

2015	DIET, NUTRITION, PHYSICAL ACTIVITY AND KIDNEY CANCER		
		DECREASES RISK	INCREASES RISK
STRONG EVIDENCE	Convincing		Body fatness <sup>1</sup>
	Probable	Alcoholic drinks <sup>2</sup>	Adult attained height <sup>3</sup>
LIMITED EVIDENCE	Limited – suggestive		Arsenic in drinking water <sup>4</sup>
	Limited – no conclusion	Cereals (grains) and their products, dietary fibre, vegetables, fruits, meat, poultry, fish, eggs, milk and dairy products, total fat, soft drinks, tea, coffee, carbohydrate, protein, calcium, vitamin A, retinol, vitamin C, vitamin E, beta-carotene, alpha-carotene, lycopene, beta-cryptoxanthin, lutein and zeaxanthin, flavonol, folate, vitamin B6, Seventh-day Adventist diets, physical activity, birth weight, age at menarche and energy intake	
STRONG EVIDENCE	Substantial effect on risk unlikely		

- 1 Body fatness marked by body mass index (BMI), waist circumference and waist-hip ratio.
- 2 Based on evidence for alcohol intake up to 30 grams per day (about 2 drinks a day). There is insufficient evidence for intake greater than 30 grams per day.
- 3 Adult attained height is unlikely to directly influence the risk of cancer. It is a marker for genetic, environmental, hormonal and nutritional factors affecting growth during the period from preconception to completion of linear growth.
- 4 The International Agency for Research on Cancer (IARC) has graded arsenic and arsenic compounds as Class 1 carcinogens. The grading for this entry applies specifically to inorganic arsenic in drinking water [3].

Summary of cohort studies – arsenic

Study description	No. Cases / Year of follow-up	Sex	RR (95% CI)	Exposure / Contrast
Diet, Cancer and Health, 2008 [17]	53 incident cases ~10 years follow-up	Men and women	0.88 (0.58–1.35)	For 1 µg/L increase in time-weighted average exposure (drinking water)
			0.94 (0.81–1.09)	For 5 mg increase in cumulative exposure (drinking water)
Residents in arseniasisendemic area in Taiwan, 2001 [18]	9 incident cases ~5 years follow-up	Men and women	2.82 (1.29–5.36)	Standardised incidence ratio compared with general population in Taiwan
Finns living outside municipal drinking-water system area during 1967-1980, 1999 [19]	49 incident cases ~14 years follow-up	Men and women	Daily dose of arsenic in well water 10 years before cancer diagnosis	
			0.94 (0.39–2.27)	≥1 vs. <0.2 µg/d
			Cumulative dose of arsenic in well water 10 years before cancer diagnosis	
			0.47 (0.21–1.04)	≥2 vs. <0.5 g/d
Historical records of Mormons in Utah, 1999 [20]	~9 years follow-up	Men	1.75 (0.80–3.32)	Standardised mortality ratio compared with white male population in Utah
	~4 years follow-up	Women	1.60 (0.44–4.11)	Standardised mortality ratio compared with white female population in Utah

## Summary of CUP 2015 stratified dose-response meta-analysis – alcohol

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases
<b>MEN</b>	Per 10 g/day	0.92 (0.84-1.00)	71%	3	1,796
<b>WOMEN</b>	Per 10 g/day	0.81 (0.68-0.96)	44%	5	1,318

## Summary of CUP 2015 meta-analysis and published pooled analyses – alcohol

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases	Factors adjusted for
<b>CUP Kidney Cancer SLR 2015</b>	Per 10 g/day	0.92 (0.86-0.97)	55%	7	3,525	
<b>Pooling Project of Cohort Studies [32]</b>	≥ 15 g/day vs. non-drinker	0.72 (0.60-0.86)	-	12	1,430	Adjusted for age, history of hypertension (Y/N), BMI, pack years of smoking (continuous), combination of parity and age at first birth (age at first birth < 25 years and parity of 1 or 2, age at first birth ≥ 25 years and parity of 1 or 2 or nulliparous, age at first birth < 25 years and parity of ≥ 3, and age at first birth ≥ 25 years and parity of ≥ 3), and total energy intake (kcal/day, continuous).
	Per 10 g/day ethanol intake*	0.81 (0.74-0.90)				
<b>CUP Kidney Cancer SLR 2015 additional analysis: Pooling Project of Cohort Studies [32] combined with studies from the CUP**</b>	Per 10 g/day	0.88 (0.79-0.97)	80%	15	≈4,179***	

\* Participants in the Pooling Project with intake >30 g/day were excluded

\*\* Pooling Project meta-analysed with three studies from the CUP [26, 27, 29]

\*\*\* For the category ≥ 15 g/day

## Summary of CUP 2015 stratified dose-response meta-analyses – BMI

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases
<b>Incidence</b>	Per 5 kg/m <sup>2</sup>	1.30 (1.25-1.36)	39%	21	14,148
<b>Mortality</b>	Per 5 kg/m <sup>2</sup>	1.32 (1.01-1.71)	37%	2	1,427
<b>Men</b>	Per 5 kg/m <sup>2</sup>	1.29 (1.23-1.36)	30%	17	8,741
<b>Women</b>	Per 5 kg/m <sup>2</sup>	1.28 (1.24-1.32)	0%	17	5,708
<b>North America</b>	Per 5 kg/m <sup>2</sup>	1.29 (1.20-1.39)	56%	10	4,117
<b>Europe</b>	Per 5 kg/m <sup>2</sup>	1.27 (1.24-1.31)	0%	9	8,739
<b>Asia</b>	Per 5 kg/m <sup>2</sup>	1.47 (1.26-1.72)	16%	4	2,719

Summary of CUP 2015 meta-analyses and published pooled analysis – BMI

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases	Factors adjusted for
CUP Kidney SLR 2015	Per 5 kg/m <sup>2</sup>	1.30 (1.25-1.35)	39%	23	15,575	
Asia-Pacific Cohort Studies Collaboration [60]	BMI ≥30 vs. 18.5–24.9 kg/m <sup>2</sup>	1.59 (0.78-3.24)	-	39	93	Adjusted for age and smoking
	Per 5 kg/m <sup>2</sup>	1.20 (0.86-1.66)				
Metabolic Syndrome and Cancer Project – Me-Can project [58]	BMI 31.7 vs. 21.5 kg/m <sup>2</sup> (men)	1.51 (1.13-2.03)	-	7	592	Adjusted for categories of birth year and age at measurement, and stratified at cohort
	BMI 31.7 vs. 20.0 kg/m <sup>2</sup> (women)	2.21 (1.32-3.70)		7	263	
Prospective Studies Collaboration [59]	Per 5 kg/m <sup>2</sup>	1.23 (1.06-1.43)	-	57	422	Adjusted for study, sex, age at risk (in 5-year groups) and baseline smoking status

## Summary of CUP 2015 stratified dose-response meta-analysis – height

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases
<b>MEN</b>	Per 5 cm	1.10 (1.06-1.13)	5%	9	1,272
<b>WOMEN</b>	Per 5 cm	1.10 (1.07-1.14)	11%	6	409

## Summary of CUP 2015 meta-analysis and pooled analyses – height

Analysis	Increment	RR (95% CI)	I <sup>2</sup>	No. Studies	No. Cases	Factors adjusted for
<b>CUP Kidney SLR 2015</b>	Per 5 cm	1.10 (1.08-1.12)	0	10	9,874	
<b>Asia-Pacific Cohort Studies Collaboration [73]</b>	Per 6 cm (men)	1.04 (0.83-1.31)		38	67	Age, study and year of birth adjusted
	Per 6 cm (women)	1.21 (0.81-1.83)			23	