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**Associations between physical activity and serum 25(OH) D
with plasma IL-17 in older men**Xiaomin Sun¹, Zhen-Bo Cao², Kumpei Tanisawa¹, Tomoko Ito¹, Satomi Oshima²,
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Physical inactivity and lower serum 25(OH)D have been associated with elevated risk of infection. Interleukin-17 (IL-17), a recently discovered cytokine, has been well known for its protect function against infection. However, no data exists on the associations between physical activity and serum 25(OH)D with circulating IL-17 concentration in older men. Purpose: The purpose of this study was to examine associations between physical activity and serum 25(OH)D with IL-17 in older men. Methods: Physical activity was assessed objectively using the activity monitor for 7 consecutive days in 93 participants aged 60-79 years, and serum 25(OH)D and plasma IL-17 concentrations measured by enzyme-linked immunosorbent assay. Multiple linear regressions were used to assess whether physical activity and serum 25(OH)D were associated with IL-17 adjusted

for potential confounding variables (age, BMI, seasons, medication use, smoking status, alcohol consumptions, vitamin D and calcium intake). Results: The average concentrations of serum 25(OH)D and IL-17 were 18.5 ng/ml and 12.7 pg/ml respectively. Of 93 participants, 62 (66.7%) were deficient (<20 ng/ml), 21 (22.6%) were insufficient (20-30 ng/ml), and only 10 (10.8%) were sufficient (>30 ng/ml) for the vitamin D status. Serum 25(OH)D was positively related with IL-17 ($\beta=0.267$, $P=0.018$) after adjusting for age, BMI, seasons, medication use, smoking status, alcohol consumption and vitamin D intake. However, no significant relationship was detected between physical activity and IL-17. Conclusions: This study shows higher levels of serum 25(OH)D concentrations is independently and positively associated with increased IL-17 concentrations in older men, but physical activity is not.