Tomato intake and Plasma/Serum Lycopene

Main findings

- Consumption of tomatoes increases the level of serum lycopene
- Shown to increase after single serving, 24 h (1 study)
- Shown to increase after 1-week supplementation (diet or extract)
- Consumption of tomatoes will also increase tissue levels of lycopene, including skin and adipose. Differential distribution has been reported among tissue sites.
- Uptake from processed tomatoes greater than fresh tomatoes, in general and when delivered with dietary fat (i.e. dietary oils such as olive oil).
- Disease (vs non-disease) state does not appear to alter uptake (as evidenced by subjects with prostate cancer, breast cancer and kidney disease.
- This does not include malabsorption or GI dysfunction conditions, which may modify uptake.

Summary of studies and outcomes

- Number of studies = 33
- Risk estimates = 33
  - (+) = 30
  - N = 3

Table: Relationship between diet and Plasma/serum lycopene

Study Type	N= studies	NEGATIVE ASSOCIATION					NEUTRAL ASSOCIATION					POSTIVE ASSOCIATION				
		Sample size, n=					Sample size, n=					Sample size, n=				
		≤100	101-200	201-500	501-1000	≥1000	≤100	101-200	201-500	501-1000	≥1000	≤100	101-200	201-500	501-1000	≥1000
RCT	8											$\sqrt{}^{D}\sqrt{}$ $\sqrt{}\sqrt{}$ $\sqrt{}$ $\sqrt{}^{D}$		√		$\sqrt{}^{D}$
Interv	8											$\sqrt{}^{D}$ $\sqrt{}^{D}$ √√√ √√√				
PC	4										√			√	√	√
CC	0															
Cross Sec	13								√		√	$\sqrt{}^{D}$ $\sqrt{}^{D}$	$\sqrt{}\sqrt{}$ $\sqrt{}^{D}$	√ √	√√	√√
Eco	0															

√ *Indicates subjects are non-disease/healthy population.*
$\sqrt{}^{D}$ *Indicates subjects are diseased population.*