Exercise is one strategy that can simultaneously have a positive effect on physical, functional and cognitive health into old age, but not all forms are equally effective, with the benefits being modality and intensity-dependent, and reliant upon adequate nutrition. This presentation will provide an overview of the independent and combined effects of exercise with various nutritional factors, specifically protein and dairy supplementation, vitamin D, fish oil and omega-3 fatty acids, creatine, antioxidant nutrients and multi-nutrient supplements, on muscle and bone health, functional performance and cognitive function in older people.