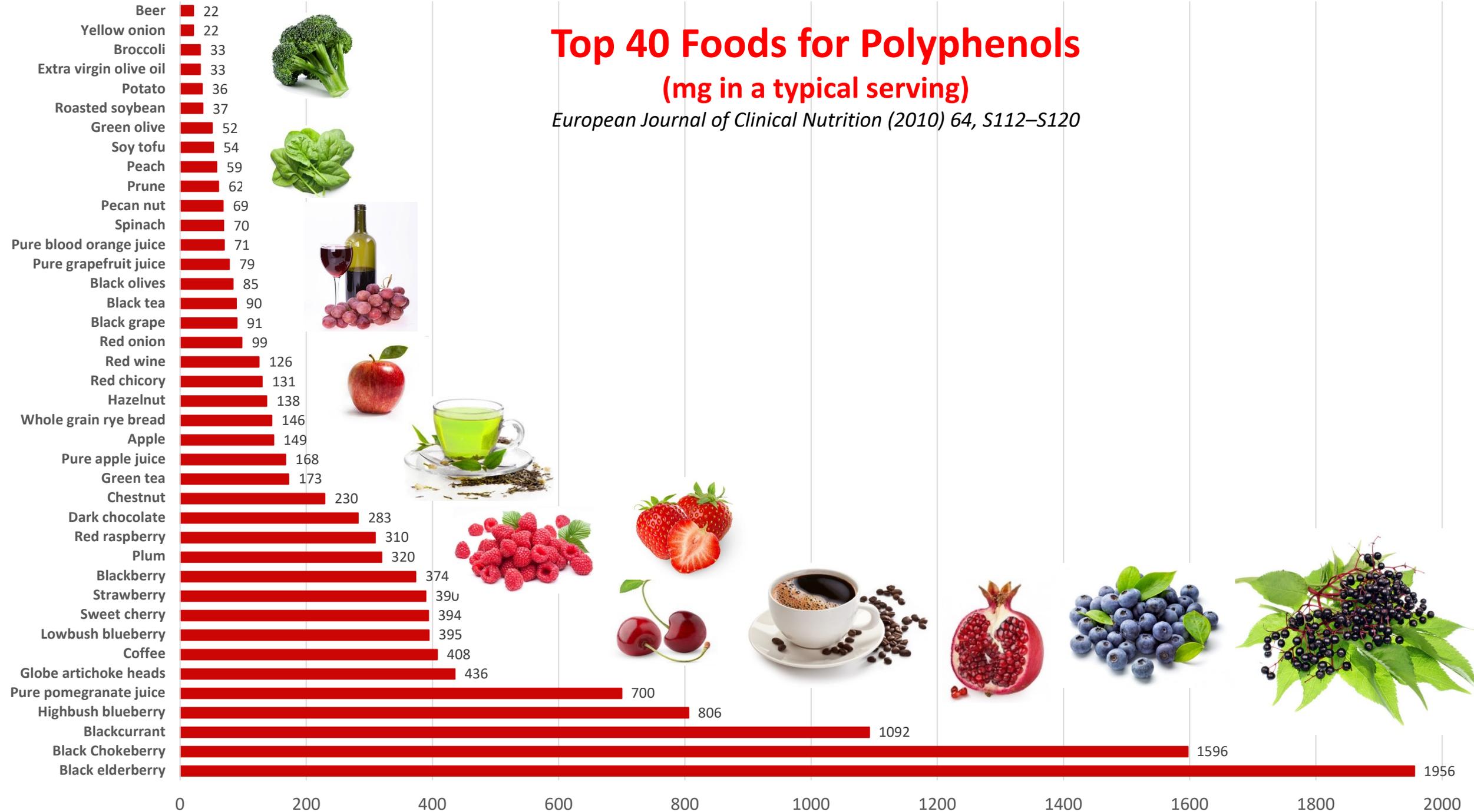


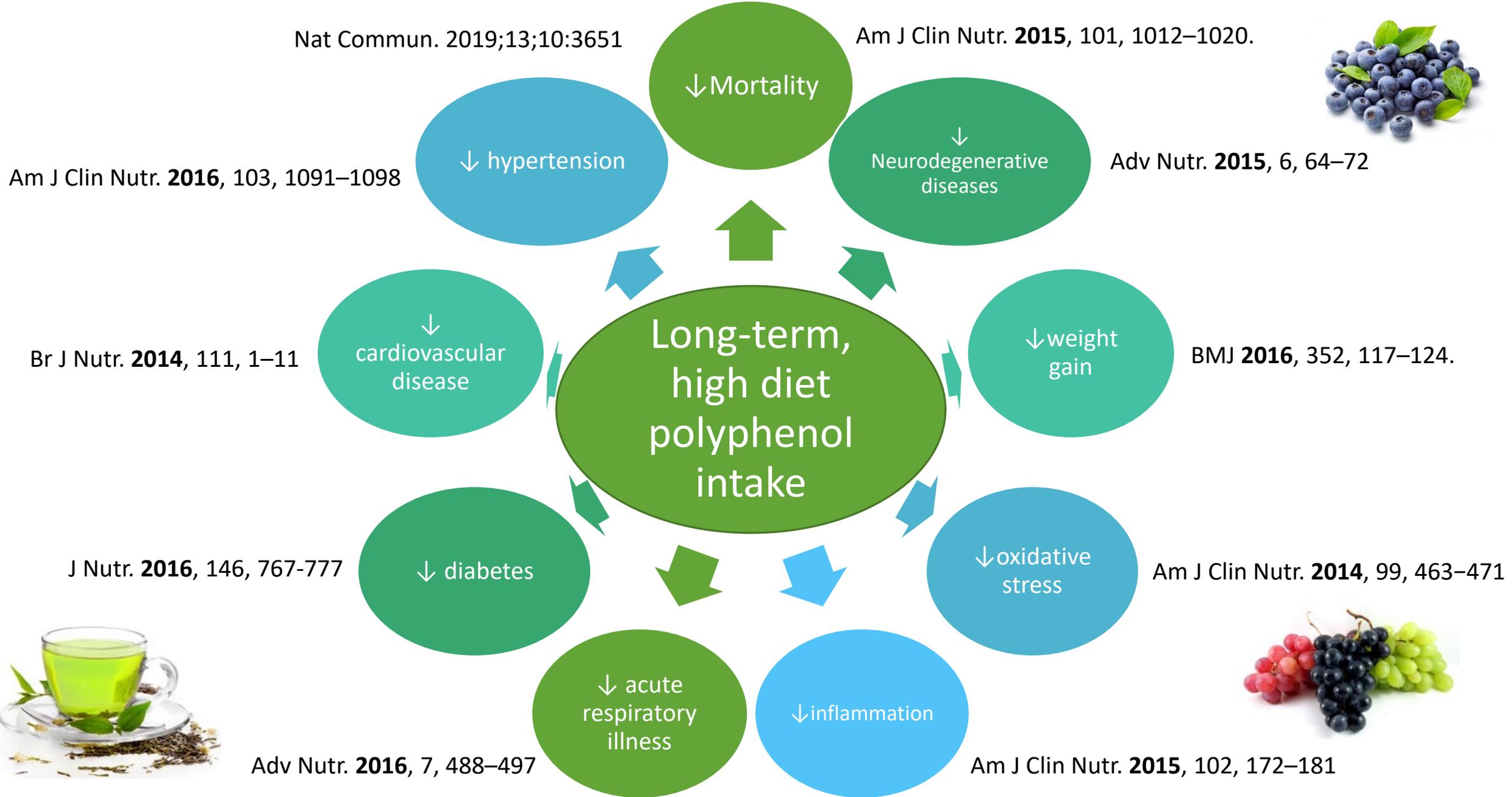
- Recommendations for dietary polyphenol and flavonoid intake have not yet been established.
- In Europe, the average dietary polyphenol intake has been estimated at 1,187 mg/day, with coffee, tea, fruits, and wine as the principal sources.
- Close to 100 different polyphenols are consumed at levels exceeding 1 mg/day, and flavonoids represent 40% of polyphenols ingested.

■ **>400 mg/d flavonoids for health? >600 mg/d for athletic endeavor?**

Top 40 Foods for Polyphenols (mg in a typical serving)

European Journal of Clinical Nutrition (2010) 64, S112–S120



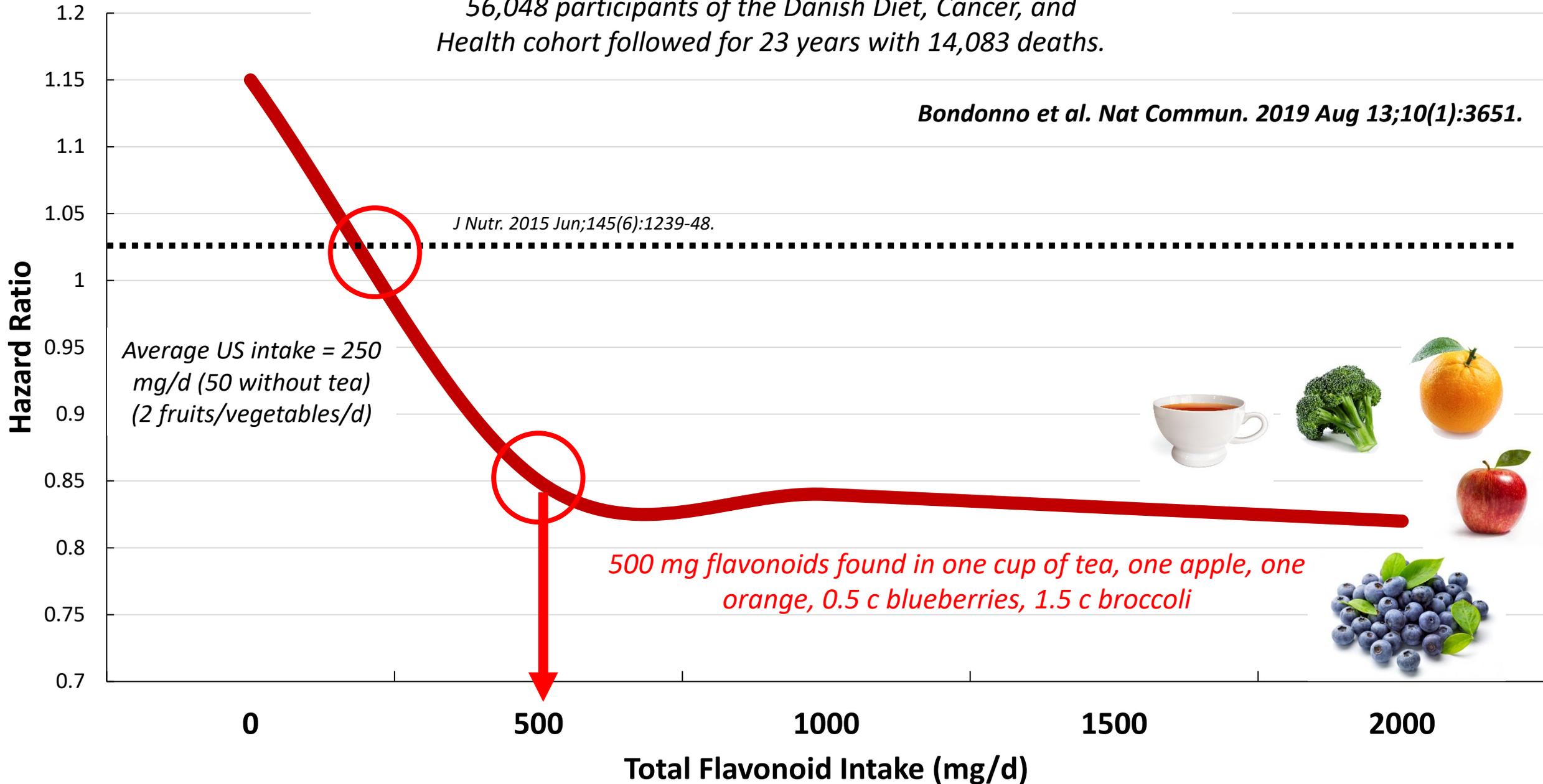


Sources: Nieman DC. Nutrients. 2017 May 18;9(5); Nutrients 2016, 8, 636.

Flavonoid Intake Linked to a Decrease in All-Cause Mortality

56,048 participants of the Danish Diet, Cancer, and Health cohort followed for 23 years with 14,083 deaths.

Bondonno et al. Nat Commun. 2019 Aug 13;10(1):3651.





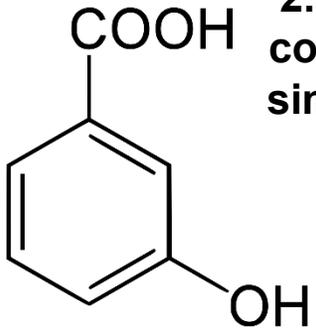
4. Phase-2 conjugation

Hydroxybenzoic Acid

3. Absorbed and translocated via portal vein to liver

Hydroxybenzoic Acid

2. Converted by colon bacteria to simple phenolics



Polyphenol (cyanidin)

Colon



Ileum



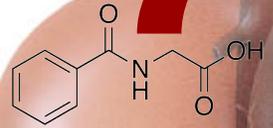
Superior Mesenteric Vein



Hepatic Portal Vein

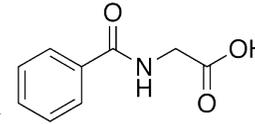
Stomach

Liver



Hippuric Acid

1. Dietary polyphenol intake (majority to colon)



Polyphenol Metabolism (complex!!)

5. Released into circulation, exerts bioactive effects (anti-inflammatory, antioxidant, anti-pathogenic, immune regulatory), and then ultimately eliminated in the urine.

