Red meat	60%	16%	24%
Liver	49%	18%	34%
White wine	72%	3%	24%

Yes

No

Good sources of Calcium – sub-group analysis 1

<u>Gender</u>
- Women were more likely than men to correctly identify the following foods as being good sources of calcium:
    - Green vegetables (53% vs. 42%)
    - Almonds (38% vs. 26%)
    - Steamed tofu (42% vs. 26%)
    - Yogurt (94% vs. 83%)
    - Cottage cheese (88% vs. 77%)
- Women were also more likely than men to correctly identify the following foods as <u>not</u> being good sources of calcium:
    - Red meat (63% vs. 52%)
    - Liver (52% vs. 41%)
    - White wine (76% vs. 64%)

<u>Age</u>
- Under 30s were more likely than those aged 50+ to mistakenly think that almonds (44% vs. 27%) are <u>not</u> good sources of calcium and that oily fish (49% vs. 34%) <u>is</u>.
- However, this younger age group of under 30s (55%) was more likely than those aged 40+ (36%) to know that sunlight is not a good source of calcium.

Good sources of Calcium – sub-group analysis 2

Region
- Those in the Middle East/Africa were more likely than those in Europe to wrongly believe that fruit is a good source of calcium (47% vs. 24%).
- The erroneous impression that sunlight has a high calcium content was higher for respondents in Asia/Pacific (56%) than those in Europe (31%) and North America (34%).
- Any fish was also more likely to be thought of as a source of calcium by those in the Middle East and Africa (47%) and Asia/Pacific (55%) than respondents in North America (24%), and in Asia/Pacific (47%) more so than in Europe (32%). Those in Asia/Pacific (48%) were also more likely than those living in North America (23%) to say that cod liver oil contains calcium.
- Eggs are also not a good source of calcium – and respondents living in North America (46%) were more likely to know this than those in Europe (34%) and the Middle East/Africa (23%).
- Respondents in North America were more likely than those in Europe to correctly identify good calcium sources as:
  - Green vegetables (55% vs. 43%)
  - Cottage cheese (94% vs. 79%)
  - Ice cream (76% vs. 50%)
- Those in the Asia/Pacific region, however, were less likely to appreciate the high calcium content of cottage cheese (69%) and ice cream (42%).
- In terms of cheese, the vast majority (97%) of respondents in North America knew about its high calcium content, compared to three quarters of respondents in Asia/Pacific (74%), and this is also true for yogurt (96% vs. 74%).
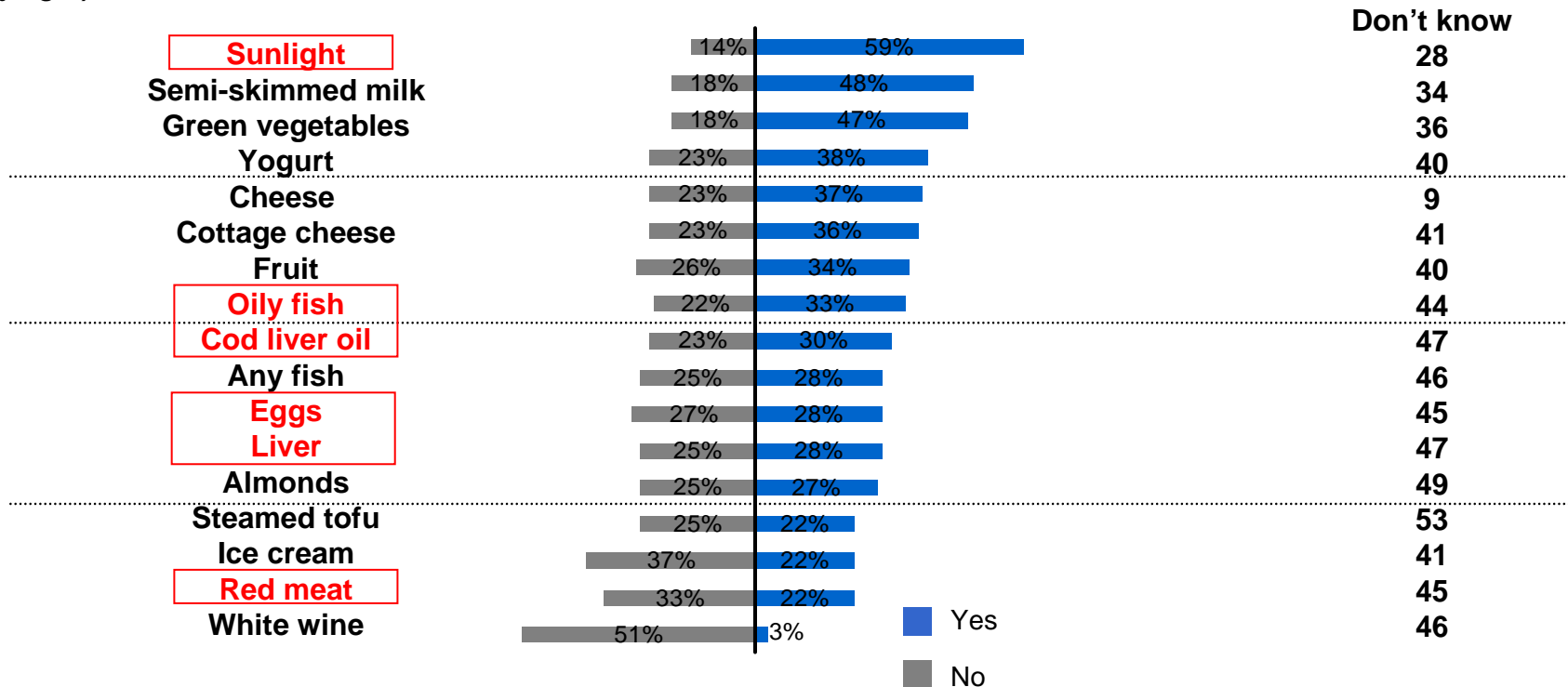
Country
- Respondents based in the UK were more likely than their American counterparts to say that:
  - Oily fish is a good source of calcium (38% vs. 24%) [Incorrect]
  - Sunlight does not contain calcium (60% vs. 46%) [Correct]
- However, it is the American respondents (45%) who were more likely than those in the UK (34%) to know that that eggs do not contain high levels of calcium.
- Cottage cheese and ice cream were more likely to be identified calcium-rich by those living in America than those in the UK.

Good sources of Vitamin D

All respondents

The sources of Vitamin D were not widely known: although three in five (59%) knew that sunlight was a source of this nutrient, other good sources such as cheese, oily fish, cod liver oil, eggs, liver or red meat were identified by fewer than two in five respondents.

Q16. Vitamin D is also important for building bones. Which of the following do you think are good sources of Vitamin D? (% saying…)

Source	No	Yes	Don't know
Sunlight	14%	59%	28
Semi-skimmed milk	18%	48%	34
Green vegetables	18%	47%	36
Yogurt	23%	38%	40
Cheese	23%	37%	9
Cottage cheese	23%	36%	41
Fruit	26%	34%	40
Oily fish	22%	33%	44
Cod liver oil	23%	30%	47
Any fish	25%	28%	46
Eggs	27%	28%	45
Liver	25%	28%	47
Almonds	25%	27%	49
Steamed tofu	25%	22%	53
Ice cream	37%	22%	41
Red meat	33%	22%	45
White wine	51%	3%	46

Yes / No

Good sources of Vitamin D – sub-group analysis 1

Gender
- Women were more likely than men to correctly identify the following as being good sources of Vitamin D:
  - Sunlight (63% vs. 47%)
- Women were also more likely than men to correctly identify the following foods as <u>not</u> being good sources of Vitamin D:
  - White wine (55% vs. 39%)
  - Ice cream (40% vs. 29%)

Age
- One in two (51%) of those aged 40+ thought that cheese is a good source of Vitamin D compared to just one in three (32%) aged under 40.
- However, the 40+ respondents were mistaken in thinking that yogurt and cottage cheese contains good levels of Vitamin D
  - One in two (50%) think yogurt contains this nutrient compared to just one in three (33%) under 40s; and similar proportions feel the same way about cottage cheese (46% vs. 31%).

Good sources of Vitamin D – sub-group analysis 2

- <u>Region</u>
- Respondents in Europe were more likely than those in North America to think that the following are good sources of Vitamin D:
  - Oily fish (41% vs. 24%) [Correct]
  - Cod liver oil (36% vs. 22%) [Correct]
  - Any fish (32% vs. 22%) [Incorrect]
- North American respondents were more likely than those in Europe to identify correctly that sunlight (63% vs. 53%) and incorrectly that liver is not a good source of Vitamin D (30% vs. 21%) as well as steamed tofu (27% vs. 18%).
- It may be the widespread availability of milk enriched with Vitamin D in the USA which encouraged them to outnumber Europeans in their perception that the following are good sources of this nutrient:
  - Semi-skimmed milk (69% vs. 28%)
  - Yogurt (54% vs. 22%)
  - Cottage cheese (52% vs. 20%)
  - Ice cream (34% vs. 11%)

  <u>Country</u>
- Respondents in the UK were more likely than their American counterparts to know that oily fish (47% vs. 22%), liver (36% vs. 24%) and cod liver oil (41% vs. 22%) are good sources of Vitamin D. In terms of incorrect nutritional knowledge, British residents were more likely than those in the States to think that any fish (36% vs. 22%) is a good source of Vitamin D.

Demographics

Demographic profile of respondents

Sex

	Total sample (%)
Male	27%
Female	73%

County

	Total sample (%)
USA	39%
UK	25%
Canada	4%
Other	32%

Age

	Total sample (%)
Under 20	3%
20-29	37%
30-39	31%
40-49	15%
50 and above	14%

Region

	Total sample (%)
North America	43%
Europe	42%
Asia/Pacific	6%
Middle East/Africa	6%
South America/Caribbean	1%