

A new study shows that measures of immune health are enhanced in elderly women in response to supplementation with fish oil, and further improved in combination with strength training.

## Immune response is improved with fish oil supplementation and strength training in elderly women

Ageing is known to negatively affect the immune system, making elderly more vulnerable to disease. Physical activity and diet play roles in moderating immune response, and mild physical activity has been shown to improve immune response. However, excessive exercise can also have a negative effect on inflammatory response.

In a new study published in the *British Journal of Nutrition*, researchers investigated the impact of strength (ST) and fish oil (FO) on the immune system of elderly women.

The study participants included 45 women with an average age of 64 years. The women were assigned to one of three groups: strength training without supplementation for 90 days; strength training plus 2 grams of fish oil for 90 days; or fish oil only for 60 days, followed by 90 days of strength training. The fish oil supplements contained 180 mg of EPA and 120 mg of DHA per gram. Training included various exercises conducted three times per week over a 12 week period. Various measures of immune function were measured before and after both supplementation and exercise.

Strength training alone did not result in any significant changes to measures of immune function. Fish oil supplementation improved functioning of the immune system by increasing the activity of the white blood cells neutrophils and lymphocytes. Production of specific cytokines IL-2 and IFN-g (important small proteins for cell signaling in the immune system) increased by 80% and 60% in response to supplementation. After exercise and supplementation they increased 85% and 88%, respectively.

The results of this study showed that immune response was not enhanced by strength training alone. Immune response was improved significantly with fish oil supplementation, and further enhanced by the combination of exercise and supplementation.

Cintia de Lourdes Nahhas Rodacki, André Luiz Felix Rodacki, Isabela Coelho, Daniele Pequito, Maressa Krause, Sandro Bonatto, Katya Naliwaiko and Luiz Cláudio Fernandes. Influence of fish oil supplementation and strength training on some functional aspects of immune cells in healthy elderly women. *British Journal of Nutrition*, available on CJO2015. doi:10.1017/S0007114515001555.