Supplemental Table 1 Baseline treatment algorithm of bicarbonate supplementation during 2-week run-in period.

Baseline serum bicarbonate levels (mEq/L)	Daily oral sodium bicarbonate dosage (Sodamint® 300 mg) with desired target bicarbonate level of 22 ± 1 mEq/L
<17.0	Add 5 tablets (18.0 mEq/day)
17.1-18.0	Add 4 tablets (14.4 mEq/day)
18.1-19.0	Add 3 tablets (10.8 mEq/day)
19.1-20.0	Add 2 tablets (7.2 mEq/day)
20.1-21.0	Add 1 tablet (3.6 mEq/day)

Supplemental Table 2 The study drug (sodamint®) up- and down-titration protocol during the follow up visit.

Different to target serum bicarbonate levels	Daily oral sodium bicarbonate dosage (Sodamint® 300 mg)
-1 mEq/L	Add 1 tablet to the previous daily dose
-2 mEq/L	Add 2 tablets to the previous daily dose
≤ -3 mEq/L	Add 3 tablets to the previous daily dose
≥ +3 mEq/L	Reduce 3 tablets from the previous daily dose
+2 mEq/L	Reduce 2 tablets from the previous daily dose
+1 mEq/L	Reduce 1 tablet from the previous daily dose

-denotes less than the target bicarbonate level

+denotes more than the target bicarbonate level

Supplemental Table 3 The comparison of absolute changes of muscle parameters, muscle strength, and renal function from baseline between the control and high bicarbonate groups.

Absolute changes of parameters from baseline	Control group (n=21)	High bicarbonate group (n=21)	P values*	P values[#]
Total-body muscle mass (kg)	[+] 0.02±1.5	[+] 0.78±1.7	0.13	0.14
Total-body muscle mass/Ht^2 (kg/m^2)	[+] 0.003±0.6	[+] 0.31±0.6	0.11	0.12
Appendicular lean mass (kg)	[+] 0.29±1.3	[+] 0.87±2.0	0.28	0.28
Appendicular lean mass/Ht^2 (kg/m^2)	[+] 0.11±0.5	[+] 0.35±0.8	0.25	0.25
Mid-arm muscle circumference (cm)	[-] 0.25±1.6	[-] 0.06±1.2	0.67	0.54
Handgrip strength (kg)	[+] 1.78± 4.3	[+] 0.52±4.7	0.37	0.22
Serum creatinine (mg/dL)	[+] 0.24±0.3	[+] 0.13±0.3	0.28	0.39
eGFR (ml/min/1.73m^2)	[-] 3.14±3.8	[-] 1.35±3.9	0.14	0.14
Serum prealbumin (mg/dL)	[+] 3.1±12.4	[+] 4.1±11.5	0.79	0.84

eGFR, estimated glomerular filtration rate; Ht, height
Data are presented as mean ± SD
[+] indicates increase from baseline
[-] denotes decrease from baseline
*P values between groups comparison.
[#]P values between groups comparison after adjusting for baseline values.

Supplemental Table 4 The comparison of absolute changes of muscle parameters, muscle strength, and renal function from baseline between the control and high bicarbonate groups stratified by diabetic status.

Absolute changes of parameters from baseline	Control group	High bicarbonate group	P values*
Diabetes group (n=25)			
Total-body muscle mass (kg)	[-] 0.13±1.9	[+] 1.25±1.9	0.08
Total-body muscle mass/Ht^2 (kg/m^2)	[-] 0.05±0.7	[+] 0.51±0.8	0.07
Appendicular lean mass (kg)	[+] 0.22±1.6	[+] 1.44±2.5	0.16
Appendicular lean mass/Ht^2 (kg/m^2)	[+] 0.09±0.6	[+] 0.59±0.9	0.14
Mid-arm muscle circumference (cm)	[-] 0.45±2.0	[+] 0.03±0.9	0.47
Handgrip strength (kg)	[+] 1.26±3.6	[-] 0.33±4.3	0.32
Serum creatinine (mg/dL)	[+] 0.29±0.3	[+] 0.23±0.4	0.64
eGFR (ml/min/1.73m^2)	[-] 3.48±3.5	[-] 1.88±3.9	0.29
Serum prealbumin (mg/dL)	[+] 2.22±12.4	[+] 7.54±12.7	0.30
Non-diabetes group (n=17)			
Total-body muscle mass (kg)	[+] 0.26±0.8	[+] 0.16 ±0.9	0.81
Total-body muscle mass/Ht^2 (kg/m^2)	[+] 0.09±0.3	[+] 0.06 ±0.3	0.84
Appendicular lean mass (kg)	[+] 0.38 ±0.6	[+] 0.10±0.7	0.39
Appendicular lean mass/Ht^2 (kg/m^2)	[+] 0.13 ±0.2	[+] 0.03±0.3	0.40
Mid-arm muscle circumference (cm)	[+] 0.07±0.1	[+] 0.17±1.6	0.67
Handgrip strength (kg)	[+] 2.62 ±5.4	[+] 1.67±5.3	0.72
Serum creatinine (mg/dL)	[+] 0.16±0.4	[-] 0.001±0.1	0.31
eGFR (ml/min/1.73m^2)	[-] 2.57±4.5	[-] 0.65±4.0	0.37
Serum prealbumin (mg/dL)	[+] 4.61±13.2	[-] 0.53±8.0	0.34

eGFR, estimated glomerular filtration rate; Ht, height
Data are presented as mean ± SD
[+] indicates increase from baseline, [-] denotes decrease from baseline
*P values between groups comparison