Diet low in seafood omega-3 fatty acids—Level 3 risk

Summary In 2019, a diet low in omega-3 fatty acids was responsible for 7·41 million (95% UI 3·37–9·69) DALYs and 337 000 deaths (166 000–436 000). It was the 12th-leading dietary risk factor for attributable DALYs.

Definition Diet low in omega-3 fatty acids is defined as average daily consumption (in milligrams per day) of less than 430–470 milligrams of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

	Total sources
Exposure	20
Relative risk	50

Table 1: Total sources used in GBD 2019 estimation

What is new in GBD 2019?

- The method of bias adjustment for non-dietary recall surveys was updated using MR-BRT.
- We updated the dose–response curve of relative risk for omega-3 fatty acids and ischaemic heart disease based on the most recent epidemiological evidence and a newly developed method for characterising the risk curve.
- The omega-3 TMREL changed from 200–300 to 430–470 milligrams/day.

	Deaths		YLLs		YLDs		DALYs	
	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)	Number (millions)	Rate (per 100 000)
2019								
Both sexes	0·337 (0·166 to 0·436)	4·3 (2·1 to 5·6)	7·20 (3·30 to 9·41)	88·1 (40·5 to 115·1)	0·209 (0·101 to 0·330)	2·6 (1·2 to 4·0)	7·41 (3·37 to 9·69)	90·6 (41·5 to 118·4)
Females	0·149 (0·0729 to 0·194)	3·4 (1·7 to 4·4)	2·68 (1·21 to 3·55)	61·8 (27·8 to 81·7)	0·0949 (0·0438 to 0·150)	2·2 (1·0 to 3·5)	2·78 (1·24 to 3·67)	64·0 (28·6 to 84·6)
Males	0·188 (0·0928 to 0·245)	5·4 (2·7 to 6·9)	4·52 (2·10 to 5·94)	116·0 (54·5 to 152·3)	0·114 (0·0543 to 0·179)	3·0 (1·5 to 4·7)	4·63 (2·15 to 6·09)	119·0 (55·7 to 156·1)
Percentage change 2010–19								
Both sexes	18·0% (11·5 to 25·3)	−10·0% (−14·7 to −5·0)	12·7% (5·5 to 20·5)	−10·3% (−16·0 to −4·5)	27·9% (24·5 to 36·6)	0·1% (−2·2 to 5·8)	13·0% (5·9 to 20·6)	−10·1% (−15·6 to −4·3)
Females	19·8% (11·7 to 28·3)	−9·5% (−15·5 to −3·2)	15·5% (6·9 to 25·4)	−9·2% (−16·0 to −1·6)	28·6% (25·1 to 36·5)	0·6% (−1·9 to 5·9)	15·9% (7·3 to 25·5)	−8·9% (−15·5 to −1·4)
Males	16·5% (8·2 to 26·3)	−10·3% (−16·4 to −3·7)	11·1% (2·4 to 20·9)	−10·9% (−17·5 to −3·6)	27·3% (23·3 to 36·1)	−0·5% (−3·4 to 5·3)	11·4% (2·9 to 21·1)	−10·7% (−17·2 to −3·5)

Numbers in parentheses are 95% uncertainty intervals.

Table 2: Attributable global deaths, YLLs, YLDs, and DALYs in counts and age-standardised rates for both sexes combined, females, and males, 2019, with percentage change between 2010 and 2019

	Deaths	YLLs	YLDs	DALYs
1990	34th	35th	44th	41st
2010	36th	37th	44th	41st
2019	34th	35th	43rd	40th

Table 3: Rank among attributable Level 3 risks plus most detailed Level 2 risks of global deaths, YLLs, YLDs, and DALYs in 1990, 2010, and 2019 for both sexes combined

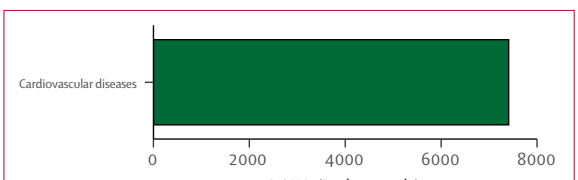

Figure 1: Composition of attributable global DALYs by constituent Level 2 causes for both sexes combined, 2019

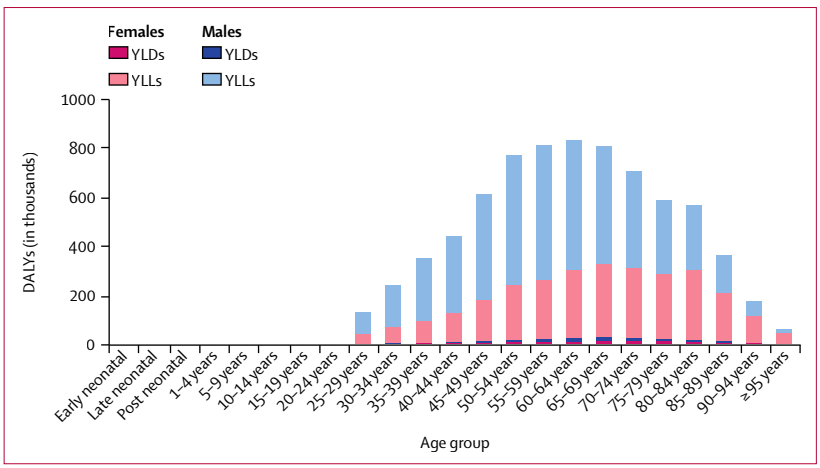

Figure 2: Composition of attributable global DALYs by YLLs and YLDs, age group, and sex, 2019

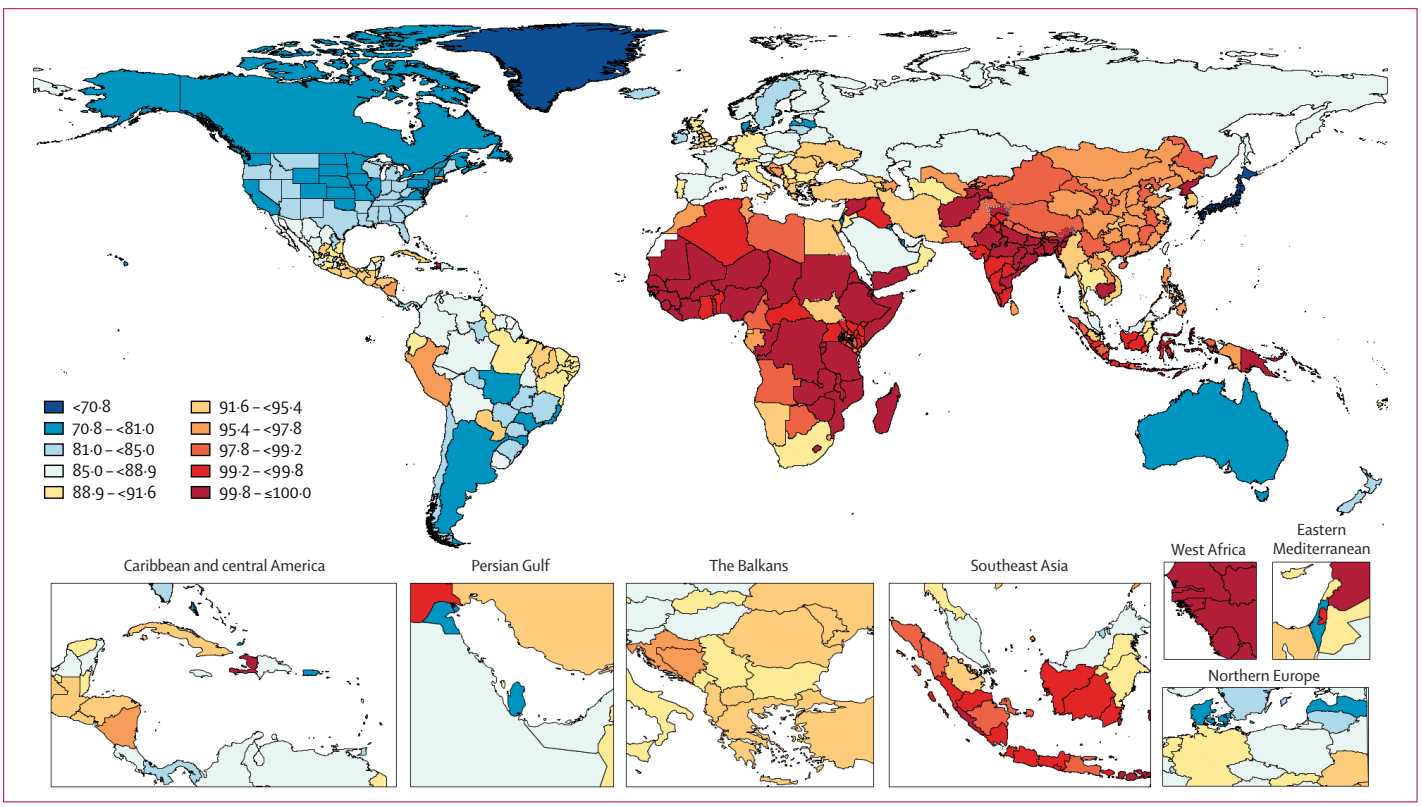

Figure 3: **Age-standardised all-cause SEV by location, both sexes combined, 2019**

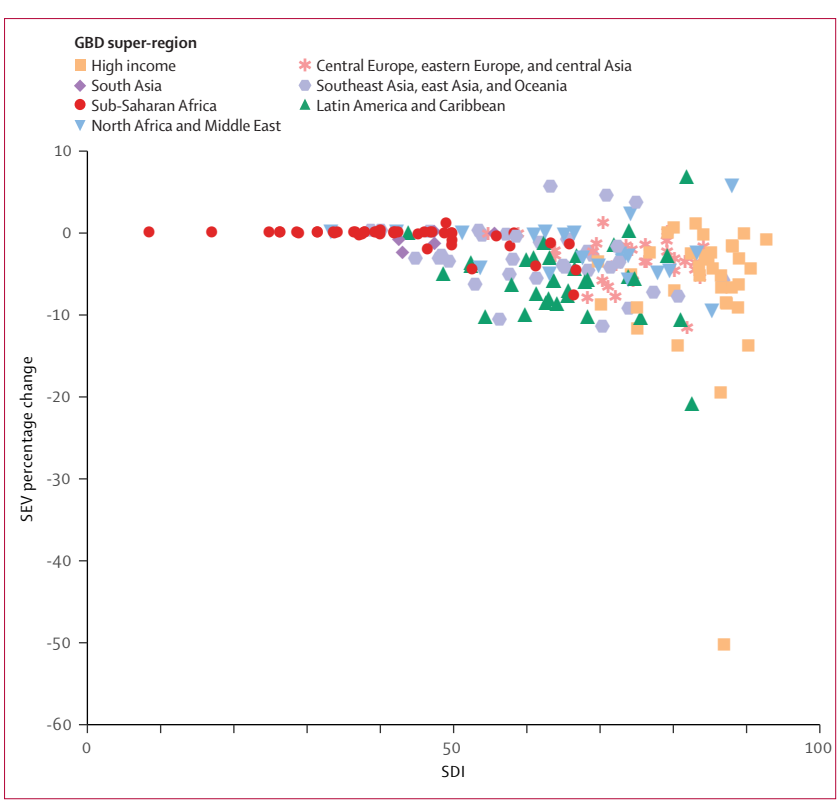

Figure 4: **Percentage change in all-cause age-standardised SEV by SDI, both sexes combined, 1990–2019**

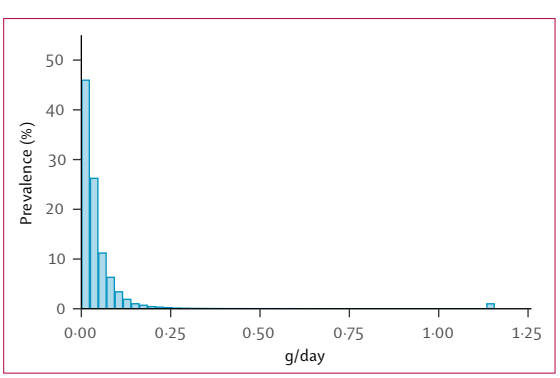

Figure 5: **Percentage of population exposed to risk factor, both sexes combined, 2019**

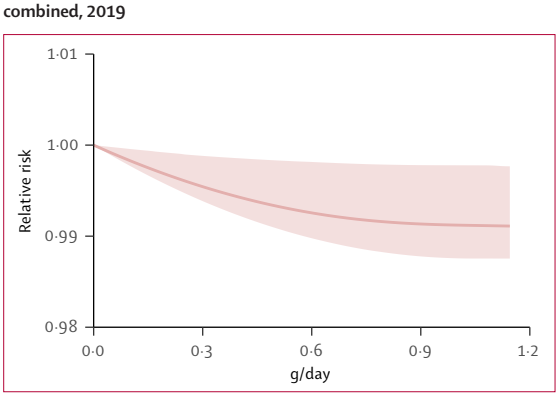

Figure 6: **All-cause mortality relative risk, both sexes combined, 2019**