



# READ IT BEFORE YOUR PATIENTS

## Cancer Risk

### Combined Vitamin D, Omega-3 Fatty Acids, and a Simple Home Exercise Program May Reduce Cancer Risk Among Active Adults Aged 70 and Older: A Randomised Clinical Trial

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#### OBJECTIVE

The aim of this study was to test the individual and combined benefit of vitamin D, omega-3, and a simple home strength exercise program on the risk of any invasive cancer.

#### DESIGN

The DO-HEALTH trial is a three-year, multicenter,  $2 \times 2 \times 2$  factorial design double-blind, randomised-controlled trial to test the individual and combined benefit of three public health interventions.

#### SETTING

The trial was conducted between December 2012 and December 2017 in five European countries.

#### PARTICIPANTS

Generally healthy community-dwelling adults  $\geq 70$  years were recruited.

#### INTERVENTIONS

Supplemental 2000 IU/day of vitamin D3, and/or 1 g/day of marine omega-3s, and/or a simple home strength exercise (SHEP) programme compared to placebo and control exercise.

#### MAIN OUTCOME

In this pre-defined exploratory analysis, time-to-development of any verified invasive cancer was the primary outcome in an adjusted, intent-to-treat analysis.

#### RESULTS

In total, 2,157 participants (mean age 74.9 years; 61.7% women; 40.7% with 25-OH vitamin D below 20 nmol/l, 83% at least moderately physically active) were randomised. Over a median follow-up of 2.99 years, 81 invasive cancer cases were diagnosed and verified. For the three individual treatments, the adjusted hazard ratios (HRs, 95% CI, cases intervention versus control) were 0.76 (0.49–

1.18; 36 vs. 45) for vitamin D3, 0.70 (0.44–1.09, 32 vs. 49) for omega-3s, and 0.74 (0.48–1.15, 35 vs. 46) for SHEP. For combinations of two treatments, adjusted HRs were 0.53 (0.28–1.00; 15 vs. 28 cases) for omega-3s plus vitamin D3; 0.56 (0.30–1.04; 11 vs. 21) for vitamin D3 plus SHEP; and 0.52 (0.28–0.97; 12 vs. 26 cases) for omega-3s plus SHEP. For all three treatments combined, the adjusted HR was 0.39 (0.18–0.85; 4 vs. 12 cases).

## CONCLUSION

Supplementation with daily high-dose vitamin D3 plus omega-3s, combined with SHEP, showed cumulative reduction in the cancer risk in generally healthy and active and largely vitamin D-replete adults  $\geq 70$  years.

