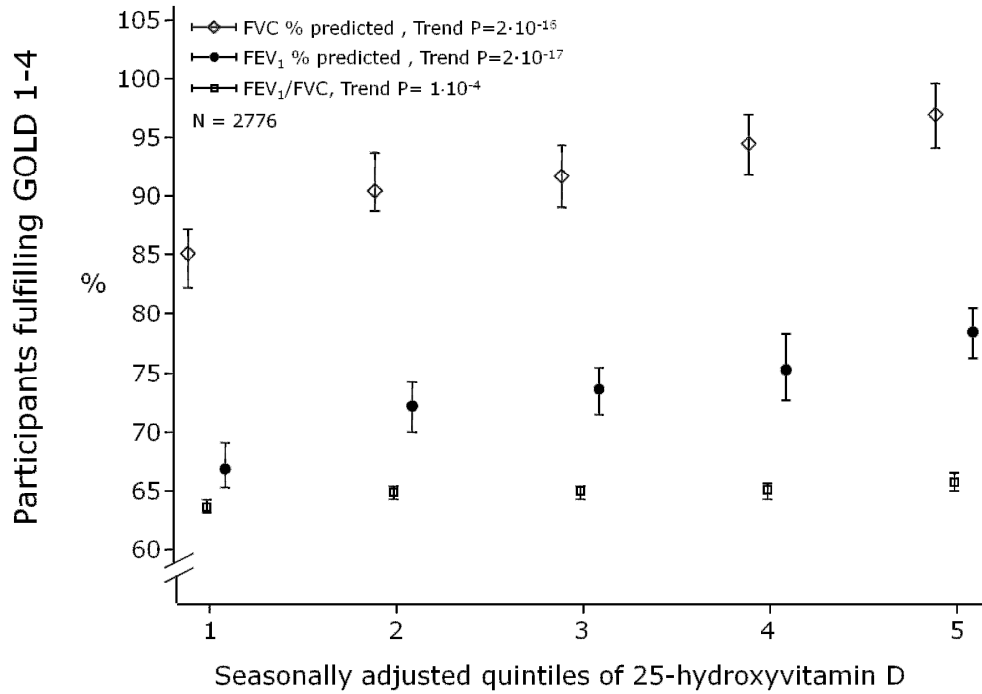


Figure S1. Lung function measures by seasonally adjusted 25-hydroxyvitamin D quintiles stratified by cumulative tobacco consumption in pack years. Quintiles were chosen due to the reduced number of participants in each subgroup.

### Pooled population



<b>Median (95% CI)</b>					
FVC % predicted	85.0 (82.2-87.2)	90.5 (88.7-93.7)	91.7 (89.6-94.9)	94.5 (91.8-96.9)	97.0 (94.5-99.6)
FEV <sub>1</sub> % predicted	66.8 (65.3-69.1)	72.3 (70.0-74.6)	73.7 (71.6-75.6)	75.2 (72.6-78.3)	78.4 (76.4-80.5)
FEV <sub>1</sub> /FVC	63.6 (63.2-64.3)	64.9 (64.3-65.4)	65.0 (64.3-65.4)	65.1 (64.3-65.6)	65.7 (65.0-66.5)

Figure S2. Lung function measures by seasonally adjusted 25-hydroxyvitamin D quintiles in participants with spirometrically defined COPD. Quintiles were chosen due to the reduced number of participants in each subgroup.

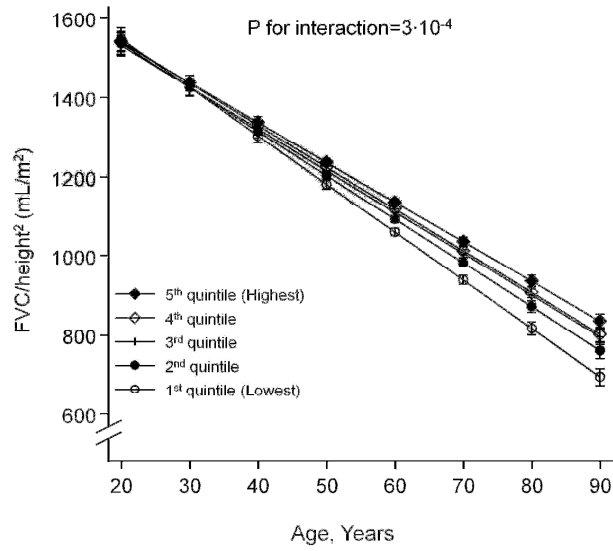
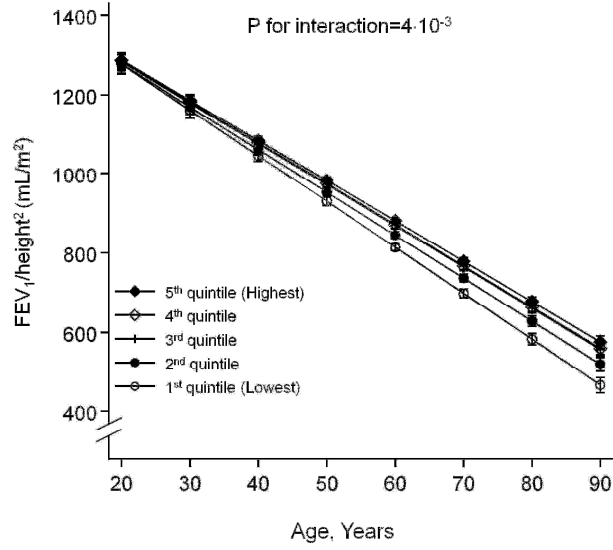


Figure S3. Age-related decline in lung function according to seasonally adjusted plasma 25-hydroxyvitamin D quintiles. Height adjusted FEV<sub>1</sub> and FVC decline was evaluated using repeated measures linear mixed models adjusted for gender and cumulative tobacco consumption.

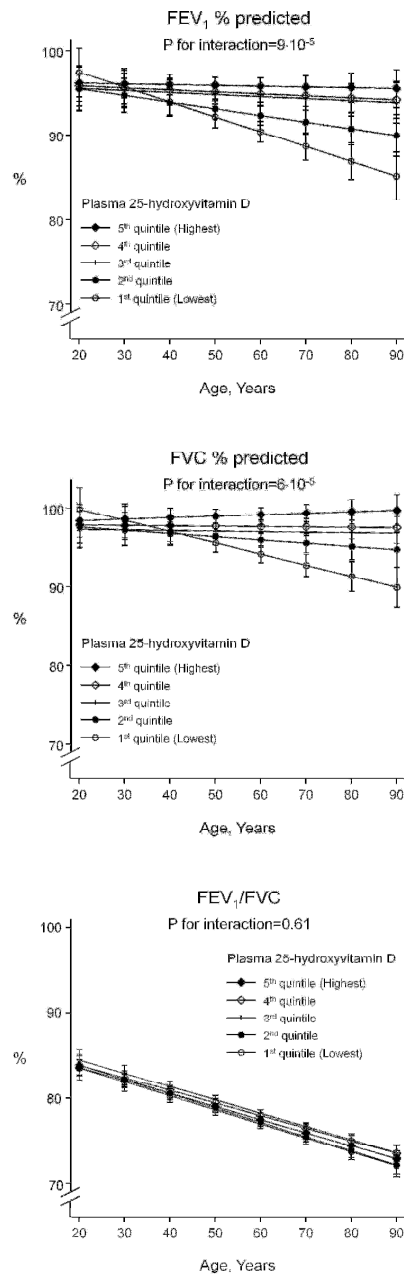


Figure S4. Analysis restricted to participants with 2 or more spirometries (N=5819). Relationship between age-related changes in FEV<sub>1</sub> % predicted, FVC % predicted, and FEV<sub>1</sub>/FVC according to quintiles of seasonally adjusted plasma 25-hydroxyvitamin D. Based on 2 to 3 spirometries spanning up to 20 years in 5819 participants from the Copenhagen City Heart Study.

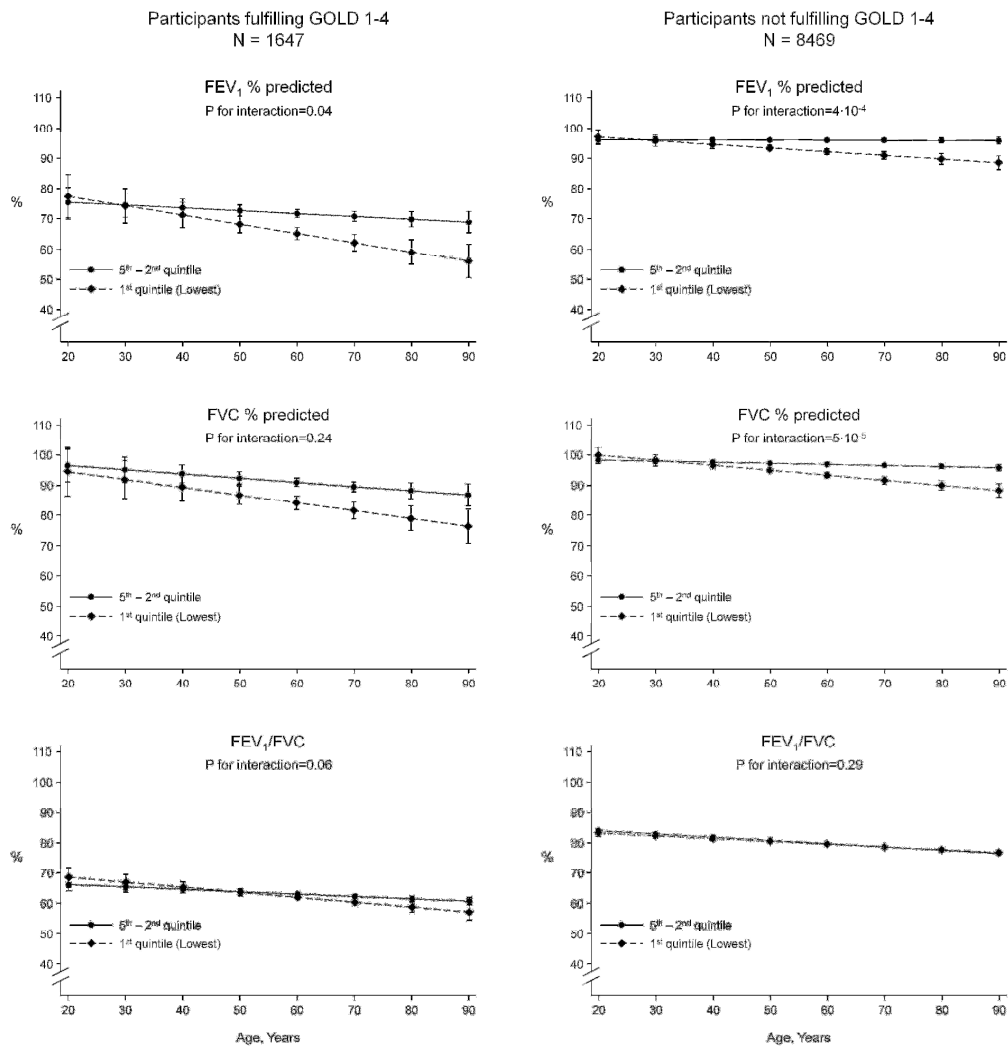


Figure S5. Analysis stratified according to spirometrically defined COPD at baseline (FEV<sub>1</sub>/FVC <0.7). Relationship between age-related changes in FEV<sub>1</sub> % predicted, FVC % predicted, and FEV<sub>1</sub>/FVC for bottom quintile vs. top 4 quintiles of seasonally adjusted plasma 25-hydroxyvitamin D. GOLD 1-4 categories were combined to increase power. Based on 1 to 3 spirometries spanning up to 20 years in 10116 participants from the Copenhagen City Heart Study.