

The Impact of Weight Loss on Cancer Incidence

Bruce M. Wolfe, M.D.

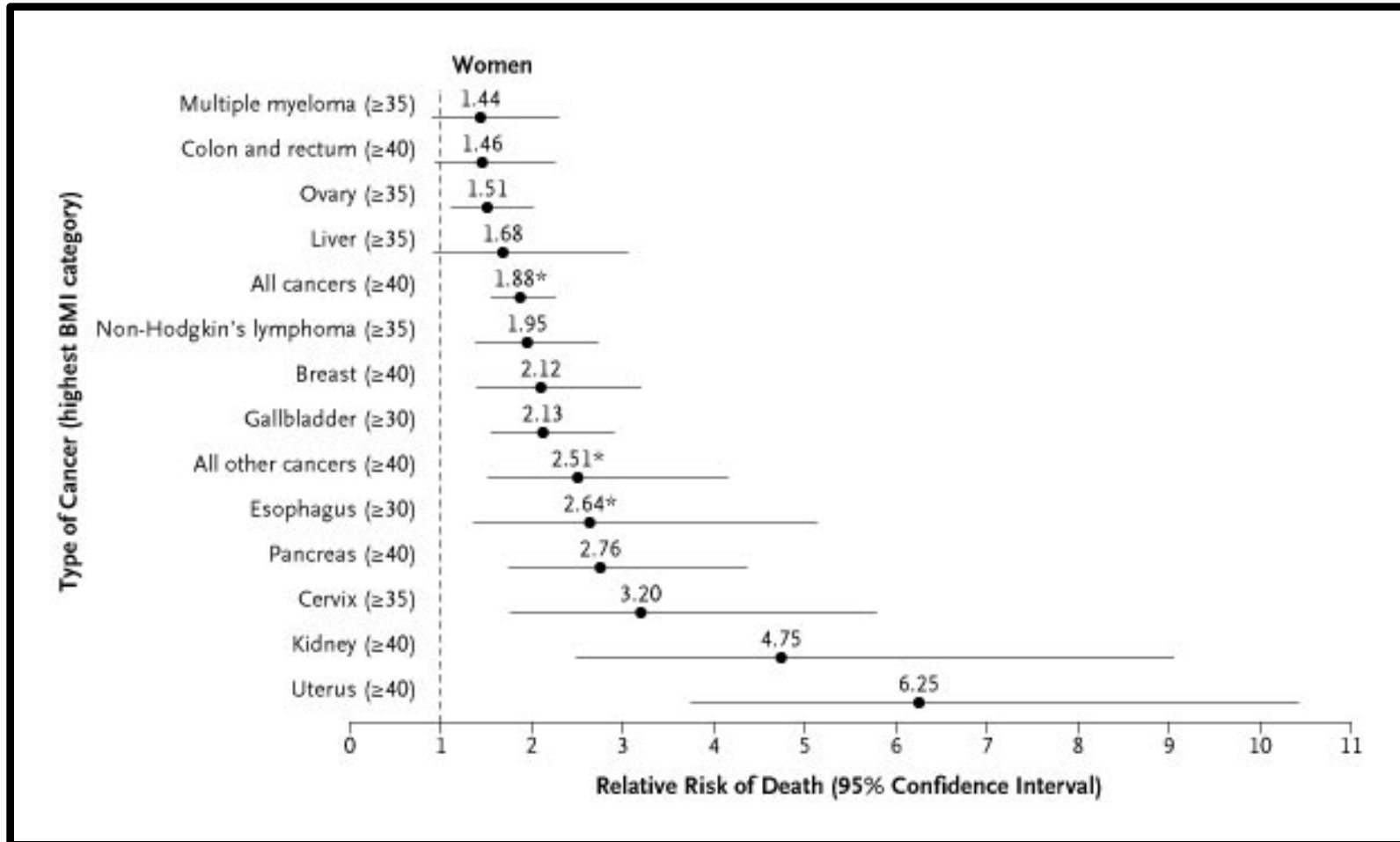
Professor of Surgery

Oregon Health and Science University

Disclosures

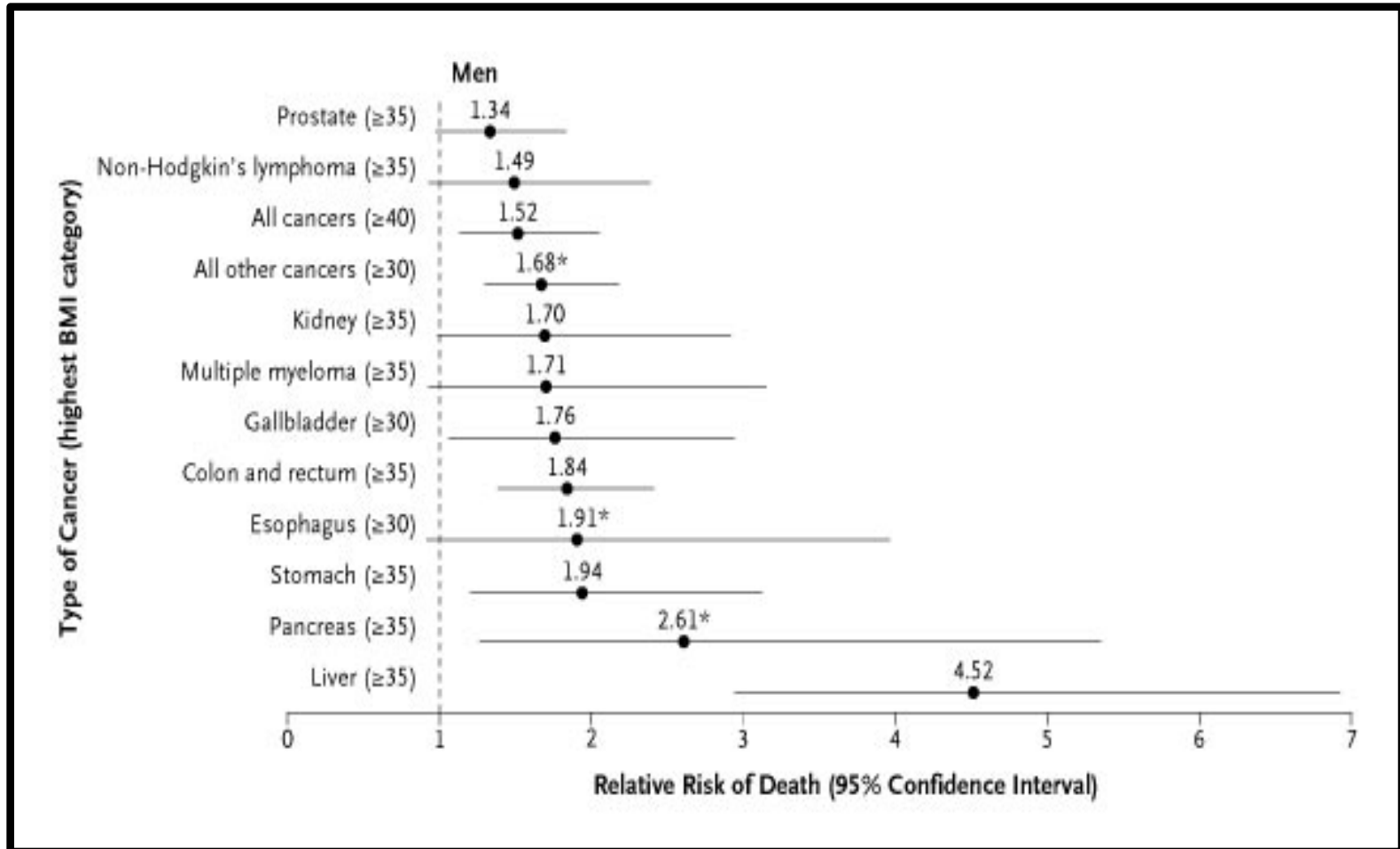
- EnteroMedics (research)
- Crospon (consultant)
- VINDICO (speaker)

Obesity: Cancer



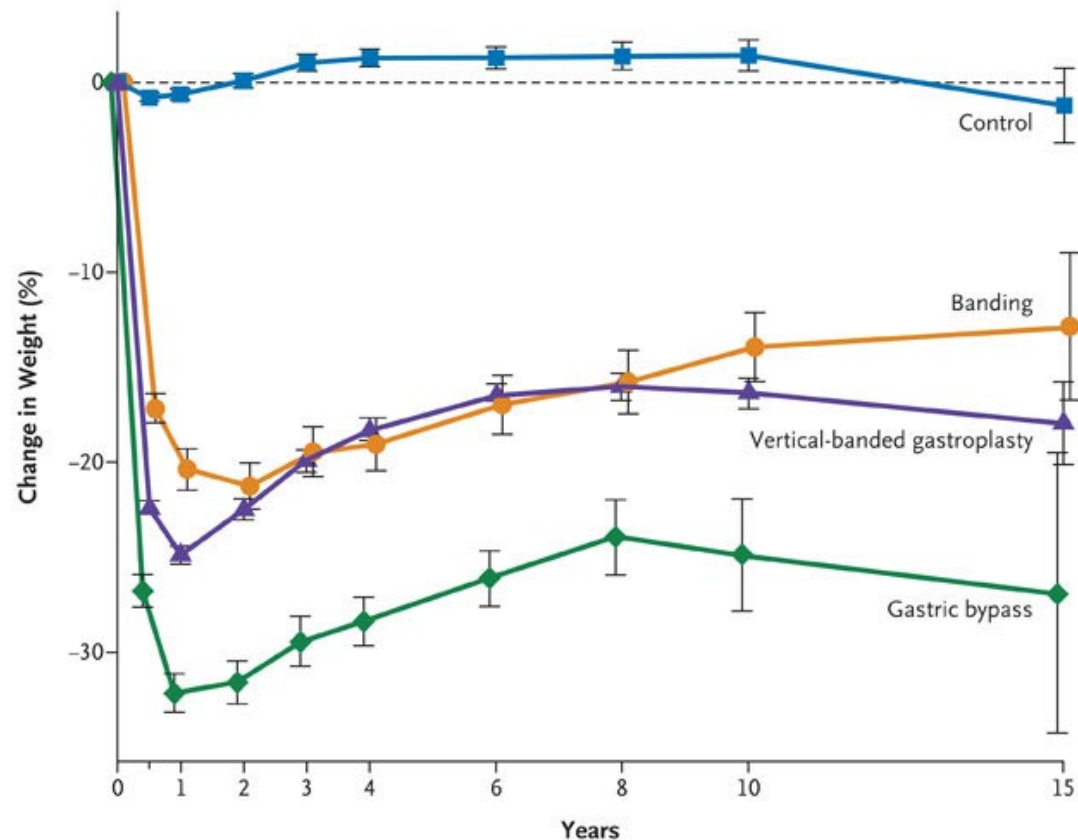
Calle: NEJM (2003);348:17

Obesity: Cancer



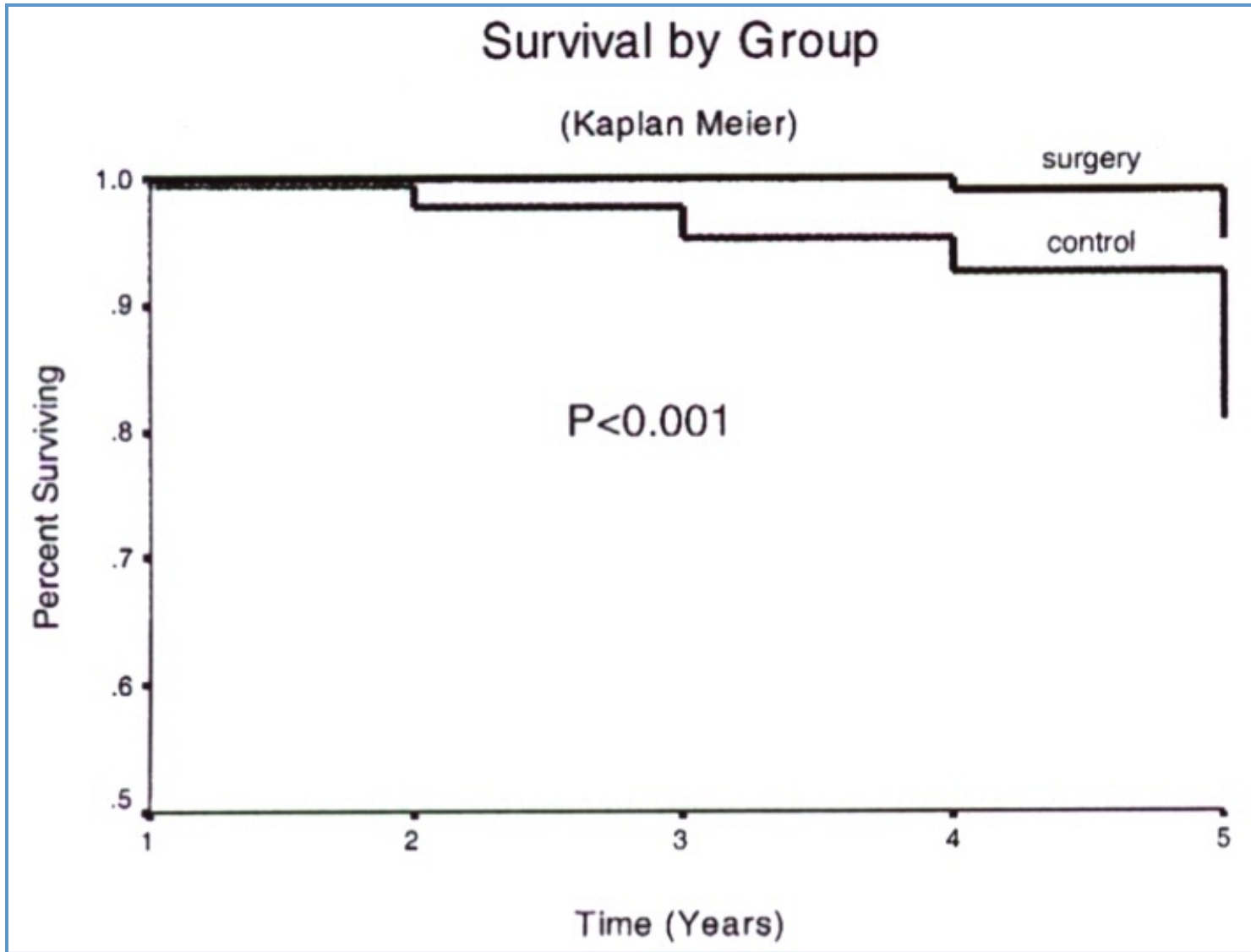
Call: NEJM (2003);348:17

Mean Percent Weight Change during a 15-Year Period

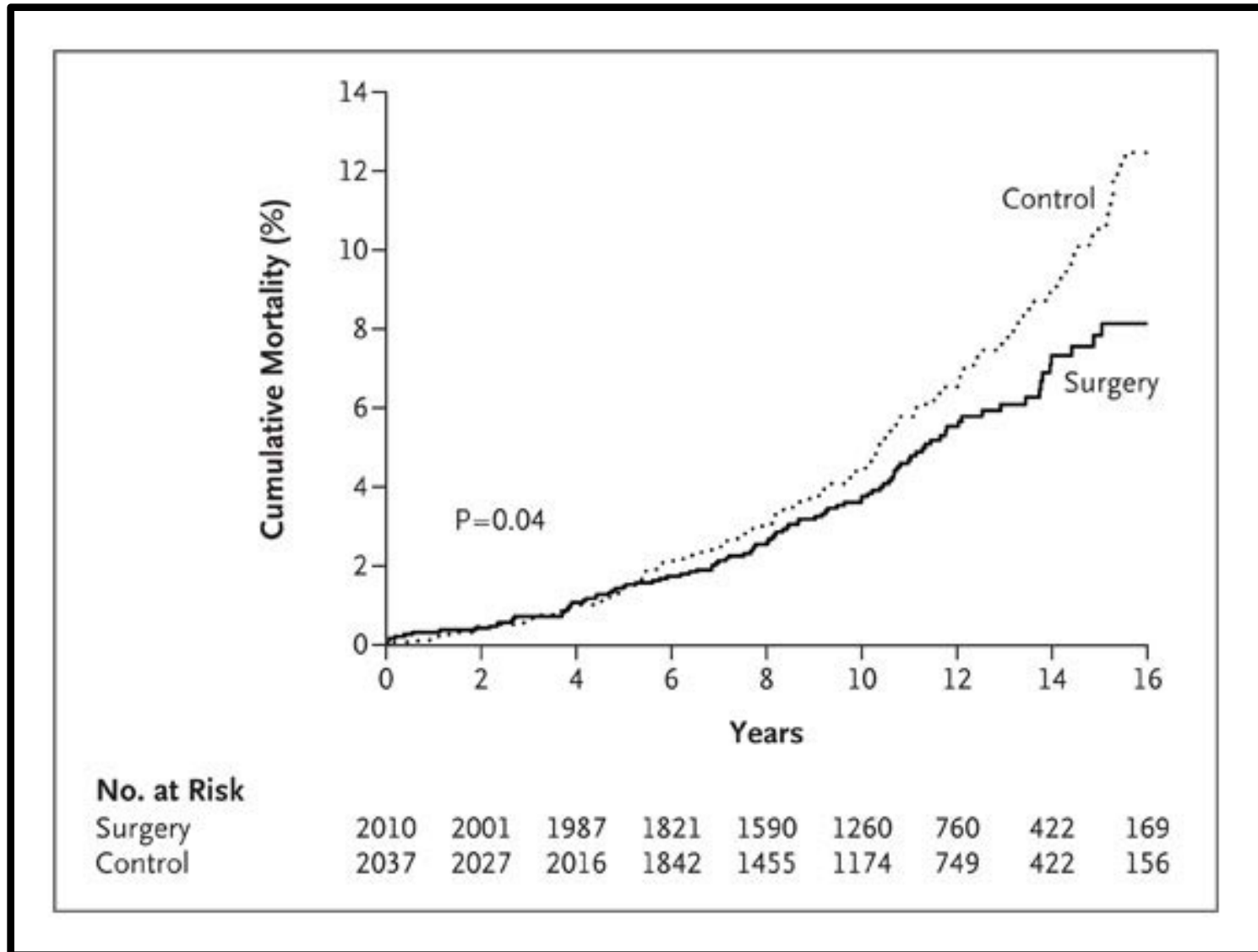


No. Examined

Control	2037	1768	1660	1553	1490	1281	982	886	190
Banding	376	363	357	328	333	298	267	237	52
Vertical-banded gastroplasty	1369	1298	1244	1121	1086	1004	899	746	108
Gastric bypass	265	245	245	211	209	166	92	58	10

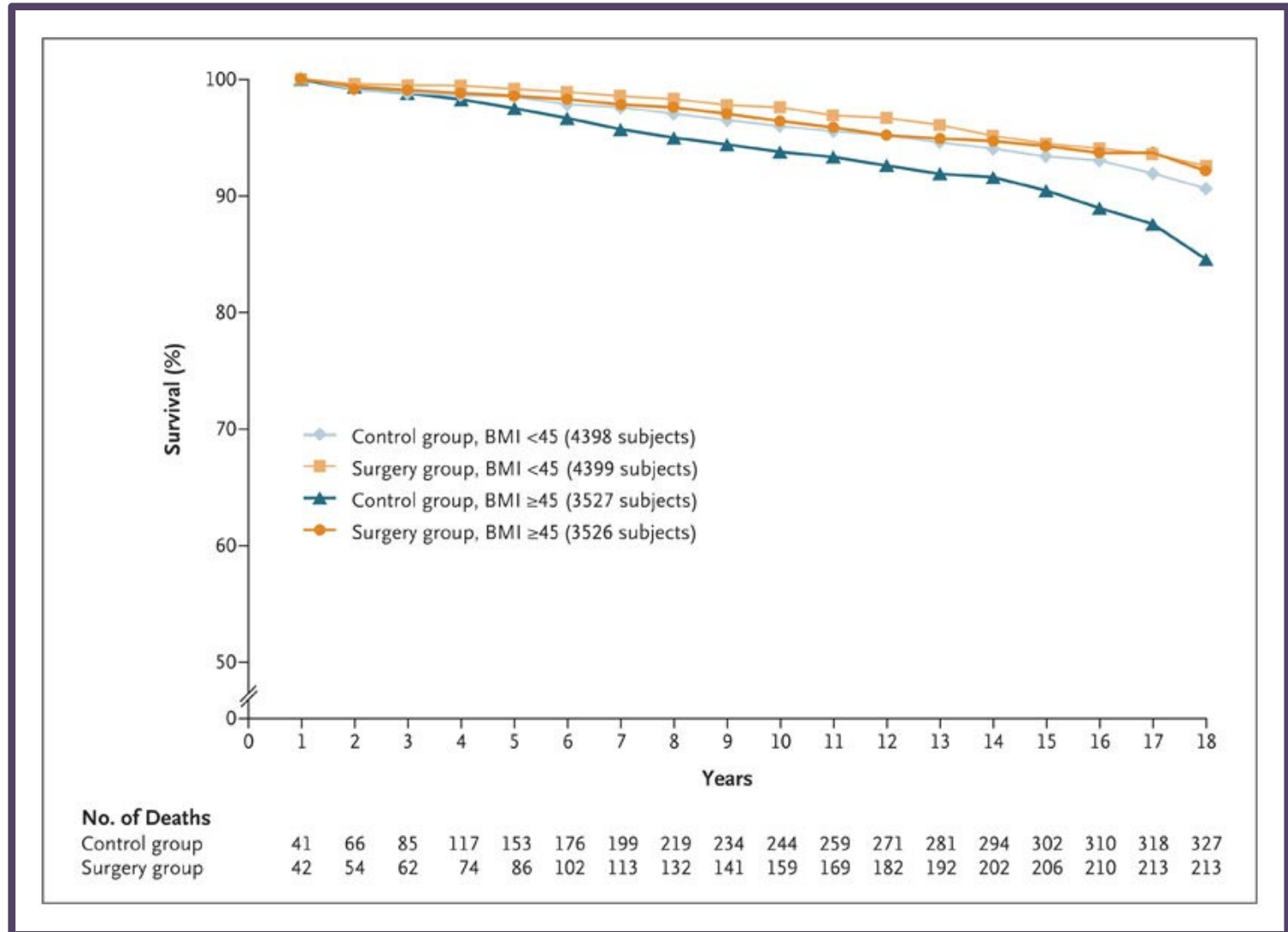


Unadjusted Cumulative Mortality



Sjostrom: NEJM 2007;357:741-52

Survival According to BMI



Adams: NEJM 2007;357:753-761

Cause of Death: SOS

	Control	Surgery	HR
Number of subjects	2037	2010	
Cardiovascular event	53	43	
Tumor	48	29	
Other	28	29	
Total	129	101	0.76

Cause of Death: Utah

Number/10,000 person.yrs

	Control	Surgery	% Decrease
Cardiovascular	18.5	9.7	48%
Cancer	13.3	5.5	60%
Other	25.3	22.4	11%
Total	57.1	37.6	34%

Adams: NEJM (2007);357:753

Weight Loss Decreases Cancer Mortality

Possible Explanations

- Decreased cancer incidence
- Enhanced cancer survival
- Process of care

Bariatric Surgery: Effect on Cancer Incidence

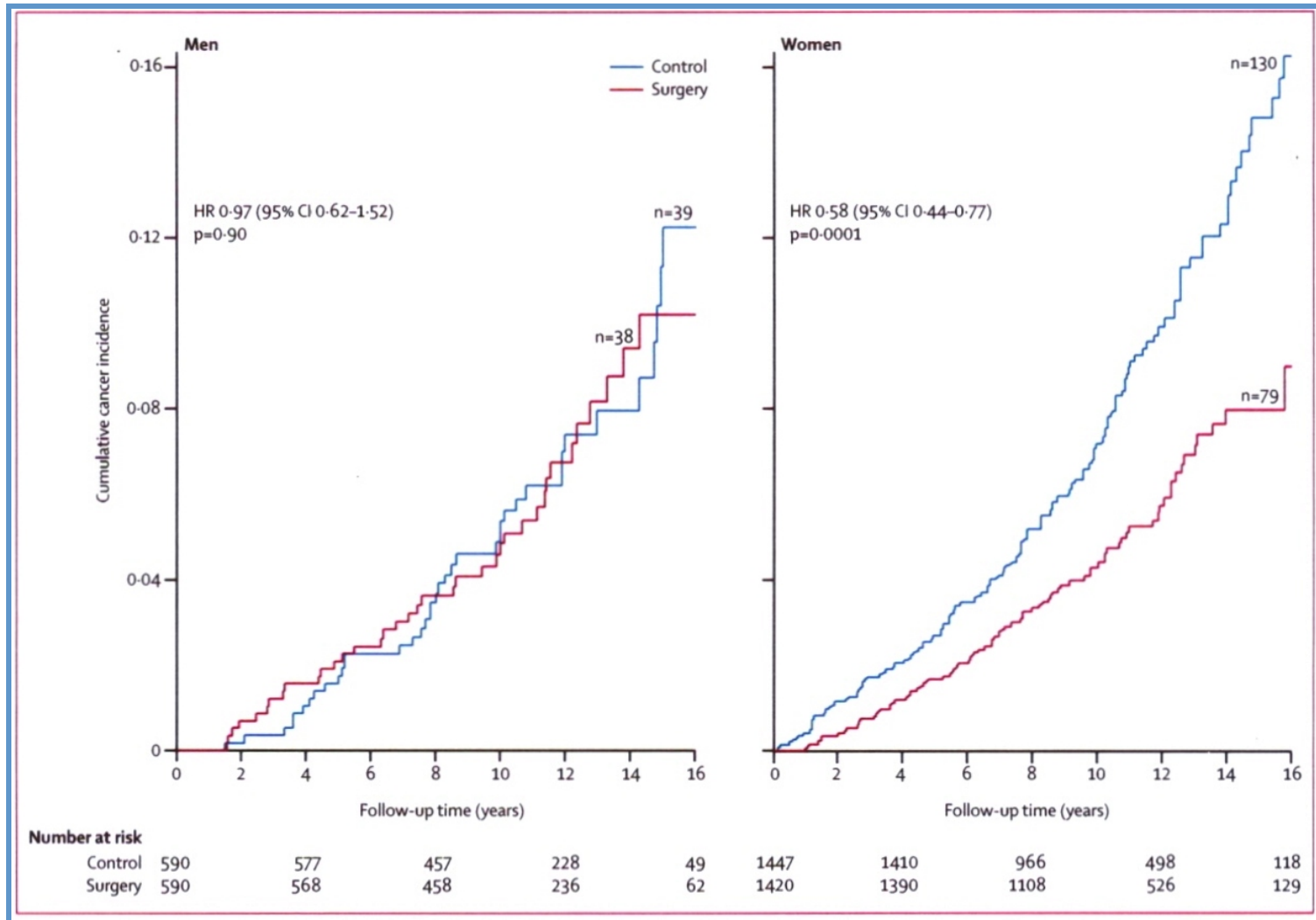
	Control (n)	Surgery (n)	f/u, year	RR
Quebec¹	5746	1035	5	0.22
Utah²	9442	6596	12.5	0.76
Sweden³	2037	2010	10.9	0.67

1. Christou: Surg Obes Relat Dis 2008;4:691

2. Adams: Obesity 2009;17:796

3. Sjostrom: Lancet Oncol 2009;10:653

Fatal and Non-fatal Cancer Incidence: SOS



Sjostrom: Lancet Oncol 2009;10:653

Incidence of Cancers by Stage

	Surgery (n)	Control (n)	HR
In Situ	44	73	0.86
Local	128	219	0.86
Regional	49	98	0.61
Distant	28	68	0.61

Summary

- Weight loss following bariatric surgery reduces cancer incidence and mortality.

Hypothesis:

- The molecular phenomena responsible also contribute to survival among cancer patients.

Molecular Candidates

- Insulin, IGF-1
- Female hormones
- Cytokines, adipokines