

# CARDIOVASCULAR DISEASE (CVD)

## Lycopene Supplementation and Disease Risk

### CVD - main findings

- The data for lycopene or tomato extract supplementation are predominantly from smaller size studies. Both favorable and neutral outcomes are reported; however, 2 larger size RCT studies (n=400 and n=175) indicate a neutral relationship between lycopene supplementation and heart disease risk reduction.
- Inconclusive evidence for benefits in blood pressure regulation; although combination therapy (lycopene plus low dose standard of care medication) may provide benefit.
- Evidence for improving oxidative stress status.
- Limited evidence for modulation of inflammatory status or endothelial function
- Modest support for effects on platelet function as demonstrated by fresh fruit extracts (FTE).

Summary of studies and outcomes

- Number of studies = 24
- Risk estimates (RE) = 29
  - (-) = 16
  - N = 13
  - (+) = 0
- Risk estimates by Tomato or Lycopene category
  - √GT G. Tom =
  - √PT P. Tom = 1 (-)
  - √FTE FTE = 2 (-)
  - √Lyco Lyco = 13 (-), 13 (N)

**Table: Relationship between Lycopene Supplementation and CVD**

Study Type	N= studies	NEGATIVE ASSOCIATION (protective)					NEUTRAL ASSOCIATION (no associated risk or benefit)					POSTIVE ASSOCIATION (risk factor)				
		Sample size, n=					Sample size, n=					Sample size, n=				
CVD		≤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	17	√ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>BP</sub> √ <sub>BP</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>BP</sub> √ <sub>BP</sub> √ <sub>FTE</sub> √ <sub>lip</sub>					√ <sub>#</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>BP</sub> √ <sub>BP</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub>									
Interv	7	√ <sub>FTE</sub> √ <sub>Lyco</sub> √ <sub>Lyco</sub> √ <sub>PT</sub> √ <sub>#</sub> √ <sub>lip</sub>					√ <sub>#</sub> √ <sub>EF.o</sub> x <sub>int</sub> √ <sub>ox</sub> int									
PC	0															
CC	0															
Cross Sec	0															
Eco	0															

\* Symbol = same study. # Indicates both (-) and (N) RE in same study.

End point = BP, Blood pressure. FTE, Fresh Tomato Extract. EF, endothelial function. Lip, Lipids. Infl, Inflammation. Ox, Oxidative stress.