



## Research summary

# Nutritional benefits of eating eggs with raw vegetables

## About the study

Dietary guidelines advise us to eat large portions of fruits and vegetables, but on average, we are not eating enough. Missing out on these foods means missing out on essential nutrients, such as carotenoids—nutrients like lutein and beta carotene that have antioxidant and anti-inflammatory effects. Carotenoids have also been shown to protect against many degenerative diseases like cardiovascular disease.

Eating fats can increase the body's absorption of carotenoids. Eggs, which contain both carotenoids and fats, have been shown to have easily absorbable carotenoids. This easy absorption is attributed to the fats in the egg yolk.

But there has been little work done around the effects of consuming foods containing fats and foods containing carotenoids together. As such, this study sought to assess how carotenoid absorption is affected when cooked whole eggs are consumed with a carotenoid-rich, raw vegetable salad.

## Methods

For the study, 16 healthy young men participated in three randomized trials. A week before each trial, their blood was sampled to analyze carotenoid concentrations. After this blood test, all participants consumed a low-carotenoid diet for the next seven days until the trial.

Each of the three trial days involved the participants eating one of three randomly-assigned meals. A carefully-portioned raw mixed-vegetable salad was consumed either without eggs (the control), with 75g of scrambled whole eggs (1.5 eggs), or with 150g of scrambled whole eggs (3 eggs). After the test meals were consumed, blood samples were collected hourly for ten hours and analysed for their carotenoid levels.

## Findings

Most significantly, the researchers found that when the salad was consumed with three whole eggs, carotenoid absorption was much higher. In fact, consuming the salad with three whole eggs increased carotenoid absorption by 3 to 9 fold, compared to the salad consumed without eggs.

The salad eaten with 1.5 whole eggs had a slightly higher effect on carotenoid absorption compared to the salad with no eggs, but the difference was not nearly as significant as the salad eaten with three whole eggs.



## Conclusions

Ensuring we get the most nutritional value from our food is essential as we seek out healthier ways to live and eat. As the findings from the study demonstrate, eggs, a nutrient-rich food that contains essential amino acids, unsaturated fatty acids, and vitamin B, may be used to increase the nutritive value of vegetables, which are under-consumed by a majority of people. Eating eggs with raw, mixed vegetables increases the absorption of carotenoids, which, in turn, play an important role in keeping us healthy and protecting against disease.

## About the researchers

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