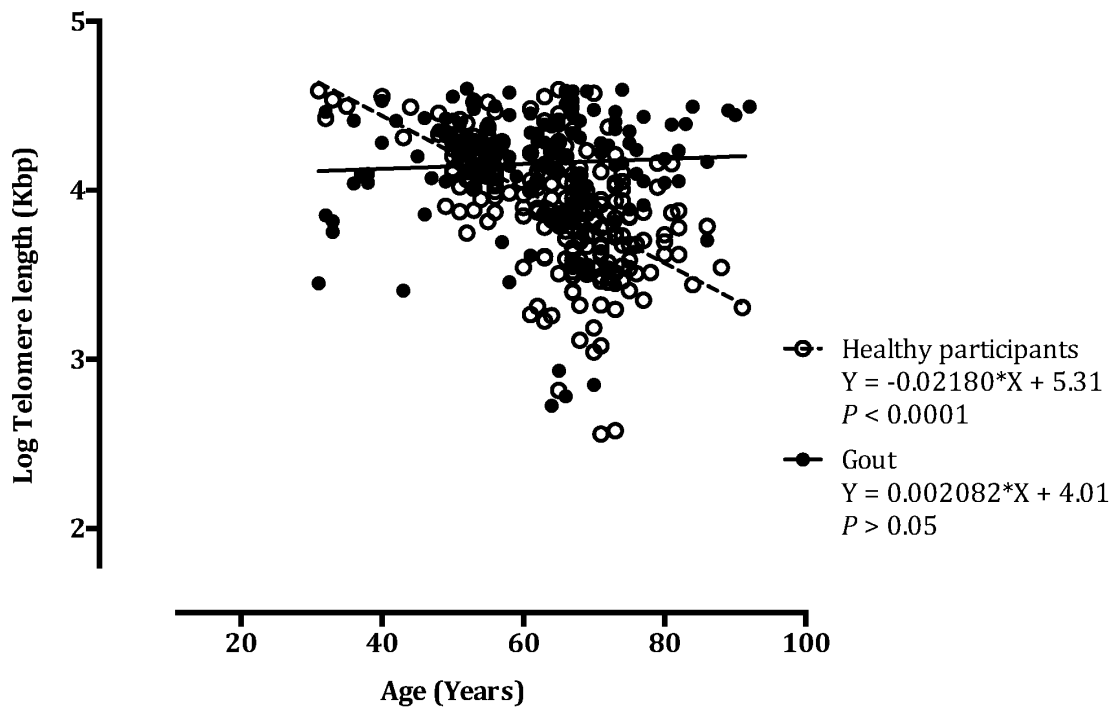
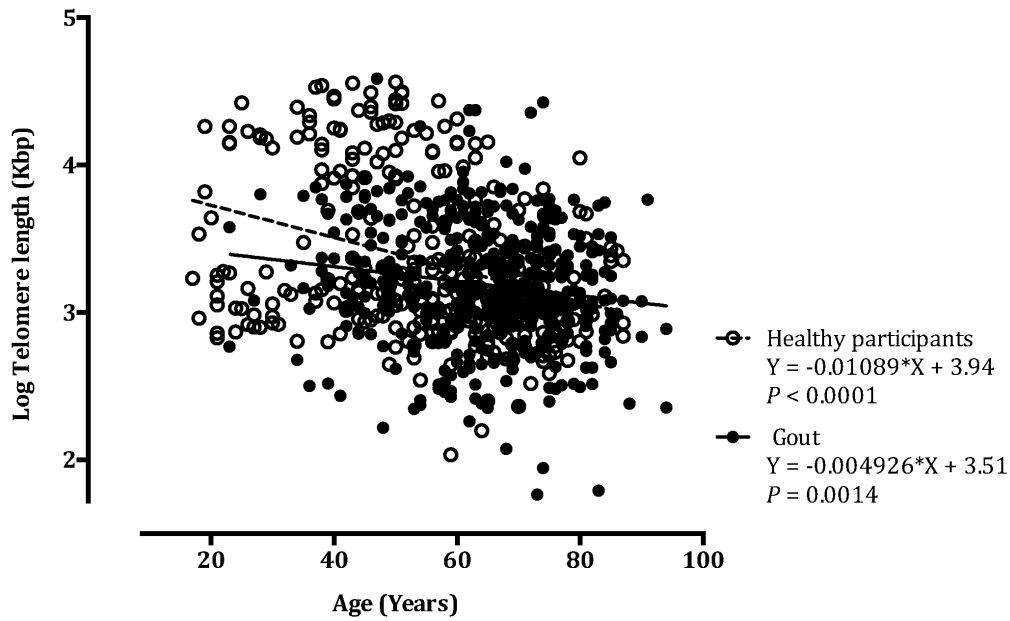


## Supplementary figures and tables



**Figure 1. Log transformed telomere length (kbp) of PBMCs of patients with gout and healthy individuals participating in Dutch cohort consistent with age (years).** Patients with gout (N=145) have shorter telomeres at young age and the TL remains short in older patients with gout ( $P > 0.05$ ). Young healthy participants (N=273) represent longer telomere as compared to older individuals ( $P < 0.0001$ ). Overall TL of patients with gout is significantly shorter as compared to healthy participants ( $P < 0.0001$ ). Statistical analysis between the two groups was performed using two tailed Student T-test (Mann-Whitney correction). Correlation between TL and age was tested through linear regression model.



**Figure 2. Log transformed telomere length (kbp) of PBMCs of patients with gout and healthy individuals participating in New Zealand cohort consistent with age (years).** Patients with gout (N=474) have shorter telomeres at young age and the TL remains short in older patients with gout ( $P=0.001$ ). Young healthy participants (N=293) represent longer telomere as compared to older individuals ( $P<0.0001$ ). Overall TL of patients with gout is significantly shorter as compared to healthy participants ( $P<0.0001$ ). Statistical analysis between the two groups was performed using two tailed Student T-test (Mann-Whitney correction). Correlation between TL and age was tested through linear regression model.

**Supplementary files, table 1.** Baseline characteristics of patients with gout and healthy participants in the Dutch cohort.

	Gout (n=145)	Healthy participants (n=273)	<i>P</i> Value
Male n (%)	91 (62.76)	190 (69.70)	<i>0.0001</i>
Age	63 ± 9.85	62 ± 14.11	<i>0.0001</i>
Telomere length (total PBMC)	11215.33 ± 8042.54	18014.77 ± 9548.66	<i>0.0001</i>

The data are presented as mean ± SD. The significance of the association between the 2 classified subgroups of patients with gout and healthy individuals was tested using Fisher's exact test (categorical values) and Mann-Whitney *U* test (non-parametrical continues values) (*P*<0.05).

**Supplementary files, table 2.** Baseline characteristics of patients with gout and healthy participants in the New Zealand cohort.

	Gout (n=474)	Healthy participants (n=293)	P Value
Male n (%)	388 (81.86)	233 (85.35)	0.0001
Age	64 ± 12.82	55 ± 16.59	0.0001
Telomere length (total PBMC)	2524.55 ± 3478.42	5151.93 ± 7674.79	0.0001

The data are presented as mean ± SD. The significance of the association between the 2 classified subgroups of patients with gout and healthy individuals was tested using Fisher's exact test (categorical values) and Mann-Whitney *U* test (non-parametrical continues values) ( $P < 0.05$ ).

**Supplementary files, table 3.** Baseline characteristics of patients with gout and healthy participants in immune cell-subsets.

	Gout (n=10)	Healthy participants (n=11)	<i>P Value</i>
<b>Male n (%)</b>	8 (80)	10 (91)	>0.05
<b>Age (mean ± SD)</b>	59 ± 16.27	45 ± 12.88	>0.05
<b>Age at the first flare (mean ± SD)</b>	53 ± 5.76	-	-
<b>Disease duration (year) (mean ± SD)</b>	5.70 ± 2.77	-	-
<b>Colchicine (yes) n (%)</b>	2 (20)	N.A.	-
<b>NSAID (yes) n (%)</b>	1 (10)	N.A.	-
<b>Allopurinol (yes) (mean 200mg/day) n (%)</b>	3 (30)	N.A.	-
<b>Corticosteroids(yes) n (%)</b>	2 (20)	N.A.	-
<b>CVD (yes/no) n (%)</b>	6 (60)	N.D.	-
<b>Diabetes (type 2) (yes) n (%)</b>	6 (60)	N.D.	-
<b>Hypertension (yes) n (%)</b>	4 (40)	N.D.	-
<b>Creatinine level (µmol/L) (mean ± SD)</b>	109.00 (± 25.09)	N.D.	-
<b>BMI (kg/m<sup>2</sup>) mean (SD) (mean ± SD)</b>	32.58 (± 8.51)	N.D.	-
<b>Smoking (yes) n (%)</b>	1 (10.00)	N.D.	-
<b>Serum urate (mmol/L) mean (SD)</b>	0.54 (±0.14)	N.D.	-
<b>Number of flares (mean ± SD)</b>	19.70 ± 6.63	N.A.	-
<b>Presence of tophi (yes) n (%)</b>	4 (40)	N.A.	-
<b>Systolic blood pressure mean (mm Hg) (SD)</b>	121.00 (±21.81)	N.D.	-
<b>Diastolic blood pressure mean (mm Hg) (SD)</b>	70.20 (±12.04)	N.D.	-
<b>Telomere length CD3<sup>+</sup>/CD4<sup>+</sup> (mean ± SD)</b>	15247.68 ± 13956.01	7339.70 ± 5063.97	>0.05

<b>Telomere length CD3<sup>+</sup>/CD8<sup>+</sup> (mean ± SD)</b>	13036.82 ± 7838.27	6987.34 ± 5666.97	>0.05
<b>Telomere length CD19<sup>+</sup>/CD20<sup>-</sup> (mean ± SD)</b>	23374.06 ± 25676.88	8620.14 ± 6476.89	>0.05
<b>Telomere length CD14<sup>+</sup>/CD16<sup>-</sup> (mean ± SD)</b>	10988.64 ± 4523.27	6864.43 ± 5103.57	>0.05
<b>Telomere length CD3<sup>-</sup>/CD56<sup>+</sup> (mean ± SD)</b>	12599.09 ± 27954.54	5310.30 ± 1747.49	>0.05
<b>Telomere length CD123<sup>+</sup>/CD304<sup>+</sup> (mean ± SD)</b>	2804.35 ± 2536.15	4052.95 ± 4776.86	>0.05
<b><i>hTERT</i> CD3<sup>+</sup>/CD4<sup>+</sup> (mean ± SD)</b>	0.00112 ± 0.000240	0.00068 ± 0.000130	>0.05
<b><i>hTERT</i> CD3<sup>+</sup>/CD8<sup>+</sup> (mean ± SD)</b>	0.00028 ± 0.000040	0.00036 ± 0.000100	>0.05
<b><i>hTERT</i> CD19<sup>+</sup>/CD20<sup>-</sup> (mean ± SD)</b>	0.00039 ± 0.000054	0.00139 ± 0.001120	>0.05
<b><i>hTERT</i> CD14<sup>+</sup>/CD16<sup>-</sup> (mean ± SD)</b>	0.00018 ± 0.000041	0.00004 ± 0.000020	>0.05
<b><i>hTERT</i> CD3<sup>-</sup>/CD56<sup>+</sup> (mean ± SD)</b>	0.00030 ± 0.000001	0.00012 ± 0.000080	>0.05
<b><i>hTERT</i> CD123<sup>+</sup>/CD304<sup>+</sup> (mean ± SD)</b>	N.D.	N.D.	-

The data are presented as mean ± SD. The significance of the association between the 2 classified subgroups of patients with gout and healthy participants was tested using Fisher's exact test (categorical values) and Mann-Whitney *U* test (non-parametrical continues values) ( $P < 0.05$ ) (N.D.=not defined, N.A.=not applicable).

**Supplementary files, table 4.** Telomere length differences between gout participants with or without cardiovascular disease (A) and the association of cardiovascular disease with the flare frequency in the gout population (B).

	<b>A) Telomere length (bp) in gout population with or without cardiovascular disease</b>			<b>B) Multivariate linear regression on flare frequency and cardiovascular diseases in gout population</b>		
	<b>Yes (SD)</b>	<b>No (SD)</b>	<b>P Value</b>	<b>Standardized <math>\beta</math></b>	<b>Standard error</b>	<b>P Value</b>
Cardiovascular disease	2187 ( $\pm$ 1934.10)	6154 ( $\pm$ 8938.23)	<i>0.0001</i>	-1.35	1.82	<i>0.459</i>
Angina pectoris	2223 ( $\pm$ 2625.17)	5527 ( $\pm$ 7805.88)	<i>0.0001</i>	-2.94	3.07	<i>0.340</i>
Heart failure	4656 ( $\pm$ 28288.80)	13712 ( $\pm$ 28141.32)	<i>0.015</i>	-3.28	2.57	<i>0.203</i>
Myocardial infarction	2165 ( $\pm$ 2397.07)	7272 ( $\pm$ 10916.47)	<i>0.0001</i>	-4.50	2.62	<i>0.063</i>
Stroke	82 ( $\pm$ 2378.78)	4784 ( $\pm$ 8980.58)	<i>0.0001</i>	-3.32	2.83	<i>0.242</i>

Telomere length (SD) in patients with gout with cardiovascular disease, angina pectoris, heart failure, myocardial infarction (non-fatal) and stroke (non-fatal) as concomitant disorders. **A)** The significance of the association between the 2 classified subgroups of gout participants was tested using Mann–Whitney *U* test. **B)** The association between the same variables (cardiovascular comorbidities) and the flare frequency was tested in a multiple variable linear regression model ( $P < 0.05$ ).

**Supplementary files, table 5.** The effect of additional co-variables on telomere length of patients with gout and healthy participants separately.

	<b>Gout</b>		<b>Healthy participant</b>	
	<b>Correlation Coefficient (R<sup>2</sup>)</b>	<b>P value</b>	<b>Correlation Coefficient (R<sup>2</sup>)</b>	<b>P value</b>
Gender	-0.023	<i>0.574</i>	0.173	<i>0.001</i>
Age (years)	-0.102	<i>0.014</i>	-0.315	<i>0.0001</i>
Smoking (yes/no)	0.418	<i>0.0001</i>	-0.041	<i>0.669</i>
BMI	0.031	<i>0.459</i>	0.080	<i>0.175</i>
Creatinine (μmol/L)	-0.205	<i>0.0002</i>	-0.203	<i>0.001</i>

The statistical significance of the data is tested using two-tailed Spearman's bivariate correlation ( $P < 0.05$ ).