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## Extending the DRIs to Bioactives: Is Lutein Ready for the Major Leagues?

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Though many bioactives are purported to improve human health, lutein, a yellow carotenoid commonly found in green leafy vegetables, is a particularly eye-catching bioactive for its potential role in reducing the risk of age-related macular degeneration (AMD). Only in humans and non-human primates does lutein selectively accumulate in the foveal retina of the eye. Here, lutein's presence protects polyunsaturated fatty acids from oxidation by absorbing harmful blue light (400-480 nm). It is through this mechanism that lutein may decrease the risk of AMD, which is the leading cause of age-related blindness in industrialized countries. Lutein is not currently included in the National Academies of Sciences, Engineering and Medicine's recommended Dietary Reference Intakes (DRIs), but there is strong evidence supporting dietary lutein intake and the resulting eye health benefits. Nine criteria have emerged for determining whether a bioactive is ready to play ball in the major leagues of DRIs alongside the established, old-pro nutrients (i.e. vitamins and minerals).

For a bioactive to be at bat, there must be 1) an accepted definition; 2) a reliable analysis method; 3) a food database with known amounts of the bioactive; 4) cohort studies; 5) clinical trials on metabolic processes; 6) clinical trials for dose-response and efficacy; 7) safety data; 8) systematic reviews and/or meta-analyses for efficacy; 9) a biological rationale for efficacy.<sup>1</sup>

When put under the scrutiny of these criteria, lutein meets all requirements and effectively hits a home-run. Establishing dietary lutein intake recommendations could encourage the consumption of lutein-containing foods and raise public awareness regarding the potential health benefits of bioactives. Lutein is ready to play ball and should be considered for the DRIs and public health recommendations