

Supplementary Table S1. Comparison before and after exclusion of outliers.

Group	Before the exclusion of outliers ($\mu\text{mol/L}$)						After the exclusion of outliers ($\mu\text{mol/L}$)						Number of cases with outliers
	Case number	Med	P ₂₅	P ₇₅	Min	Max	Case number	Med	P ₂₅	P ₇₅	Min	Max	
Male	49392	390	342	443	27	848	48421	388	341	440	193	588	971
Female	39831	281	245	323	54	847	38756	279	244	319	132	431	1075

Supplementary Table S2. Comparison of reference ranges across different seasons ($\mu\text{mol/L}$).

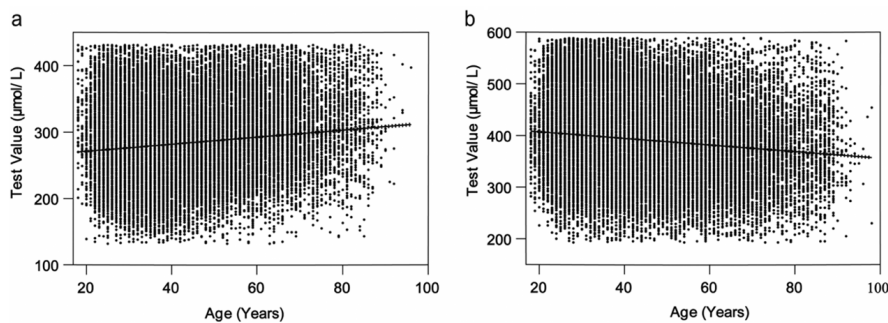
Groups	Z-value	p-value
Winter & Spring	11.035	<0.001*
Winter & Autumn	18.789	<0.001*
Winter & Summer	28.324	<0.001*
Spring & Autumn	-8.189	<0.001*
Spring & Summer	-19.776	<0.001*
Autumn & Summer	13.662	<0.001*

Supplementary Table S3. Comparison of UA concentrations and reference ranges between different genders ($\mu\text{mol/L}$).

Groups	n	Z-value	p-value	RIs
Male	48421	-195.522	0	257~543
Female	38756	-195.522	0	183~400

Supplementary Table S4. Reference intervals of UA in different seasons ($\mu\text{mol/L}$).

Groups	18–44 years		≥ 45 years	
	Male	Female	Male	Female
Spring	259~540	176~388	242~525	186~410
Summer	276~555	186~399	249~539	195~411
Autumn	271~547	184~392	250~534	189~409
Winter	265~538	174~381	243~524	183~388

**Supplementary Fig. S1.** Distribution of UA levels in different age groups of females and males. a. Female; b. Male.