

SUPPLEMENTAL MATERIALS 2 (Campbell et al.). **Table:** Clinical parameters from the subset of subject that completed both Test Week 1 (Pre-weight loss and fitness intervention) and Test Week 2 (Post-weight loss and fitness intervention) regimens. See manuscript Table 1 for complete cohort results. **Figures:** Plasma concentration excursions for plasma analytes derived from metabolomics studies. Concentrations were tracked following a standard 75 g oral glucose tolerance test prior to (Pre-) and after (Post-) a weight loss and fitness intervention in sedentary obese hyperinsulinemic women. Mean $\pm$ SEM are shown for n=15 (Pre) and n=12 (Post).

Supplemental Table. Body mass, fitness, and glucose homeostasis indices in previously sedentary obese women following a weight loss and fitness intervention (subset completing both Test Week 1 and Test Week 2).

	Pre-intervention ^a	Post-intervention ^b	p-value Mixed Model ^c
Body Mass (kg)	89.2 ± 2.6	83.0 ± 3.1	<0.0001
BMI, kg/m ²	33 ± 0.8	31.0 ± 0.9	<0.0001
Body Fat%	47.4 ± 1.1	43.4 ± 1.5	<0.0001
Fat Mass (kg)	42.07 ± 2.8	36.2 ± 2.4	0.0009
Fat Free Mass (FFM, kg)	43.4 ± 0.8	43.3 ± 0.9	NS
VO ₂ peak (mL/kg/min)	21.3 ± 1.1	25.6 ± 1.1	<0.0001
VO ₂ peak (mL/kg FFM/min)	43.5 ± 1.8	49.4 ± 1.4	<0.0001
Maximal Power (Watts)	141.7 ± 4.6	166.7 ± 6.4	<0.0001
Fasting Glucose (mg/dL)	87.6 ± 1.4	84.6 ± 1.5	0.038
Fasting Insulin (μU/mL)	18.7 ± 2.6	13.7 ± 1.7	<0.0001
Matsuda Index	1.97 ± 0.20	2.91 ± 0.36	0.0083
QUICKI	0.315 ± 0.005	0.332 ± 0.006	0.0048

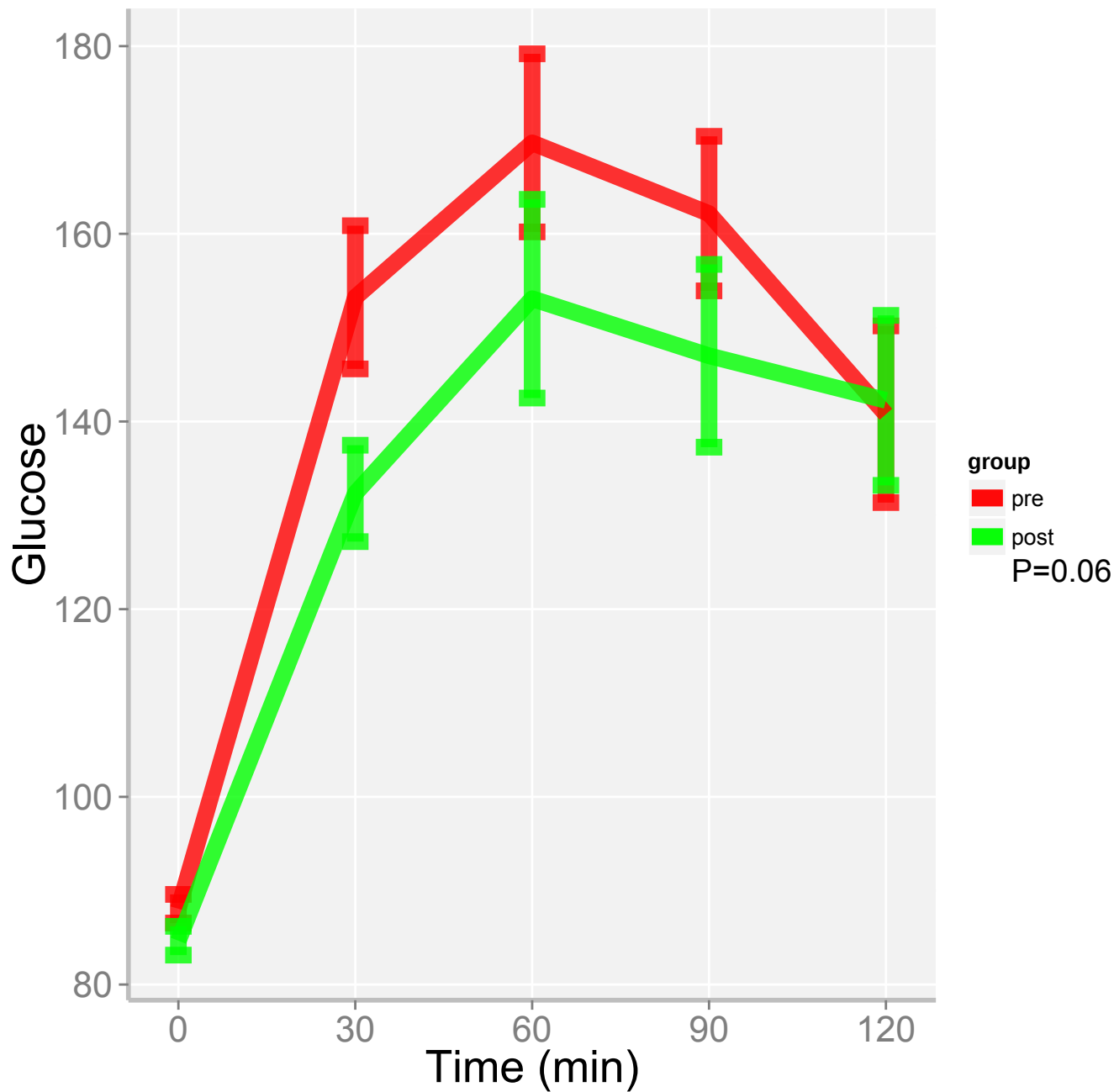
^apre-diet and exercise intervention, n=12

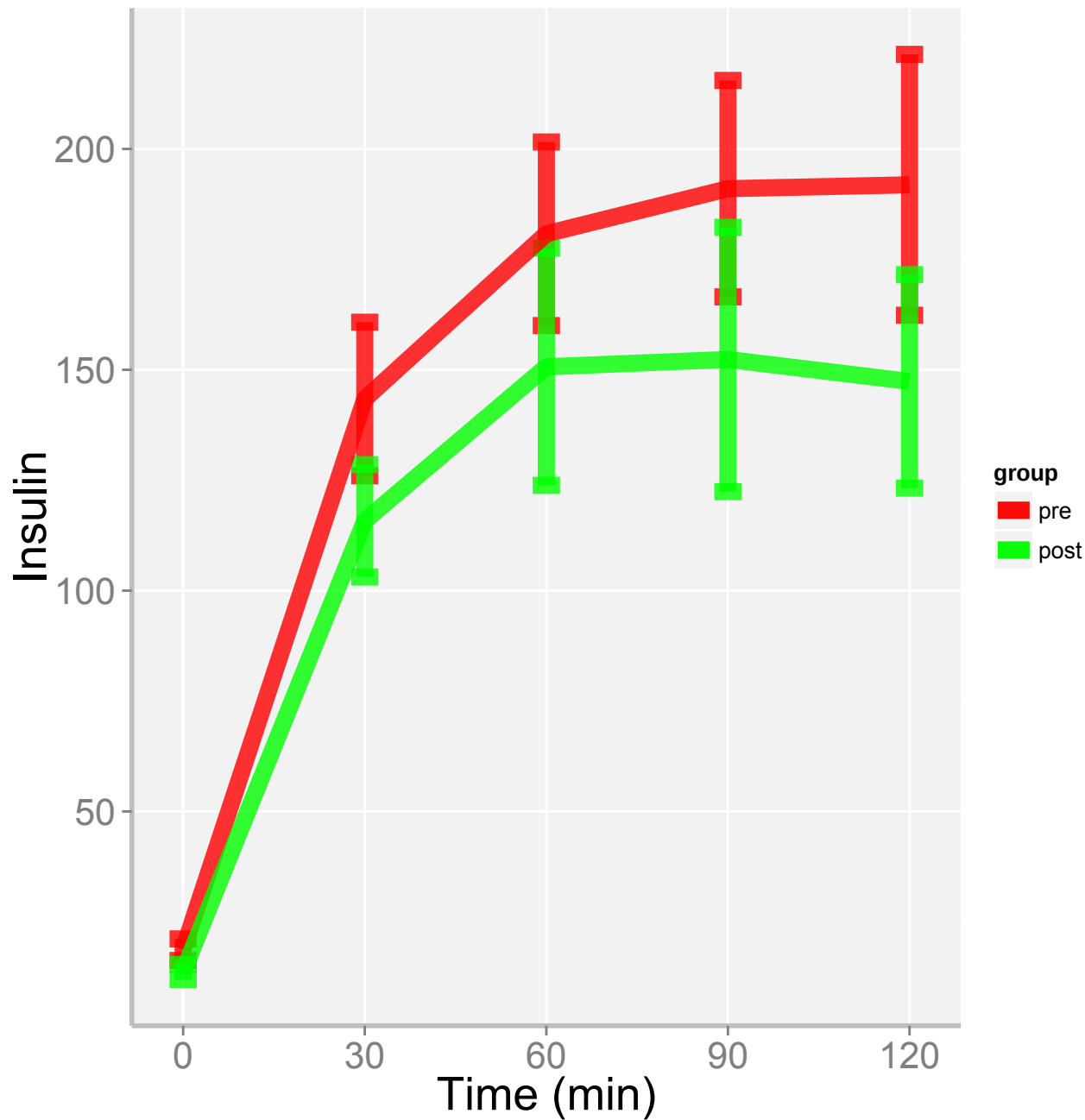
^bpost-diet and exercise intervention, n=12

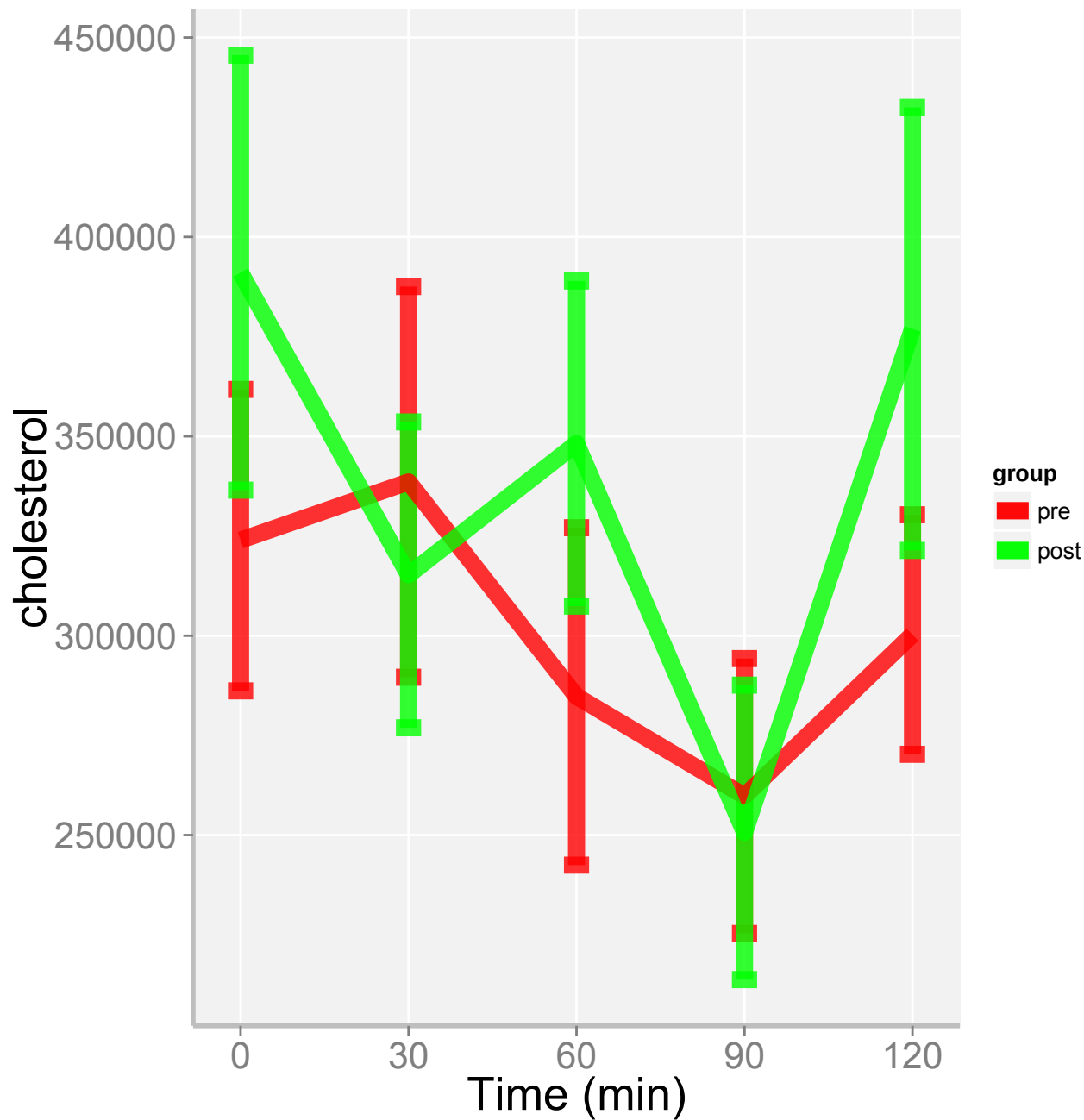
^ccomparisons using paired t-tests from subjects completing both Test Week 1 (pre-intervention) and Test Week 2 (post-intervention) yielded identical statistical patterns

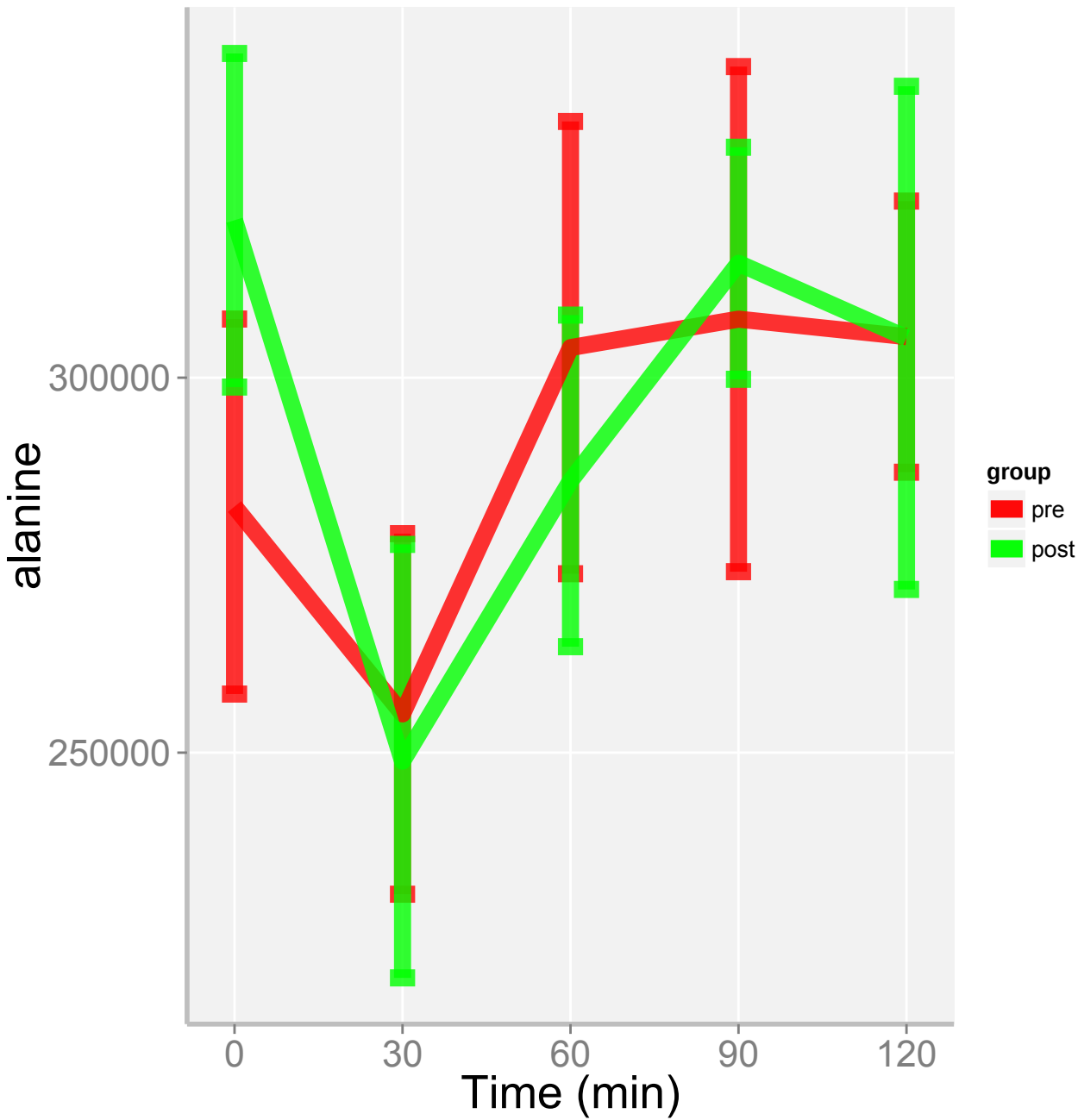
Values are means ± SEM; NS = not statistically significant

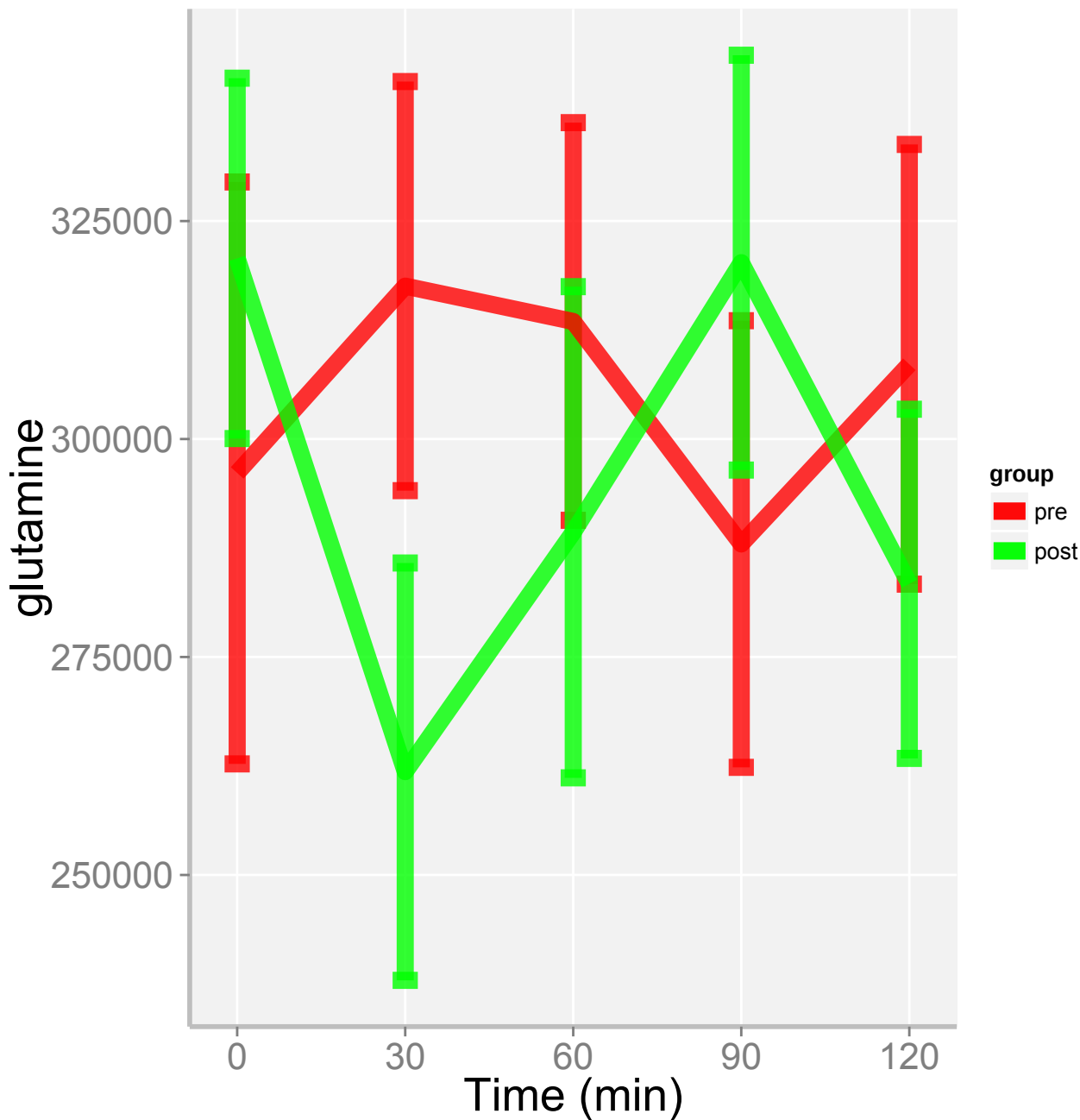
* mean ± SEM subject age was 41 ± 1.6 yrs and the median age was 40.5 yrs

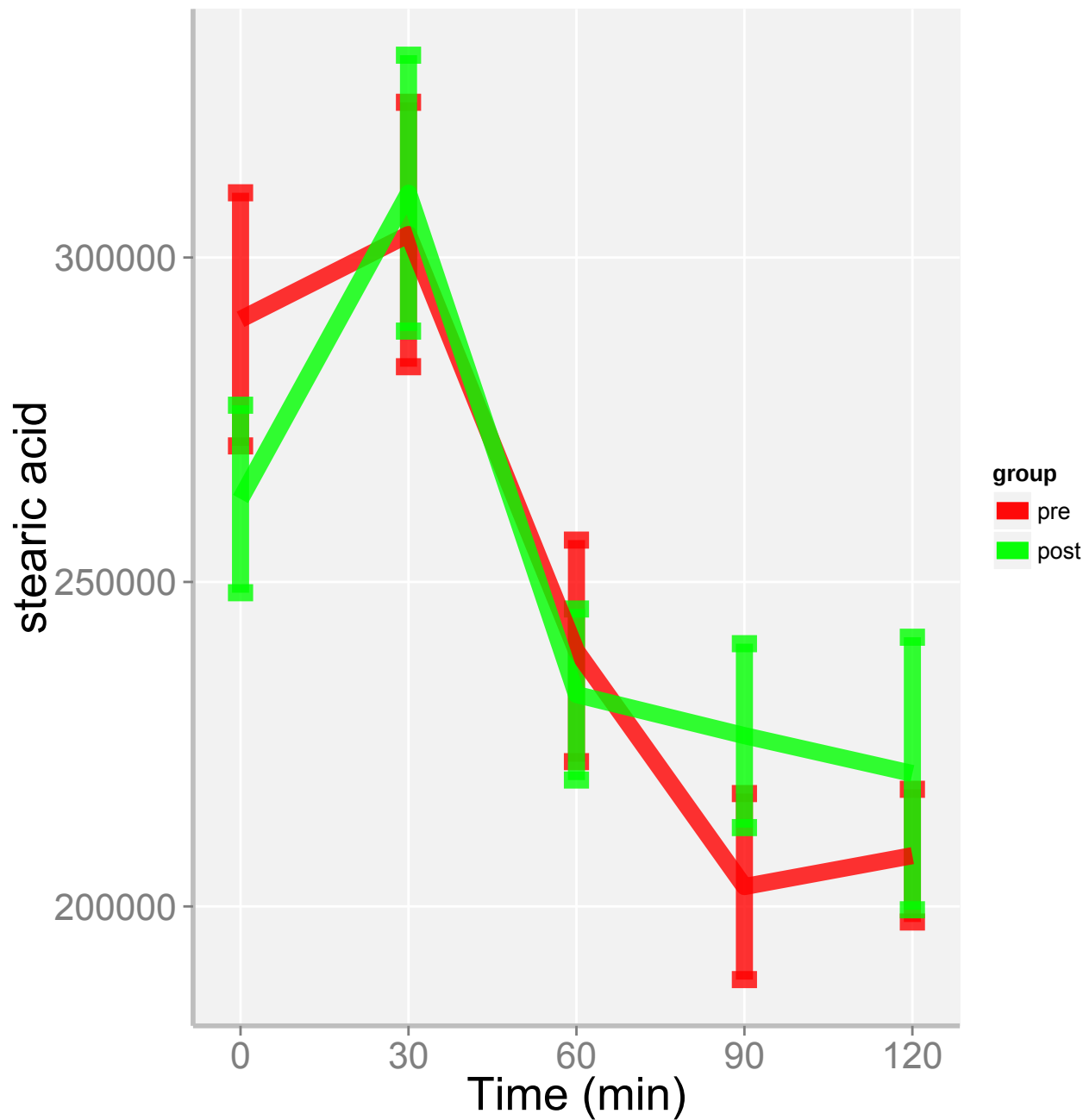


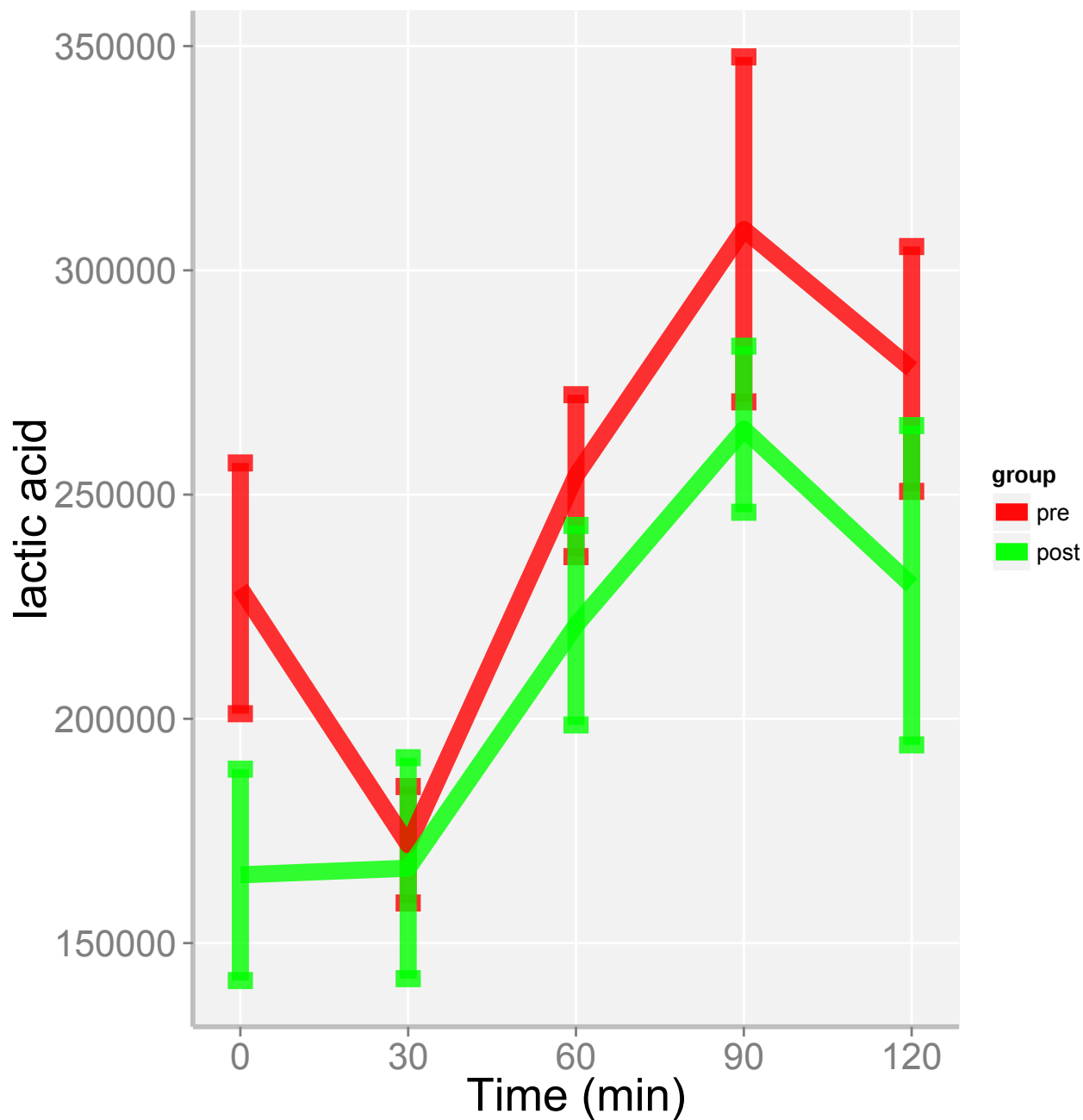


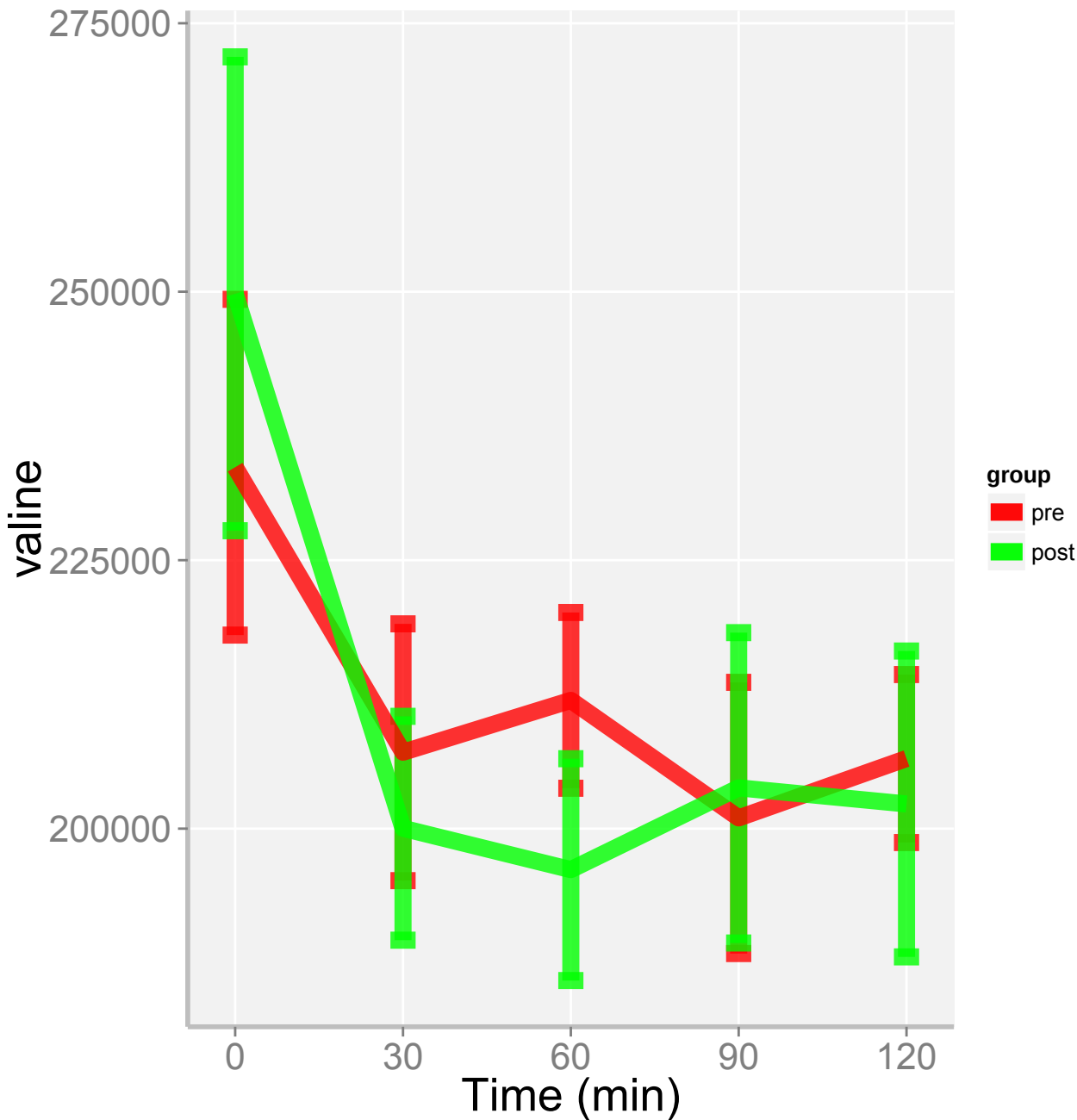


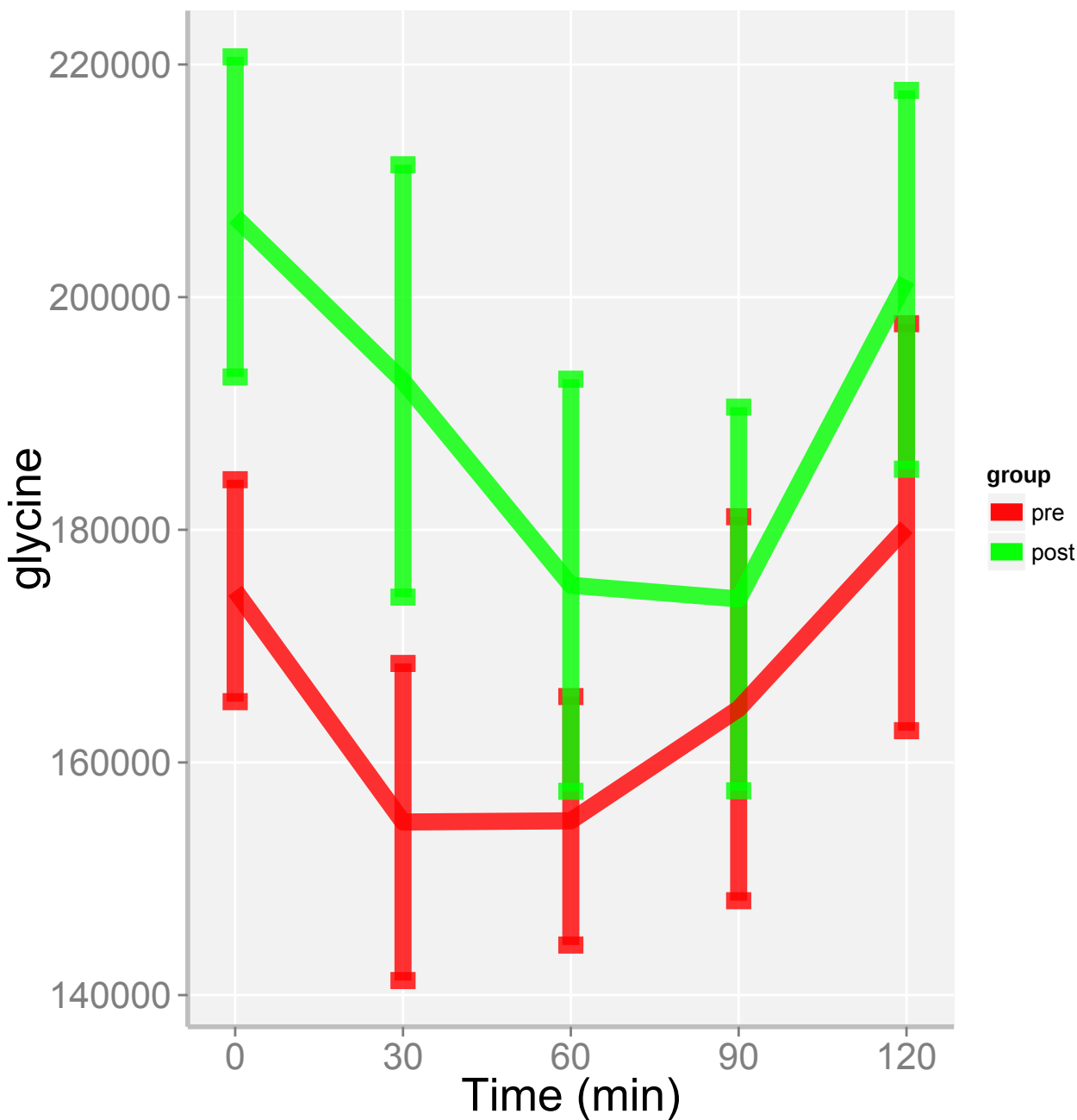


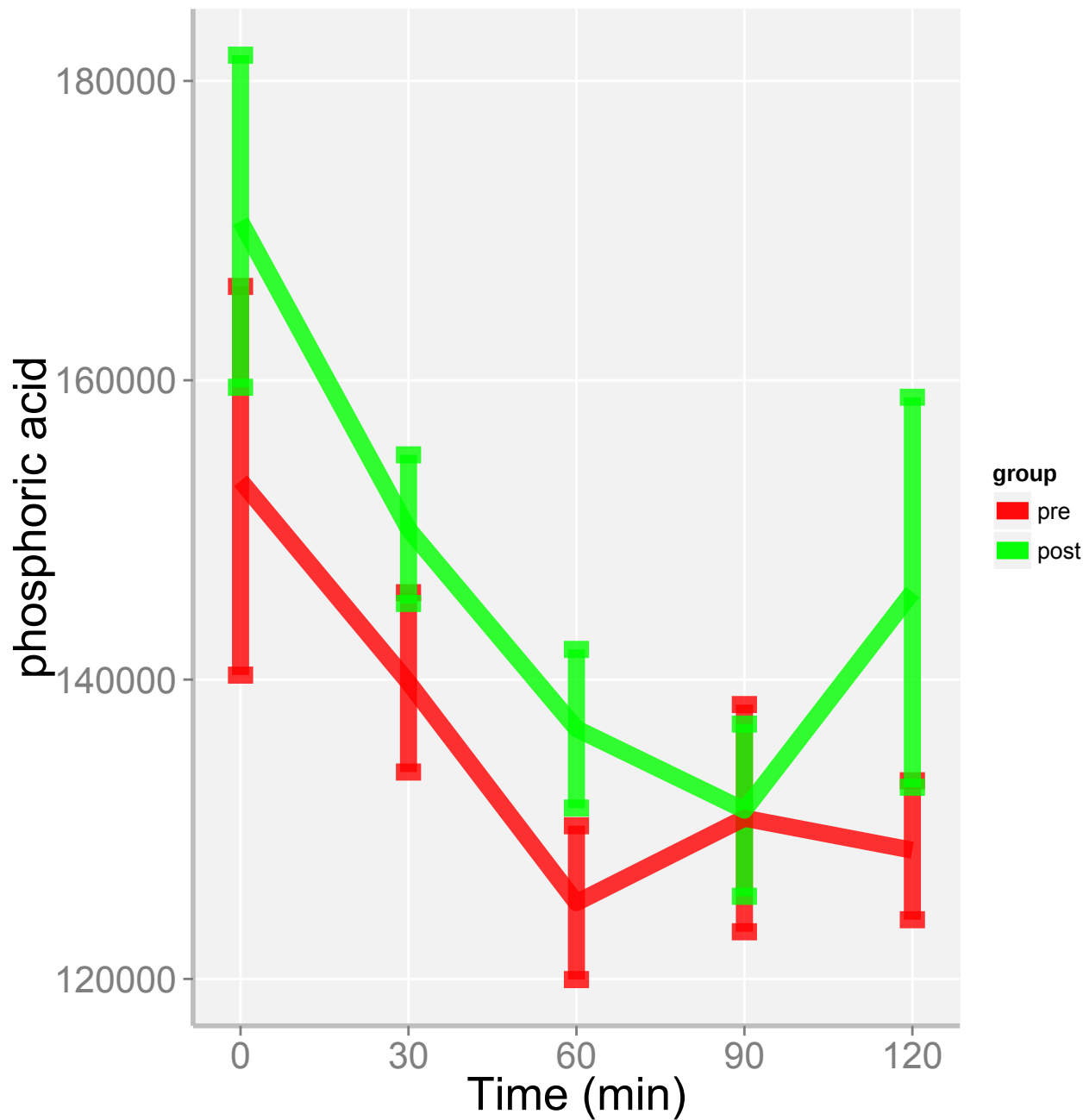


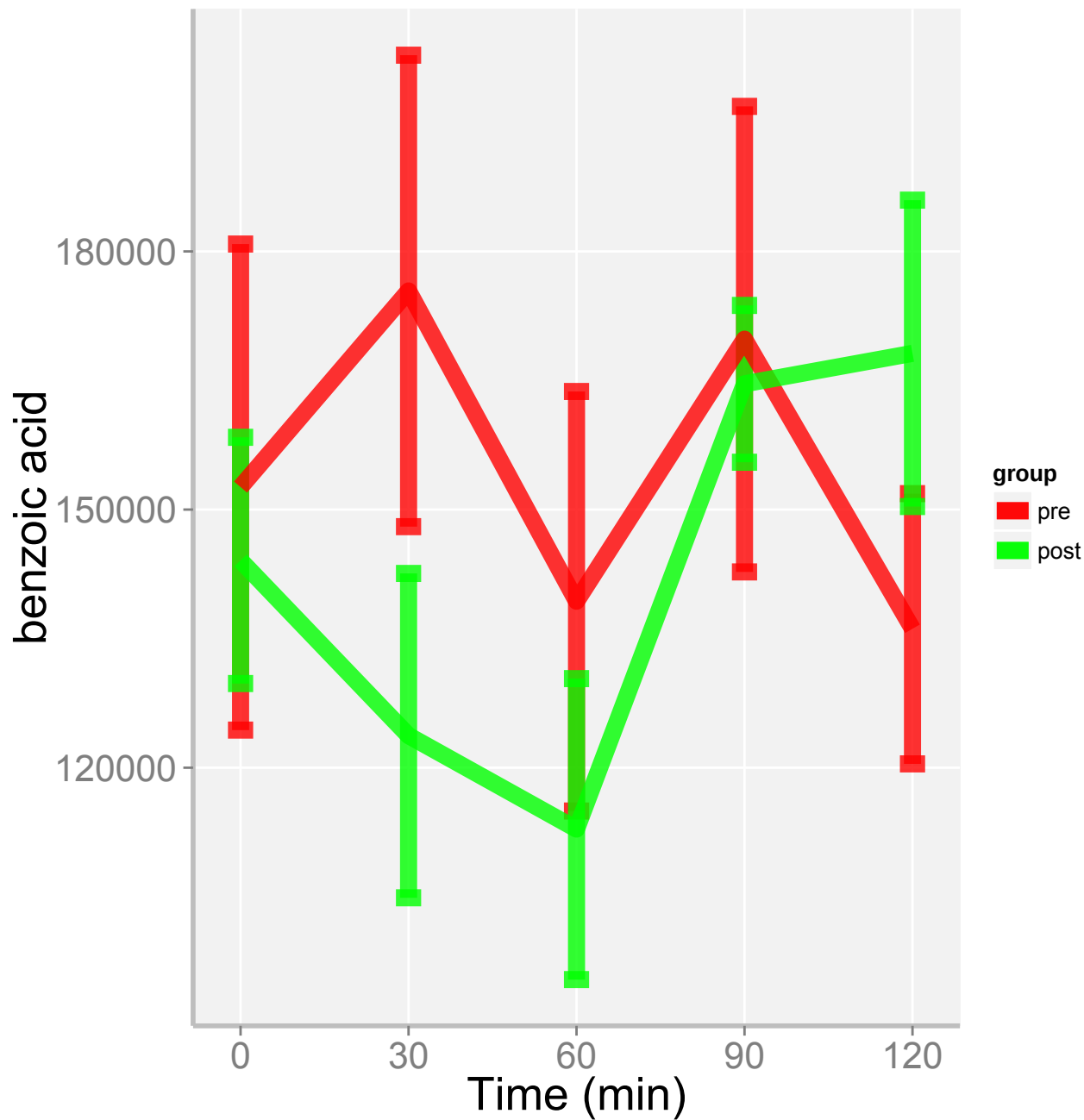


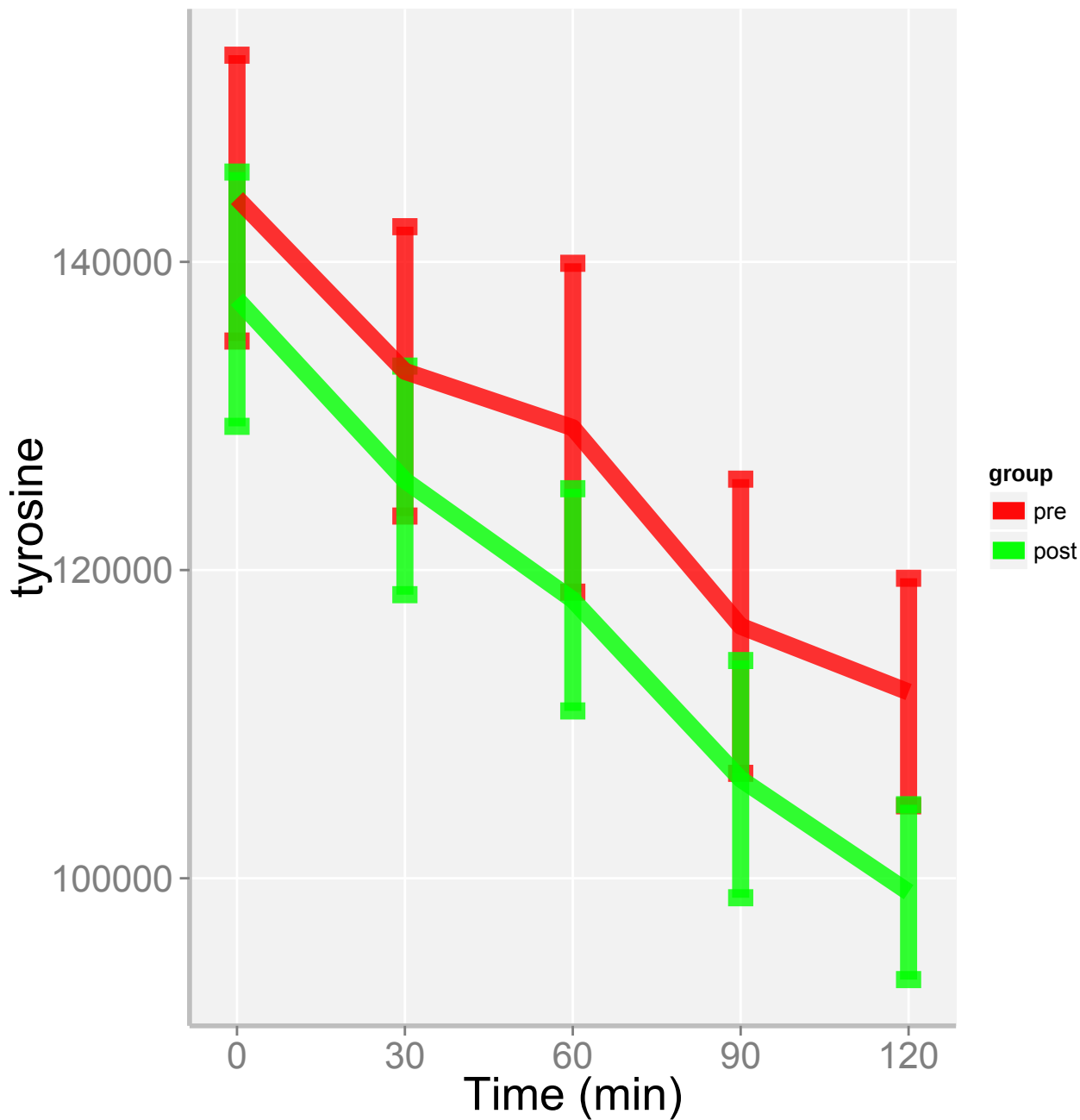


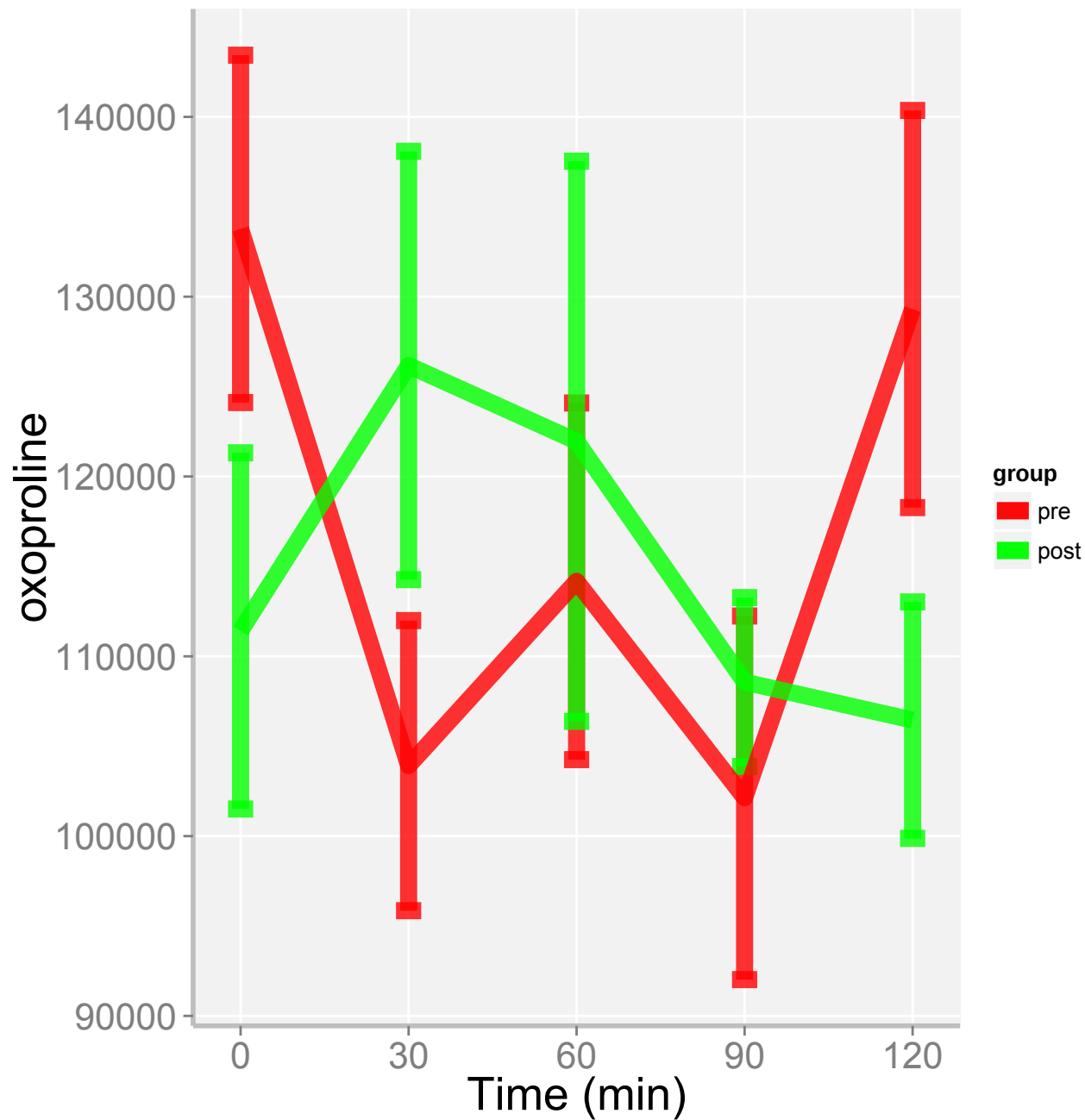












1,5-anhydroglucitol

140000

120000

100000

0

30

60

90

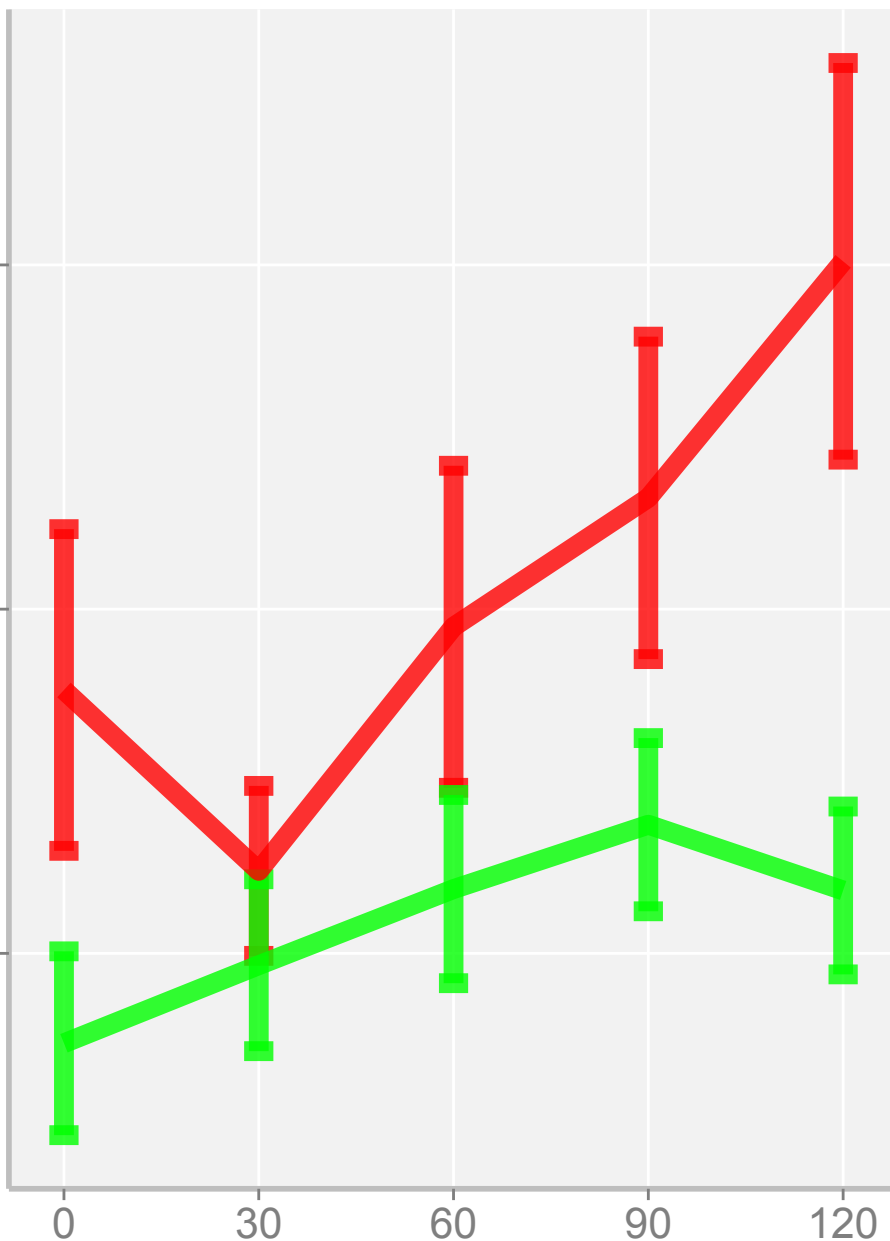
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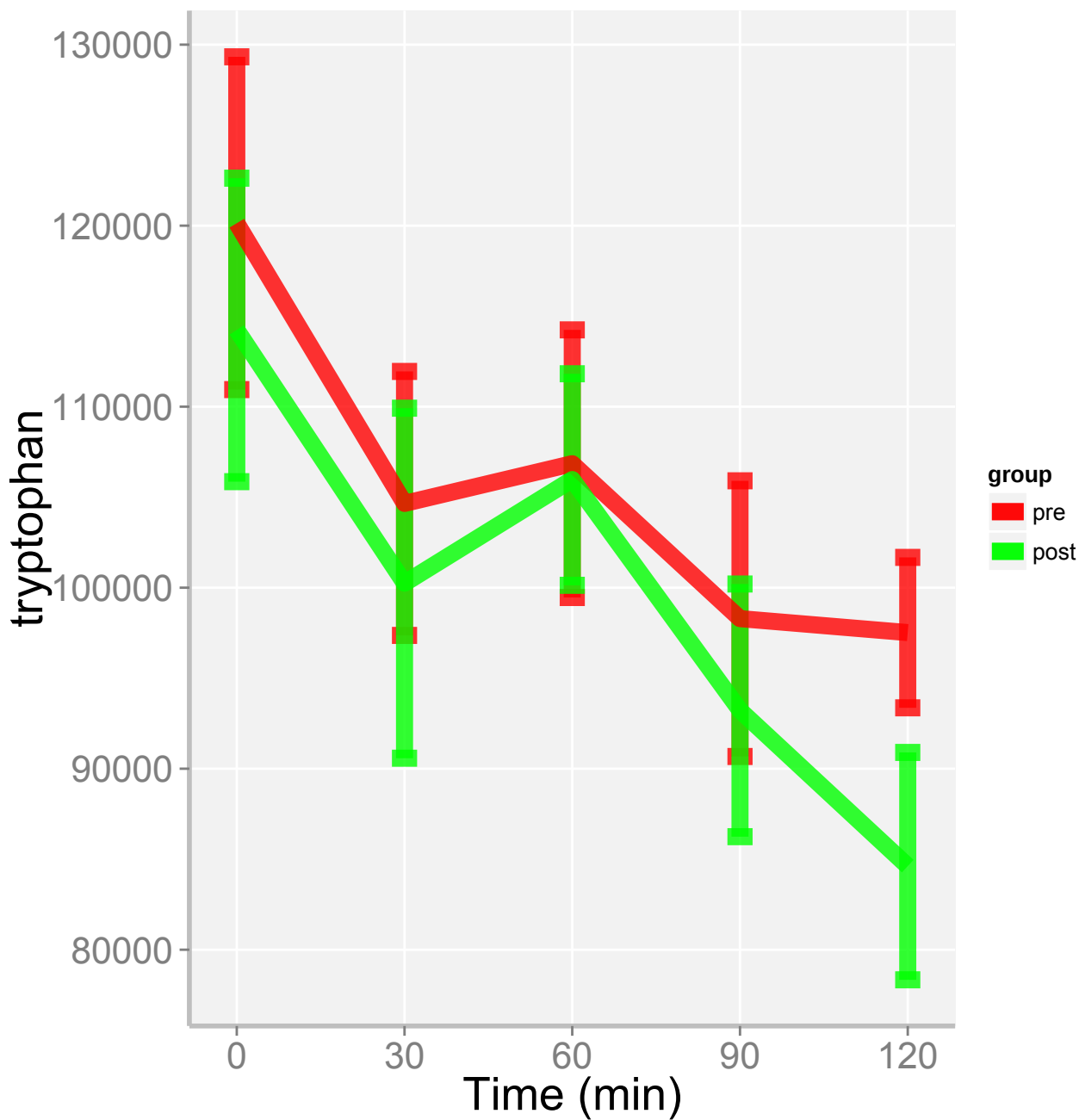
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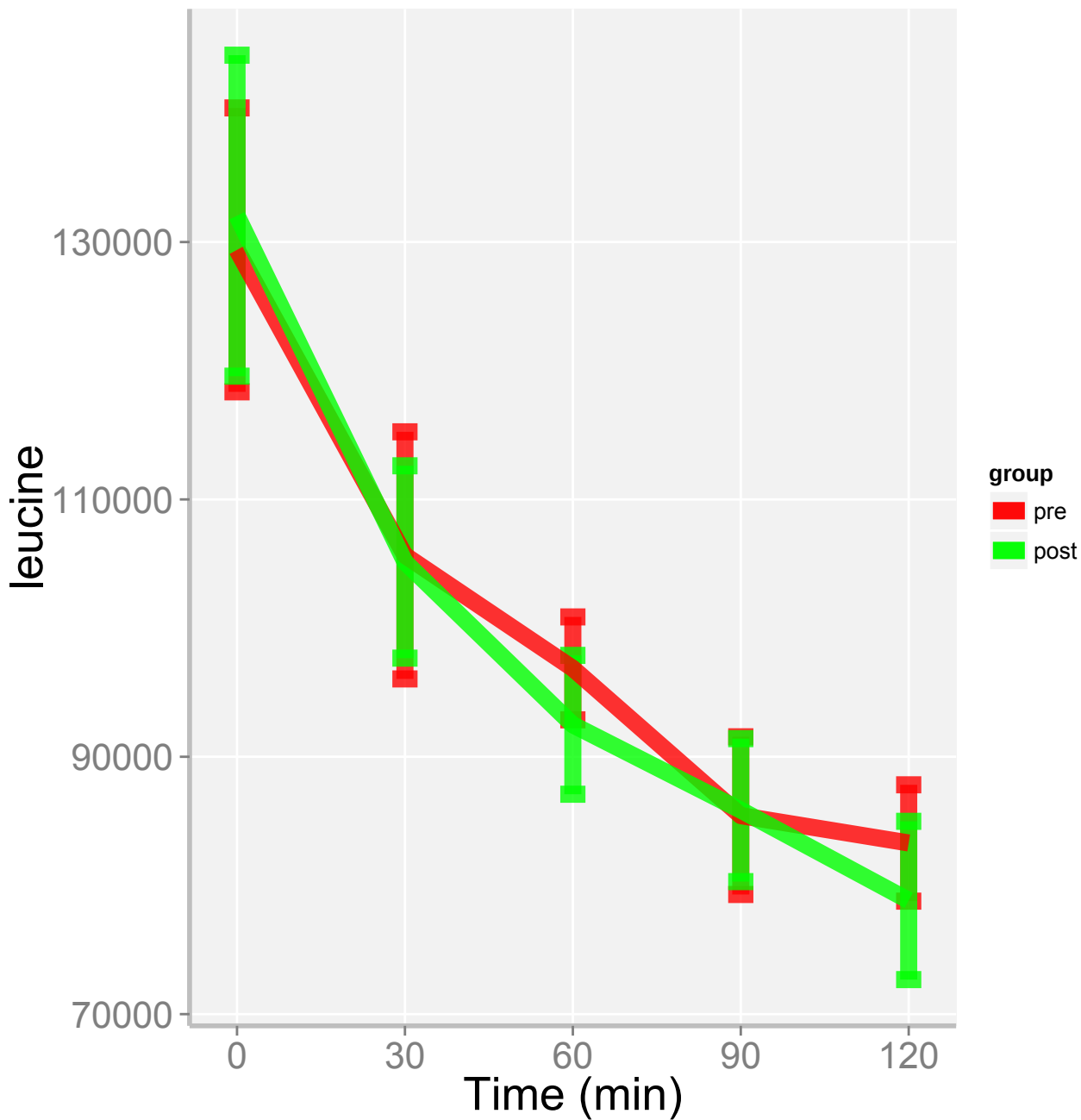
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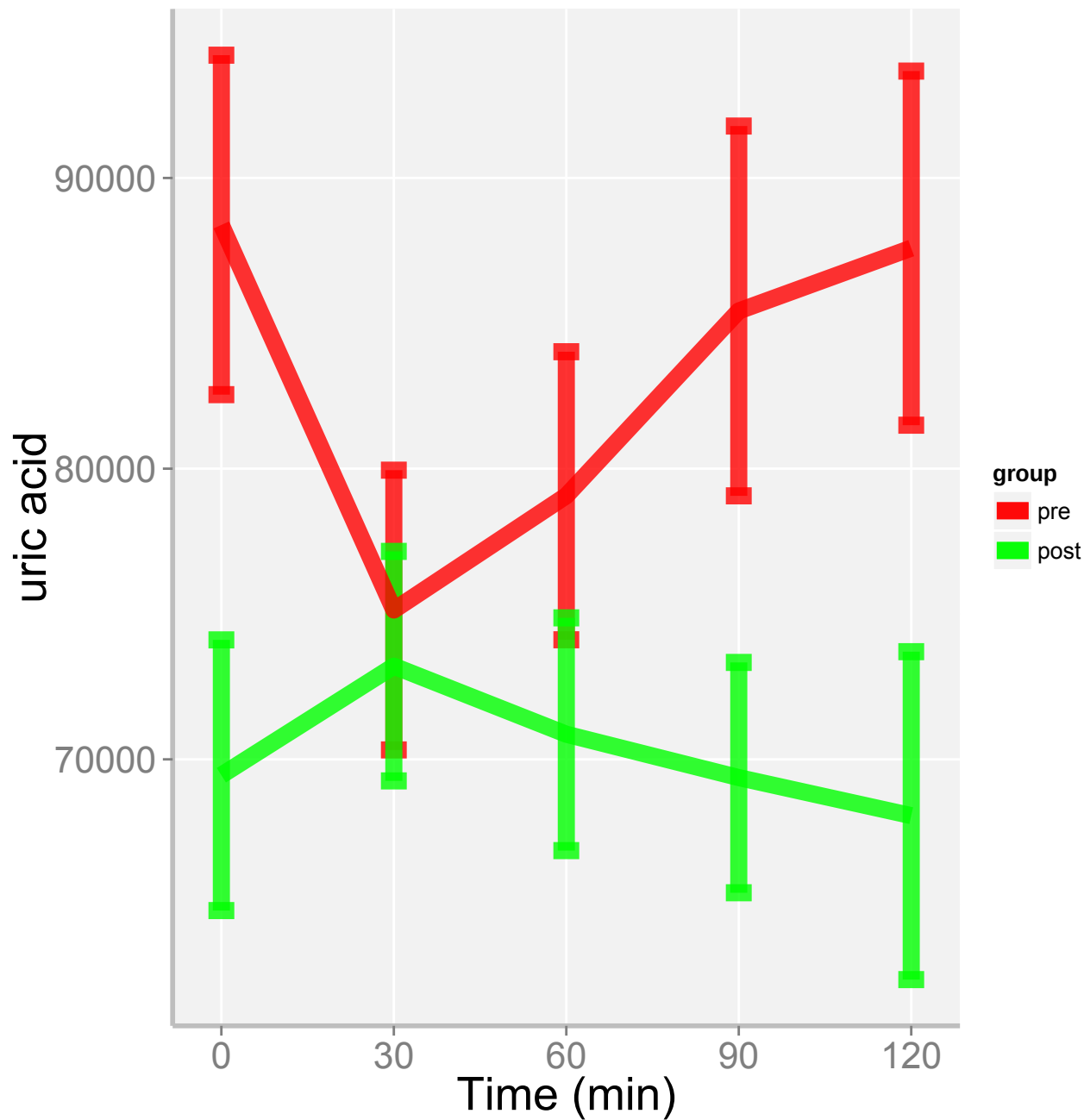
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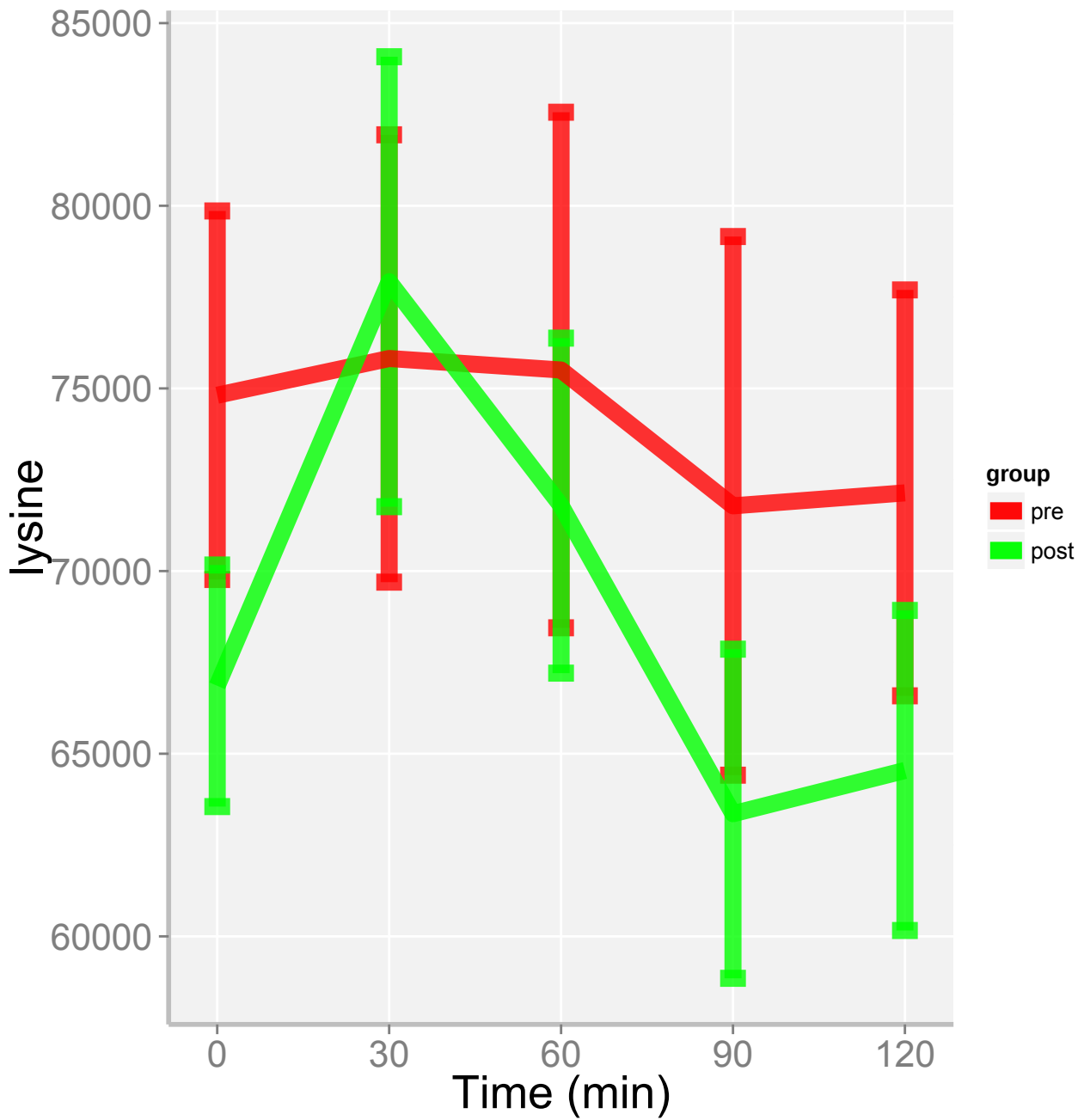
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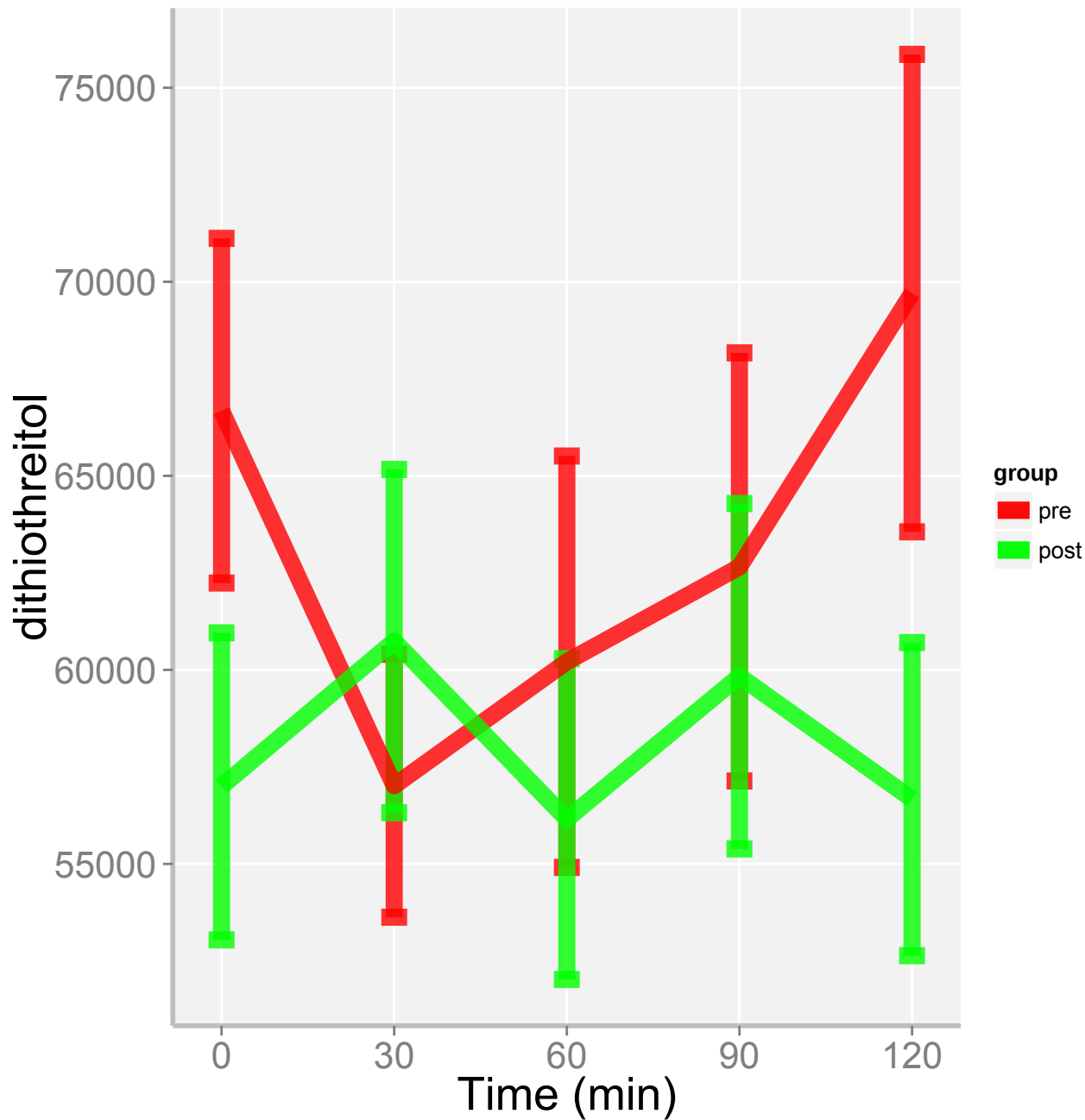


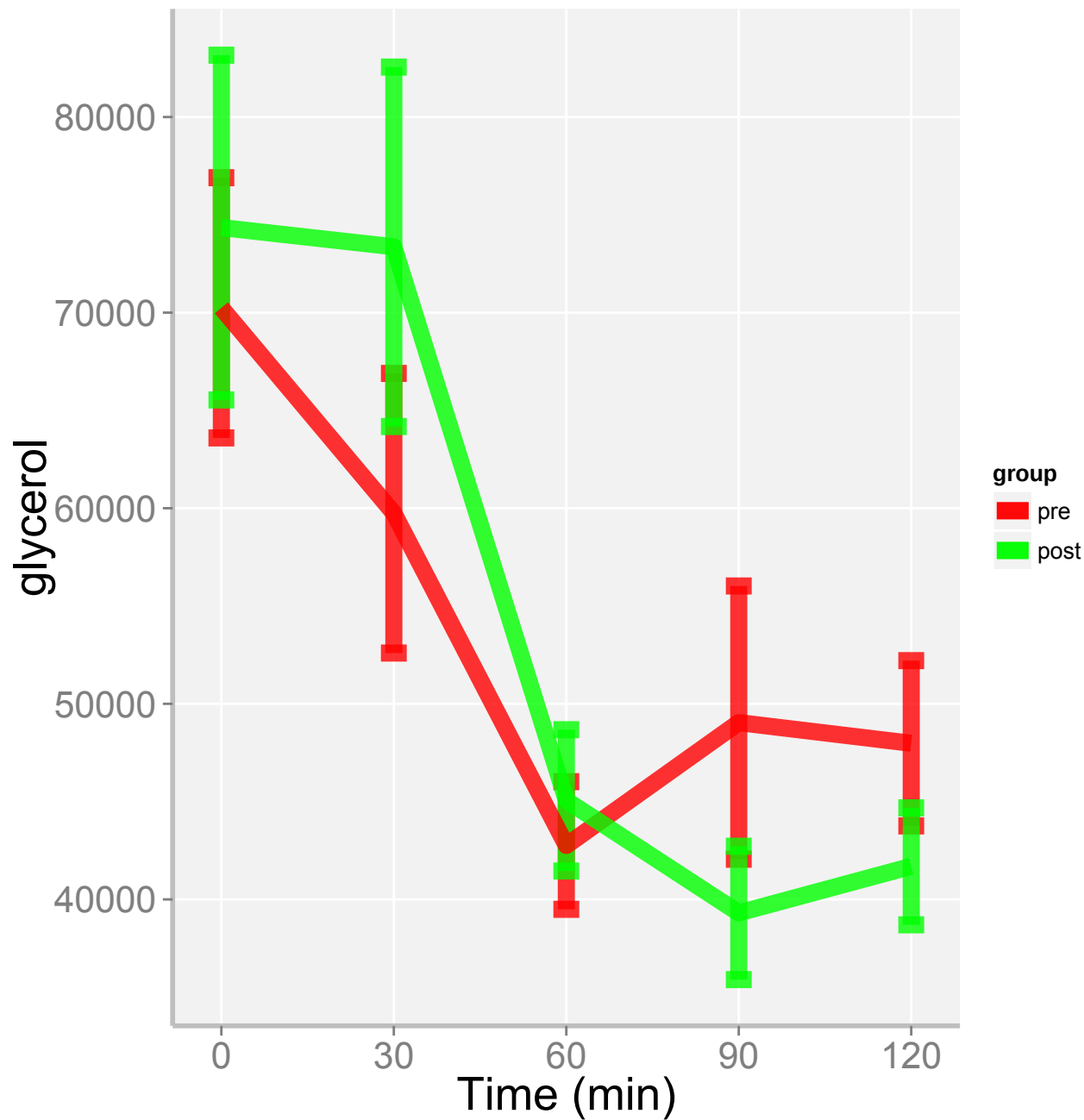


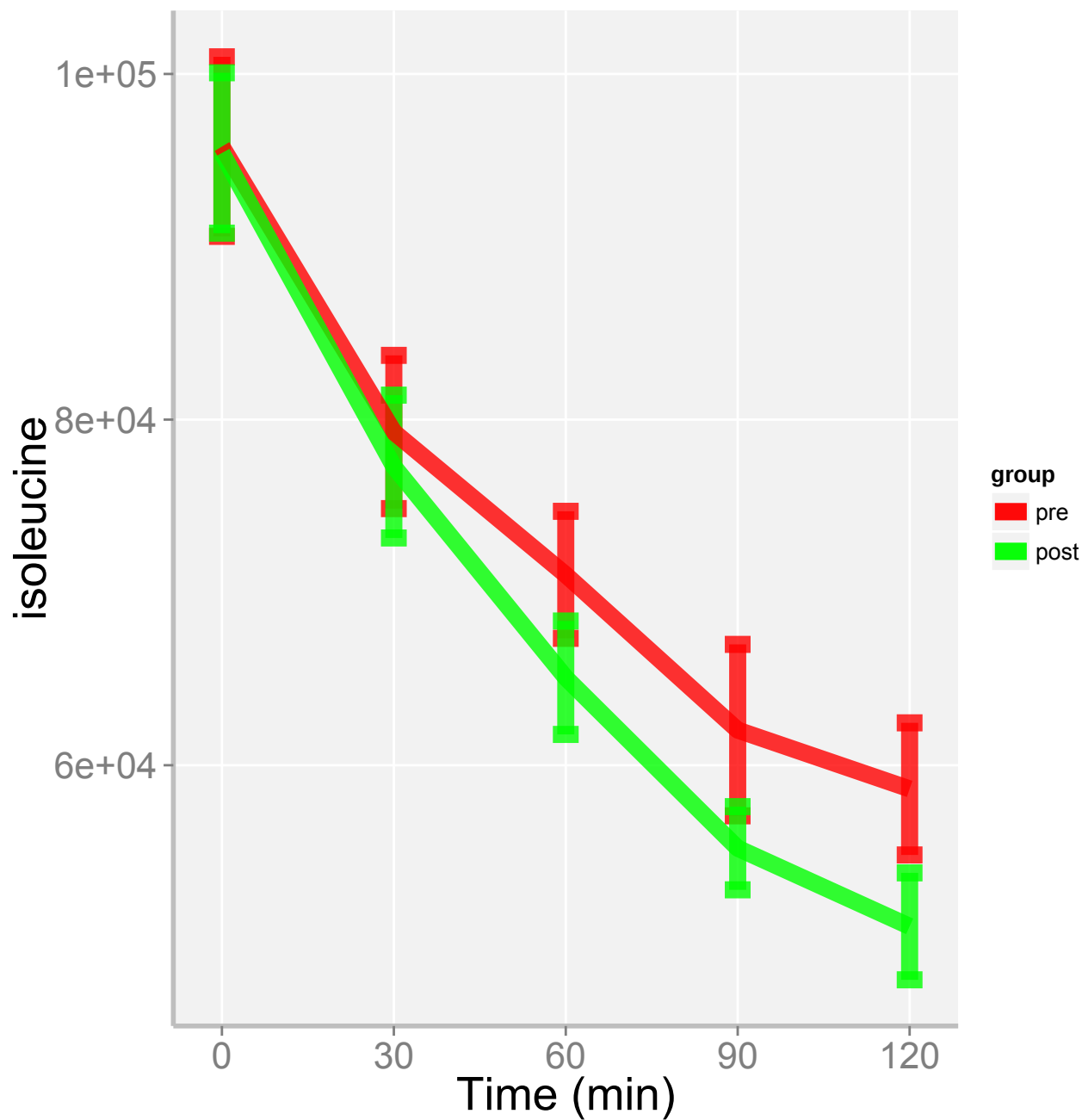


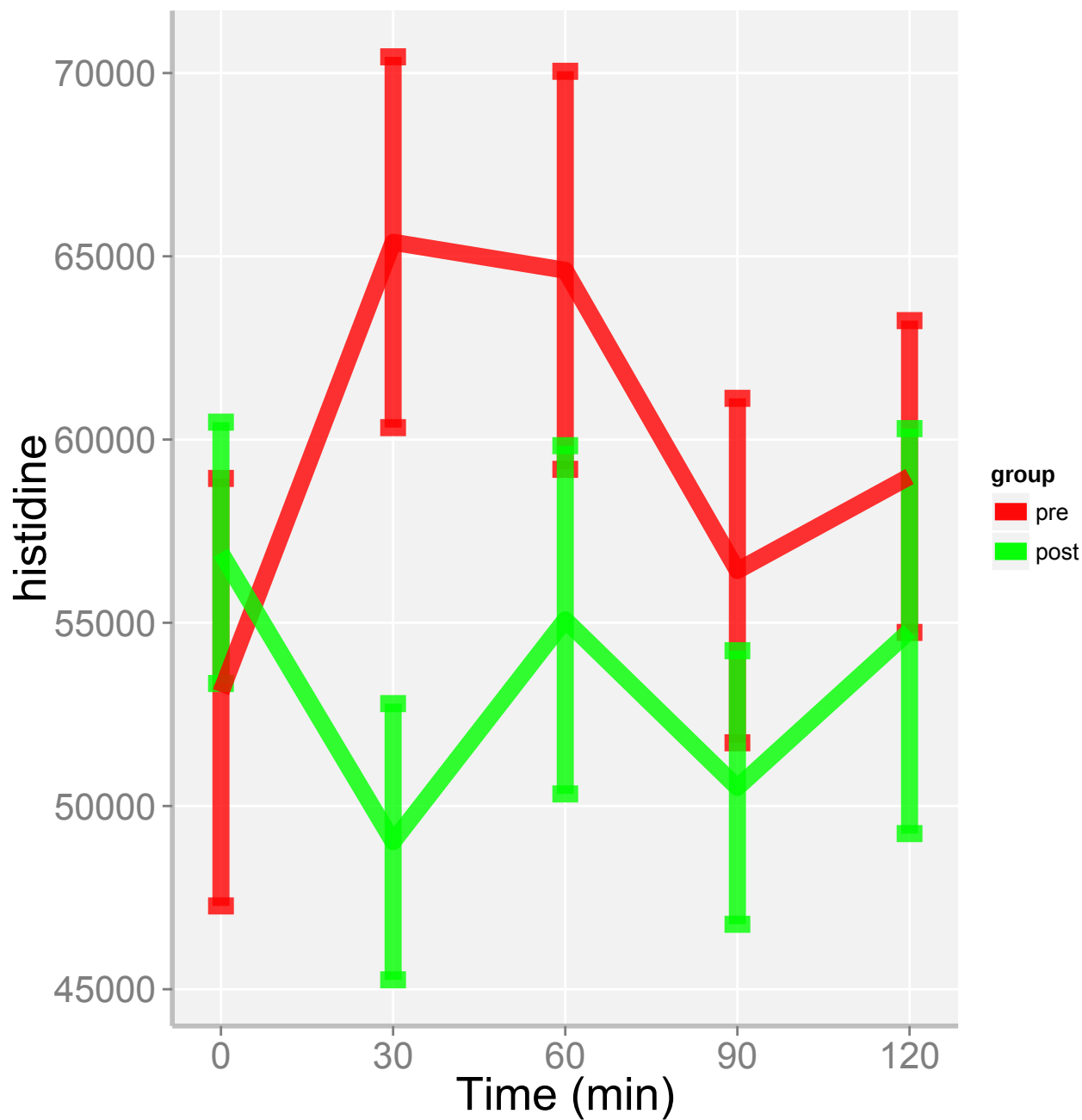


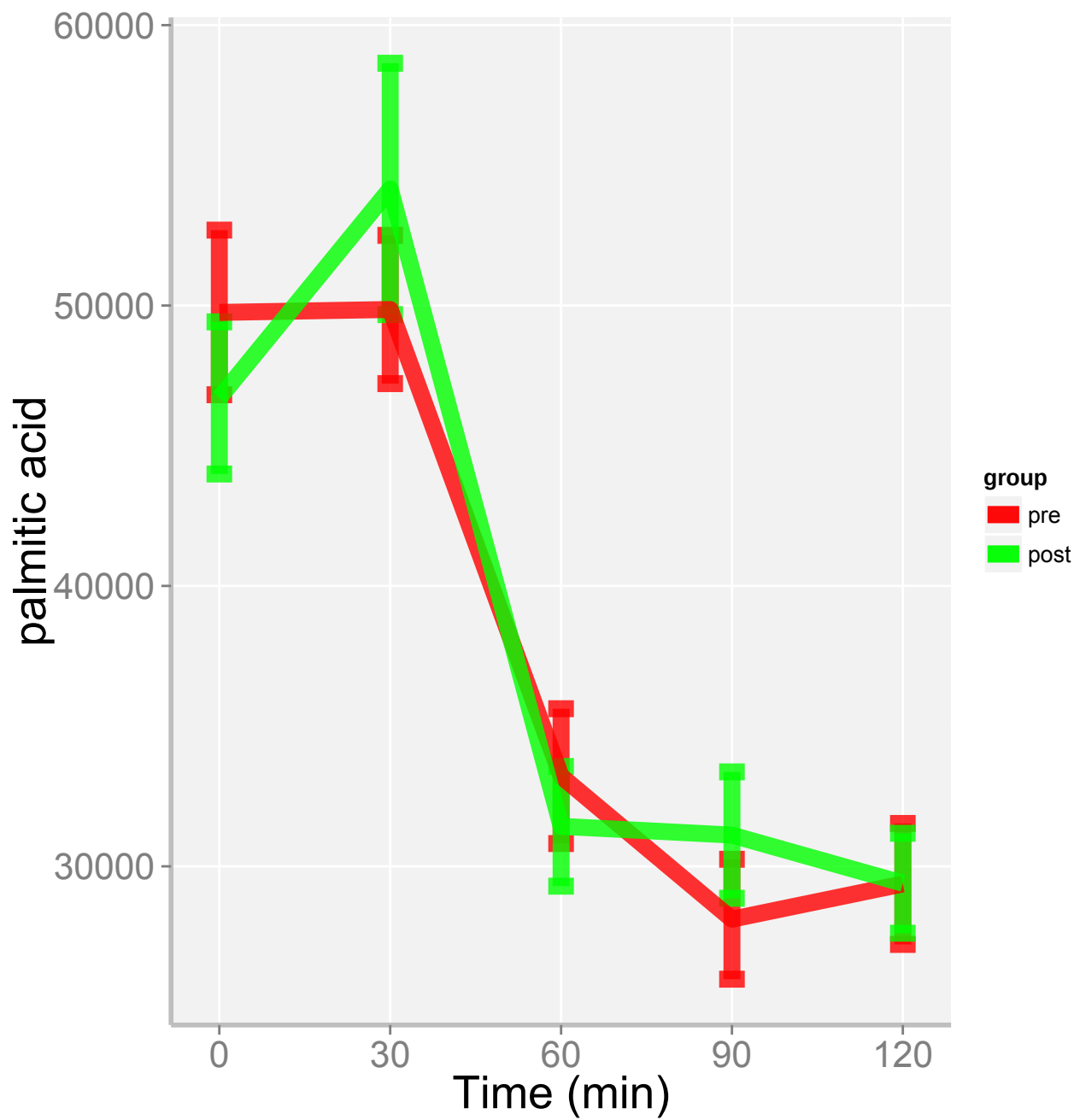


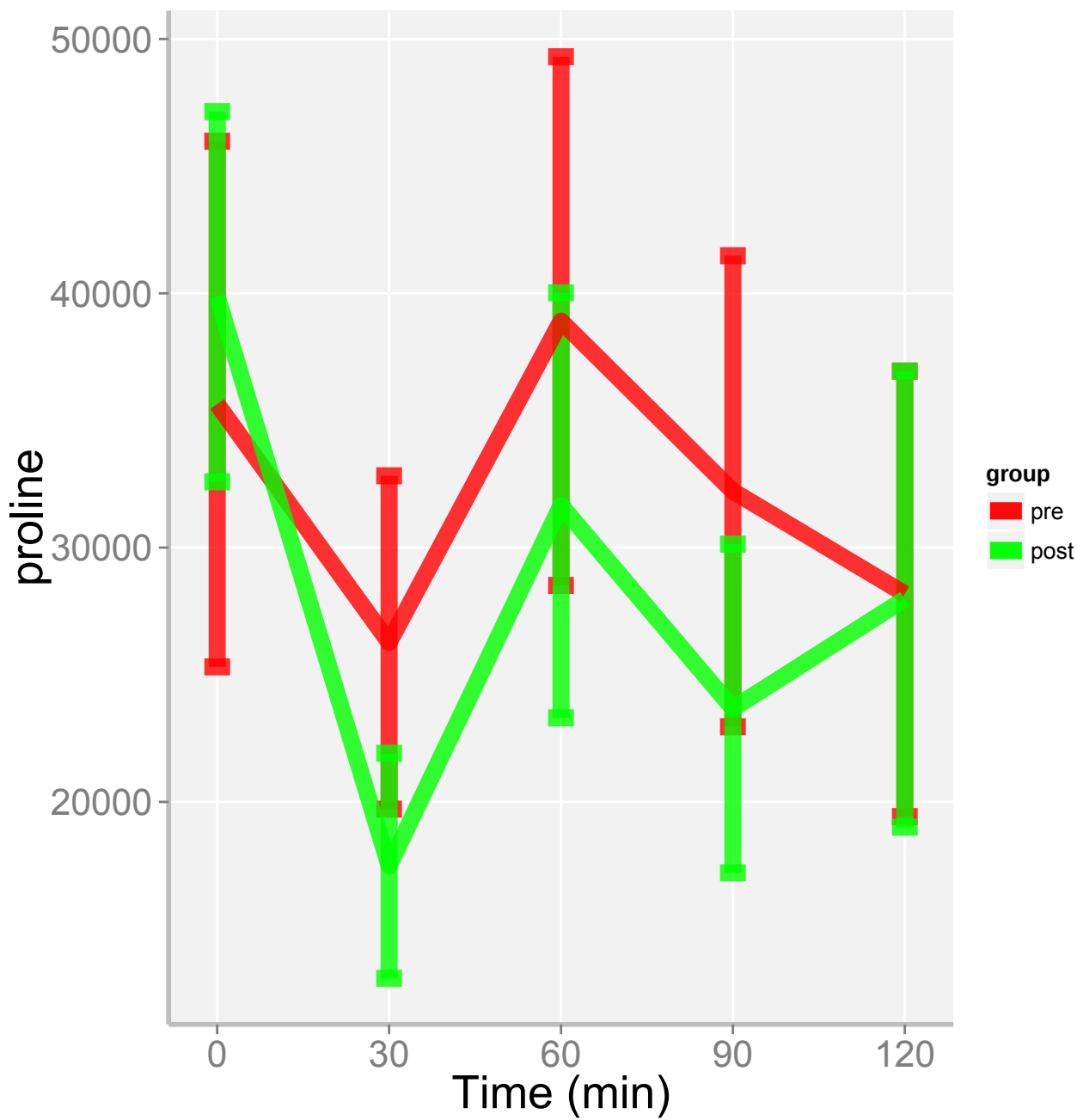


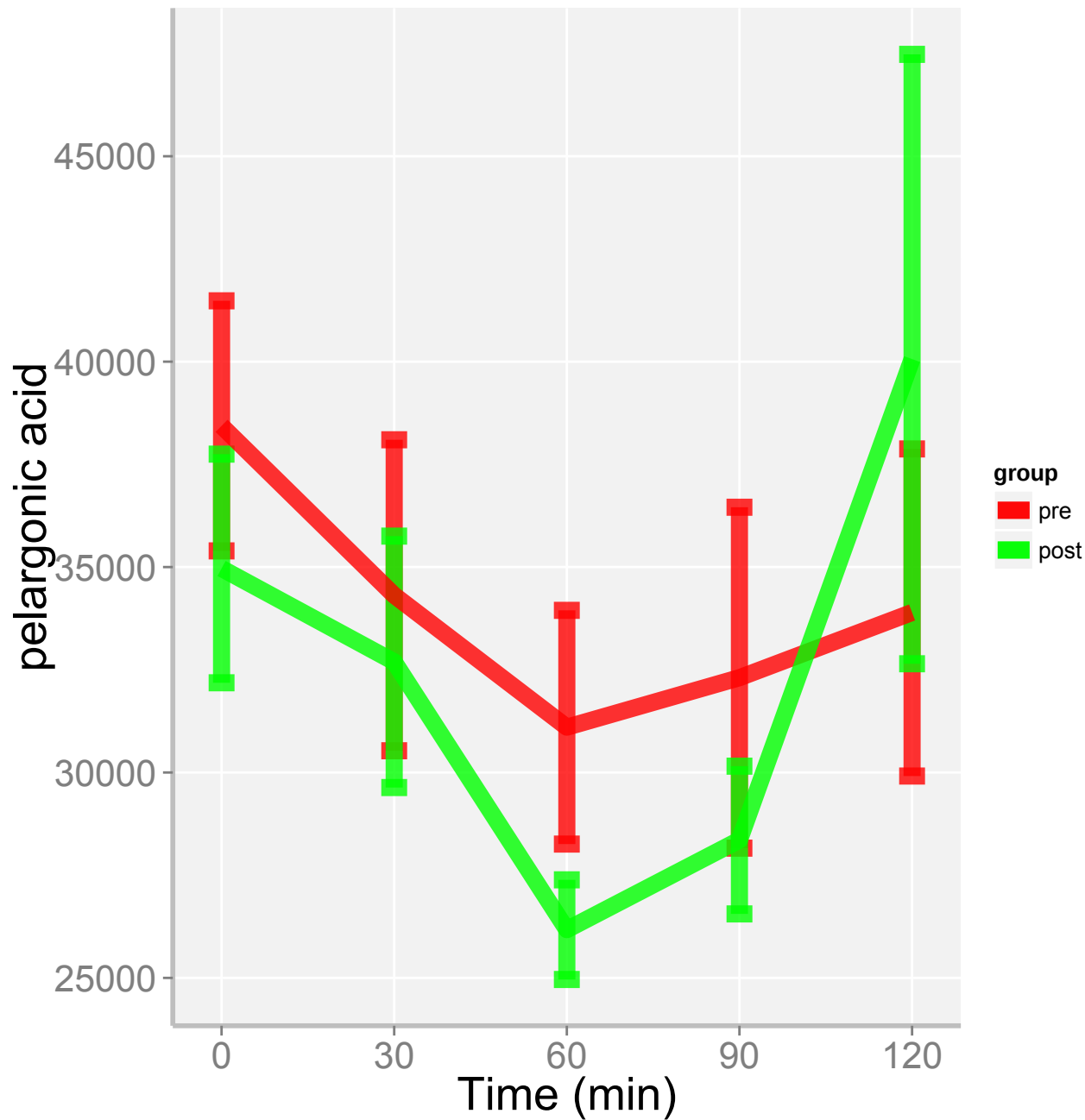


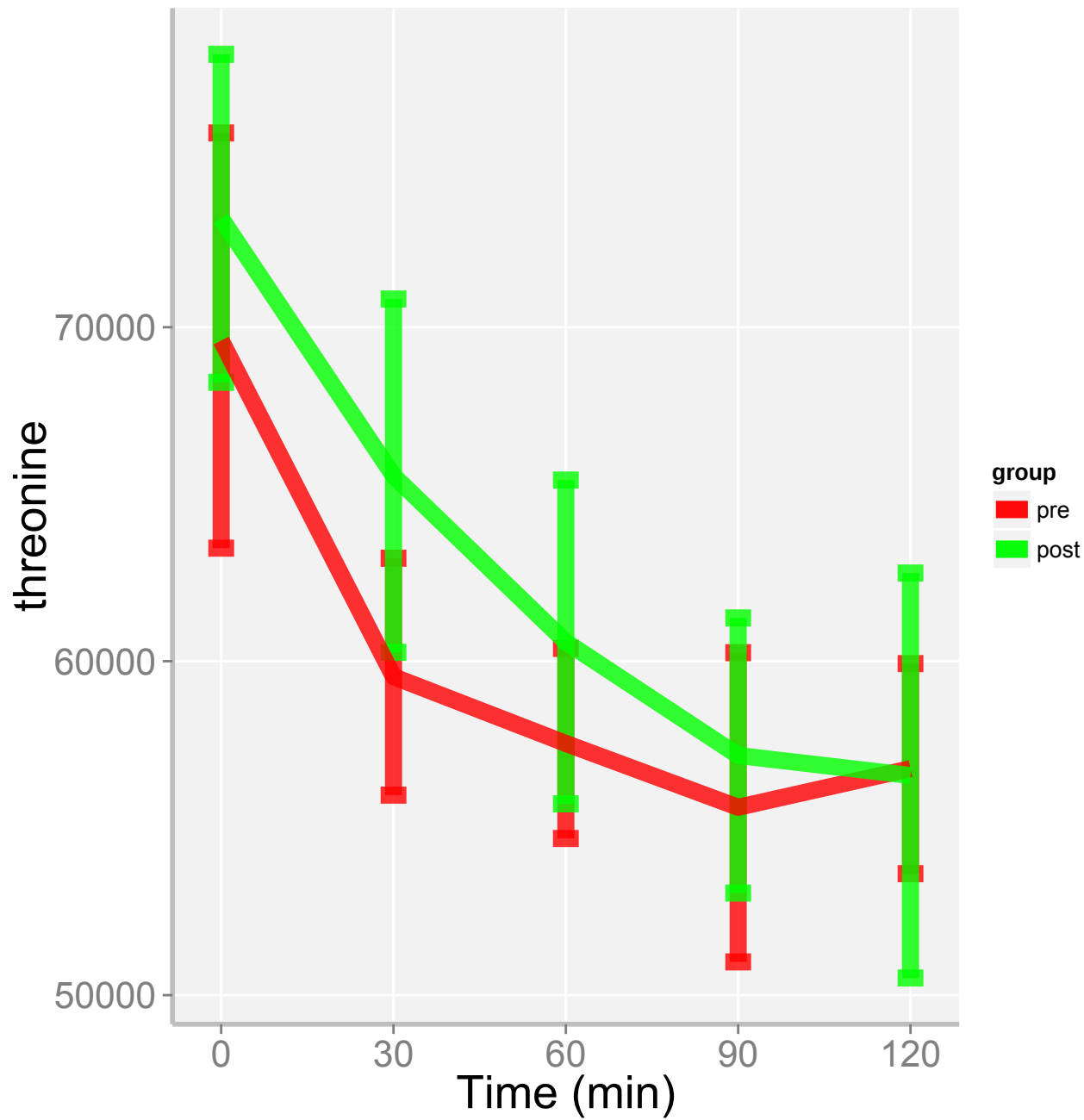


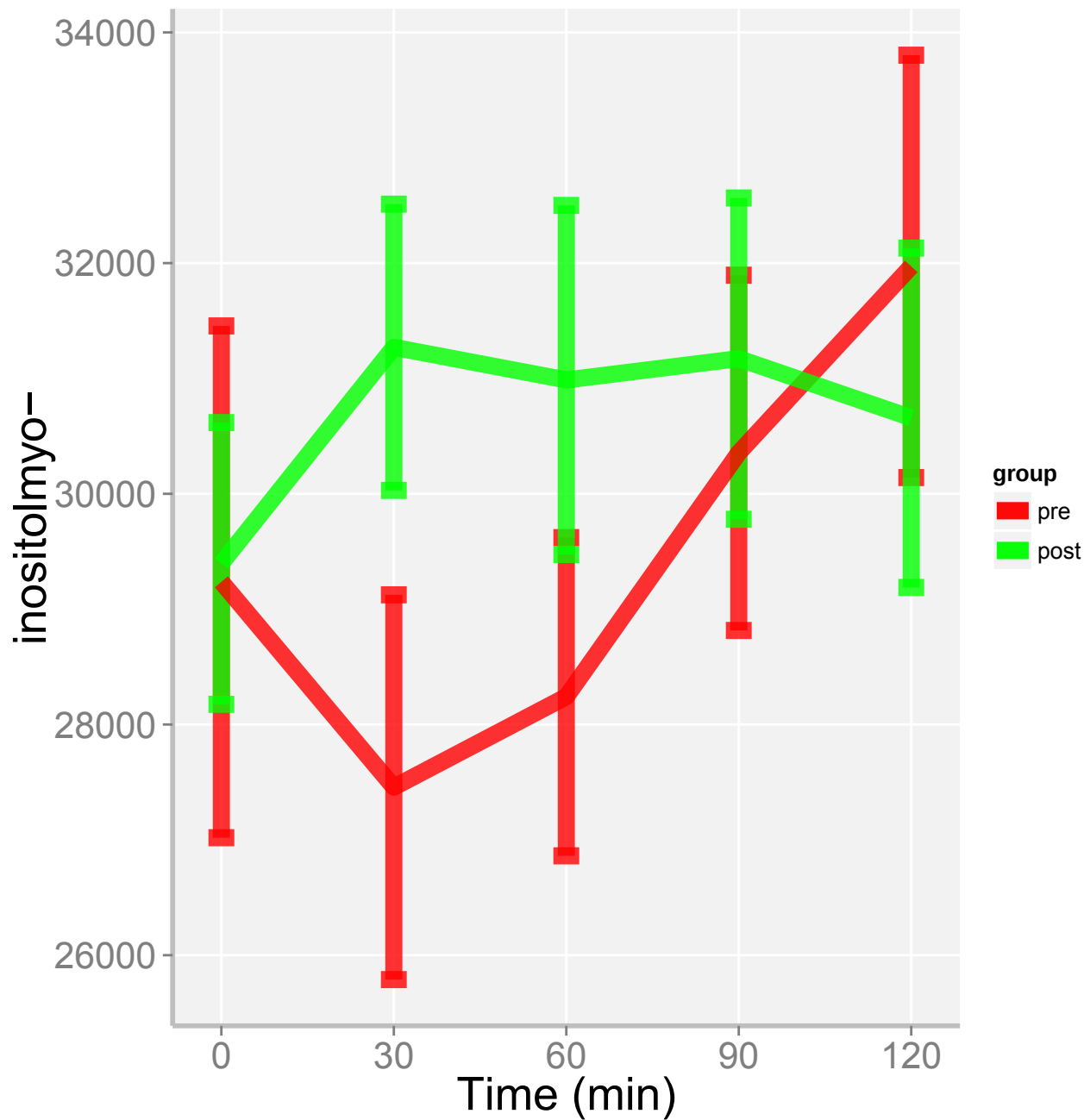


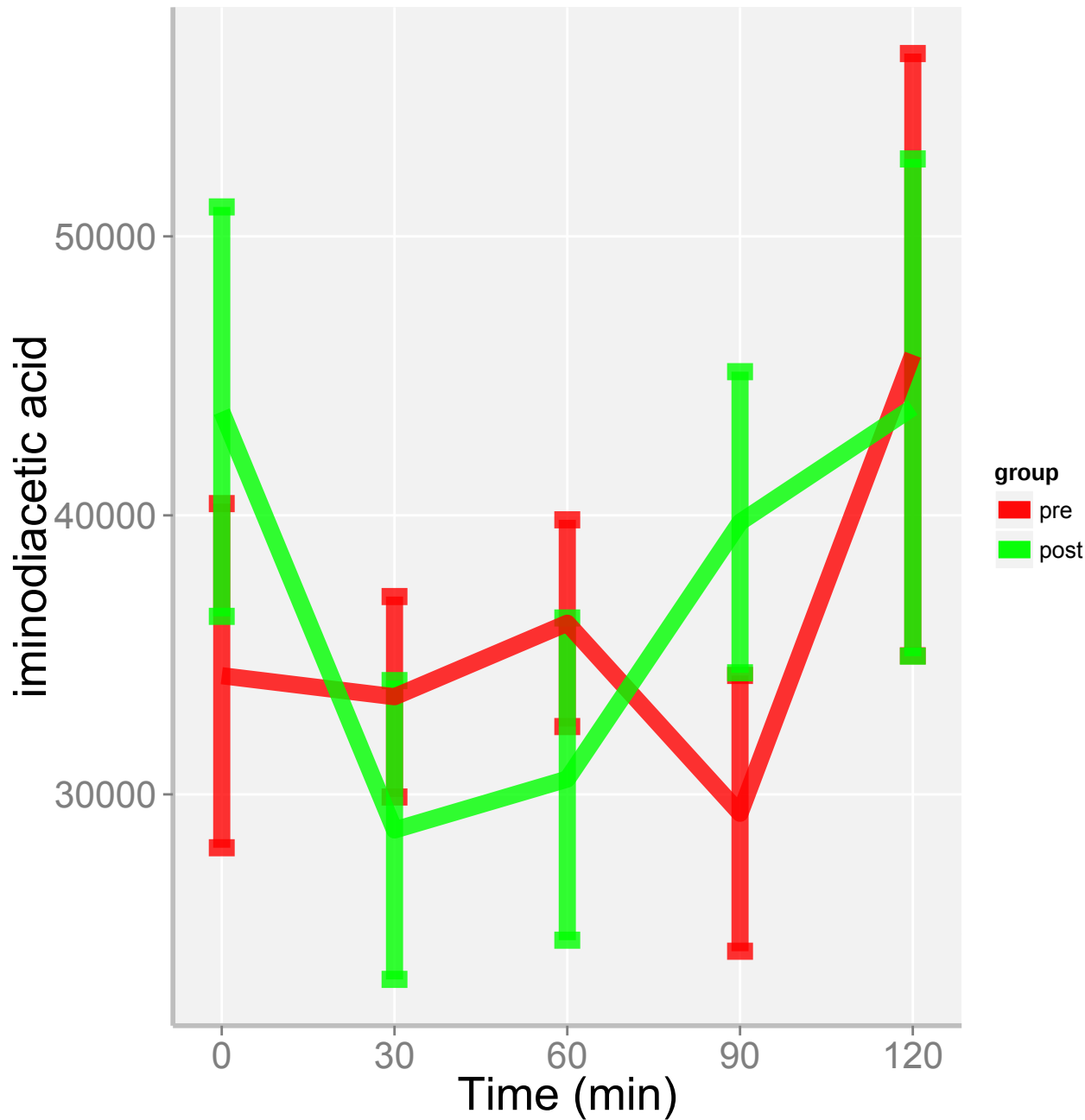


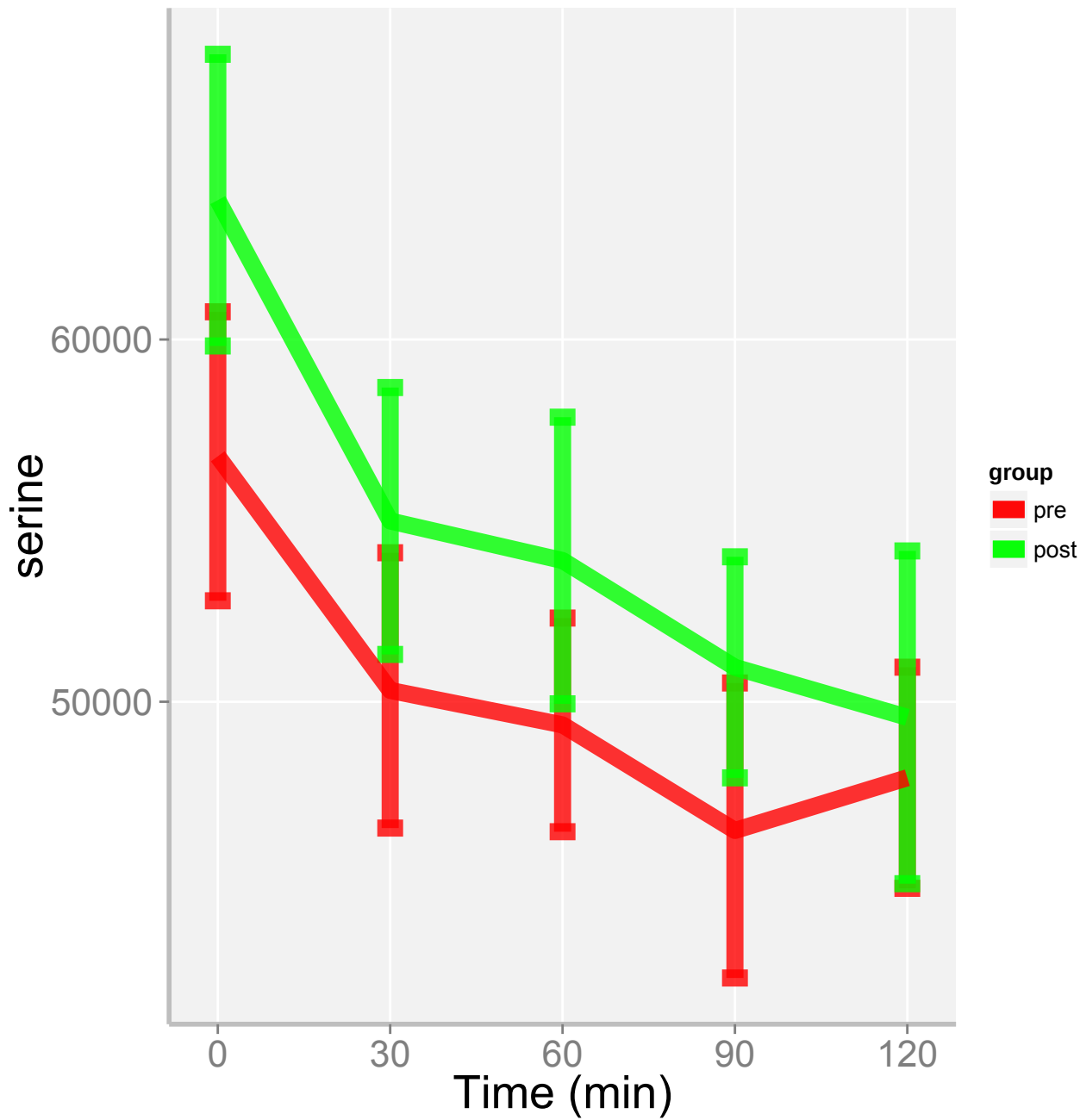


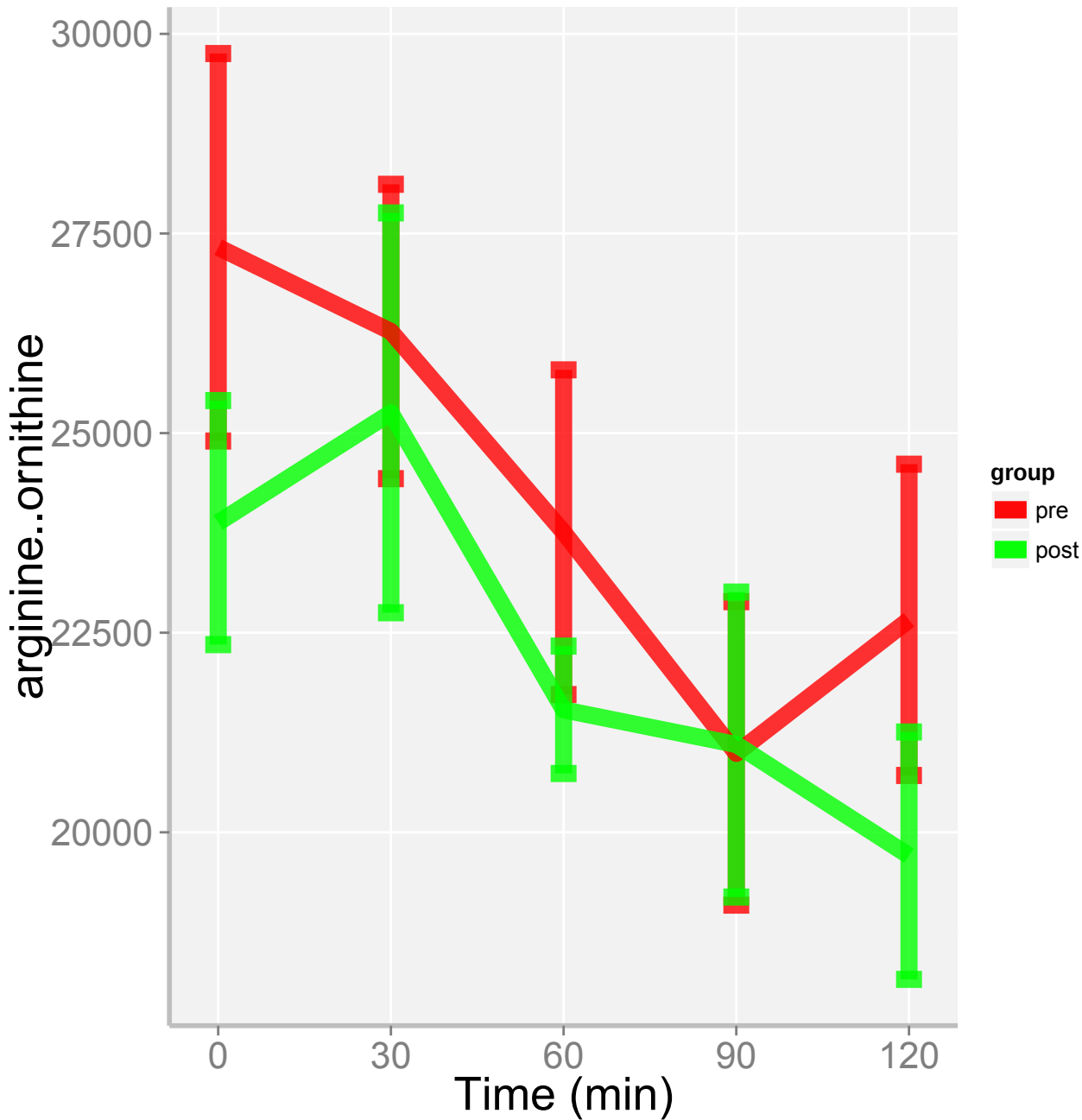


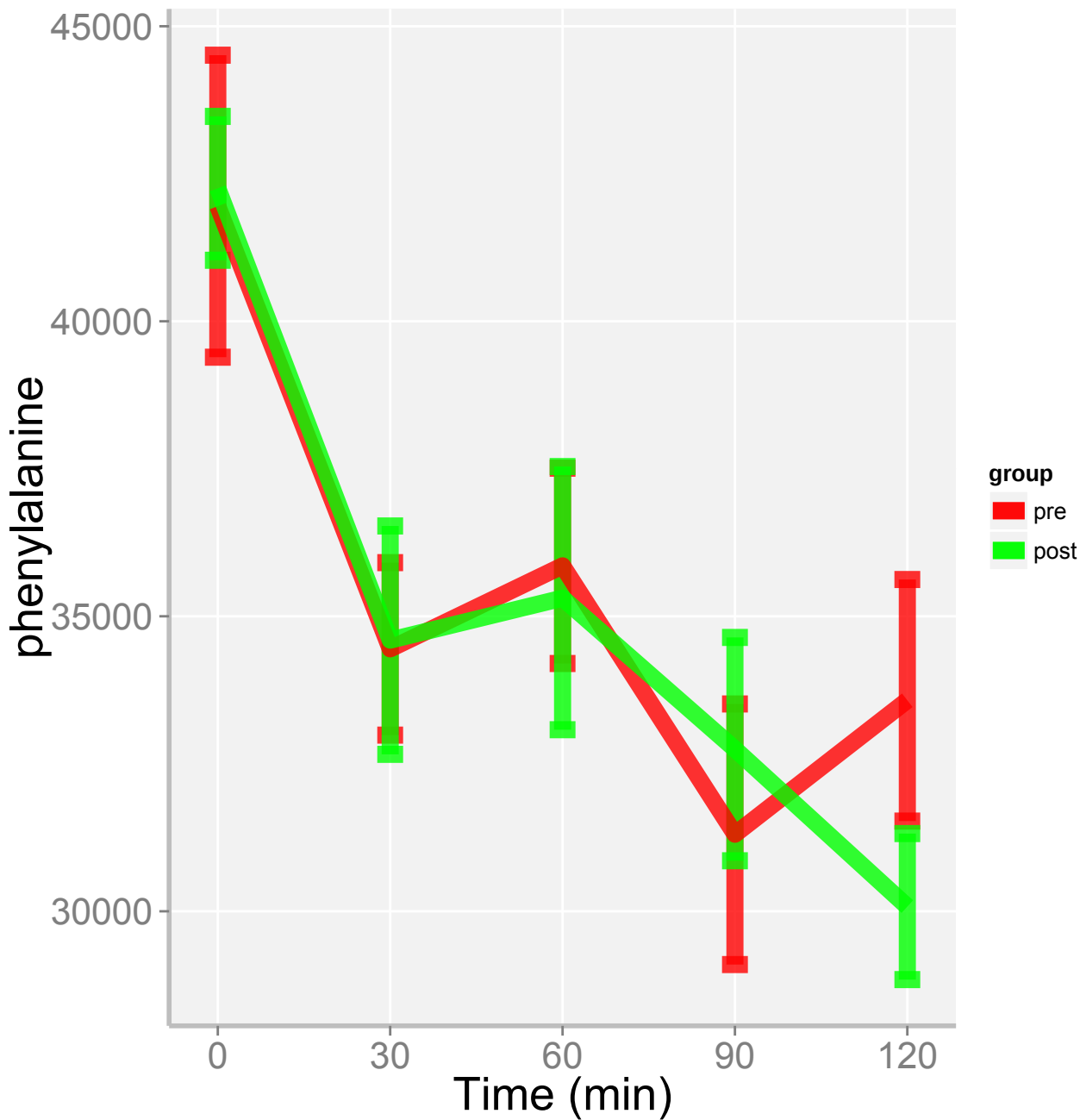




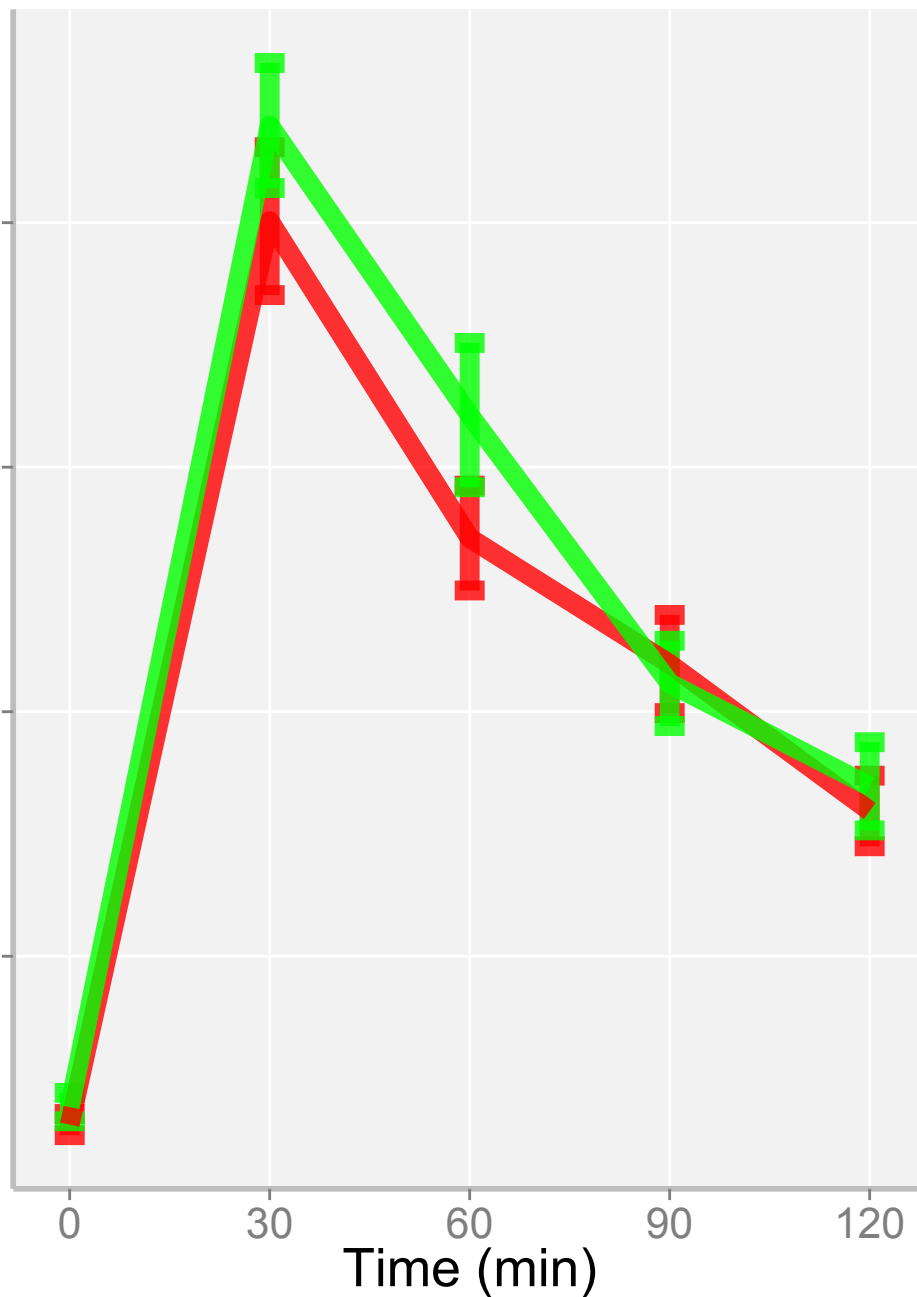








hippuric acid.1TMS



2-hydroxybutanoic acid

80000

70000

60000

0

30

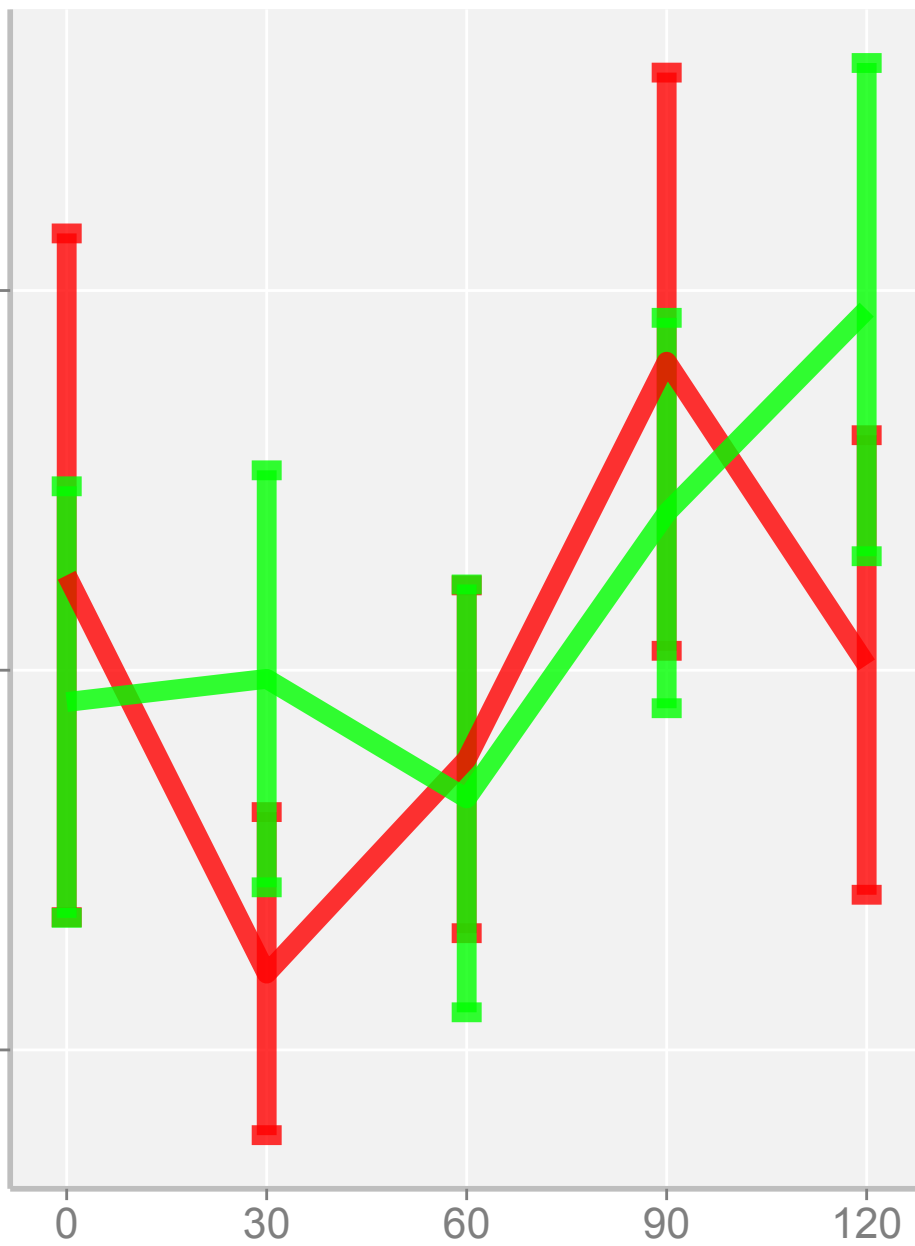
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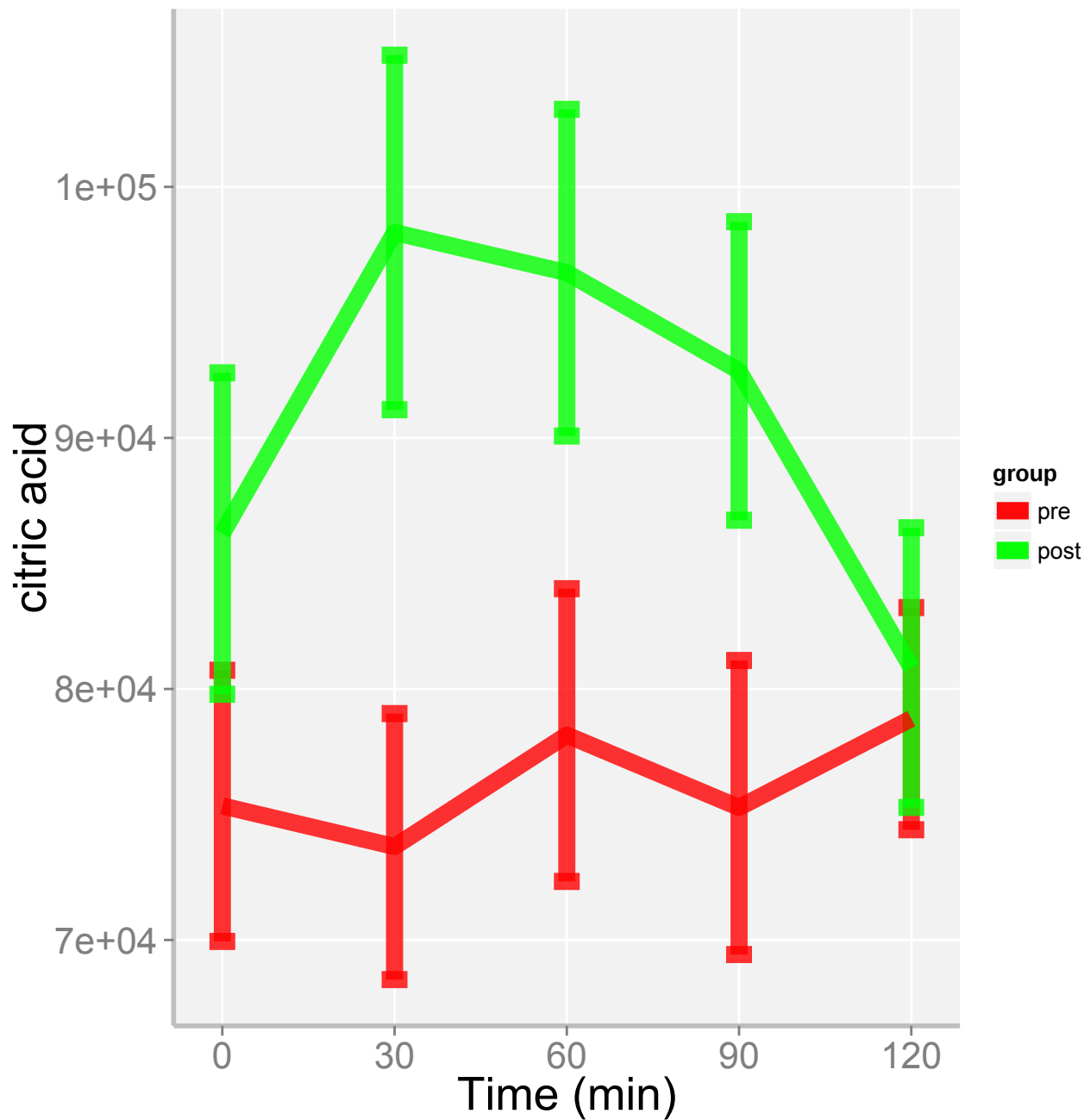
90

120

Time (min)

group
pre
post





3-hydroxybutanoic acid

30000

20000

10000

0

30

60

90

120

Time (min)

group

pre

post



N-methylalanine

22500

20000

17500

15000

0

30

60

90

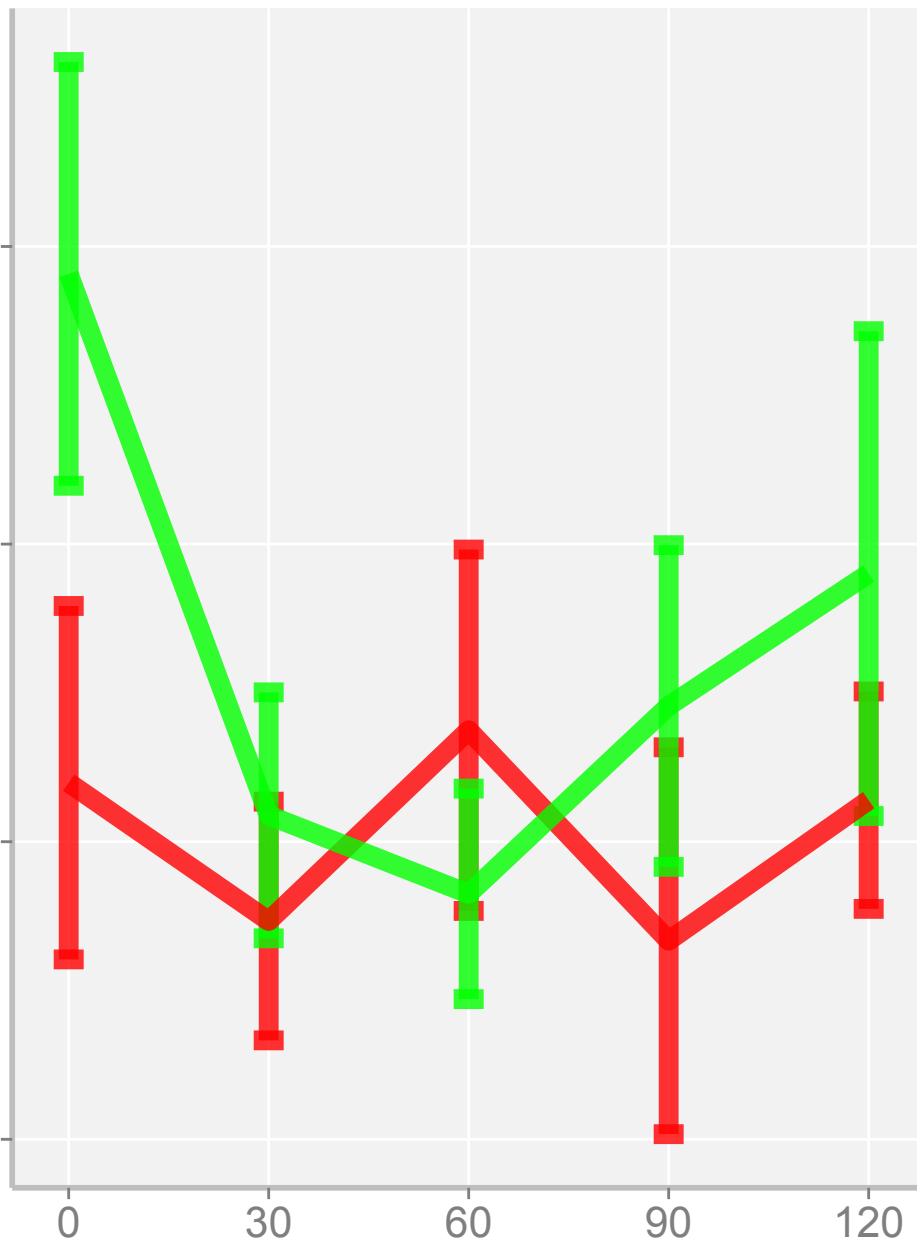
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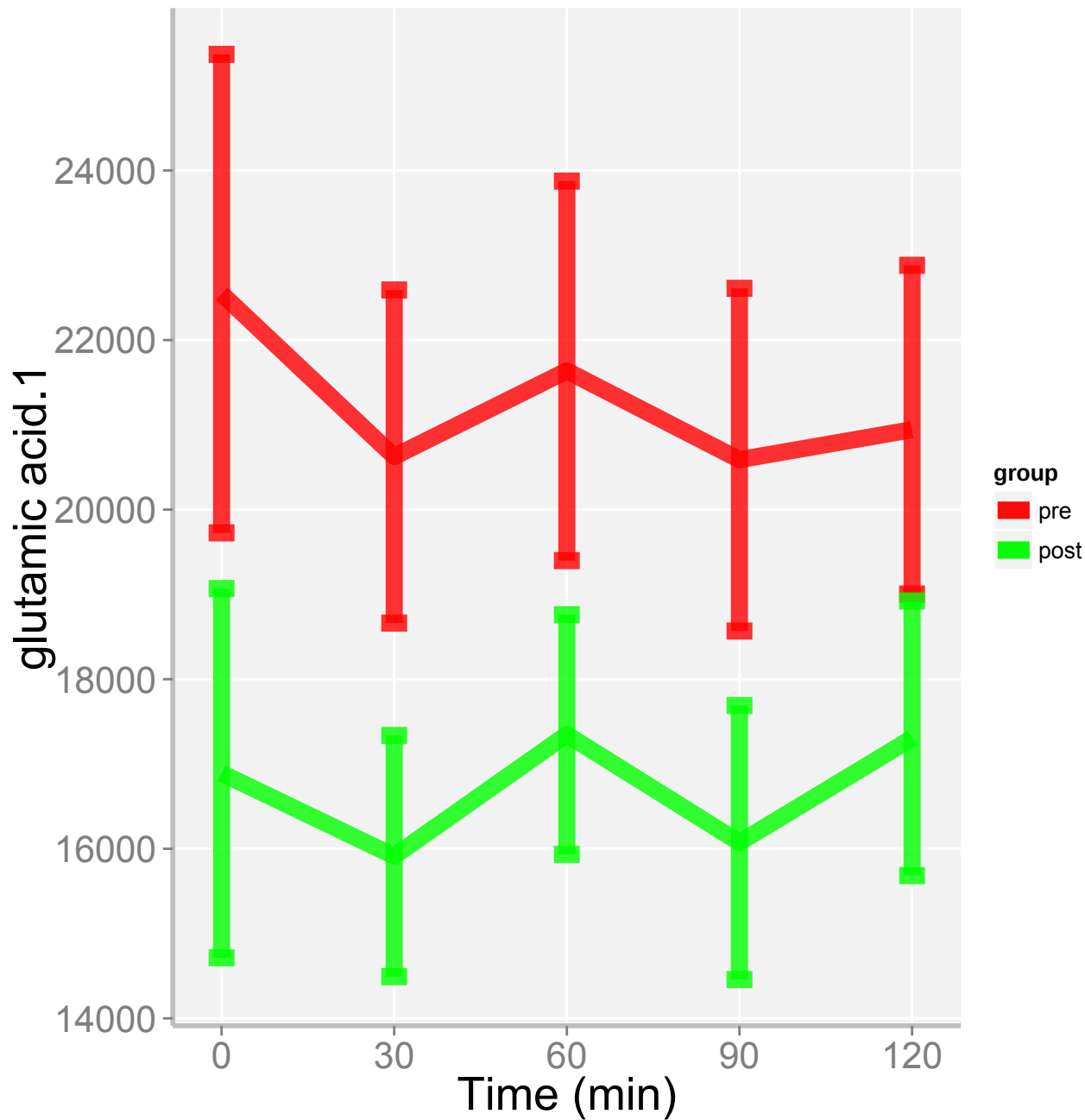
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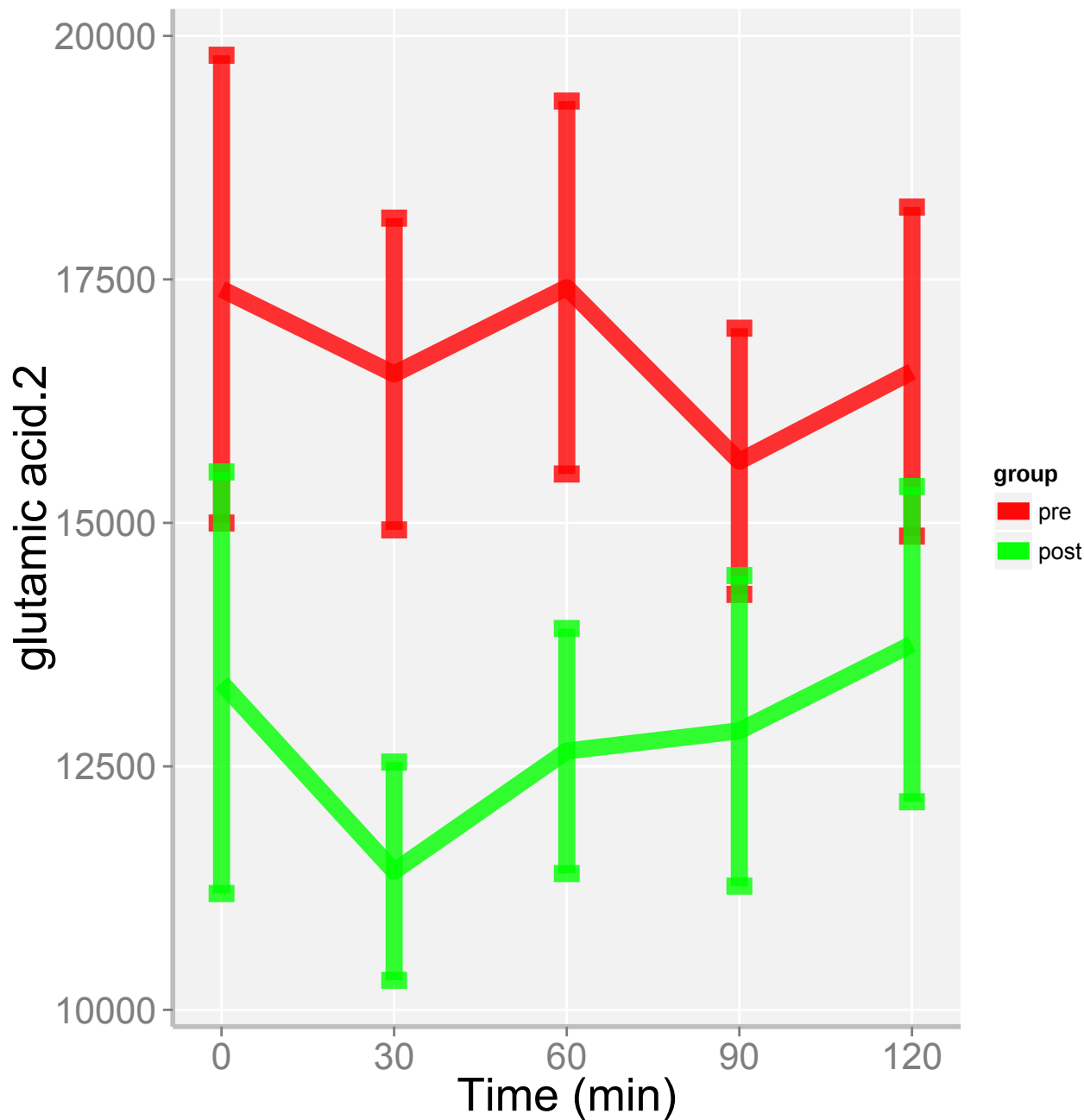
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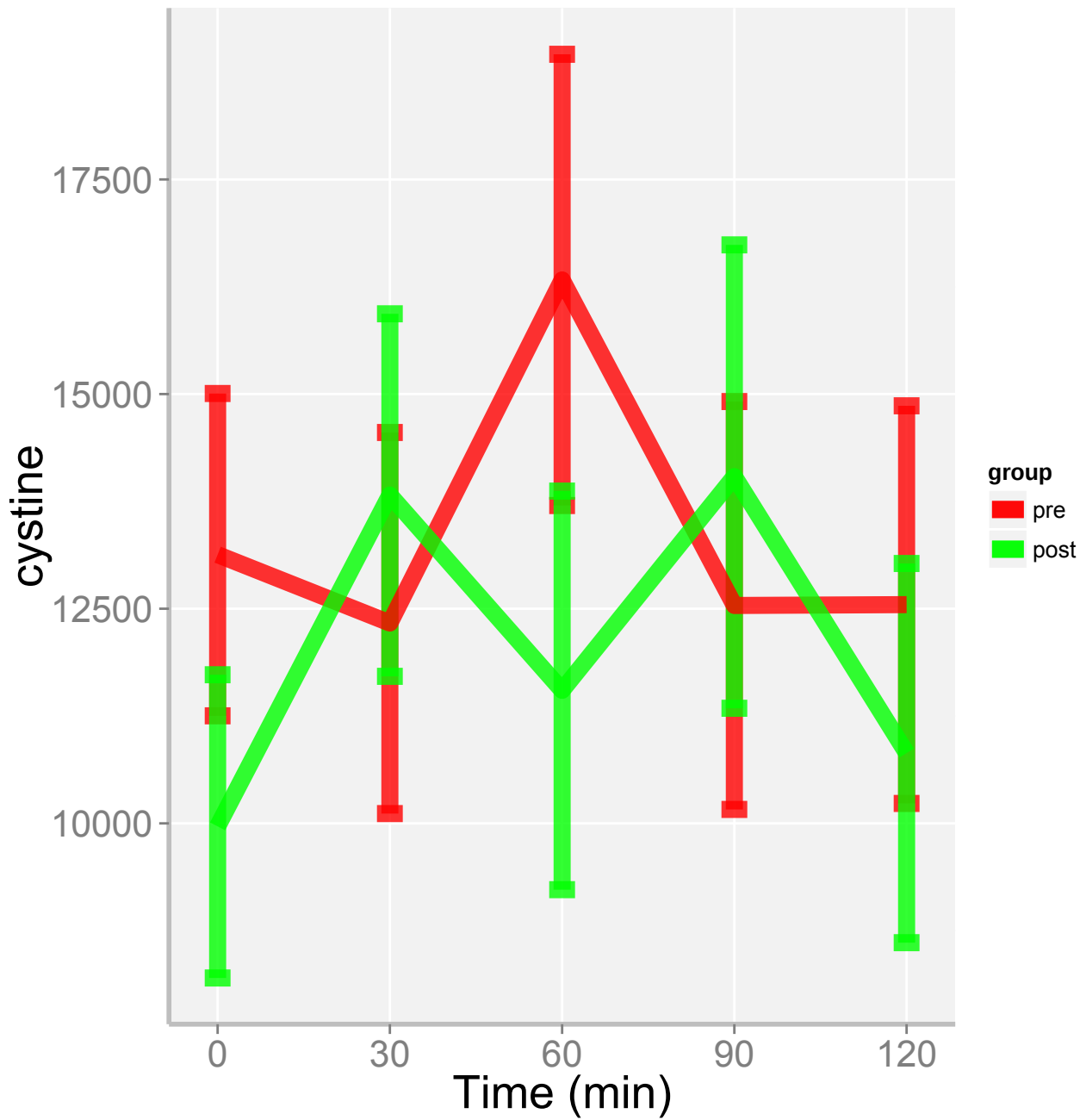
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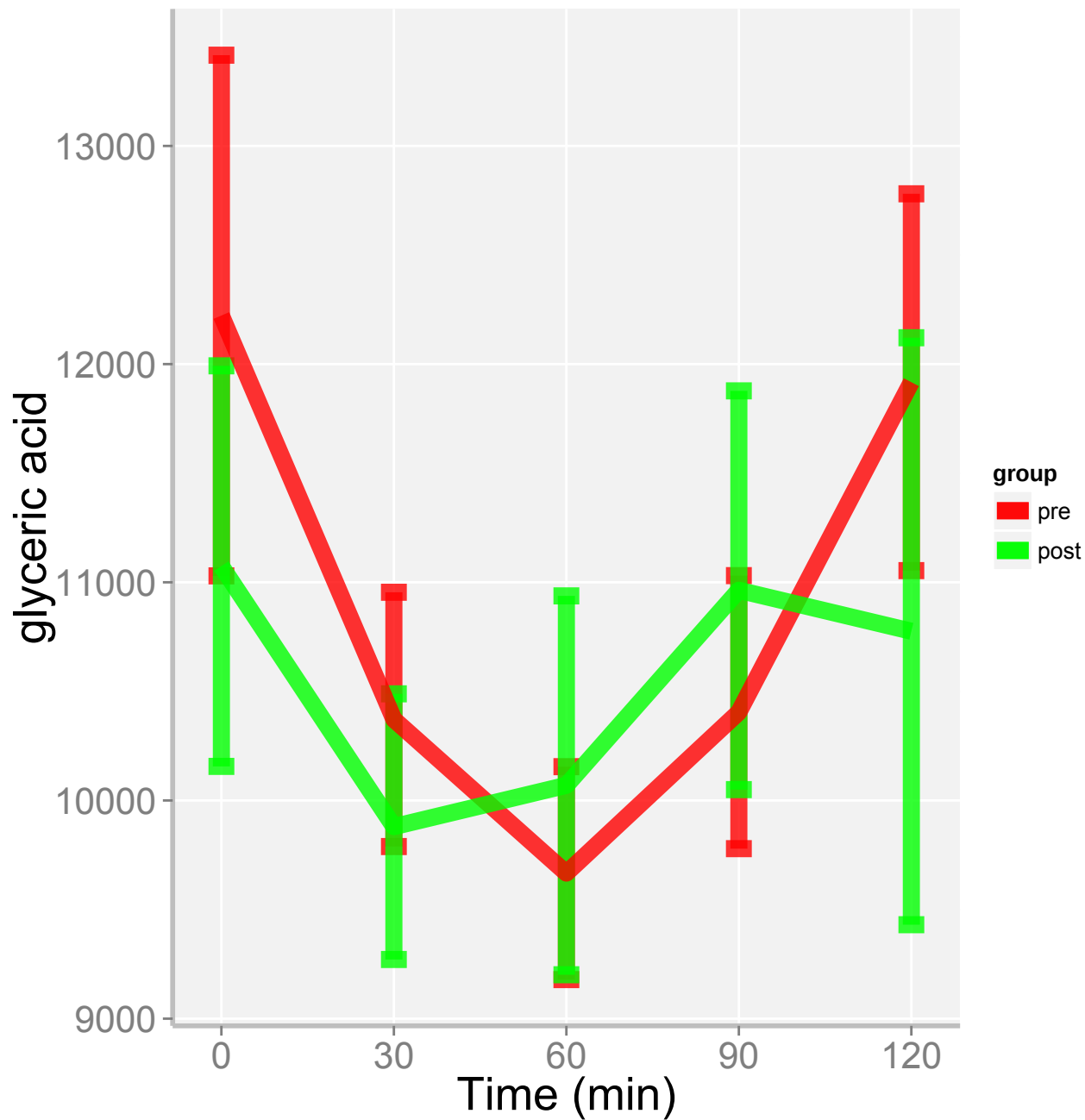
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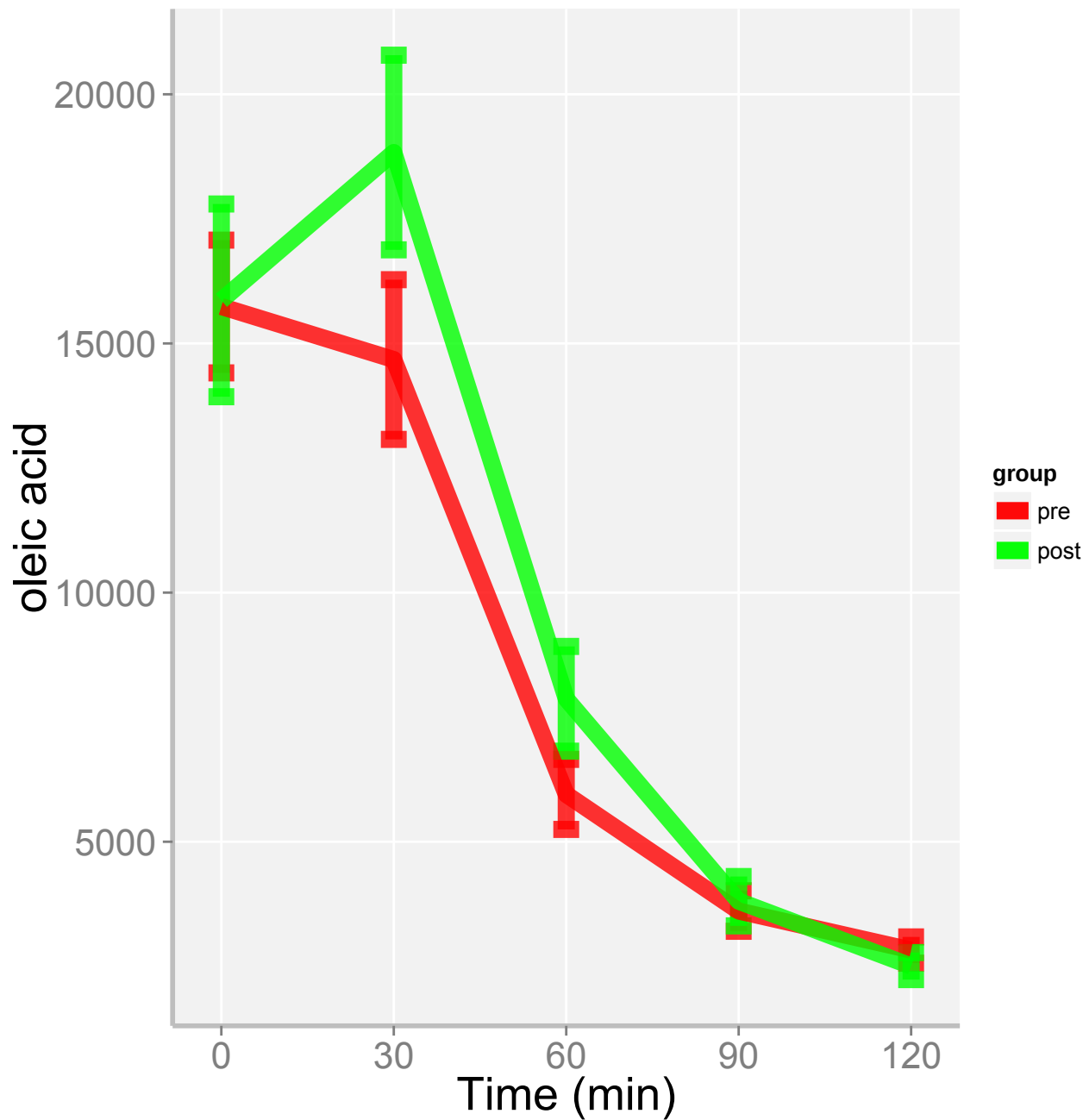


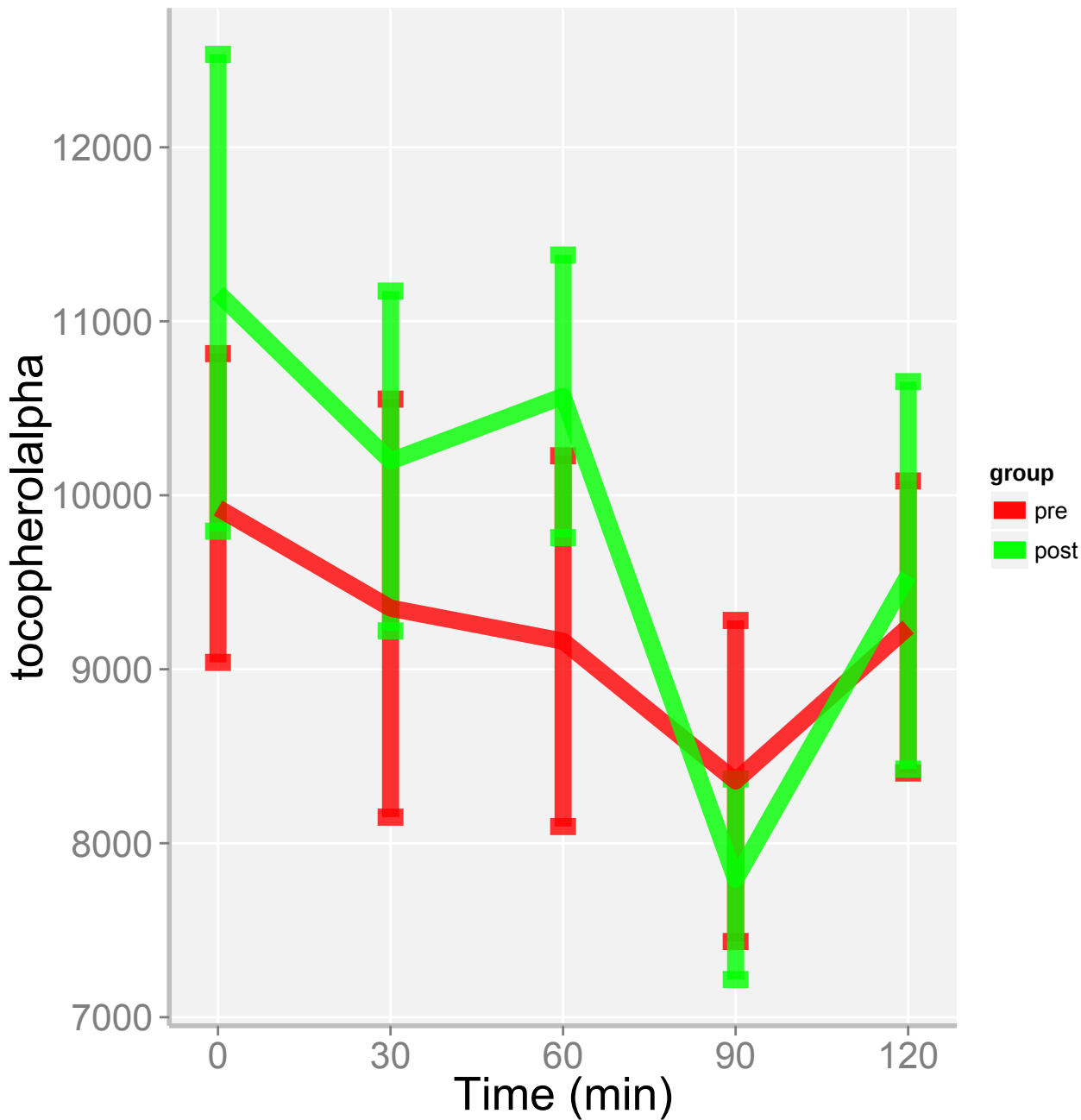


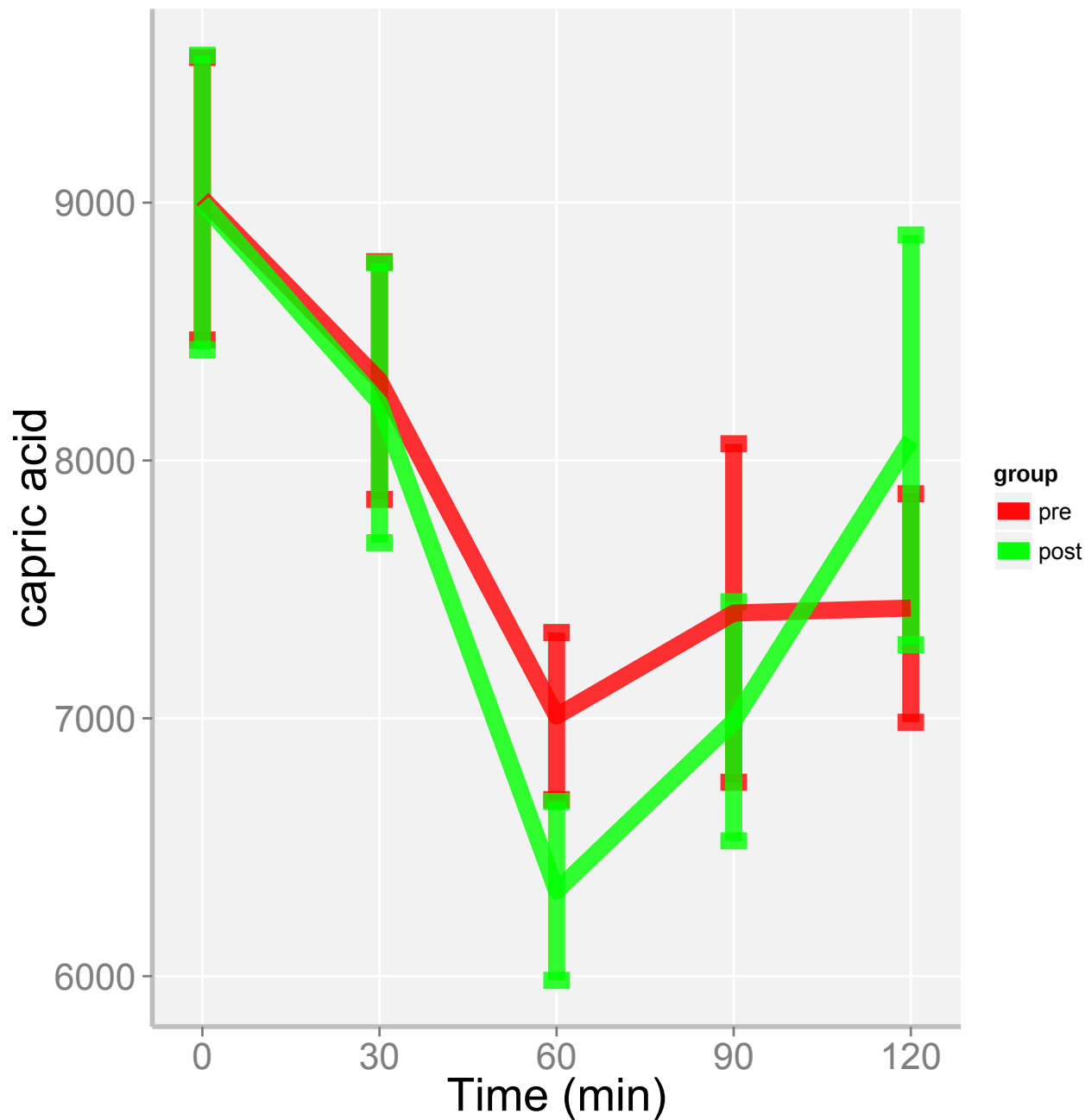


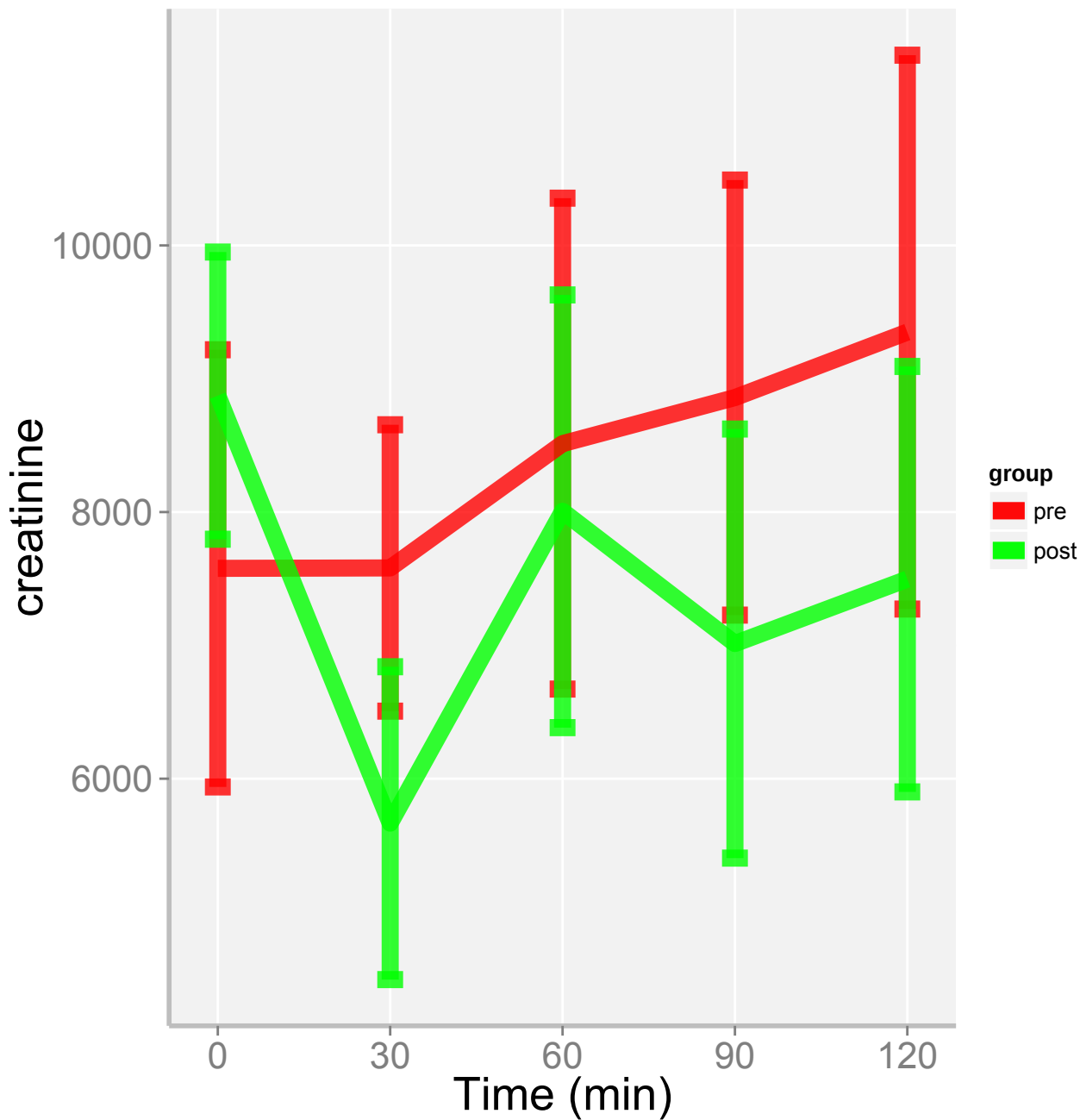


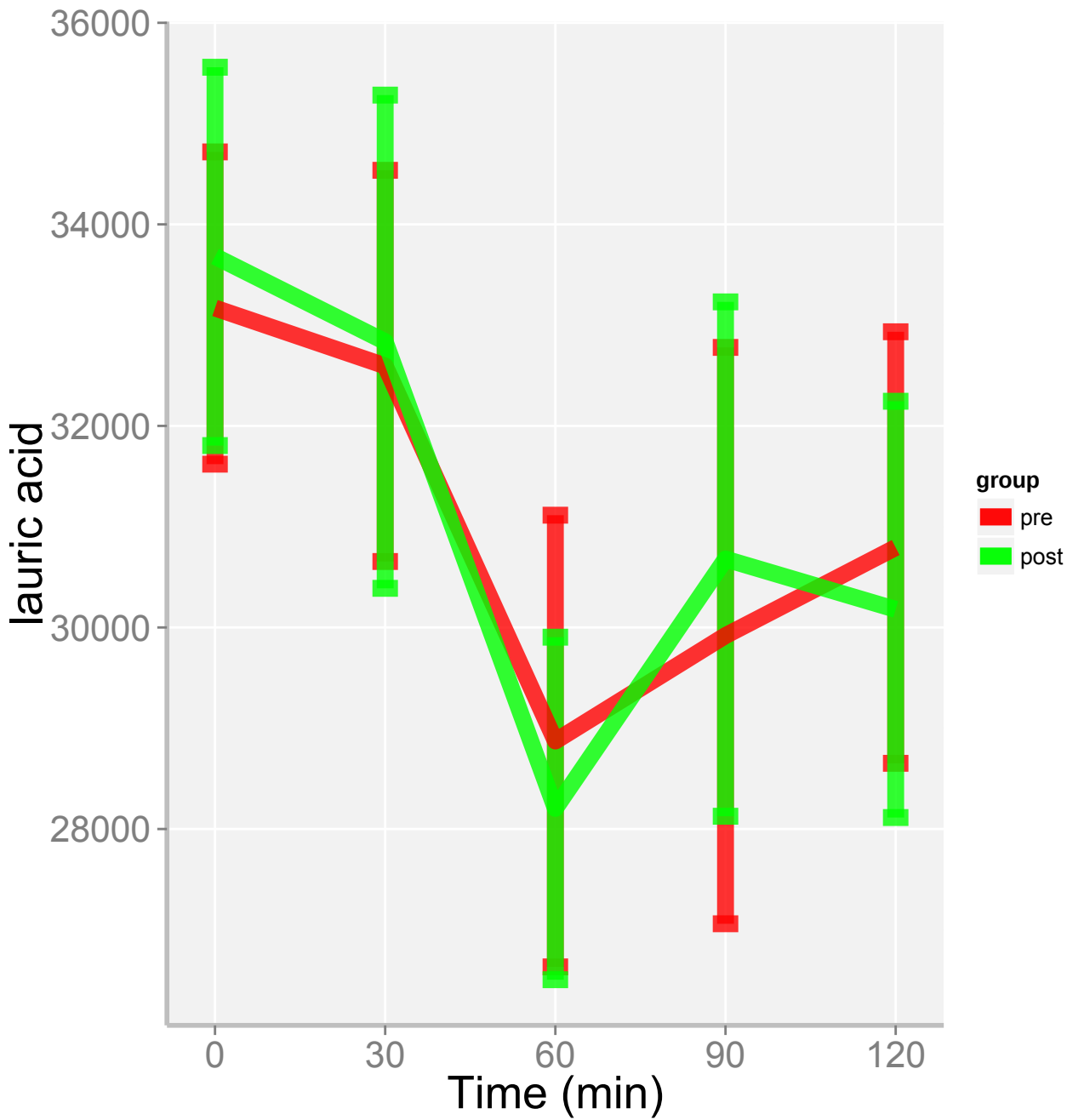


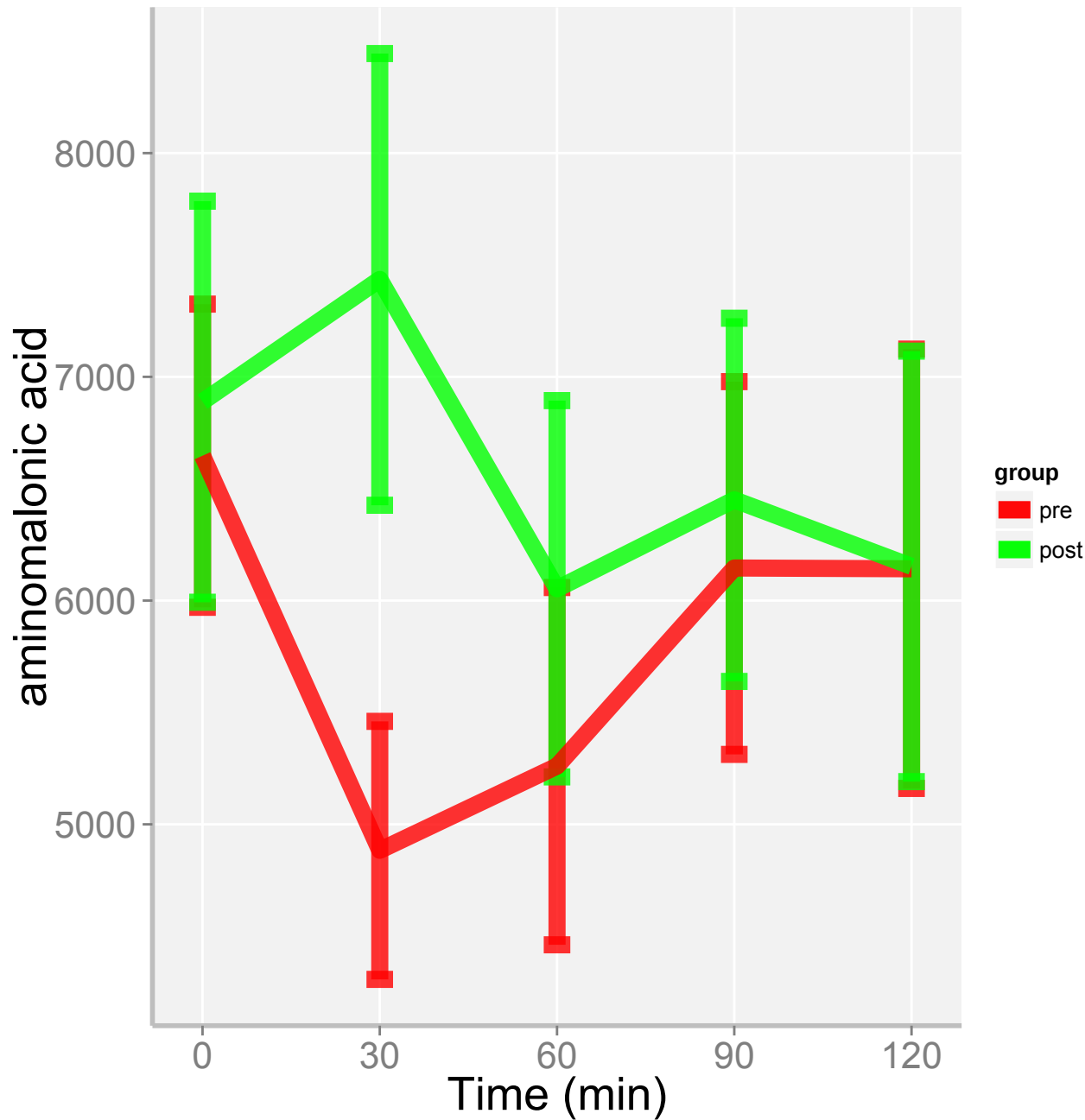


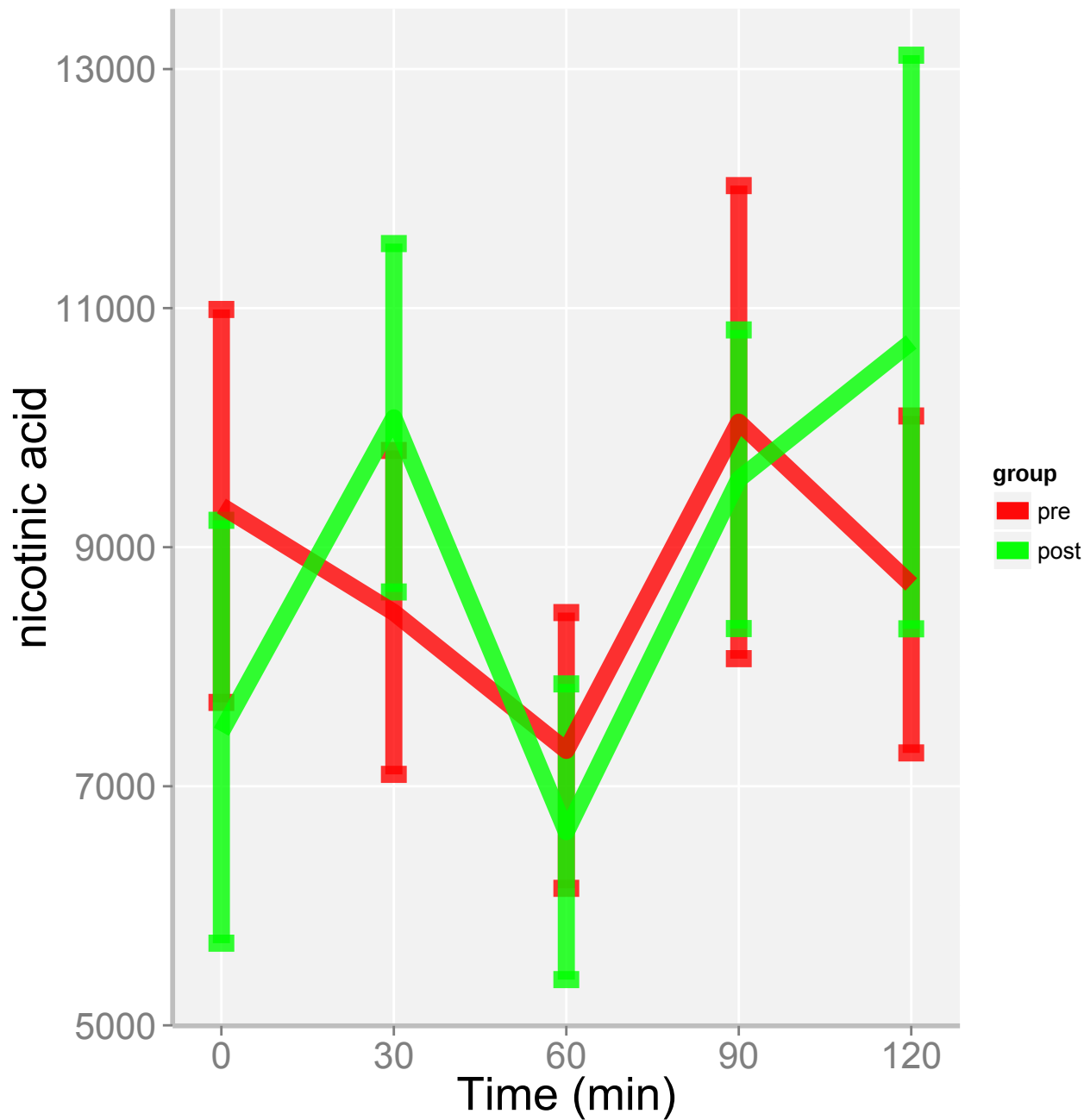


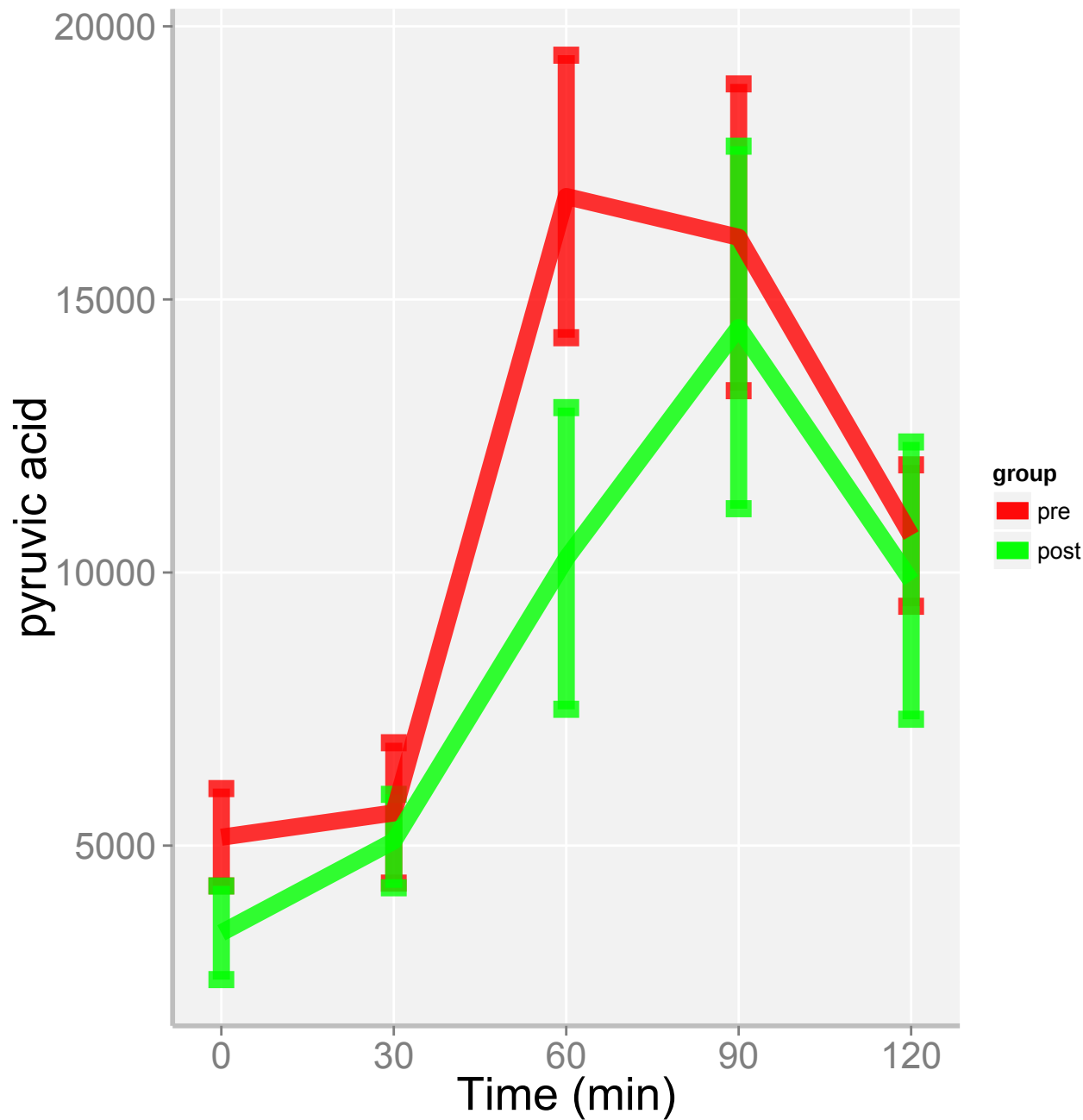


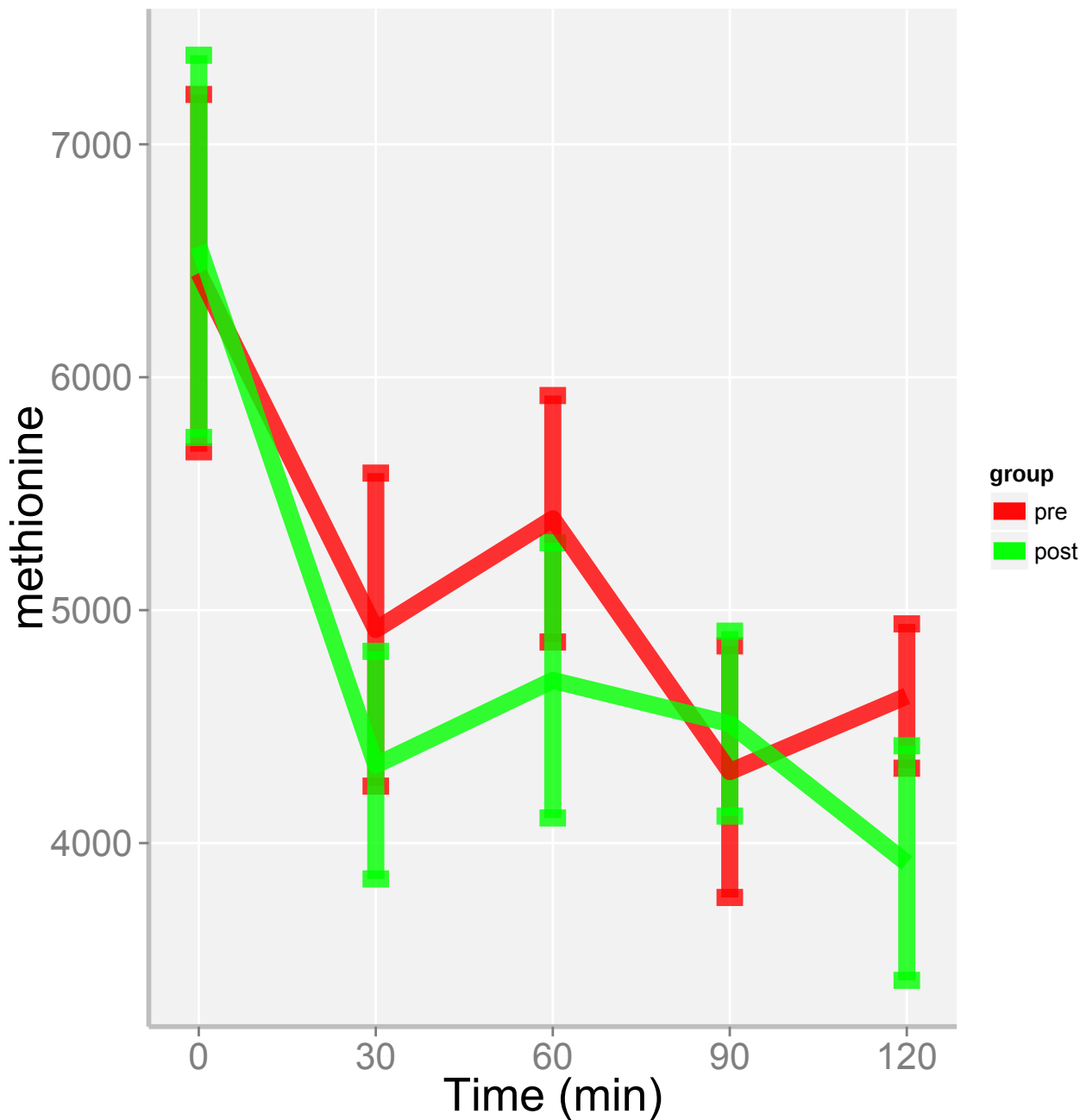


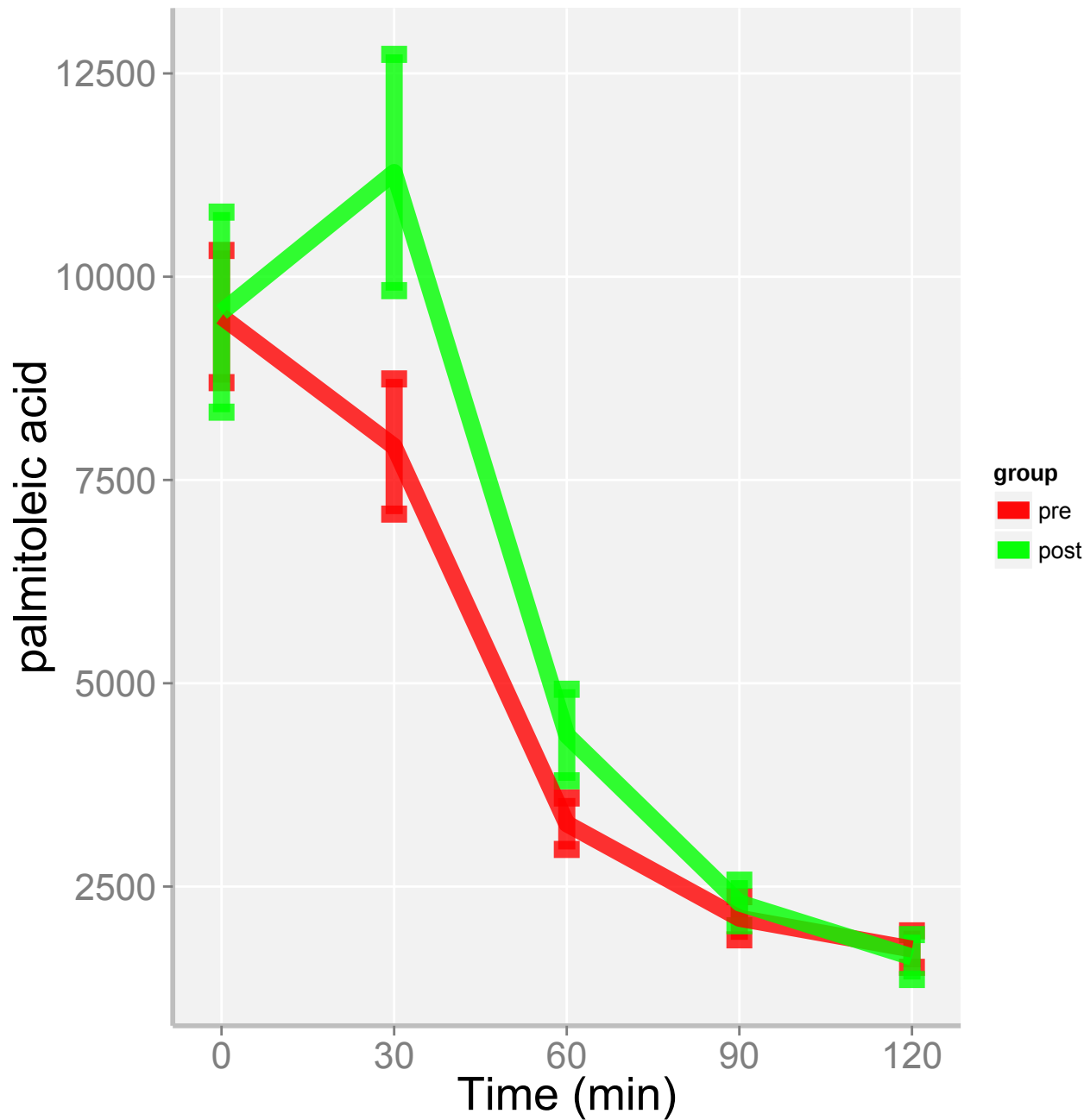












2-ketoisocaproic acid

14000

12000

10000

8000

0

30

60

90

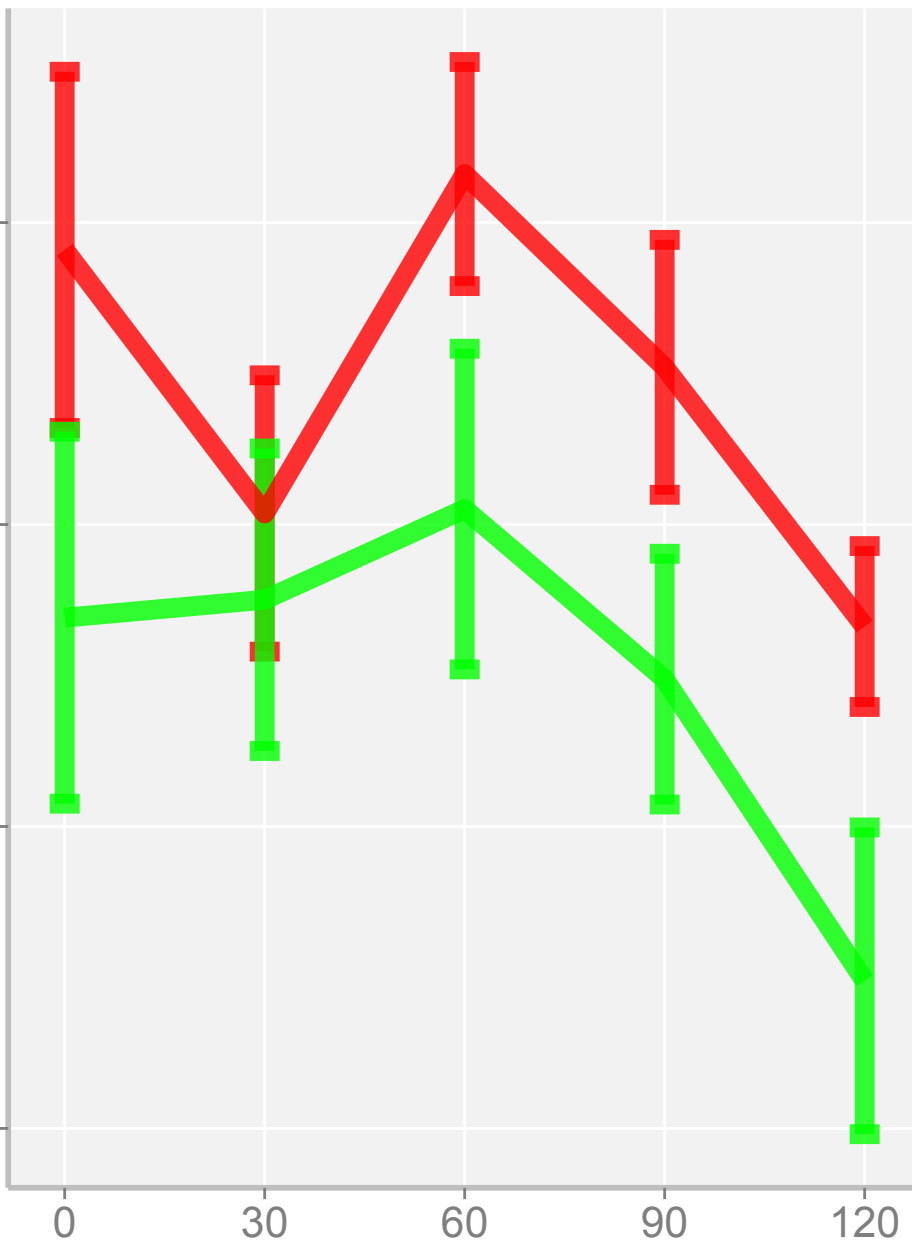
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Time (min)

group

pre

post



methylhexadecanoic acid

8000

7000

6000

0

30

60

90

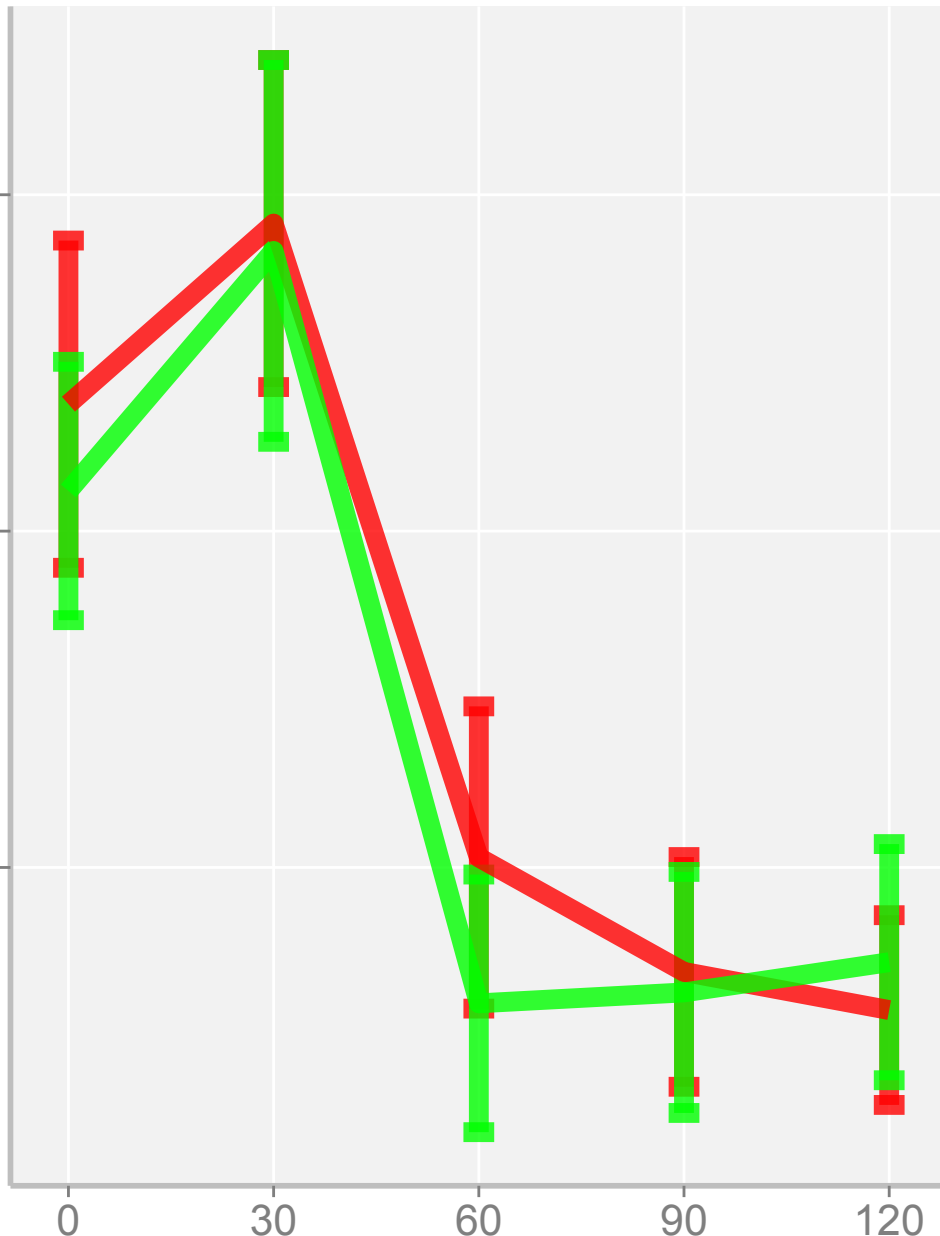
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Time (min)

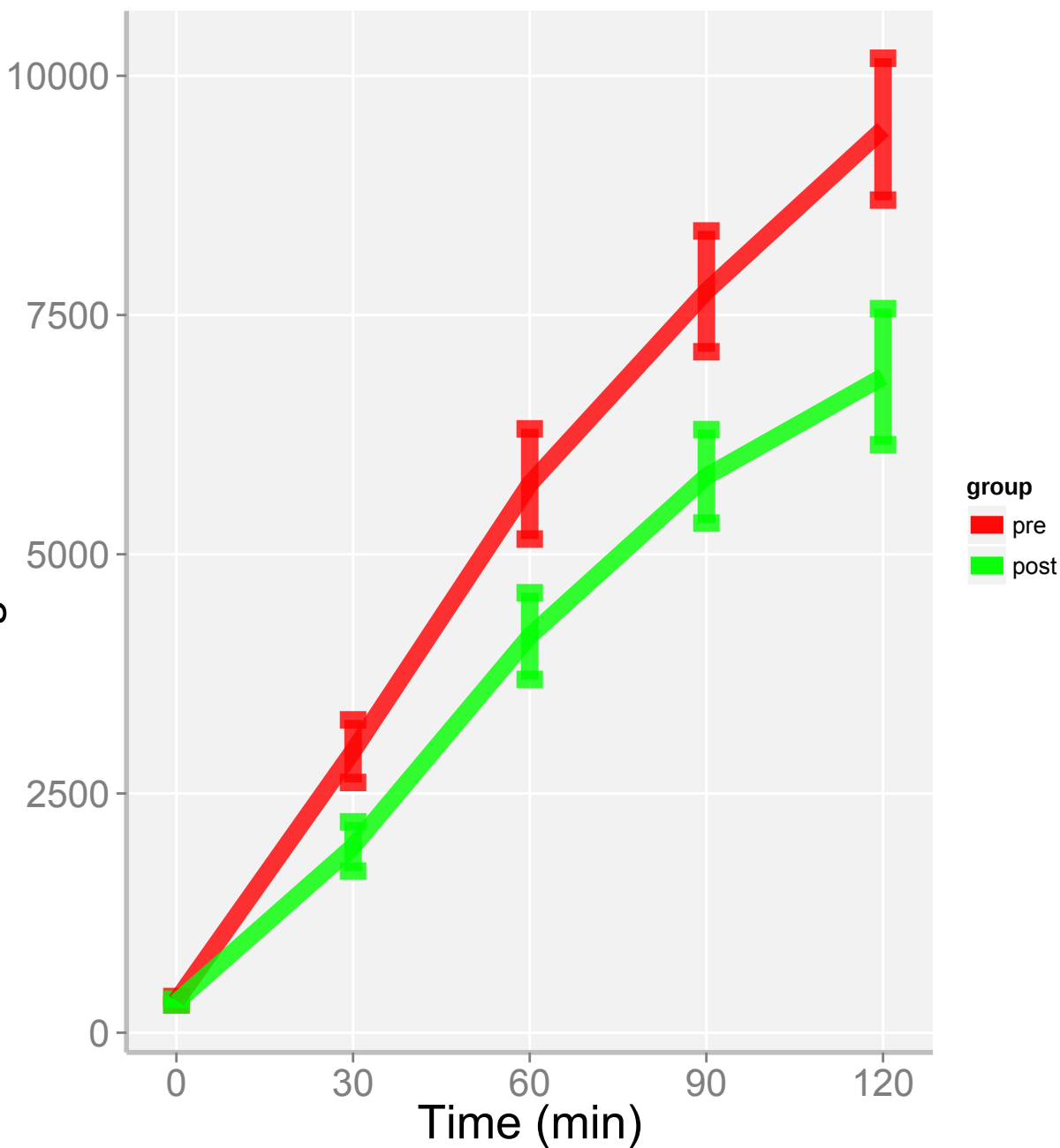
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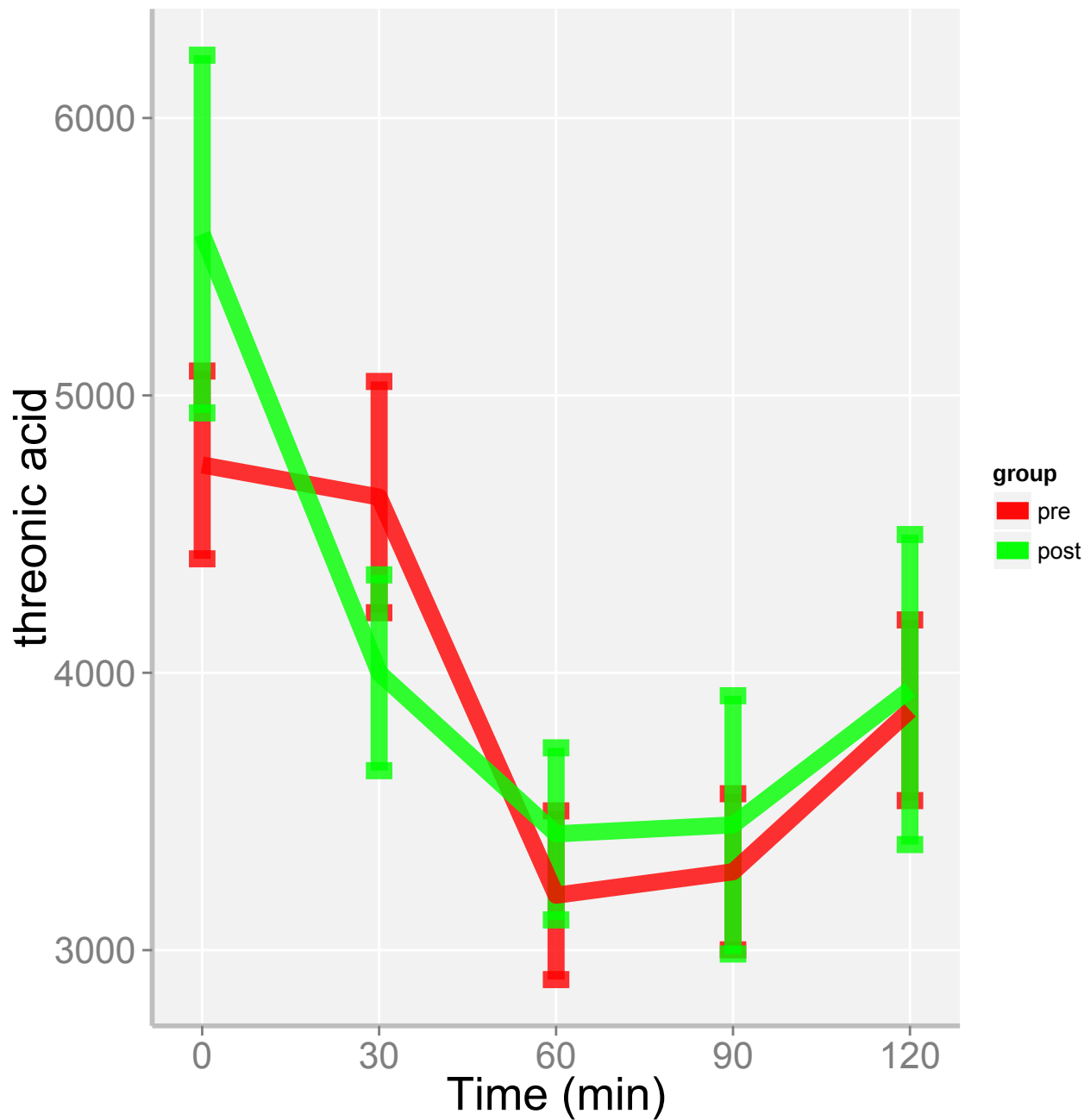
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post

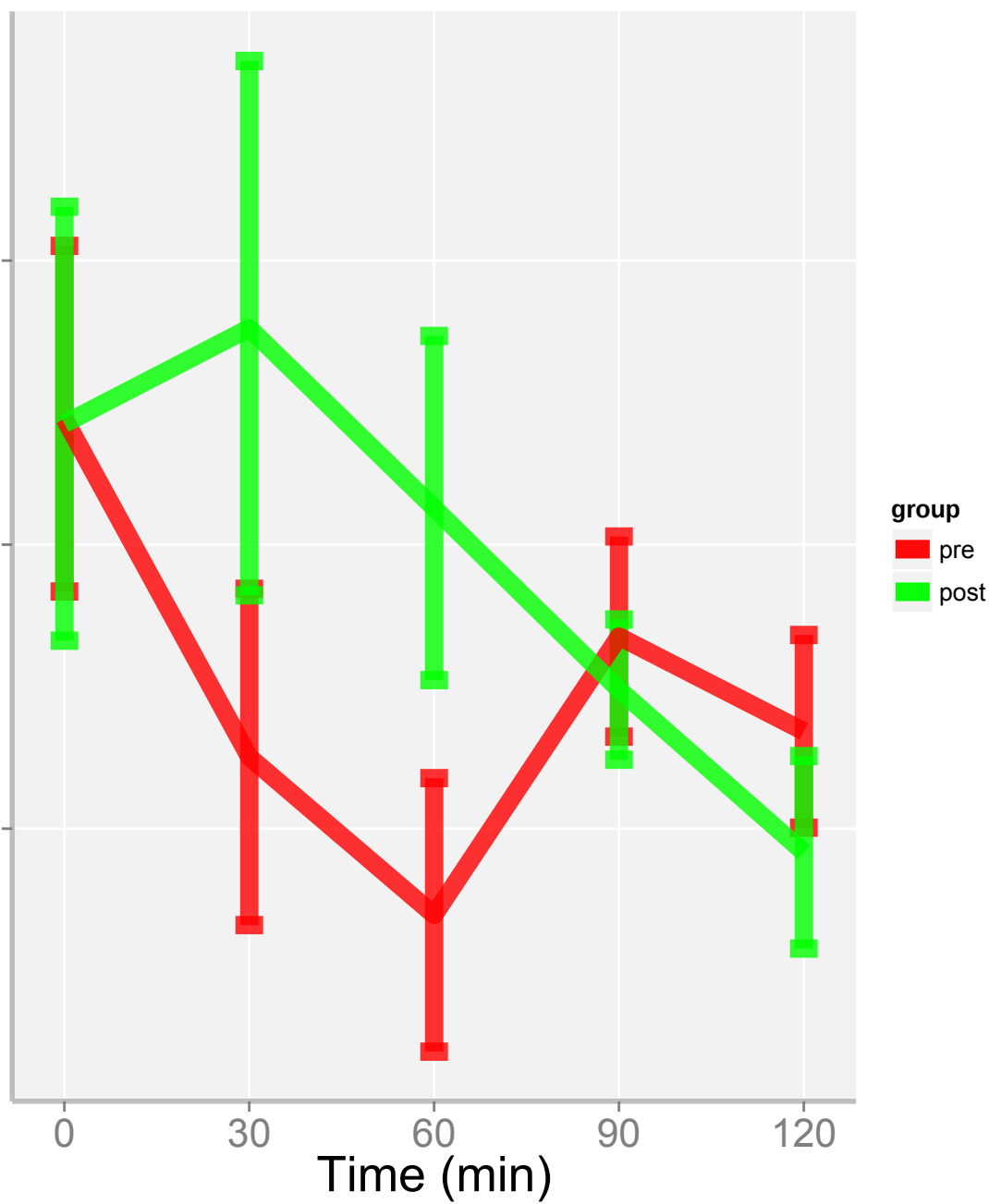


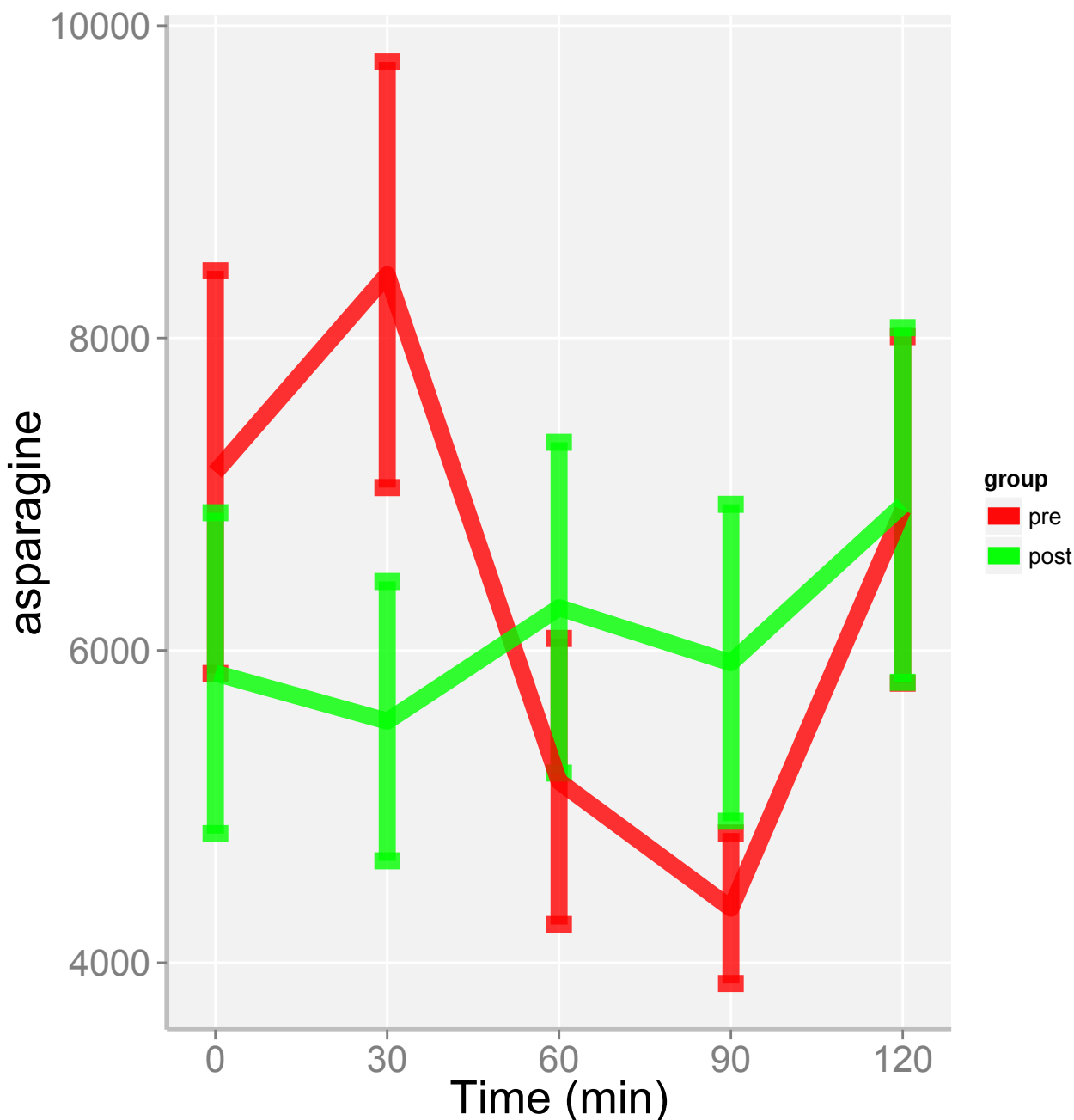
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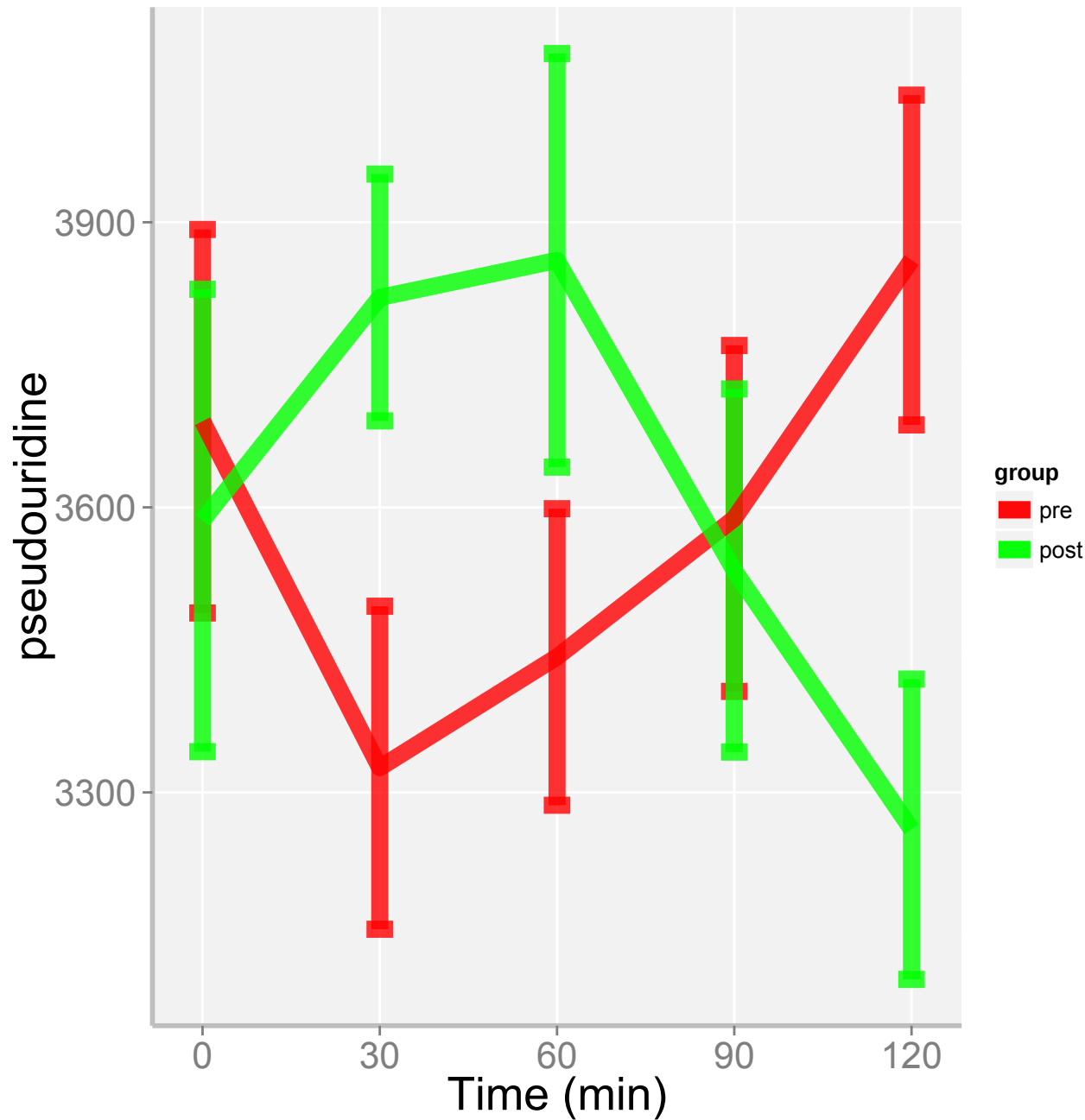


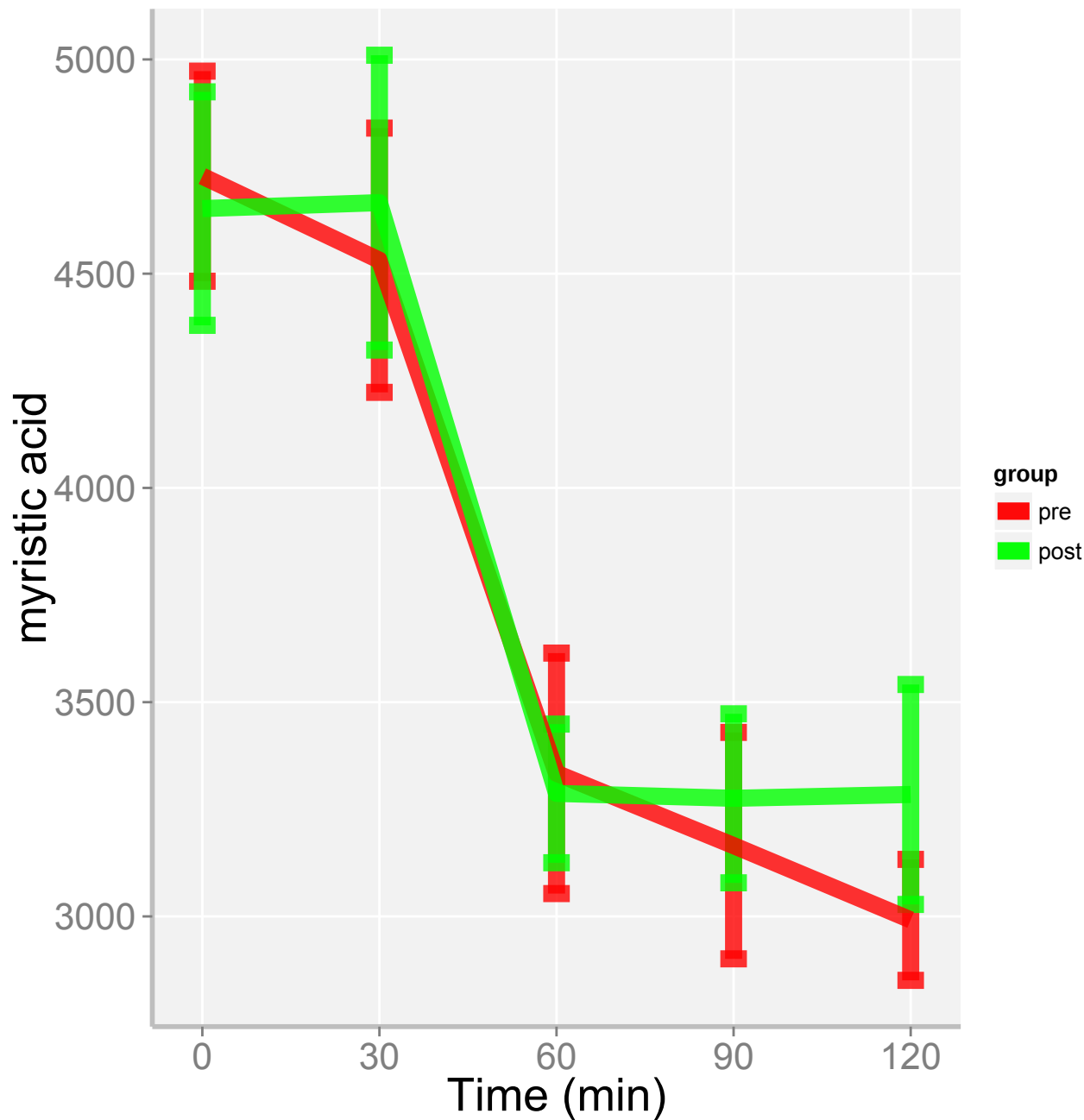


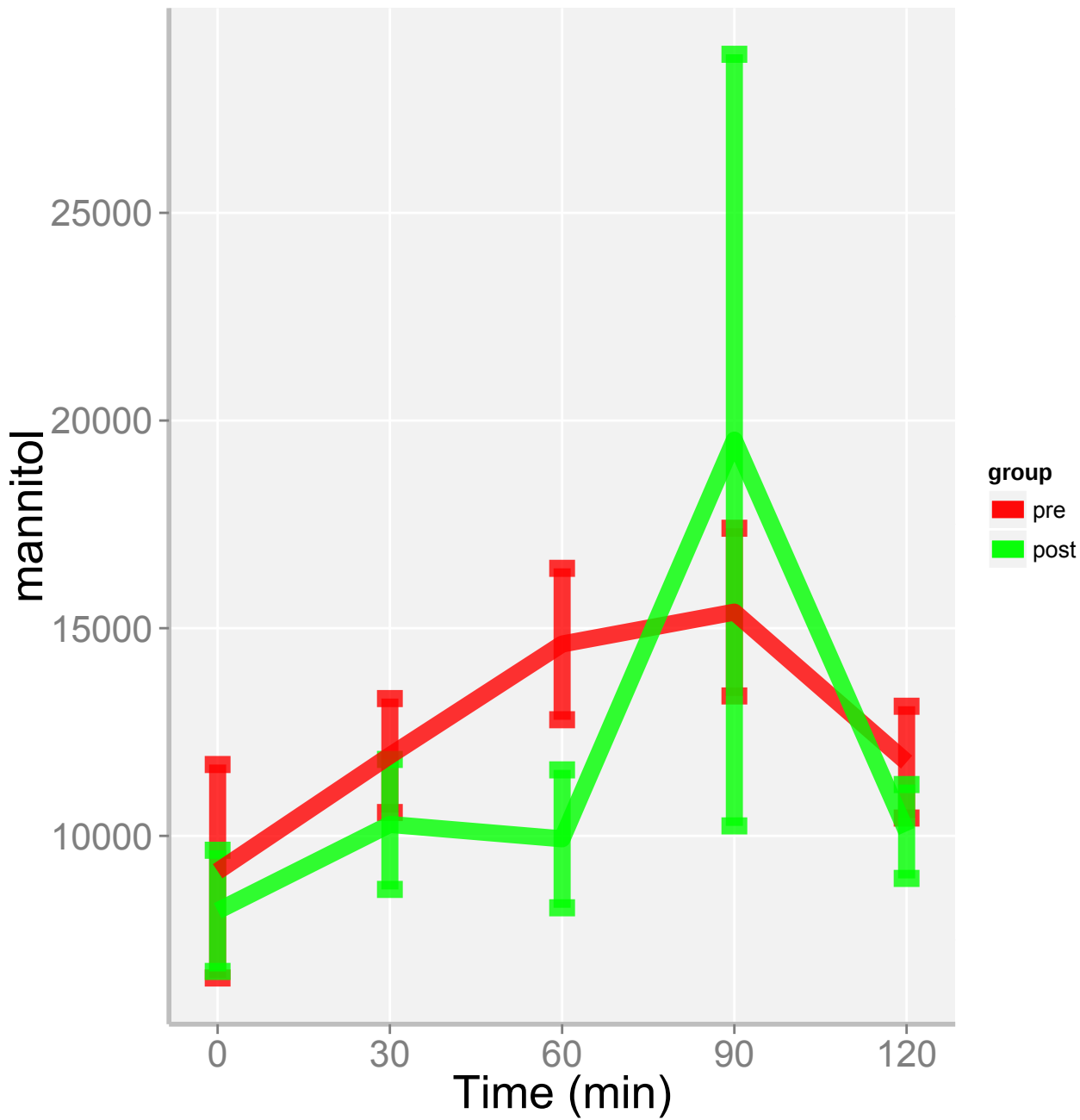
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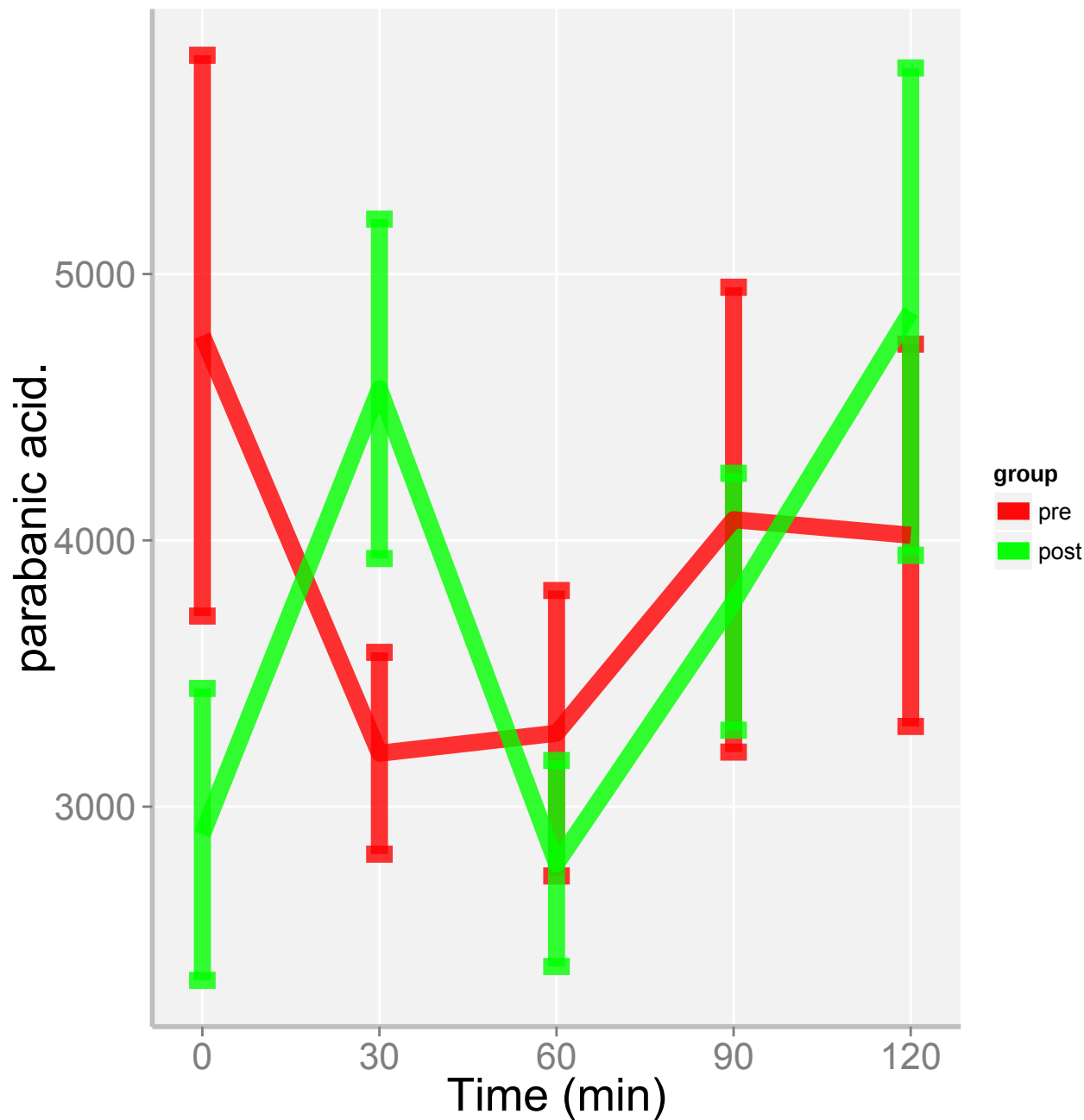


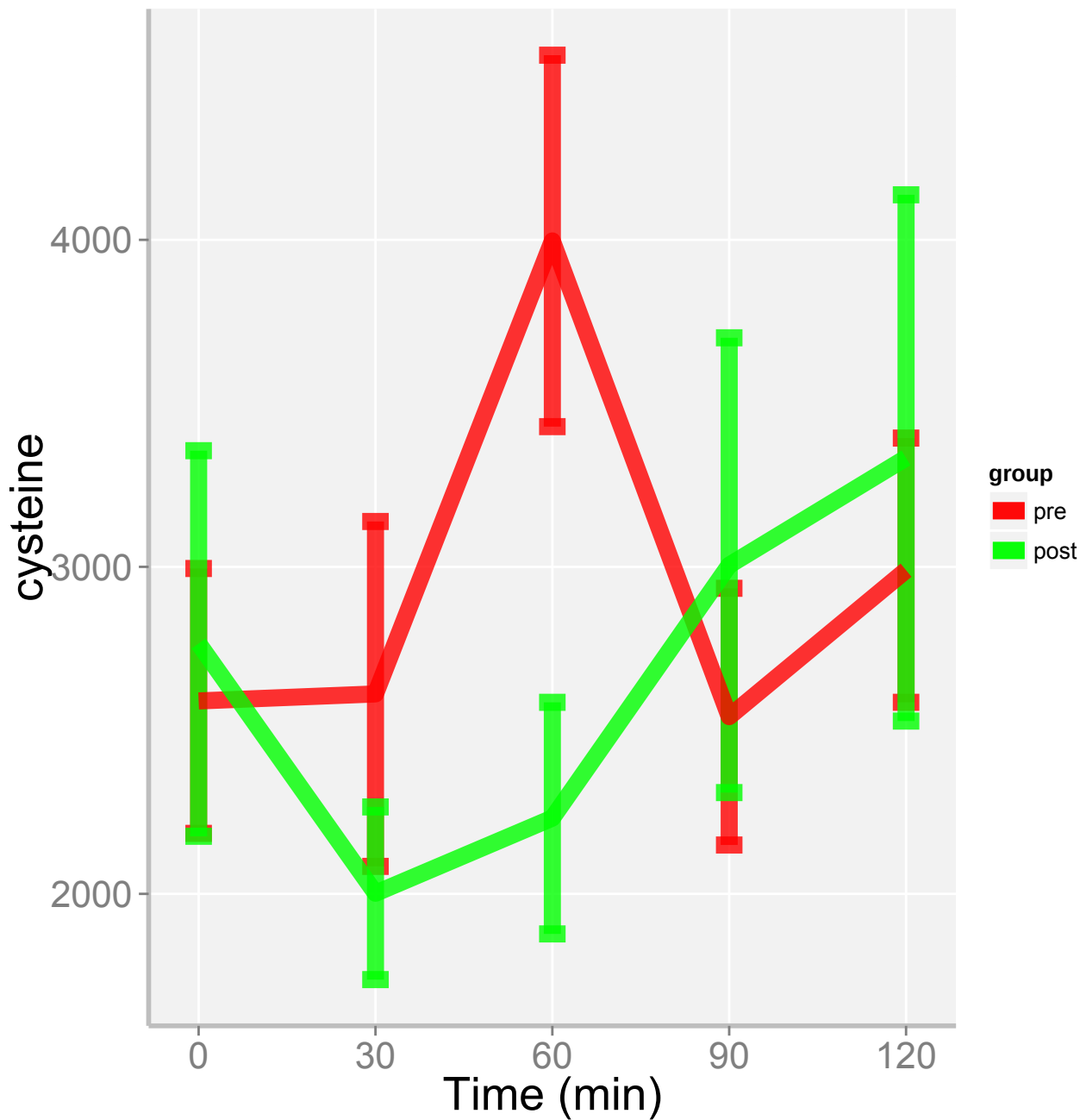


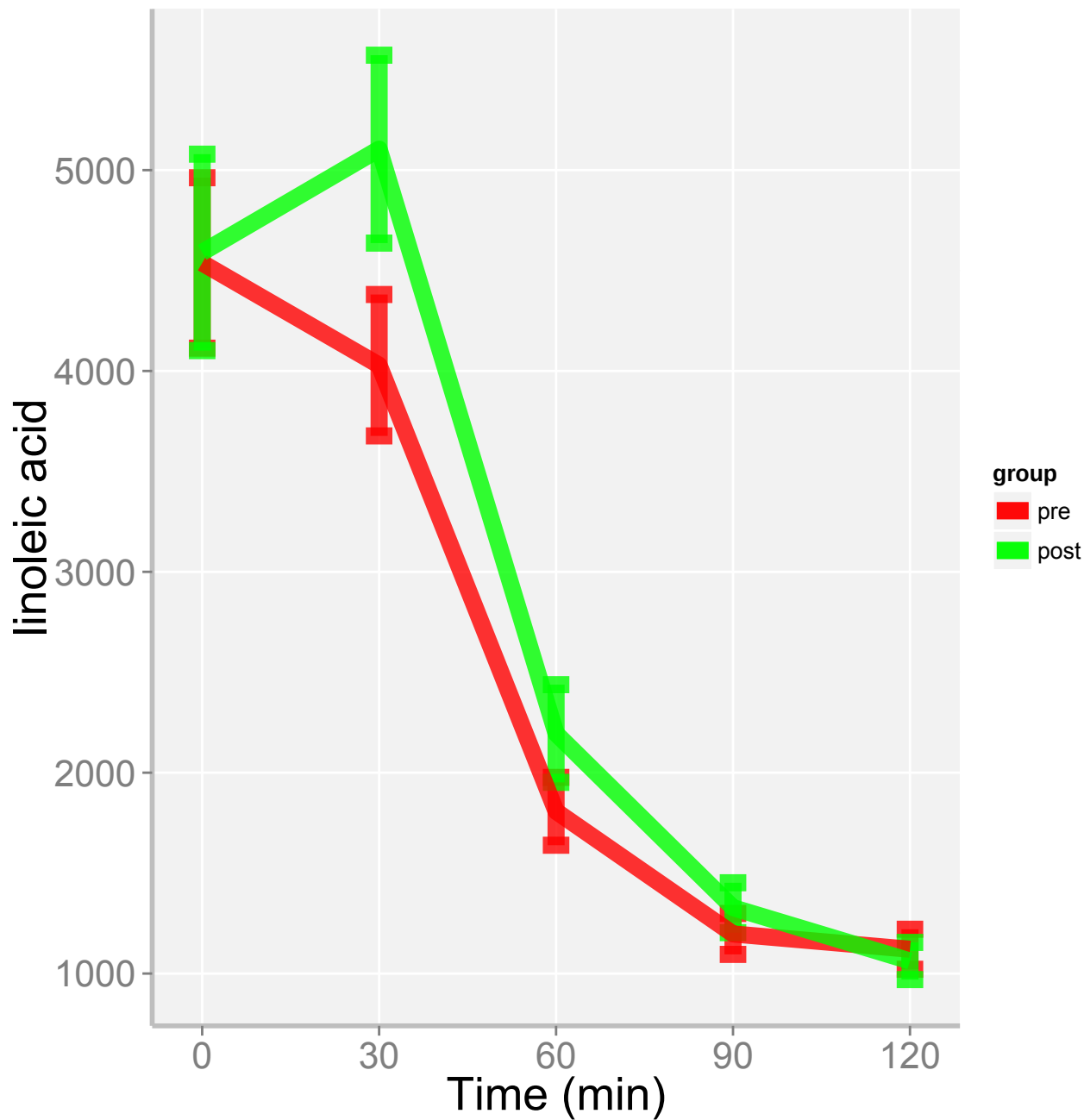


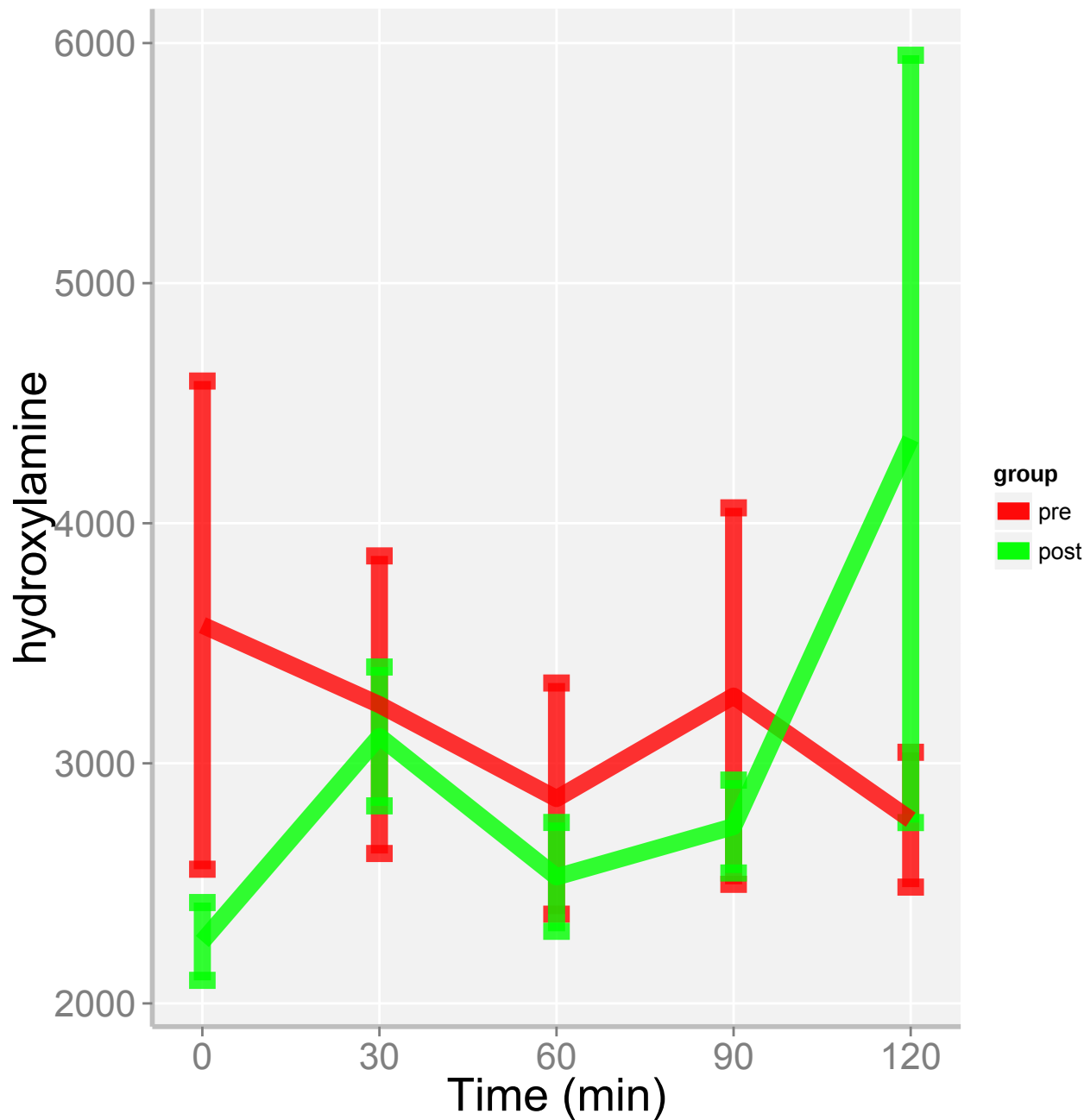




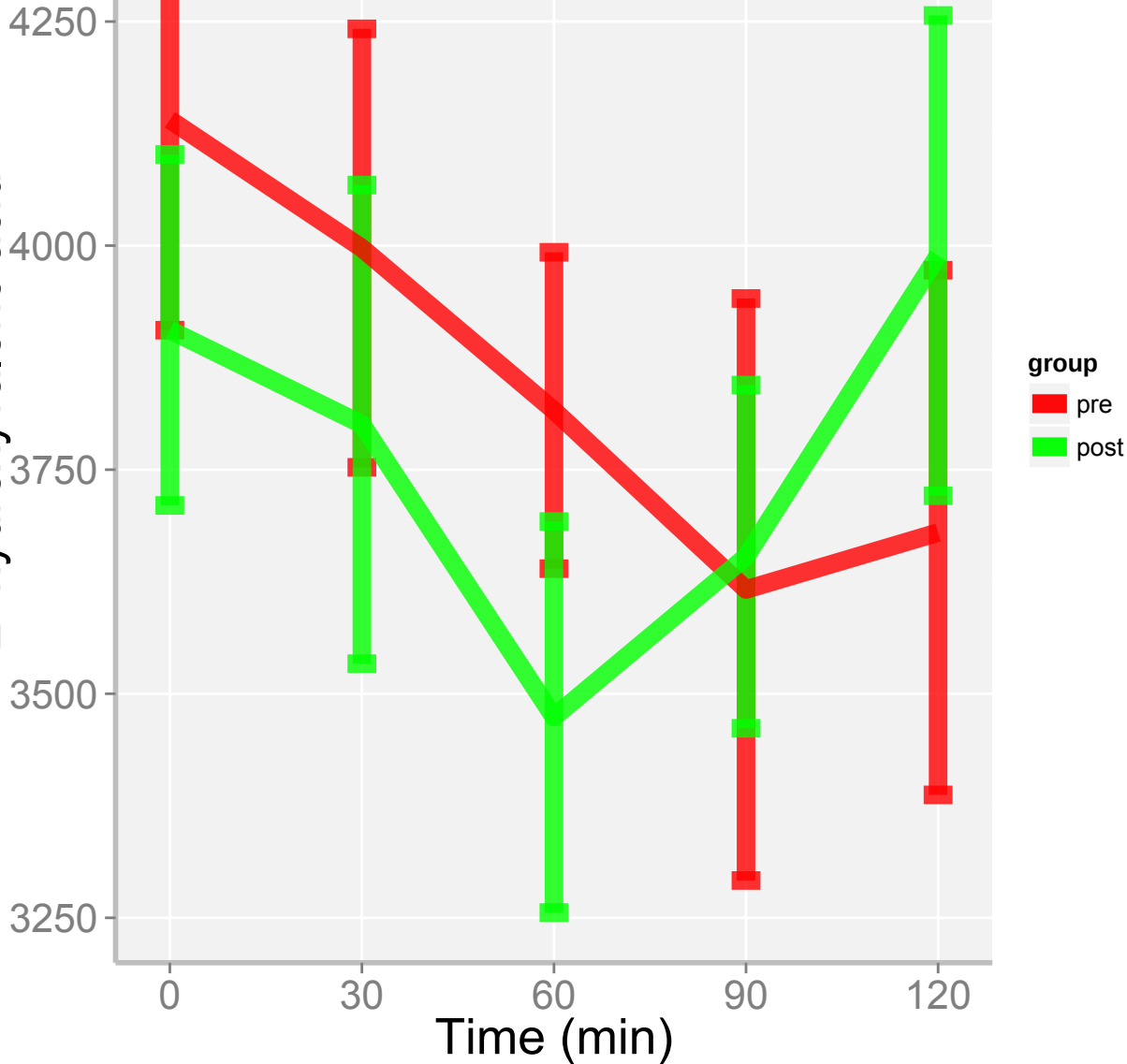


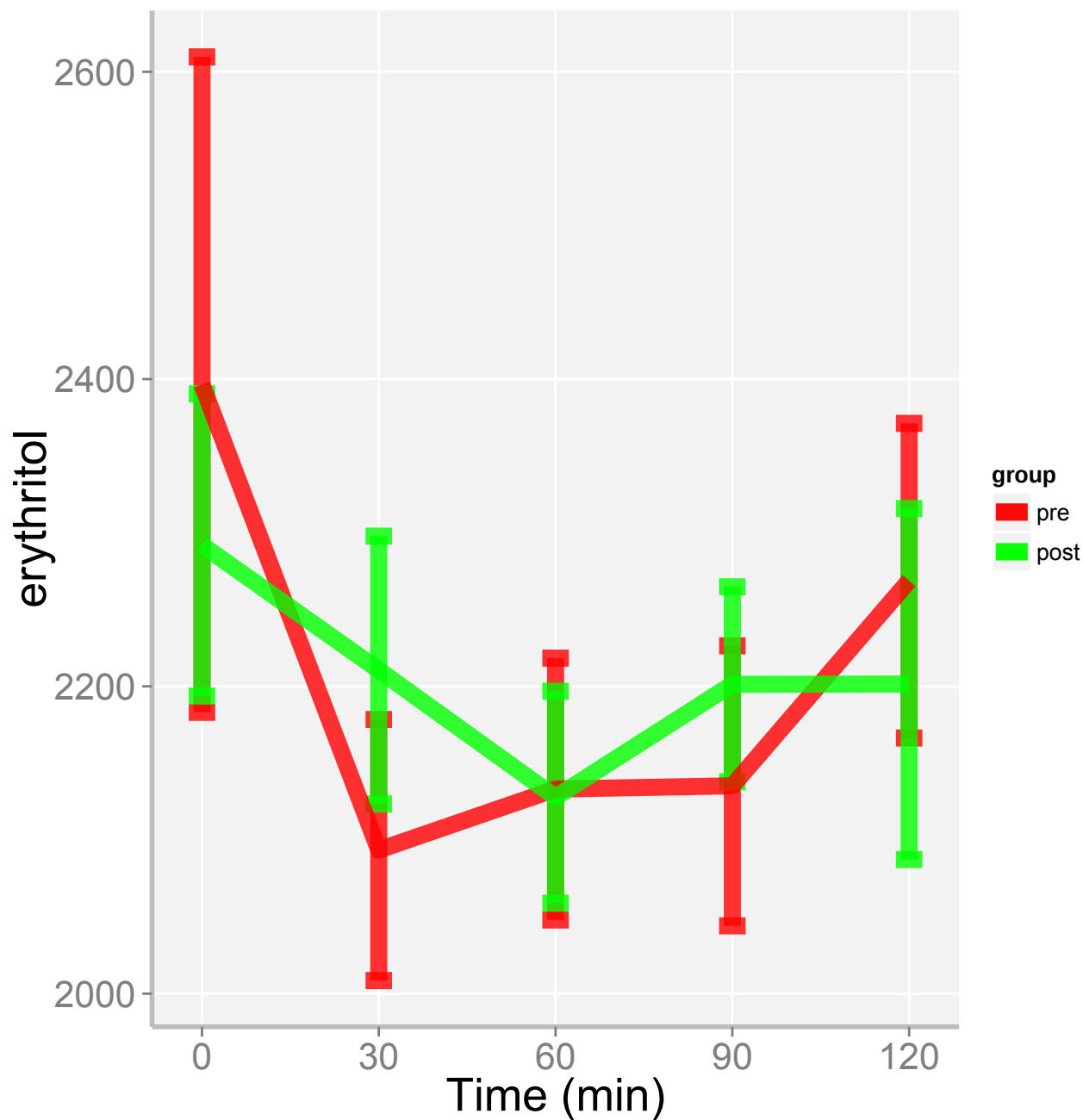


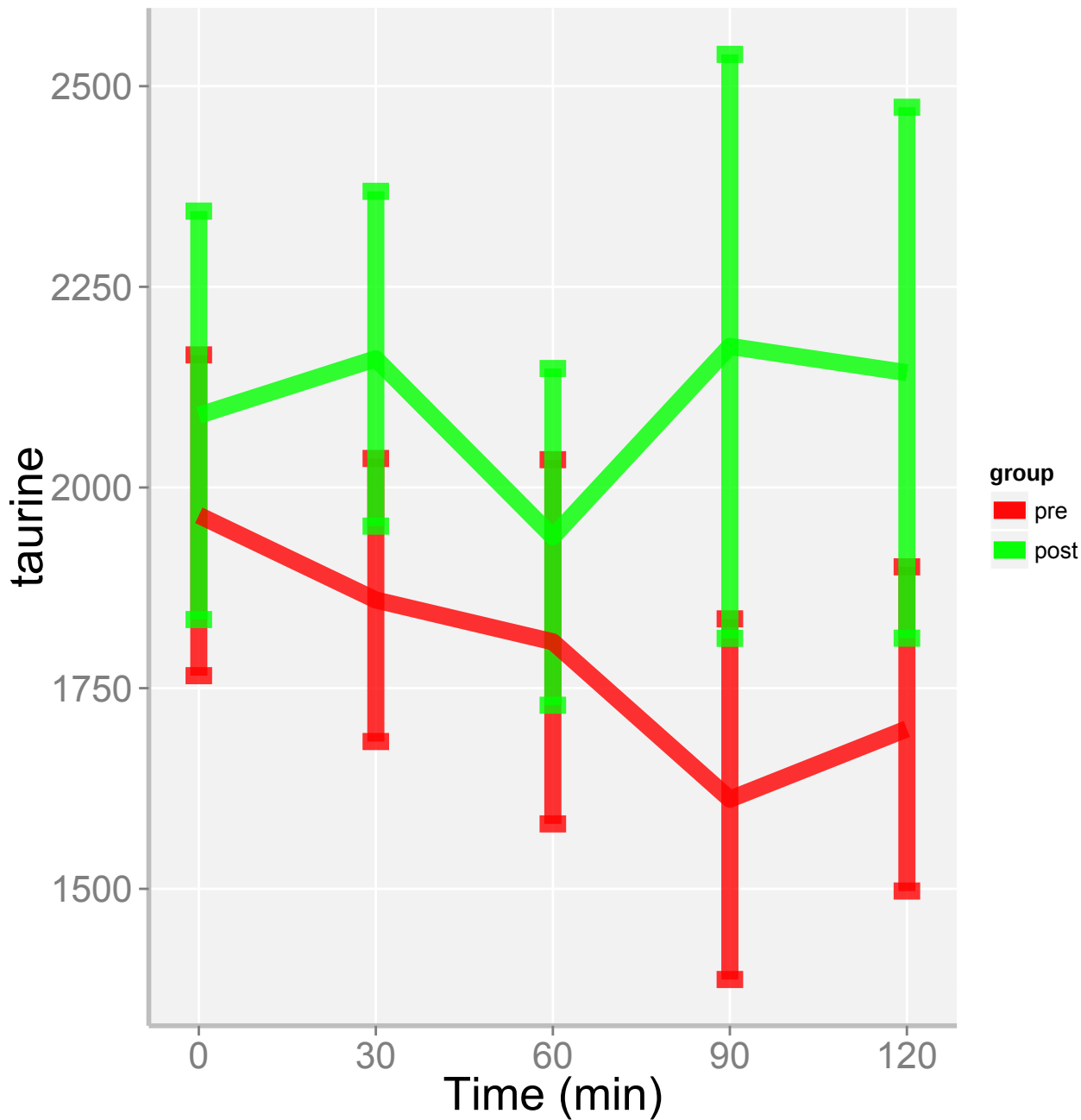




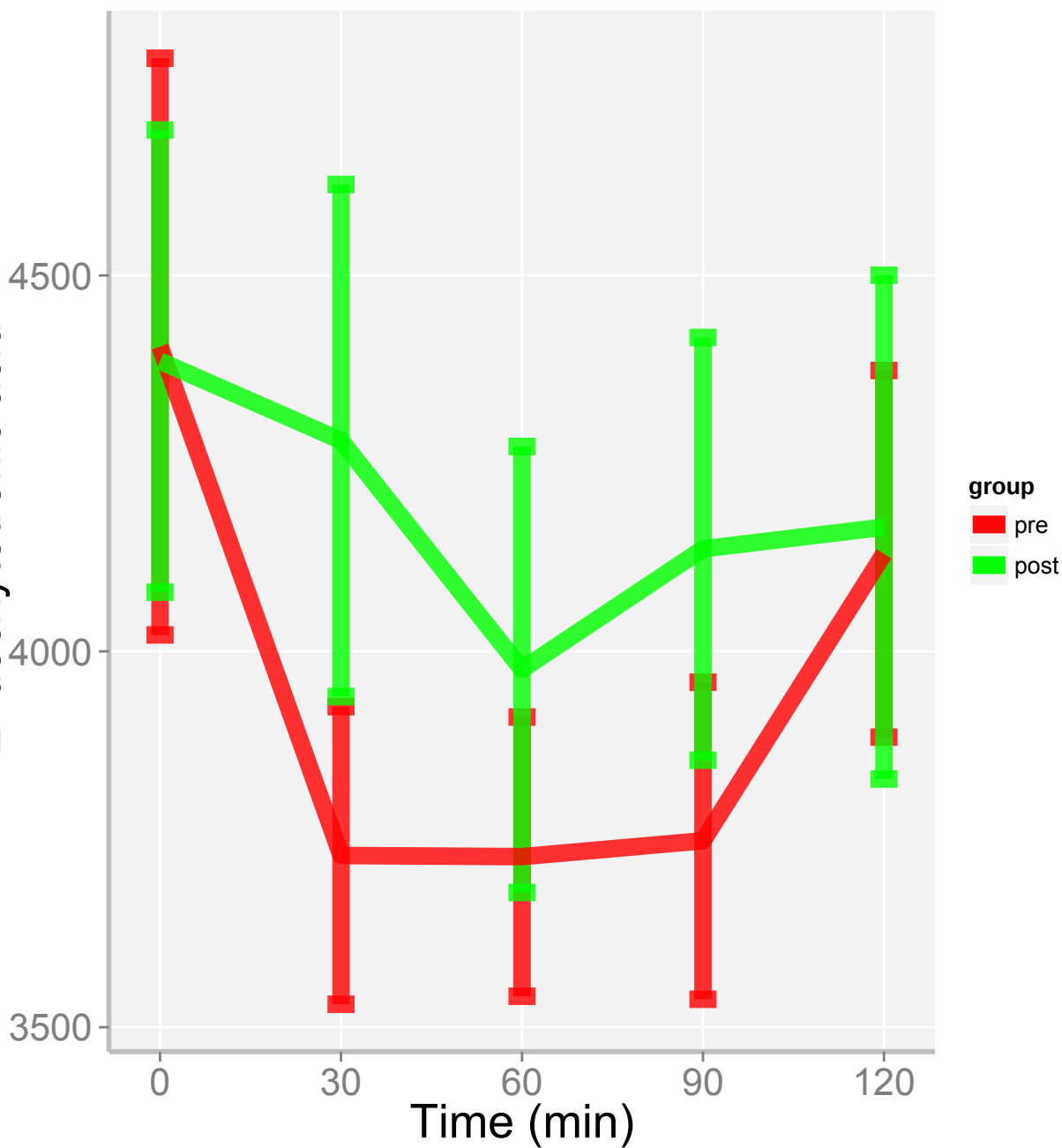
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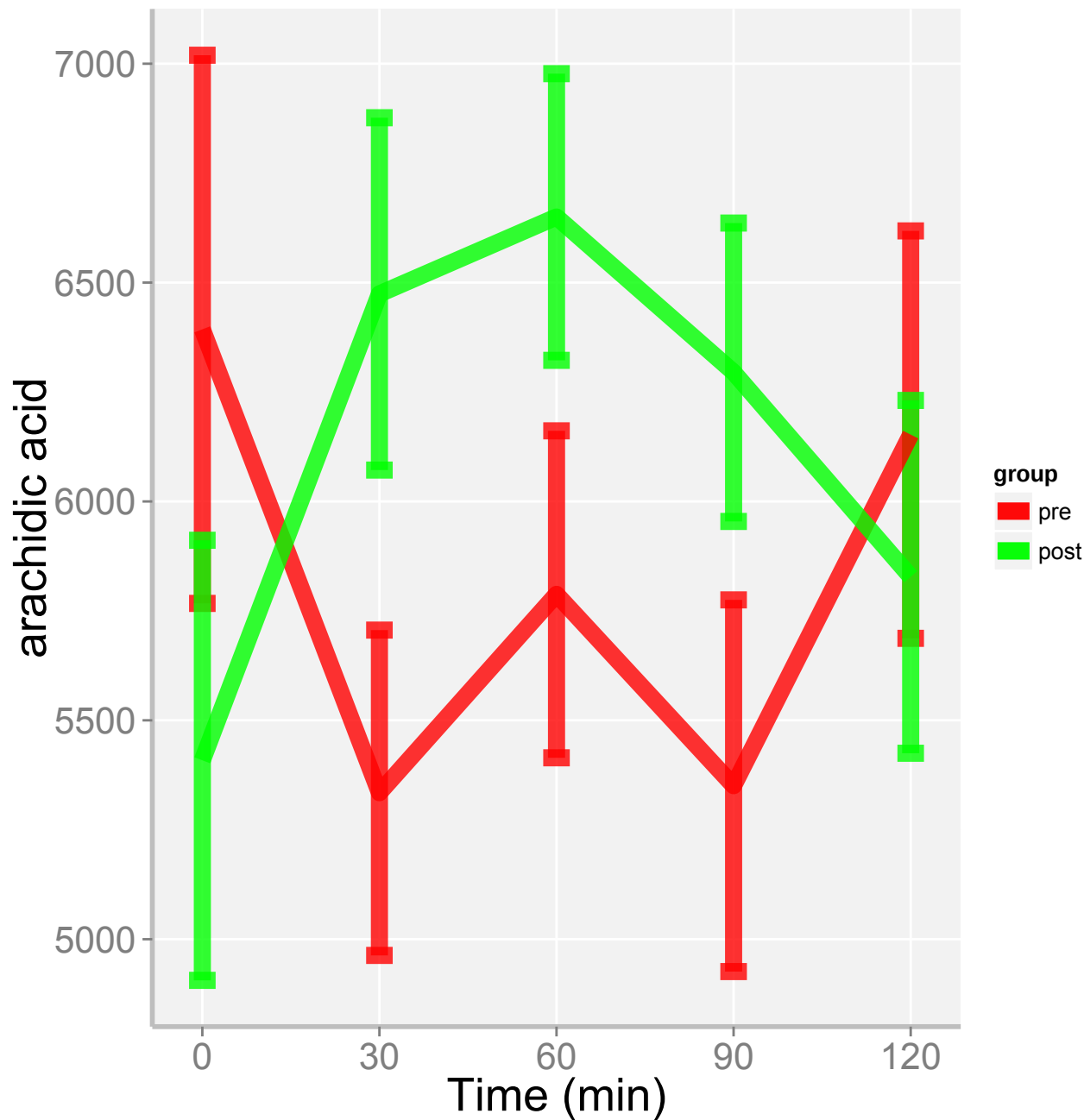


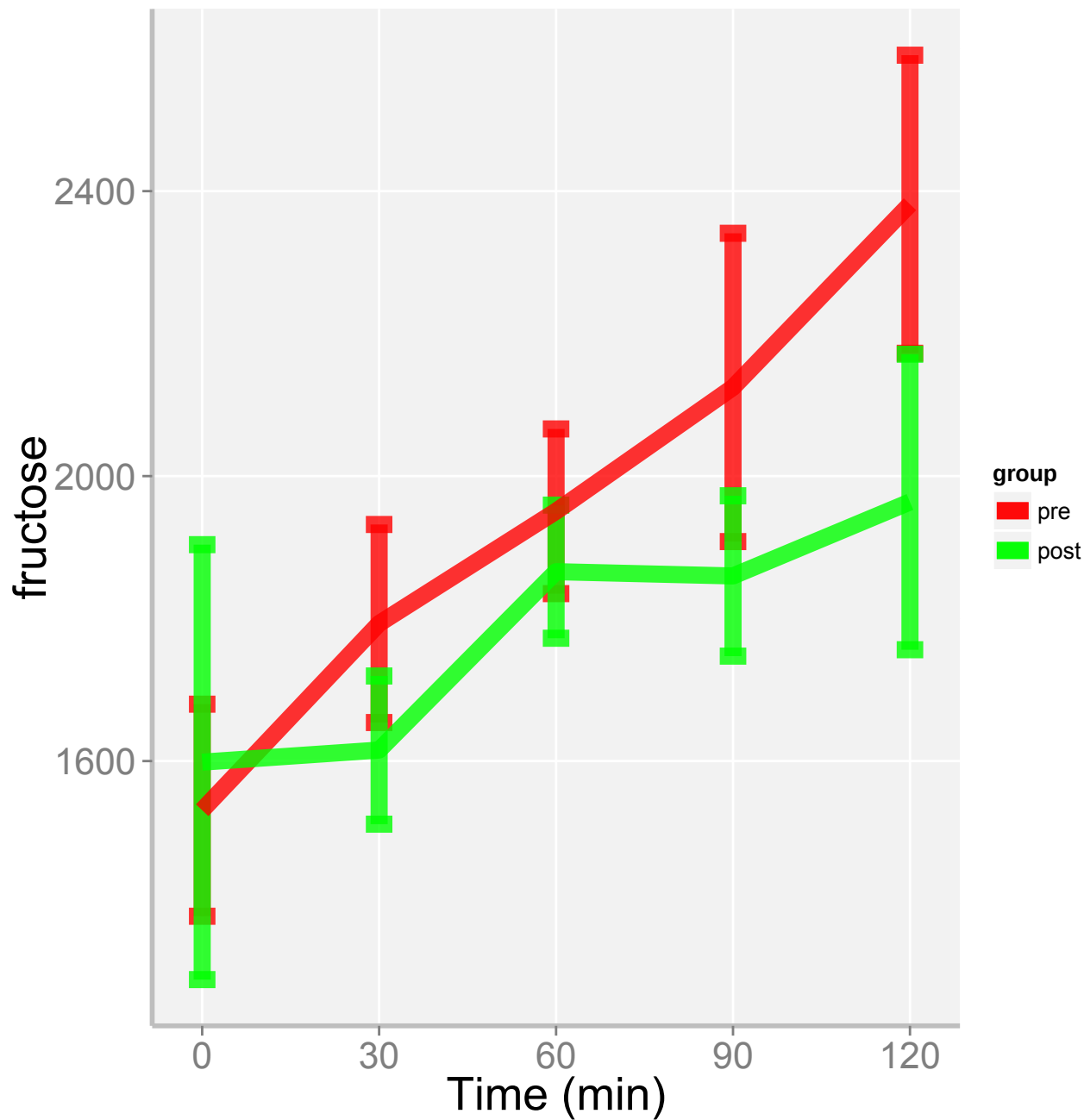




2-deoxytetronic acid.







erythronic acid.lactone

30000

25000

20000

0

30

60

90

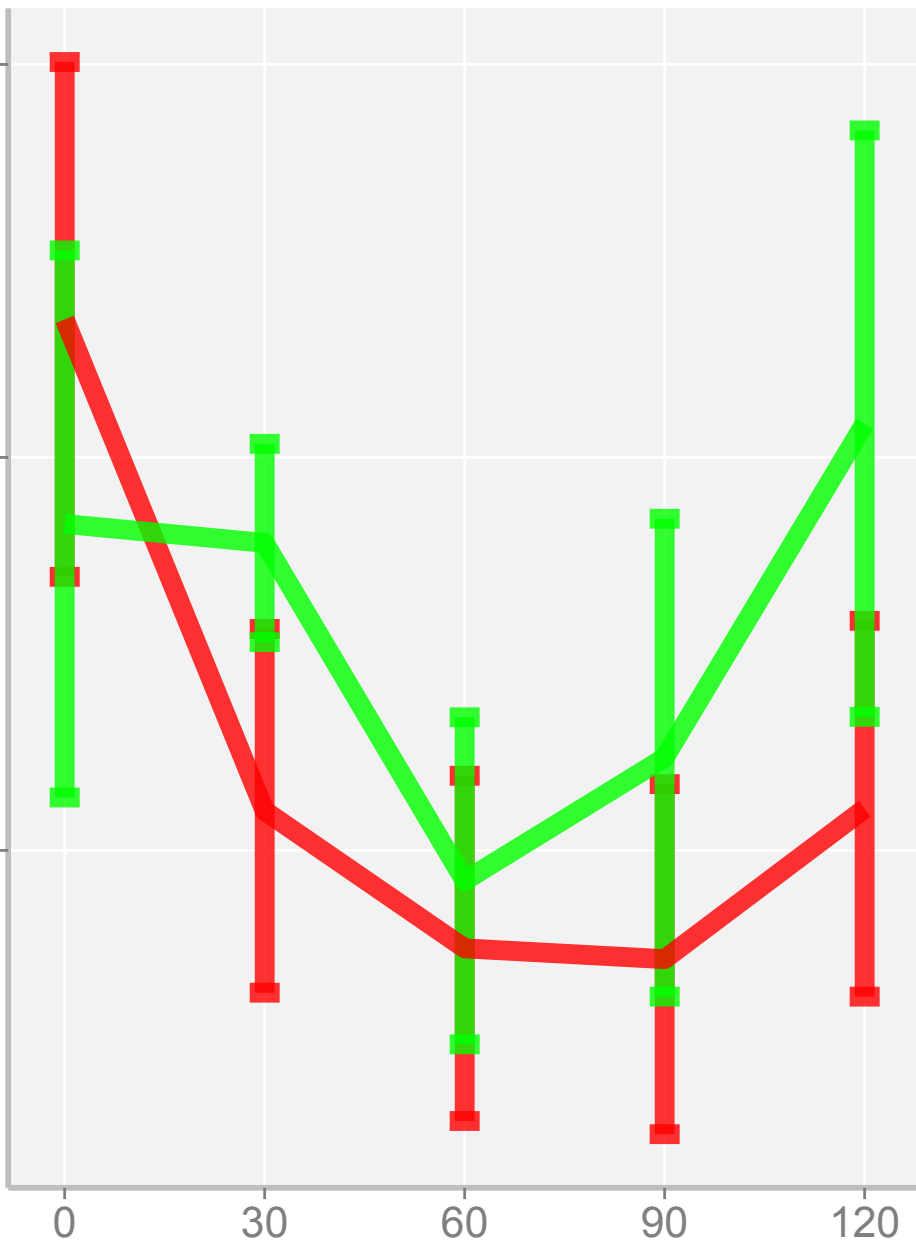
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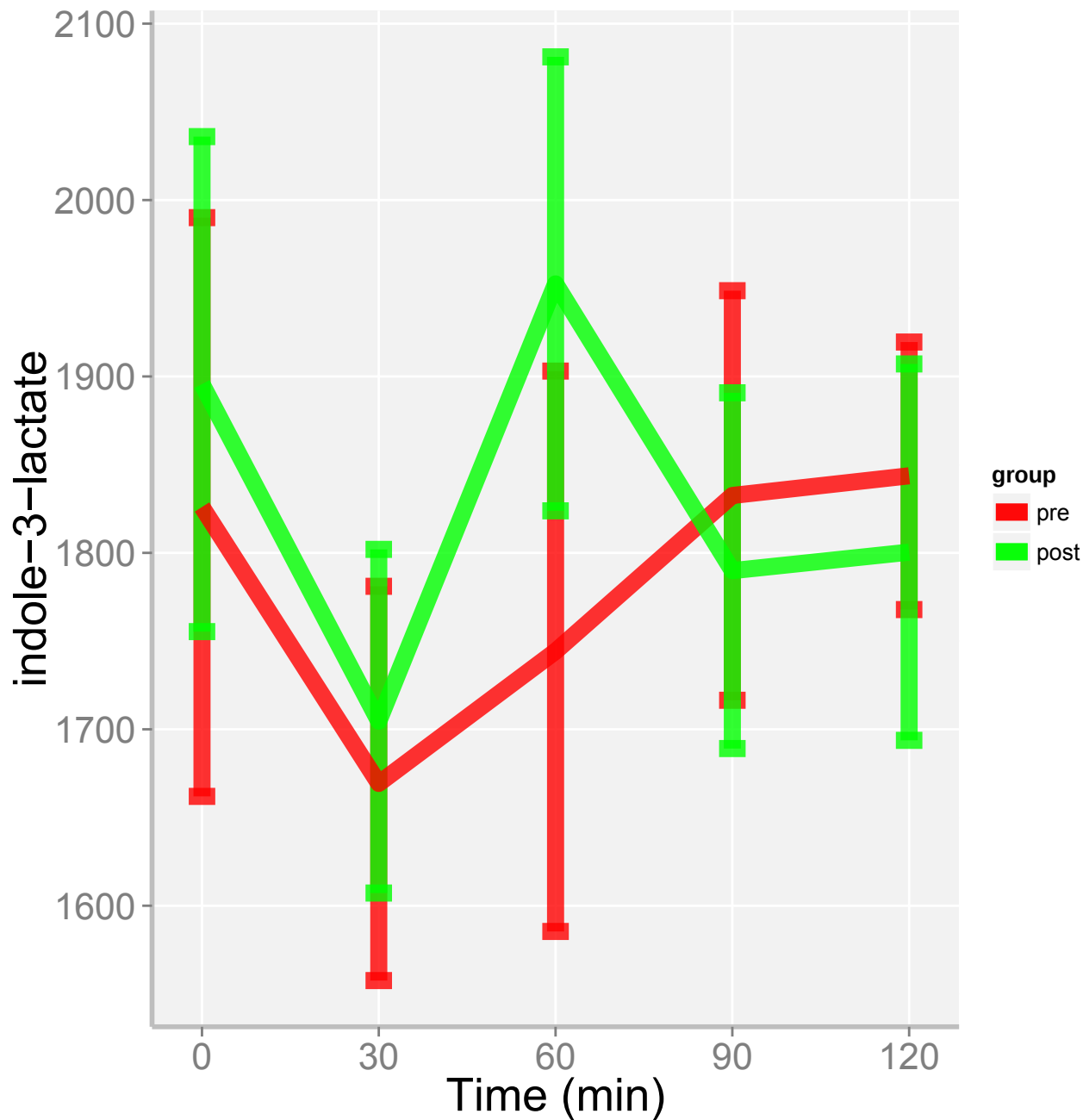
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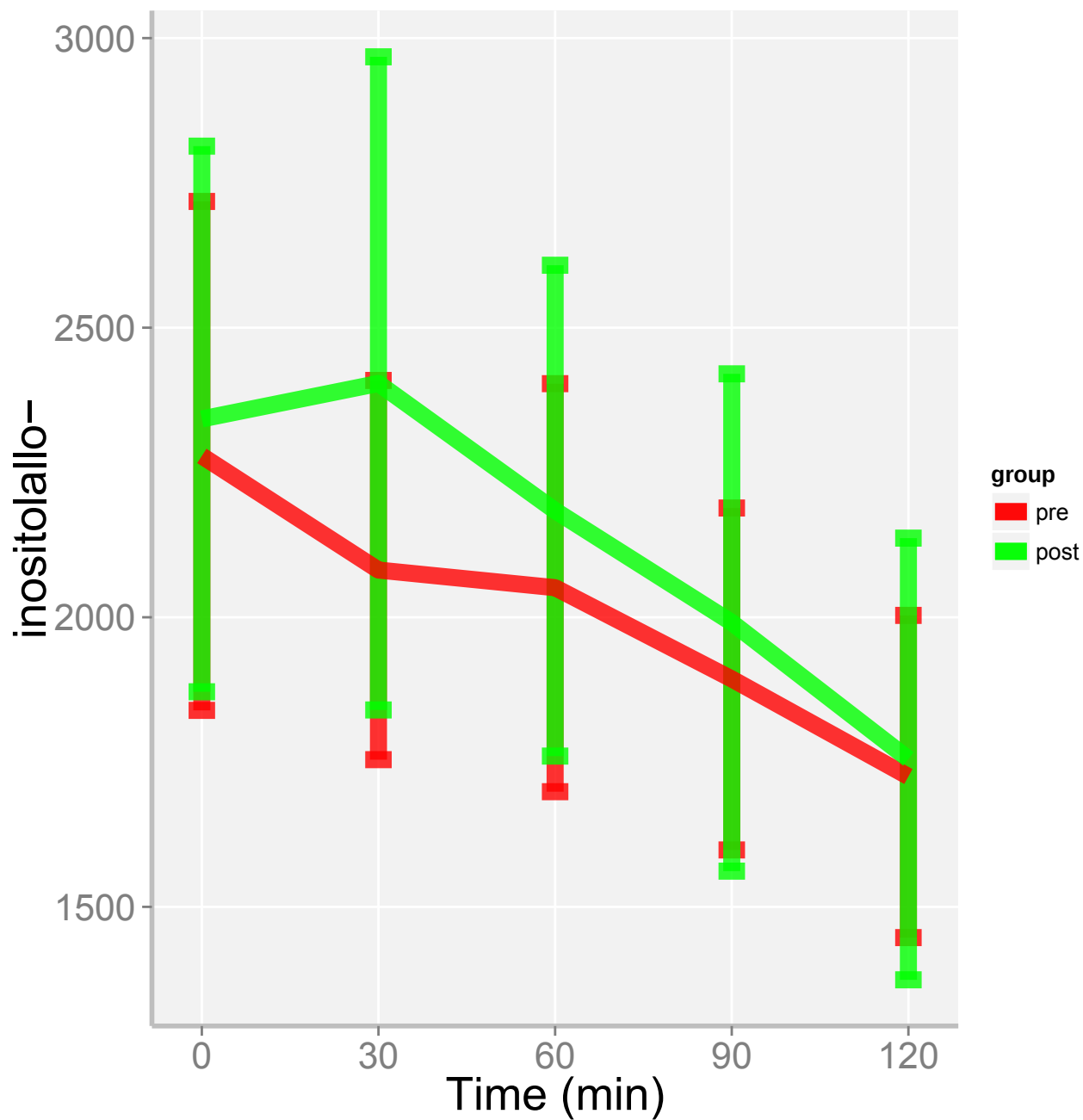
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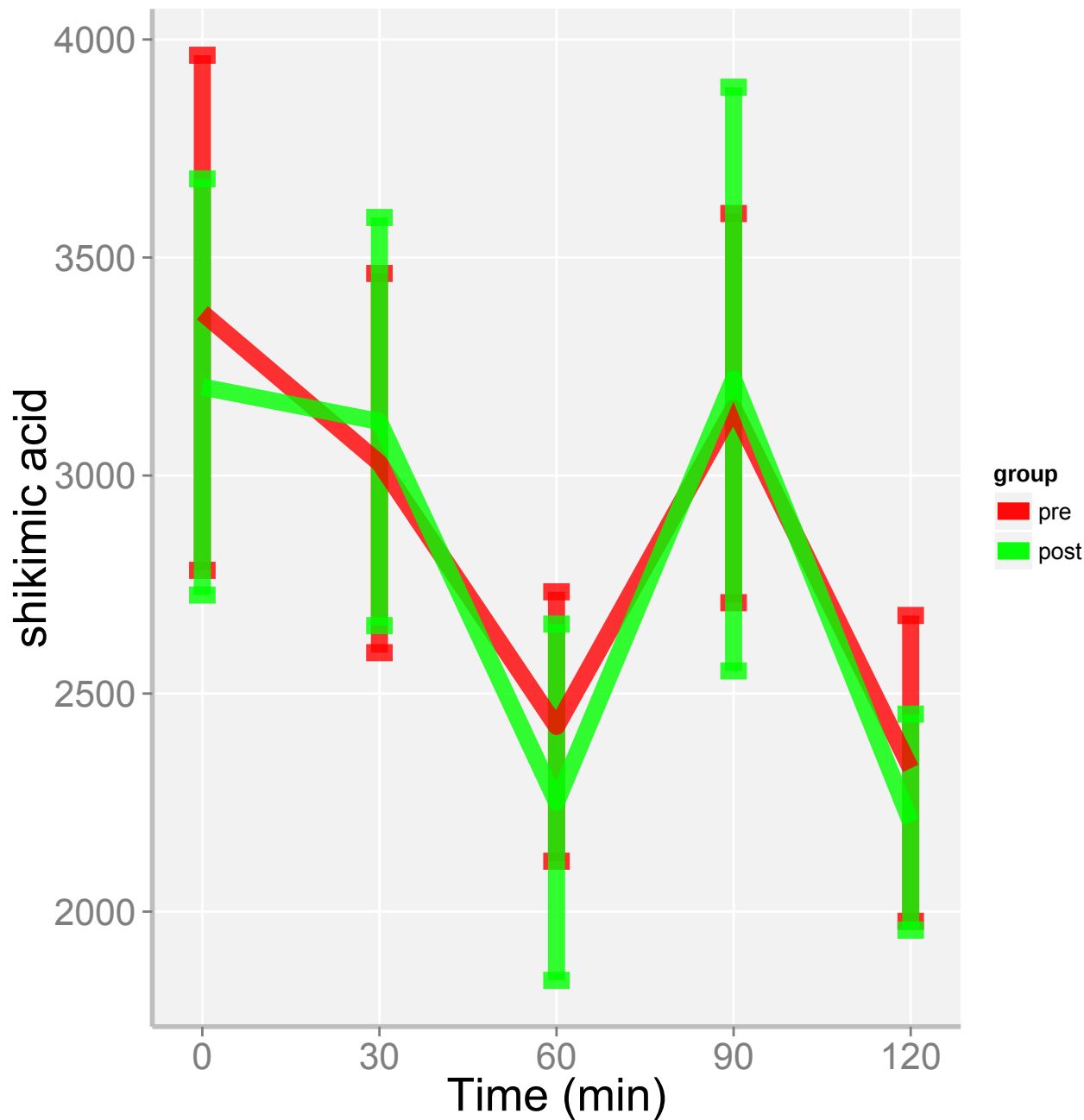
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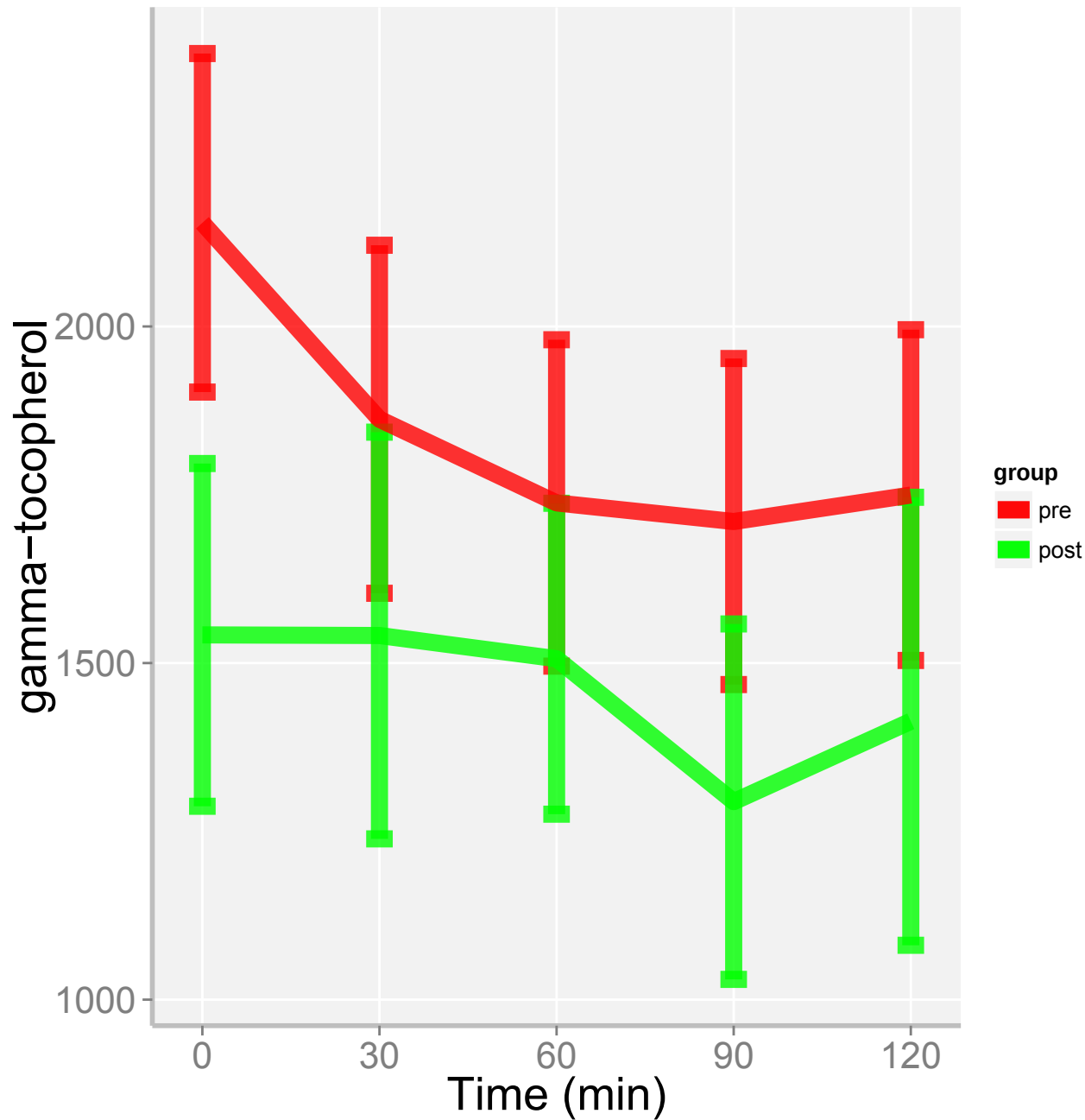
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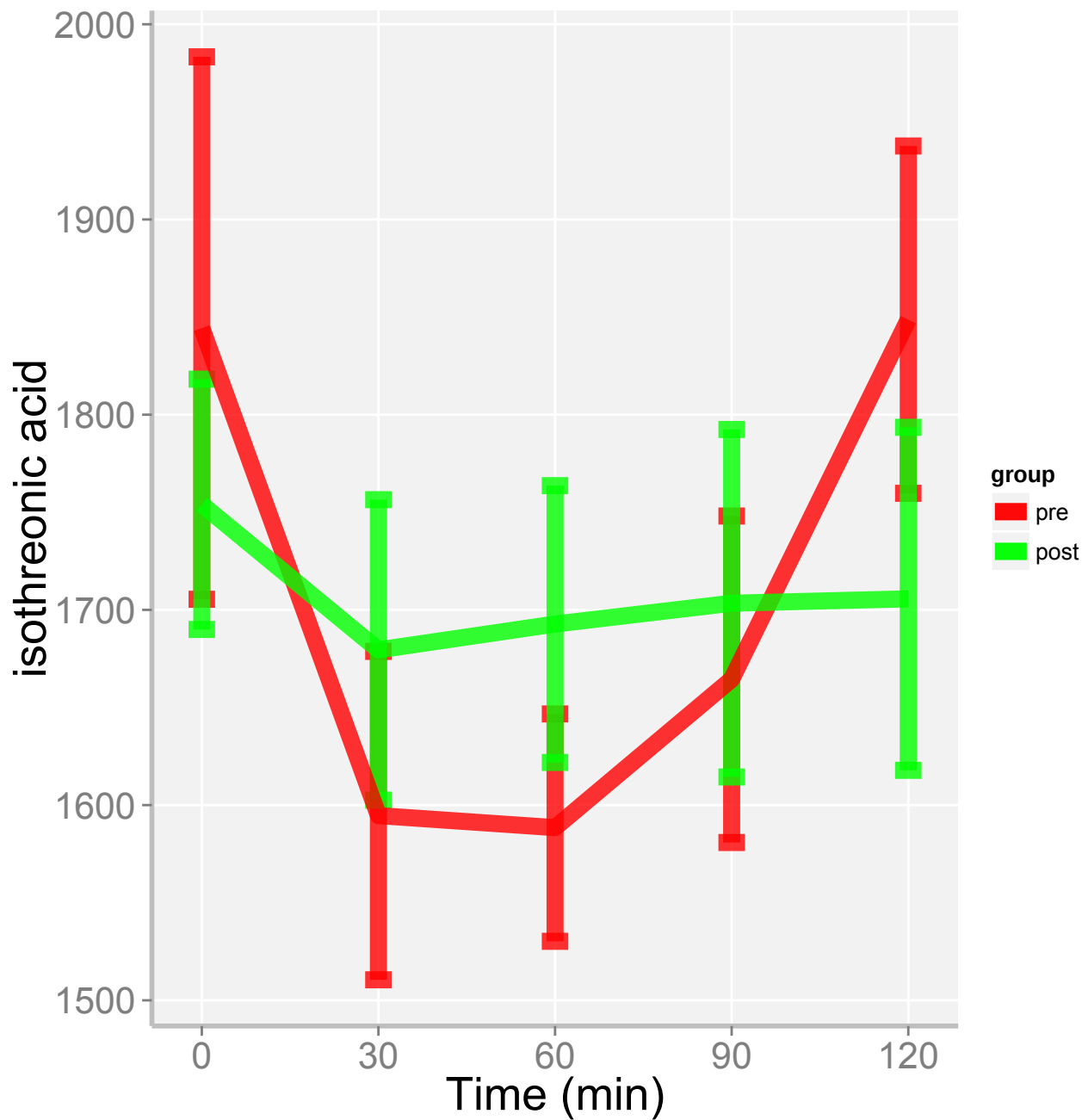


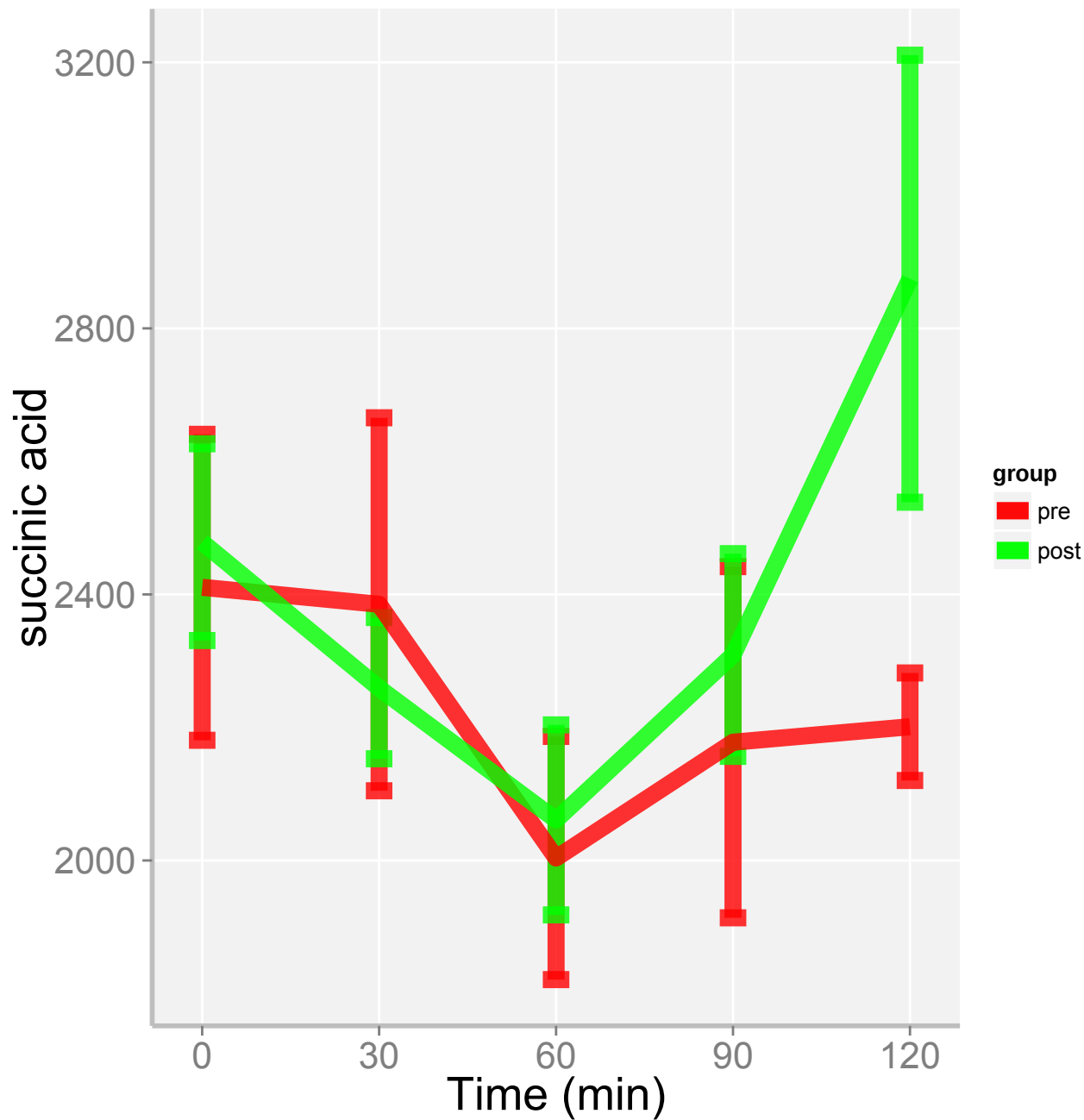


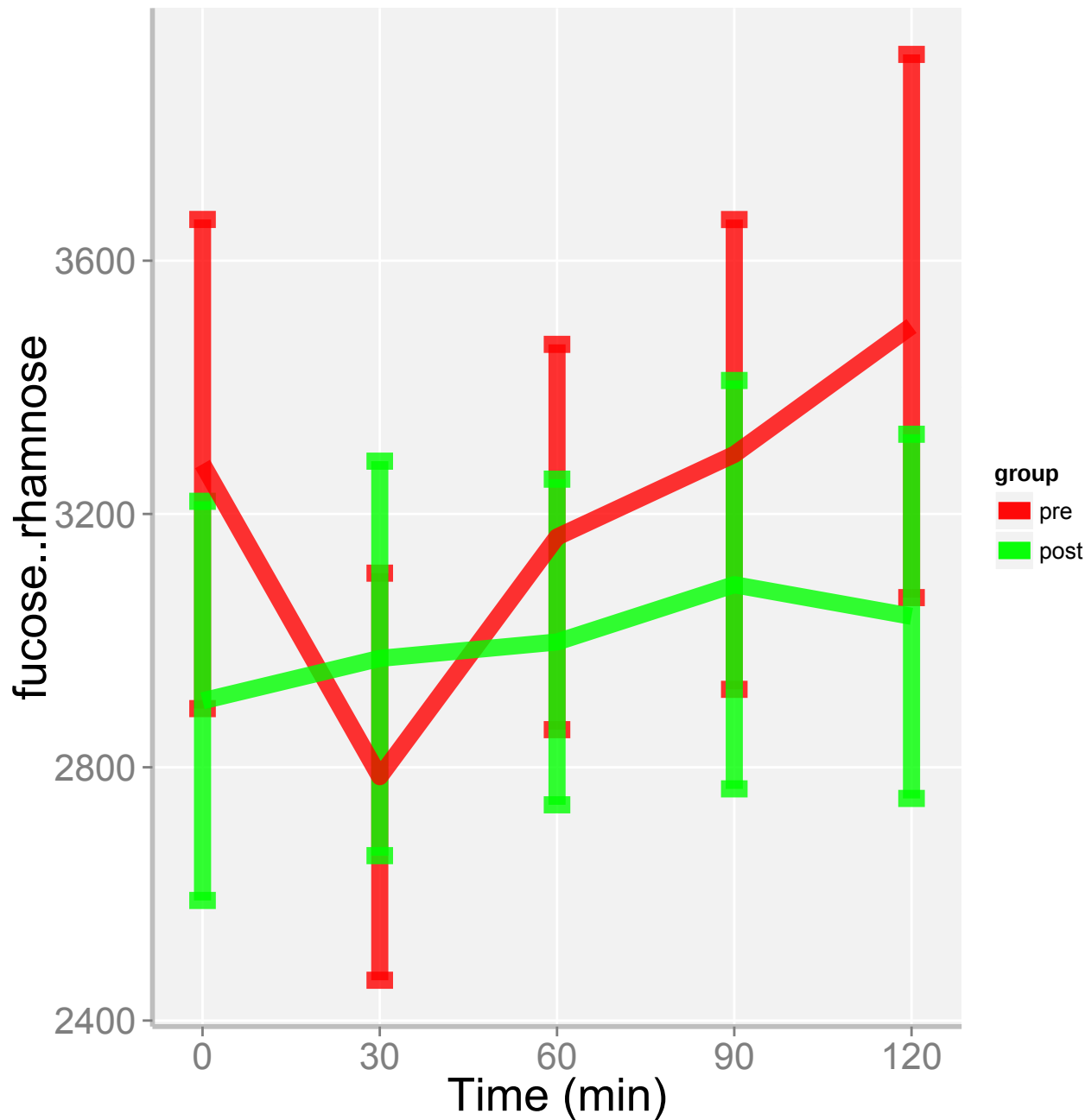


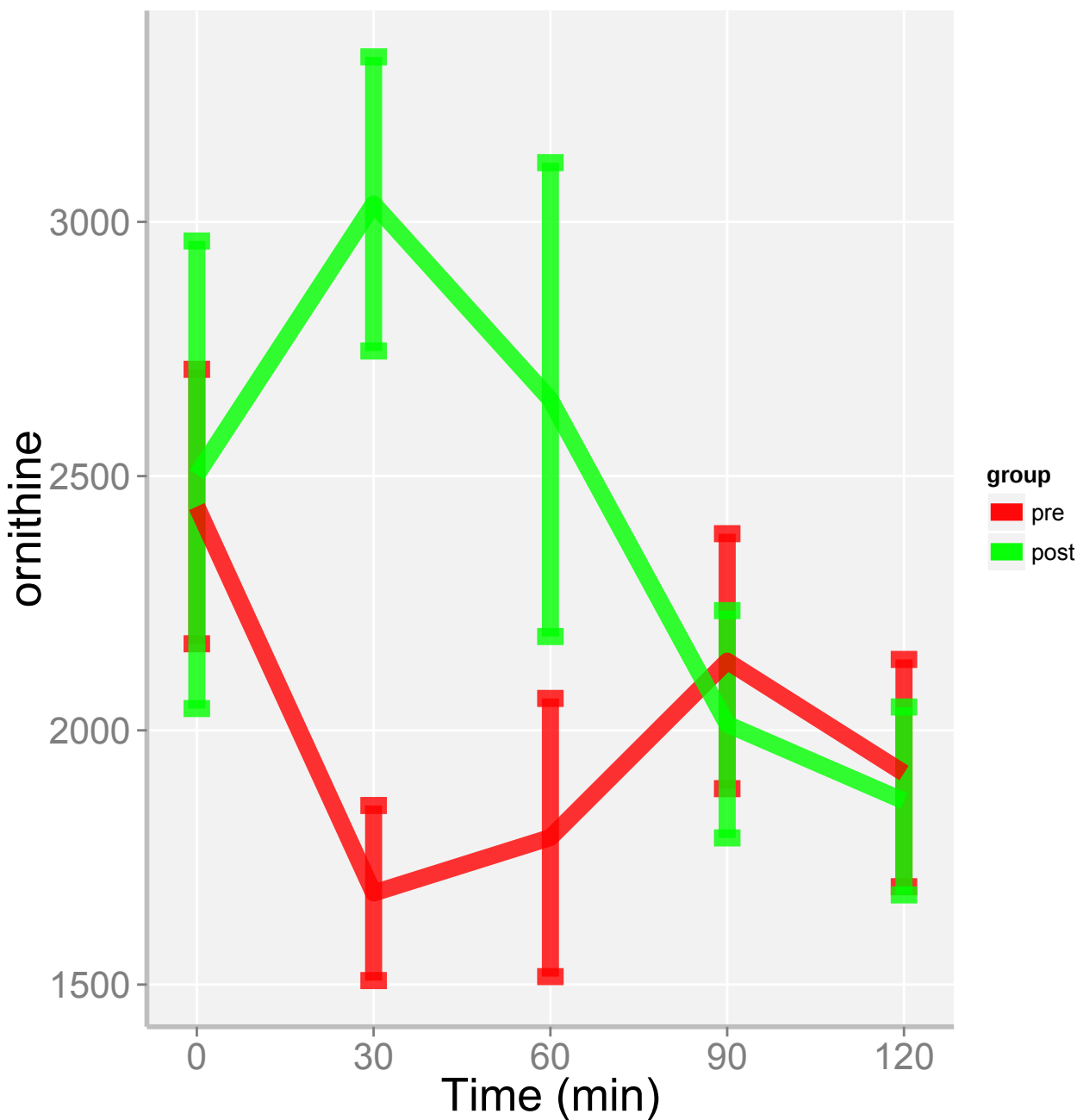


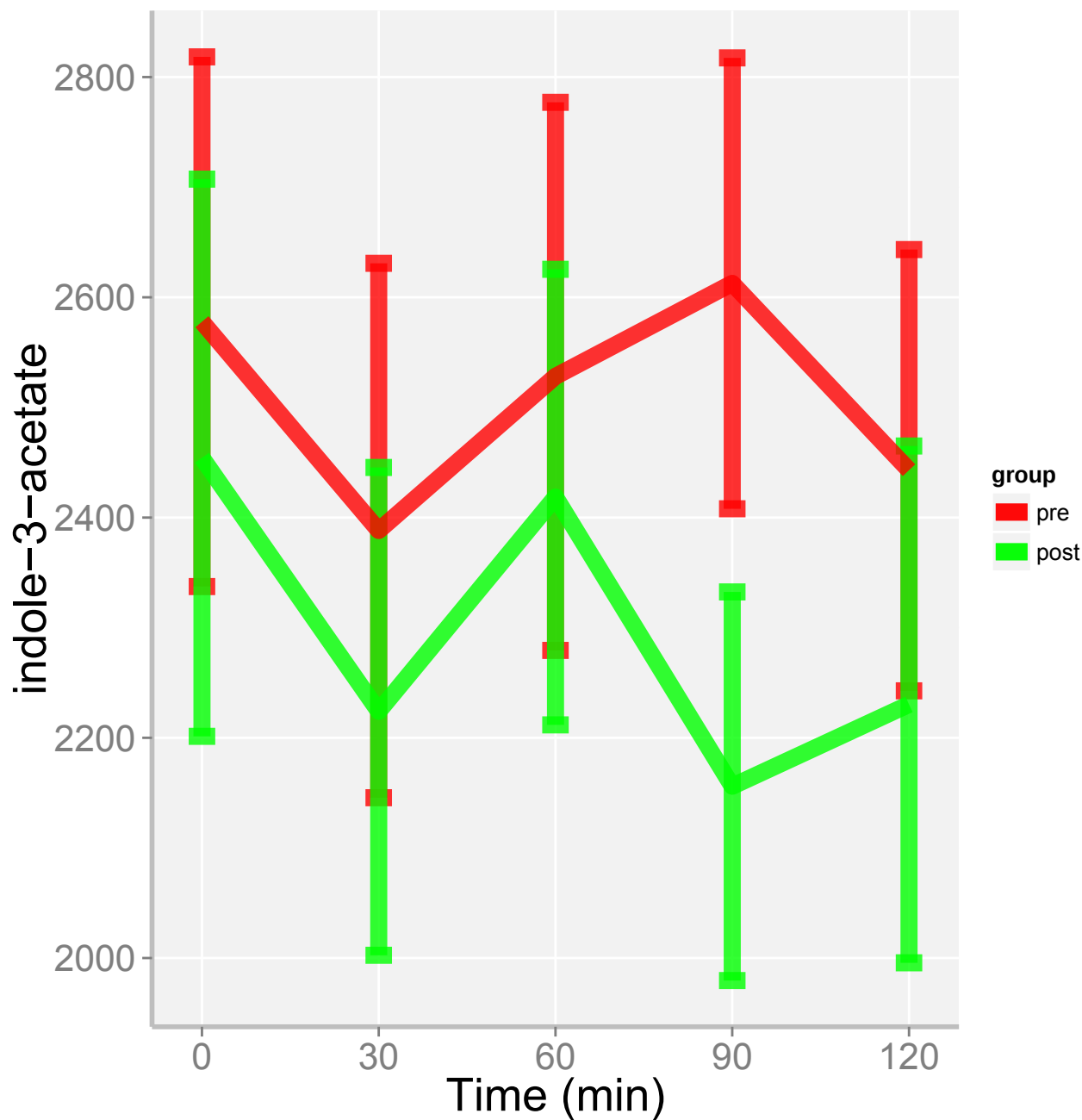


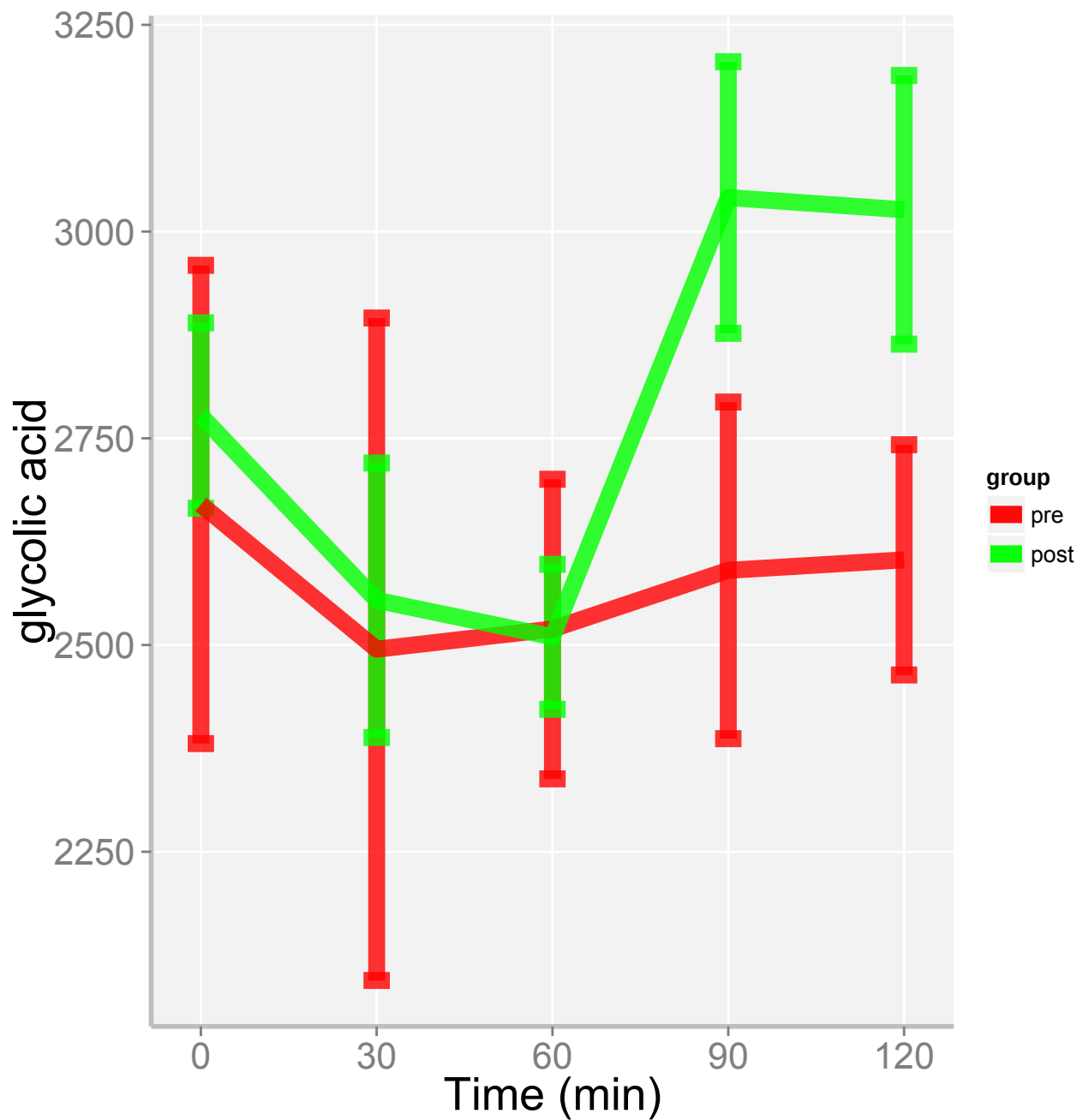












methioninesulfoxide

7000

6000

5000

4000

0

30

60

90

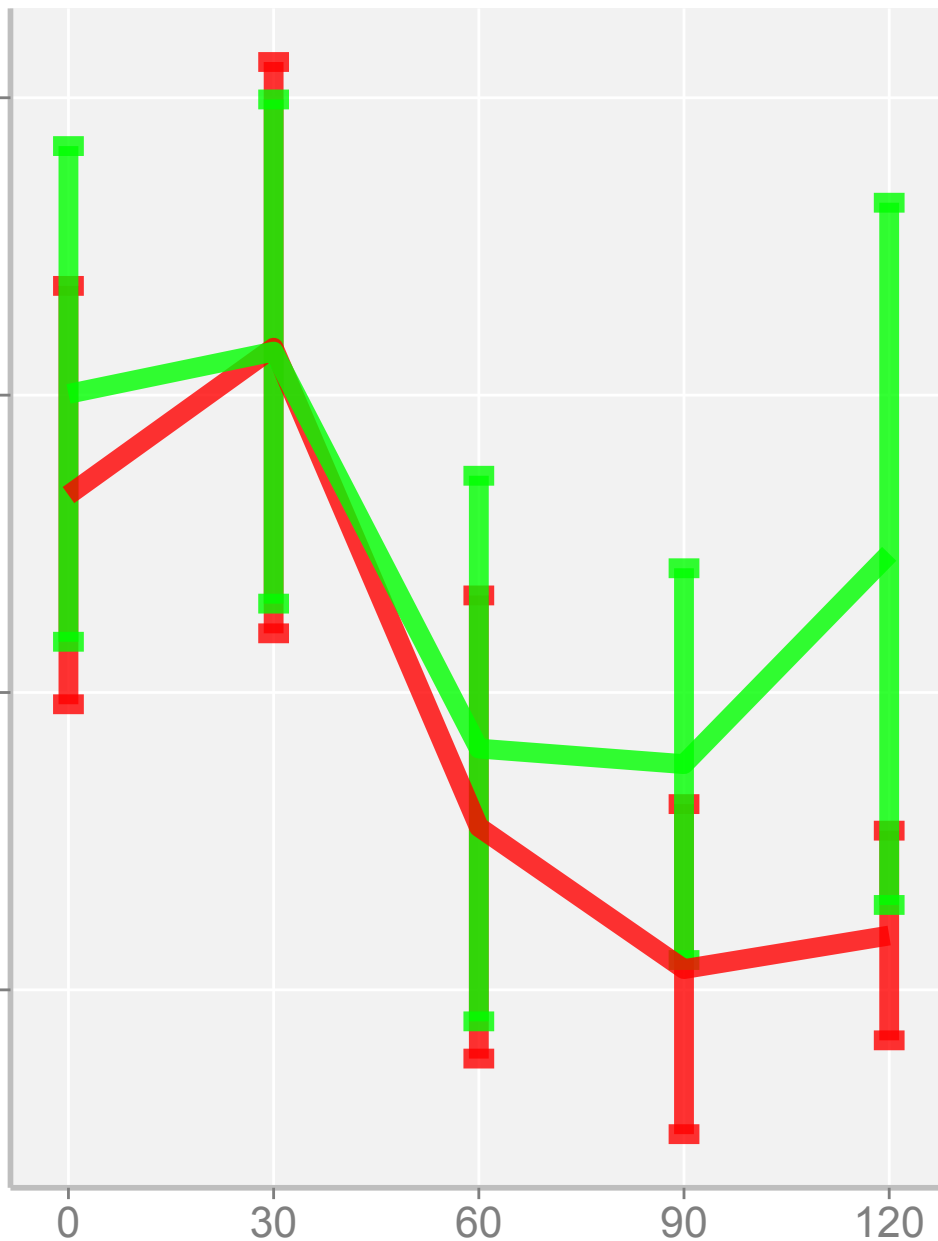
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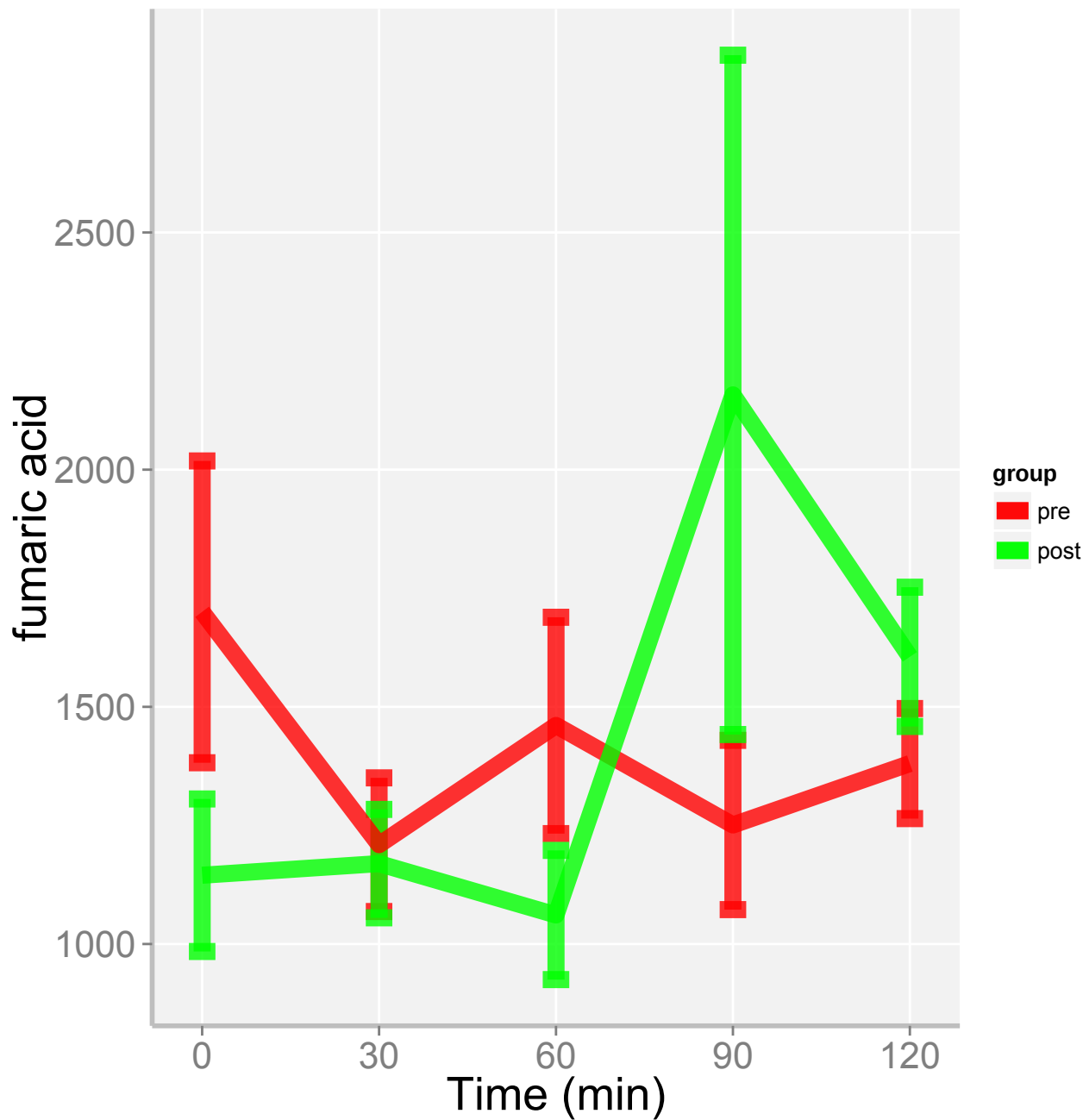
Time (min)

group

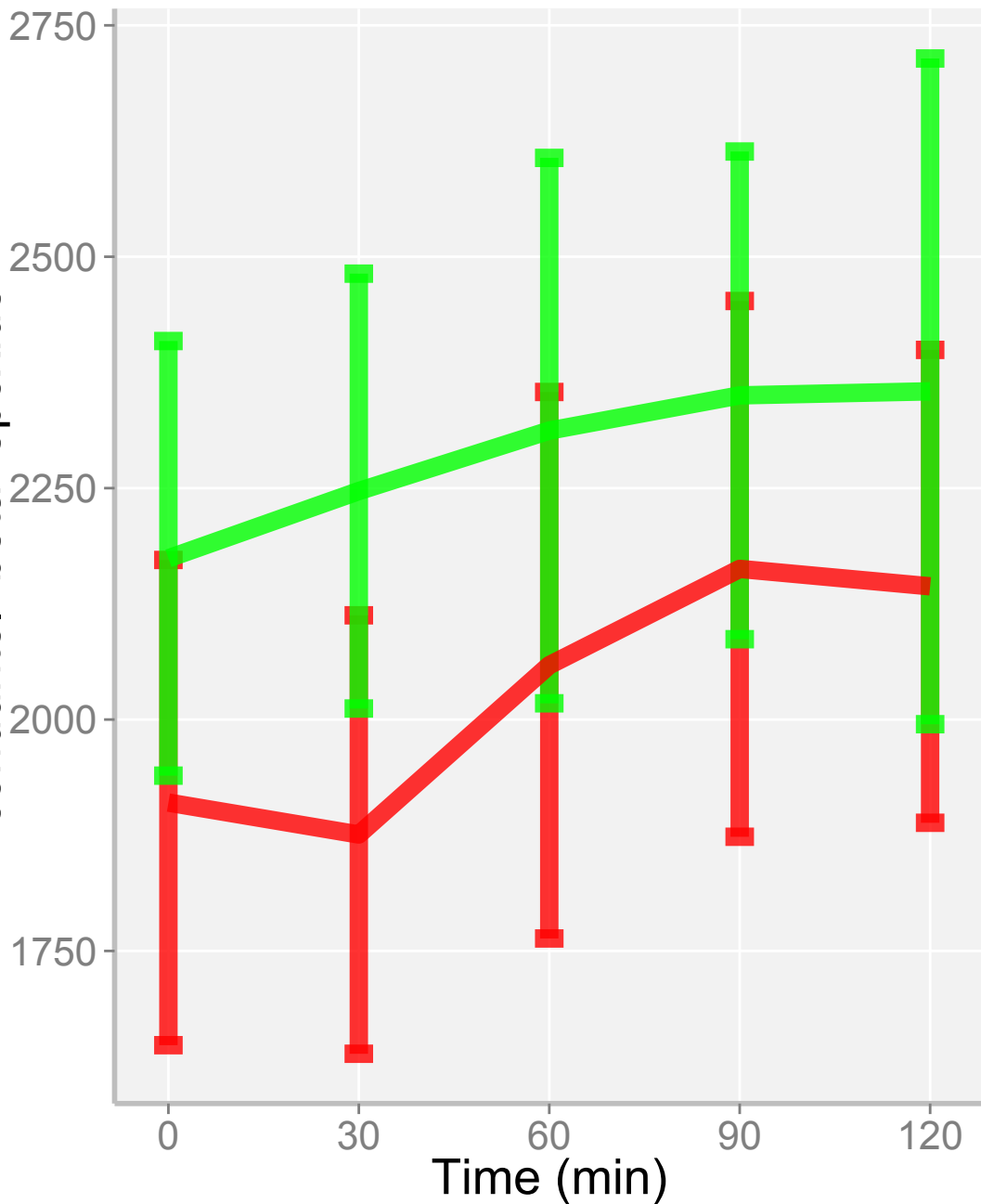
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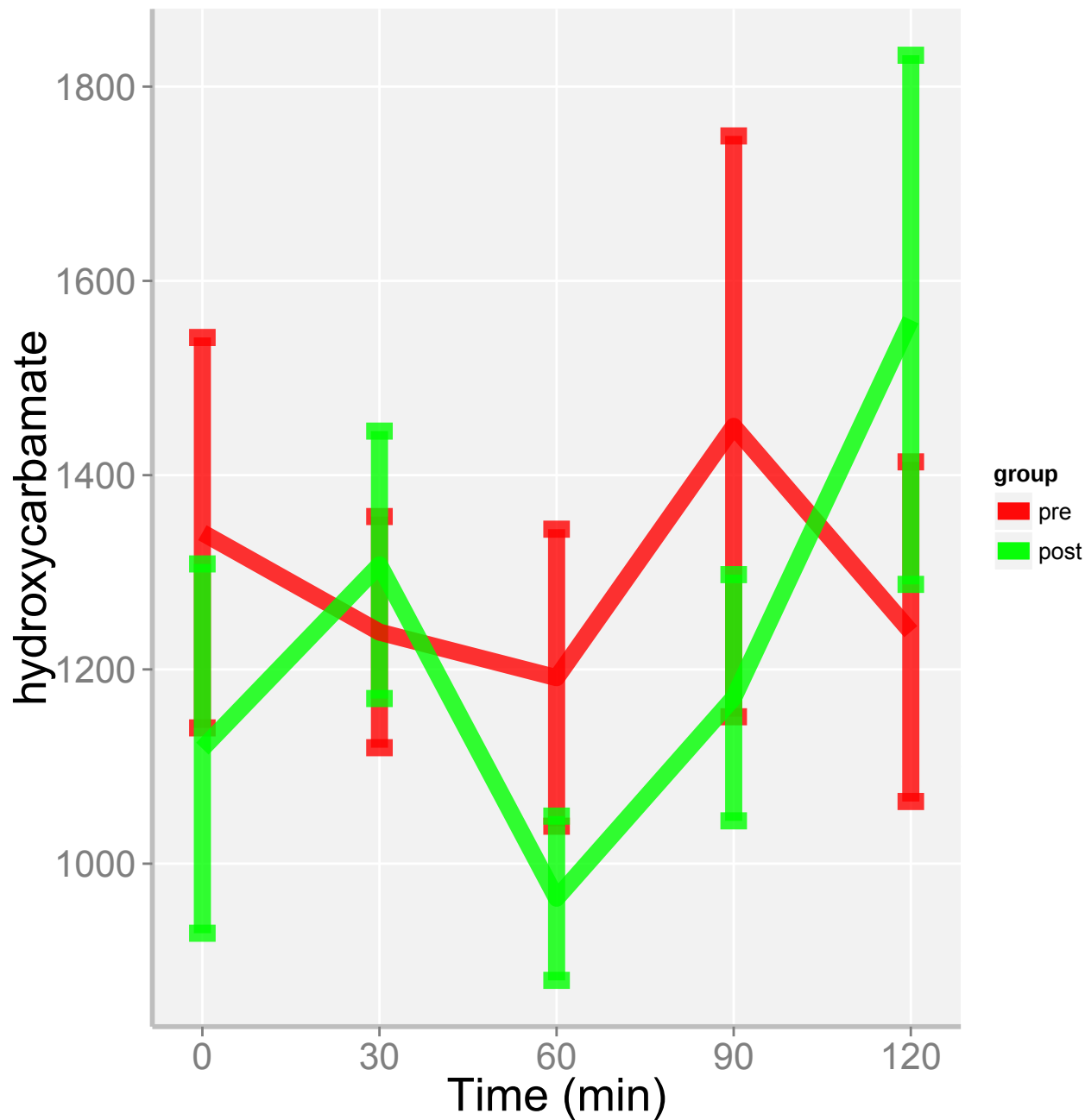
post

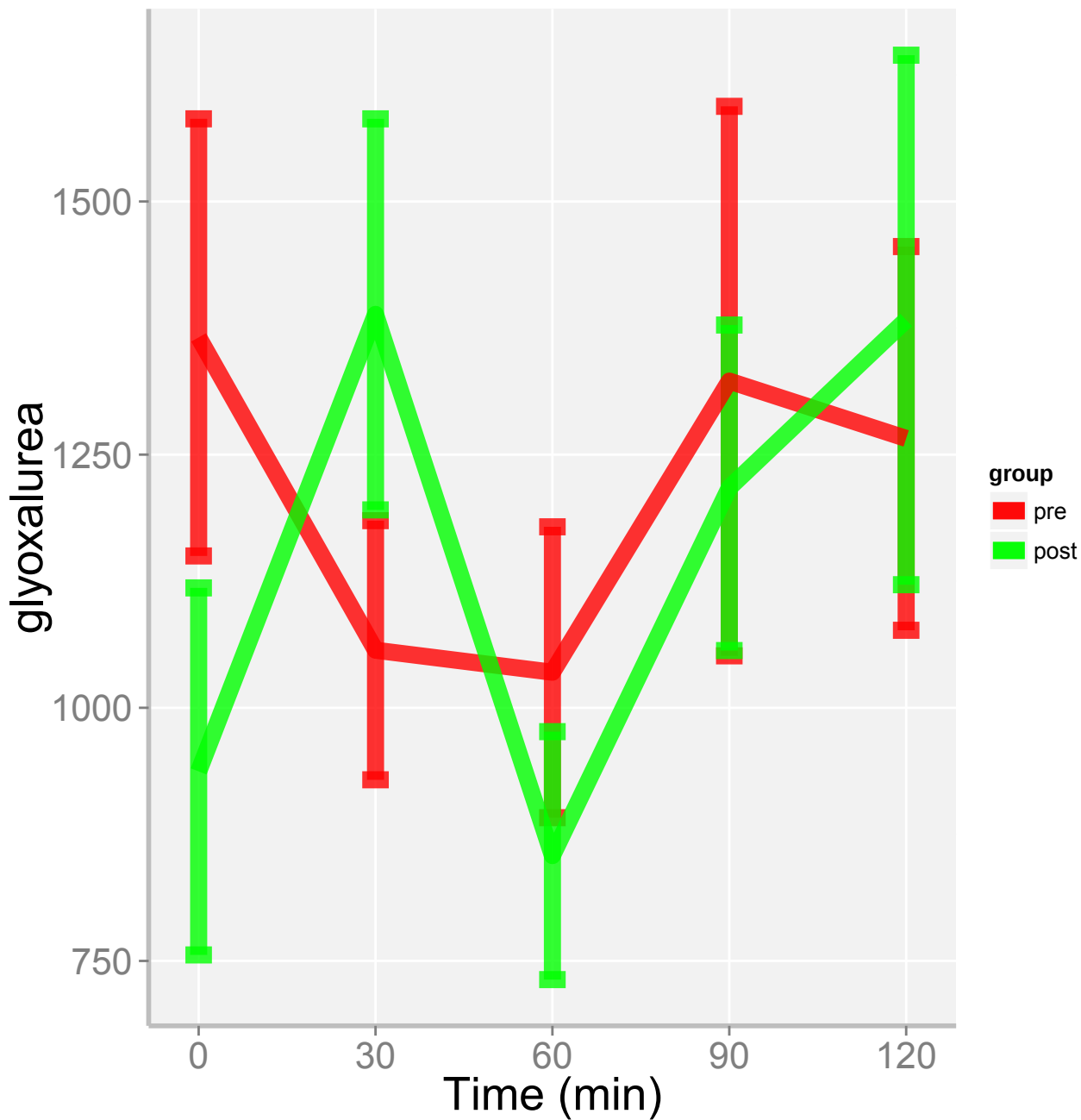


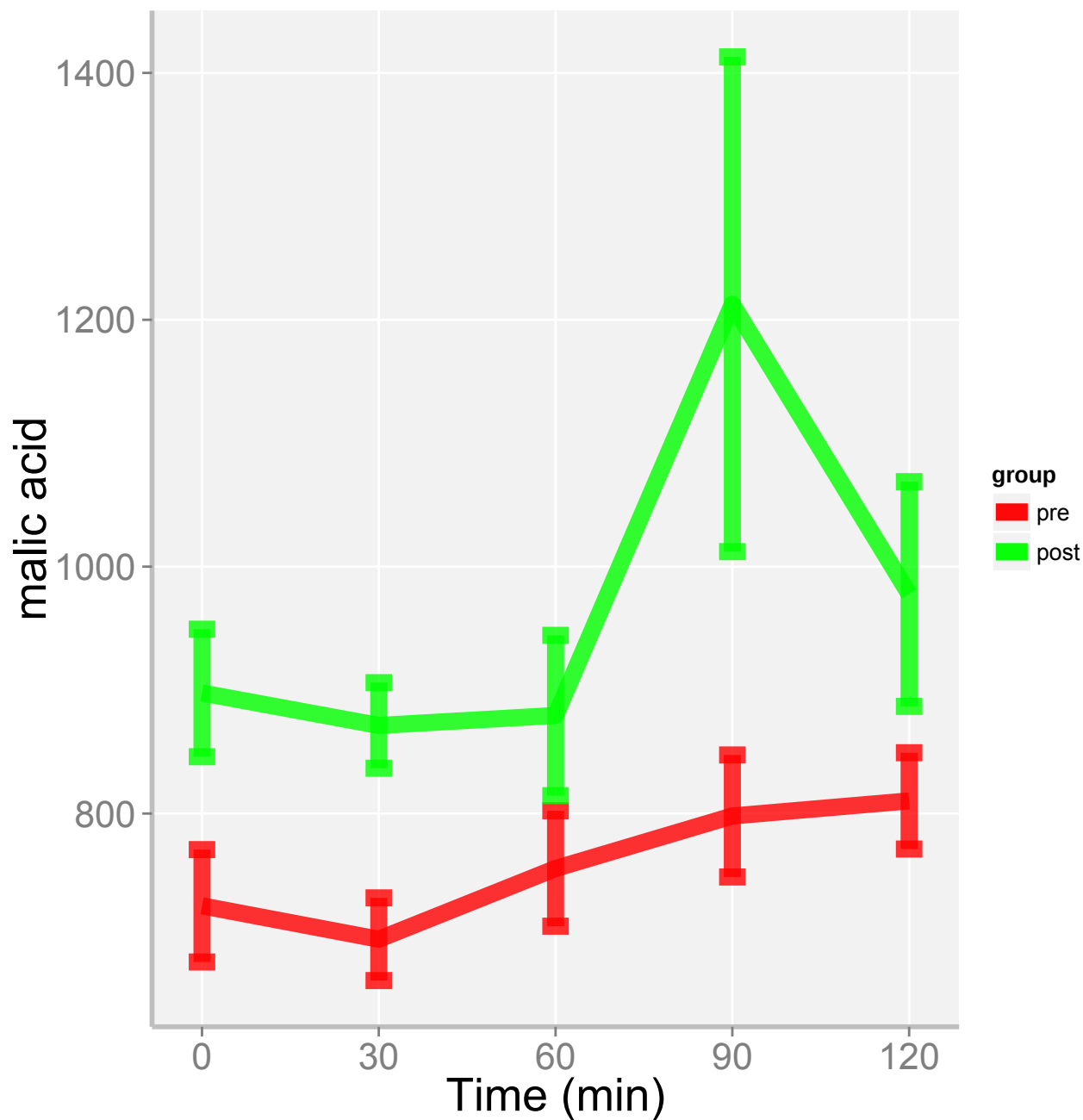


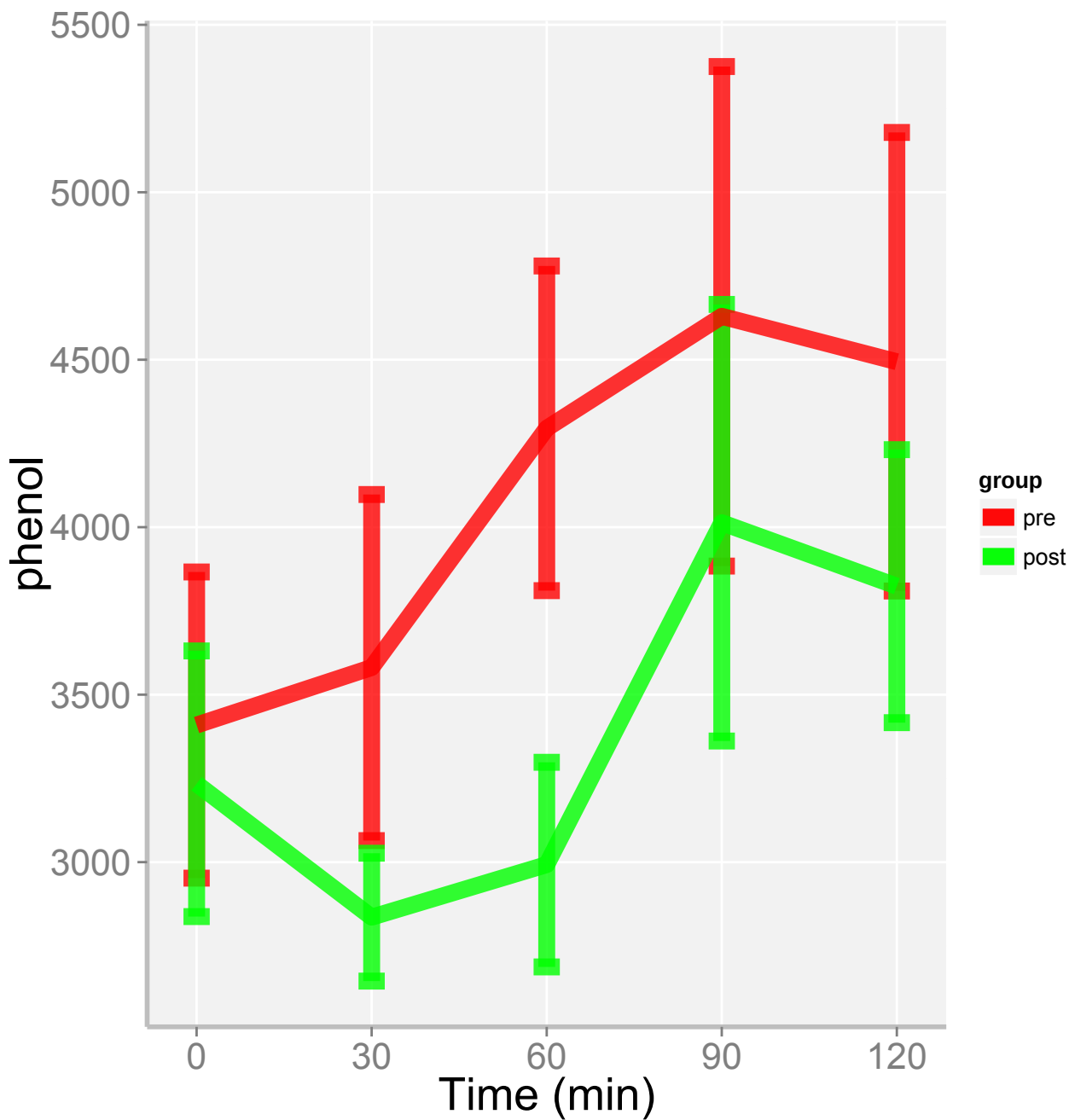
conduiritol-beta-epoxide

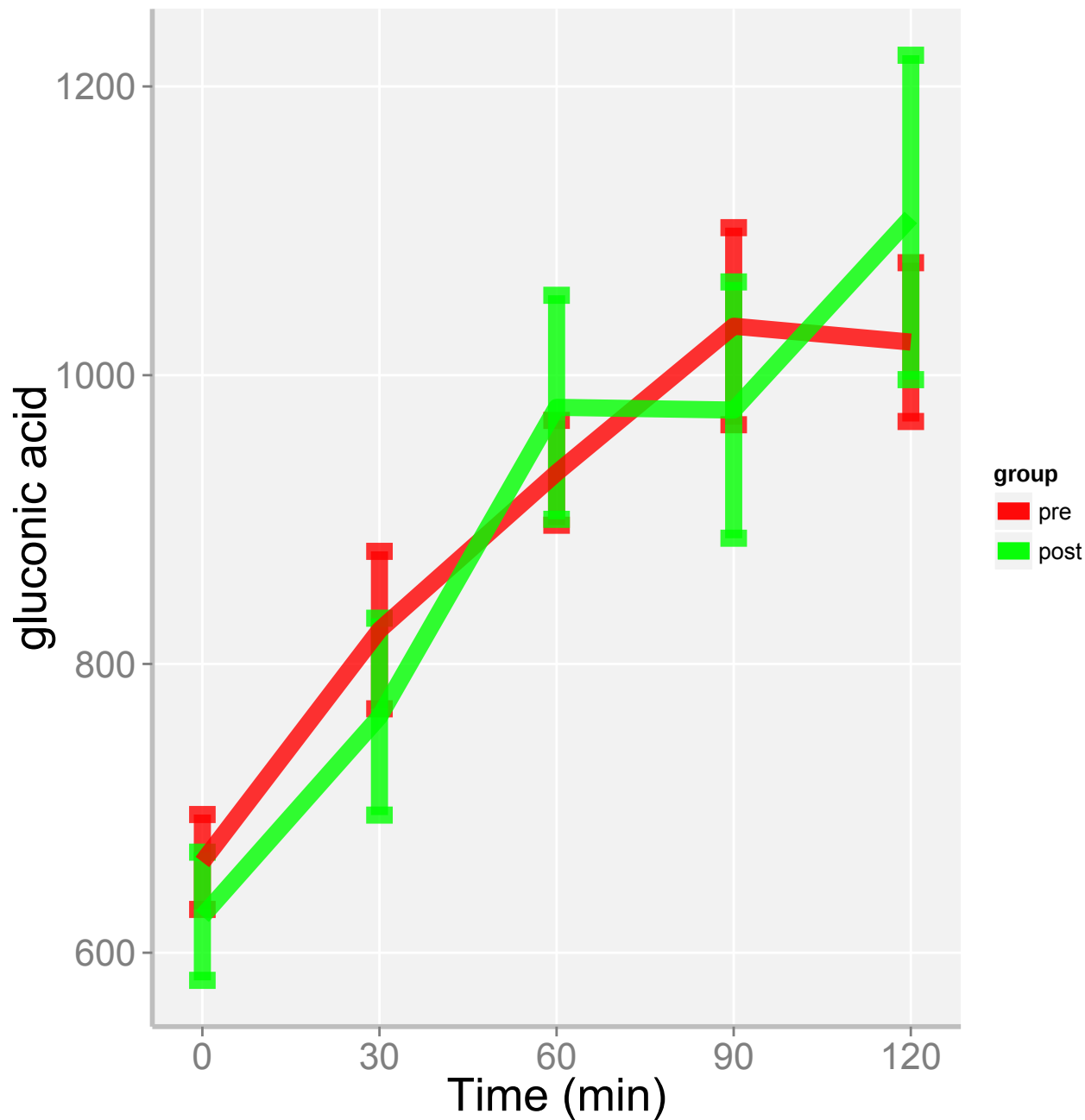


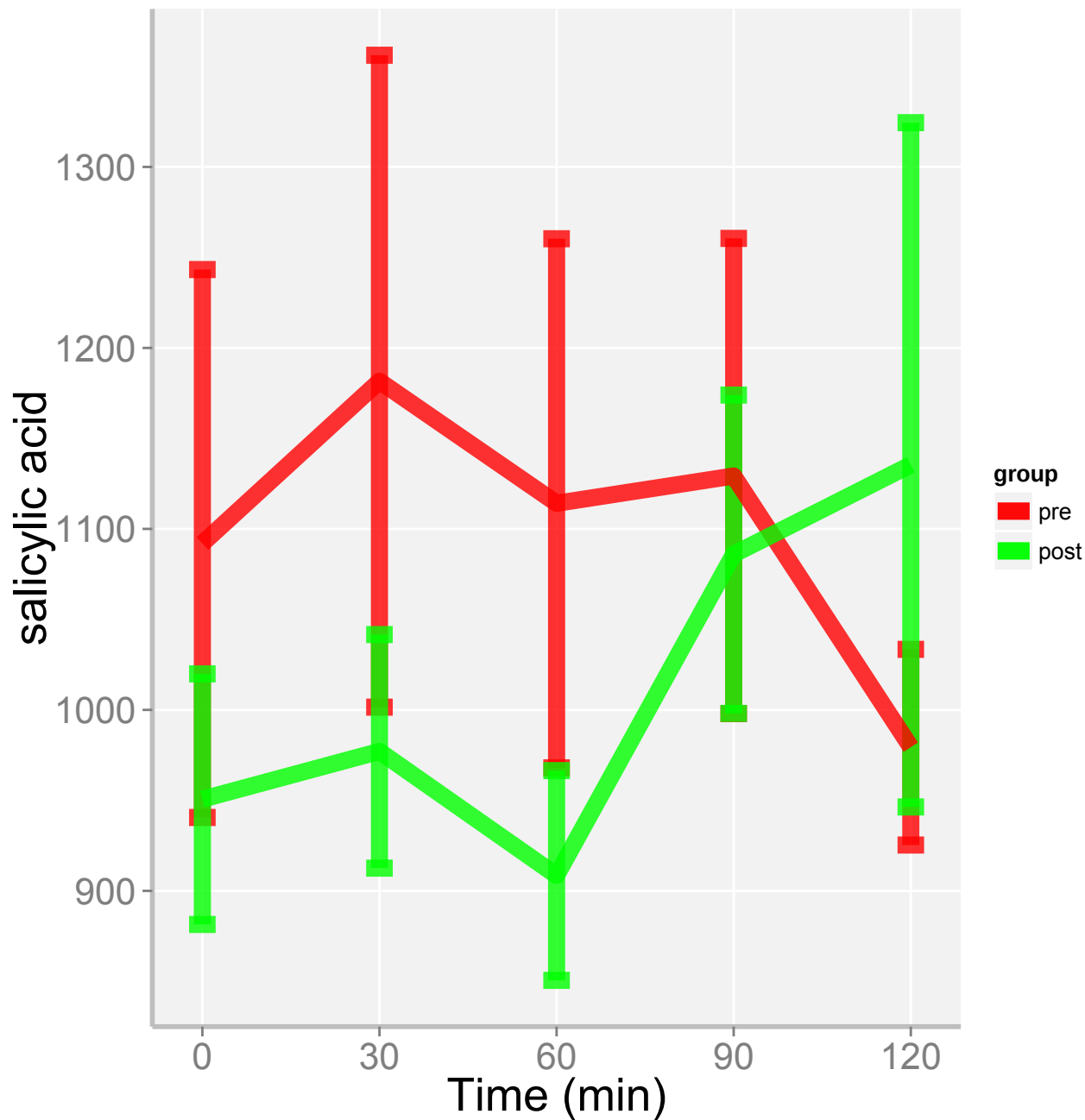




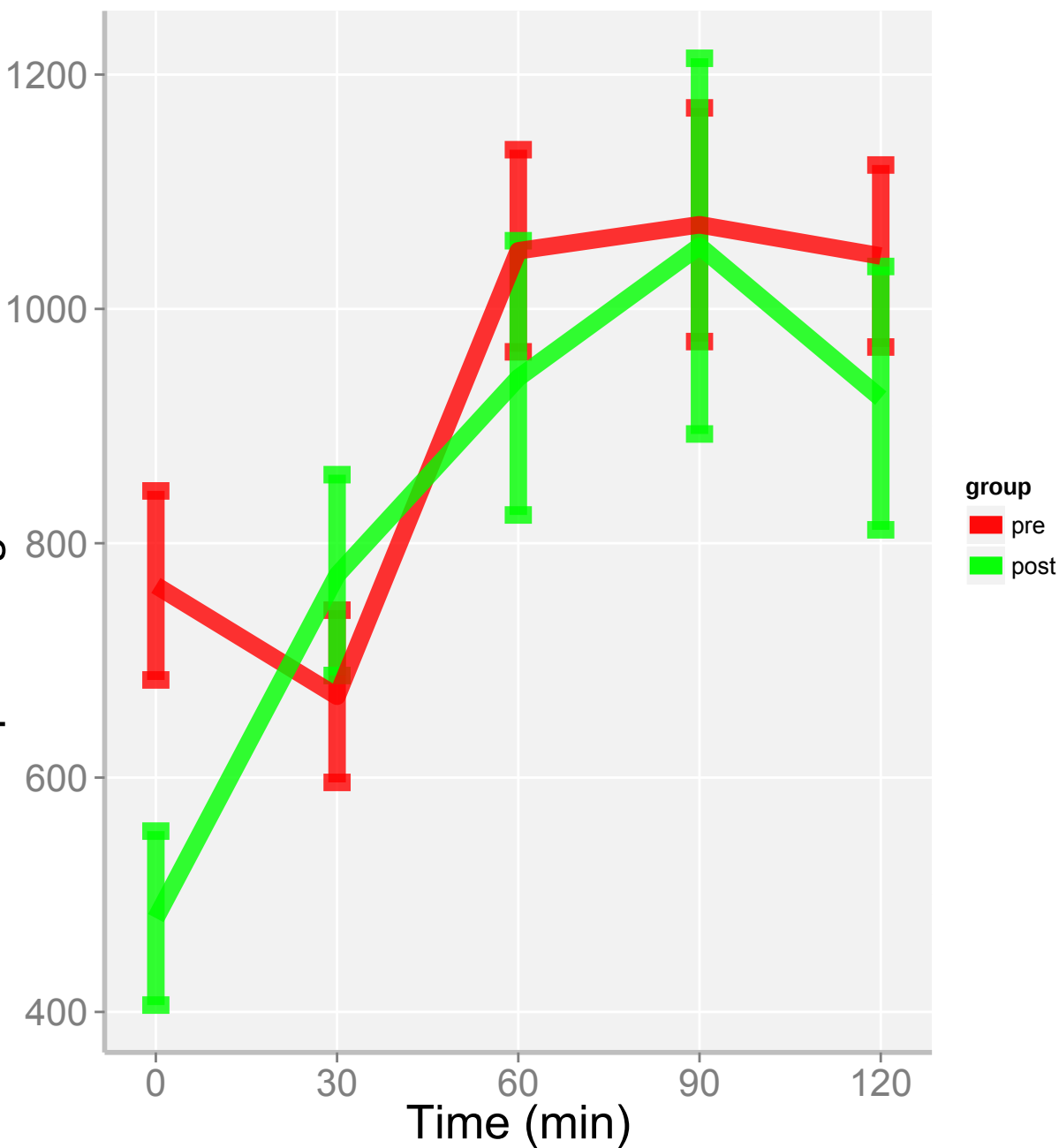


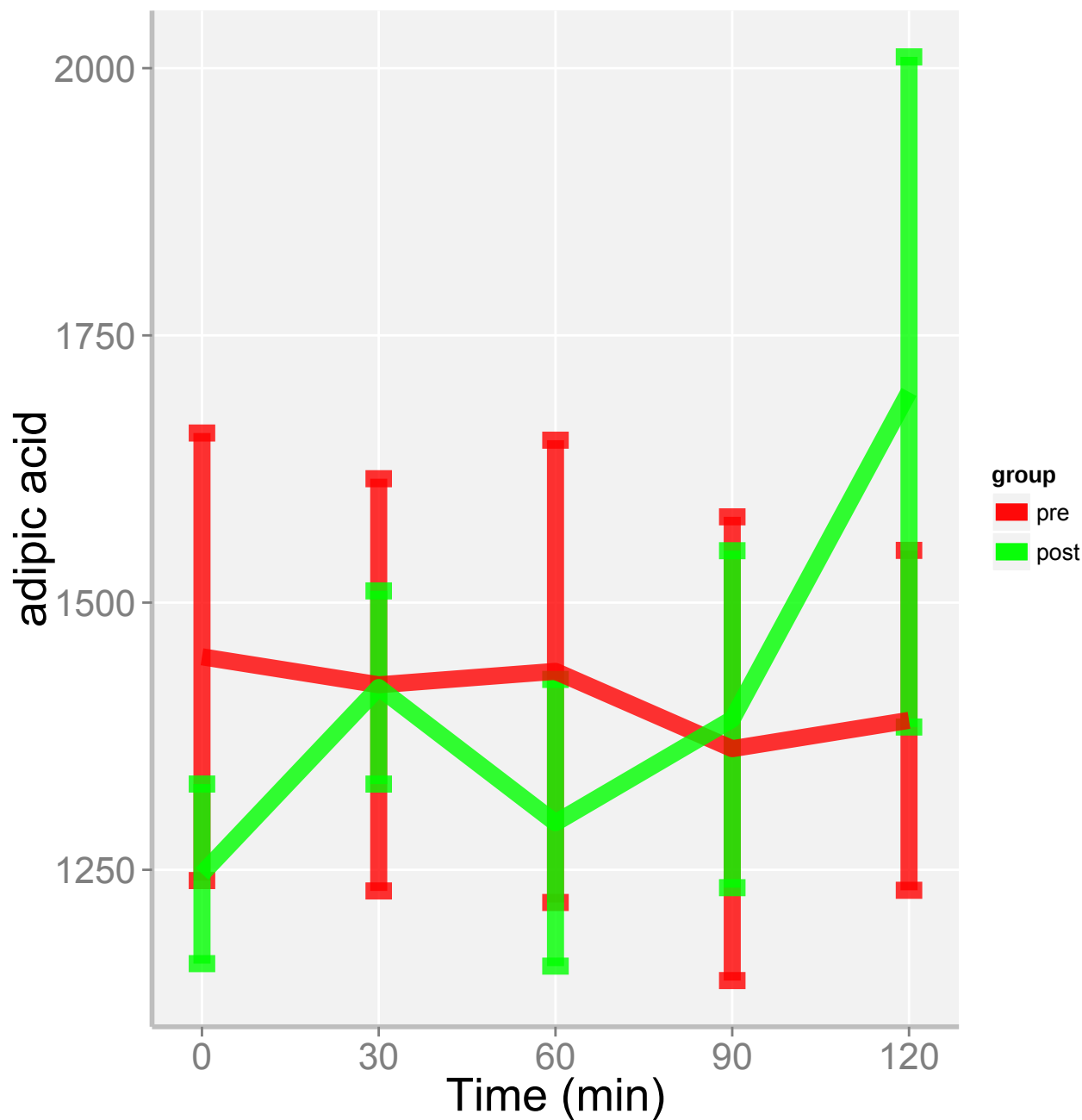






alpha-ketoglutaric. acid





methanolphosphate

1500

1000

500

0

30

60

90

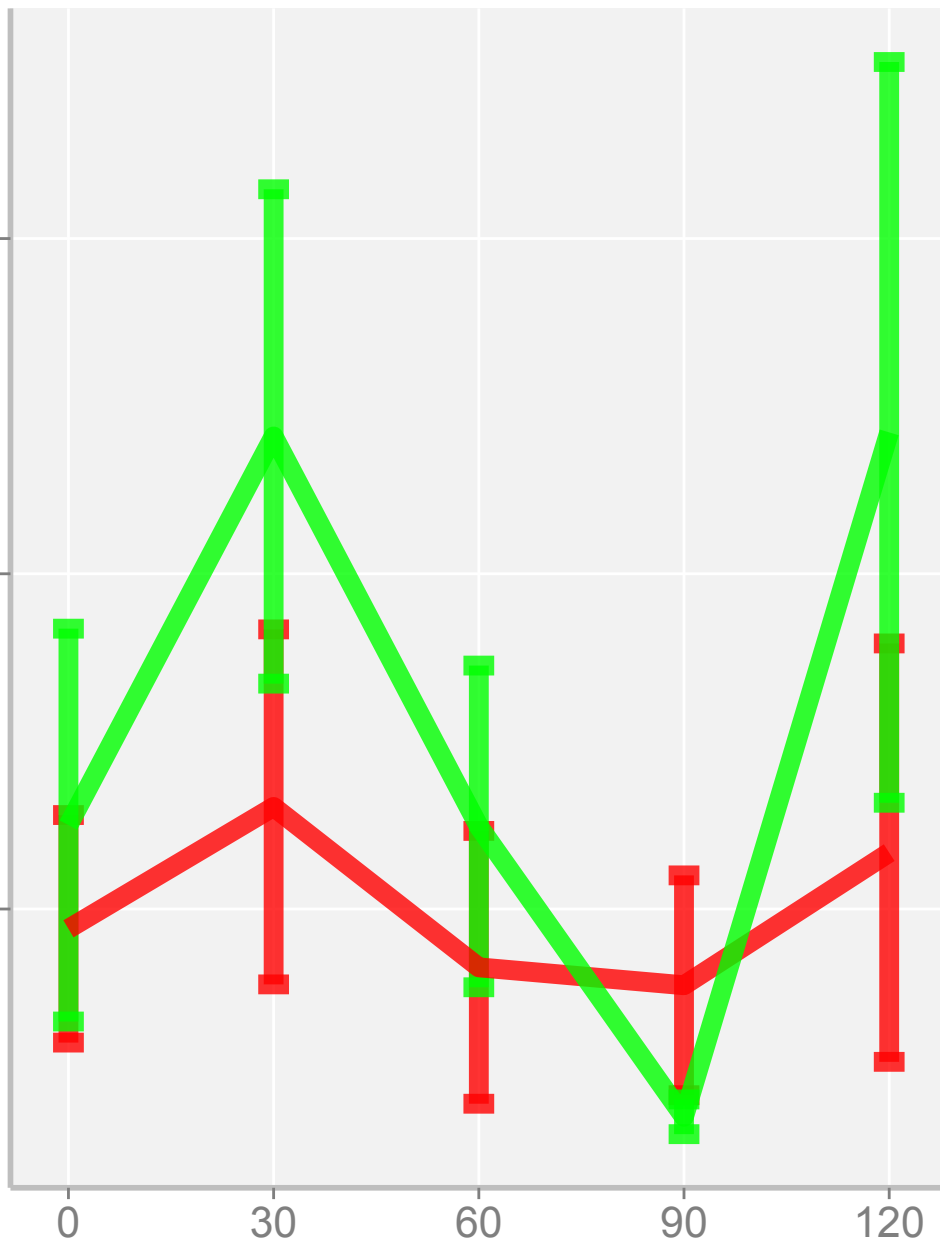
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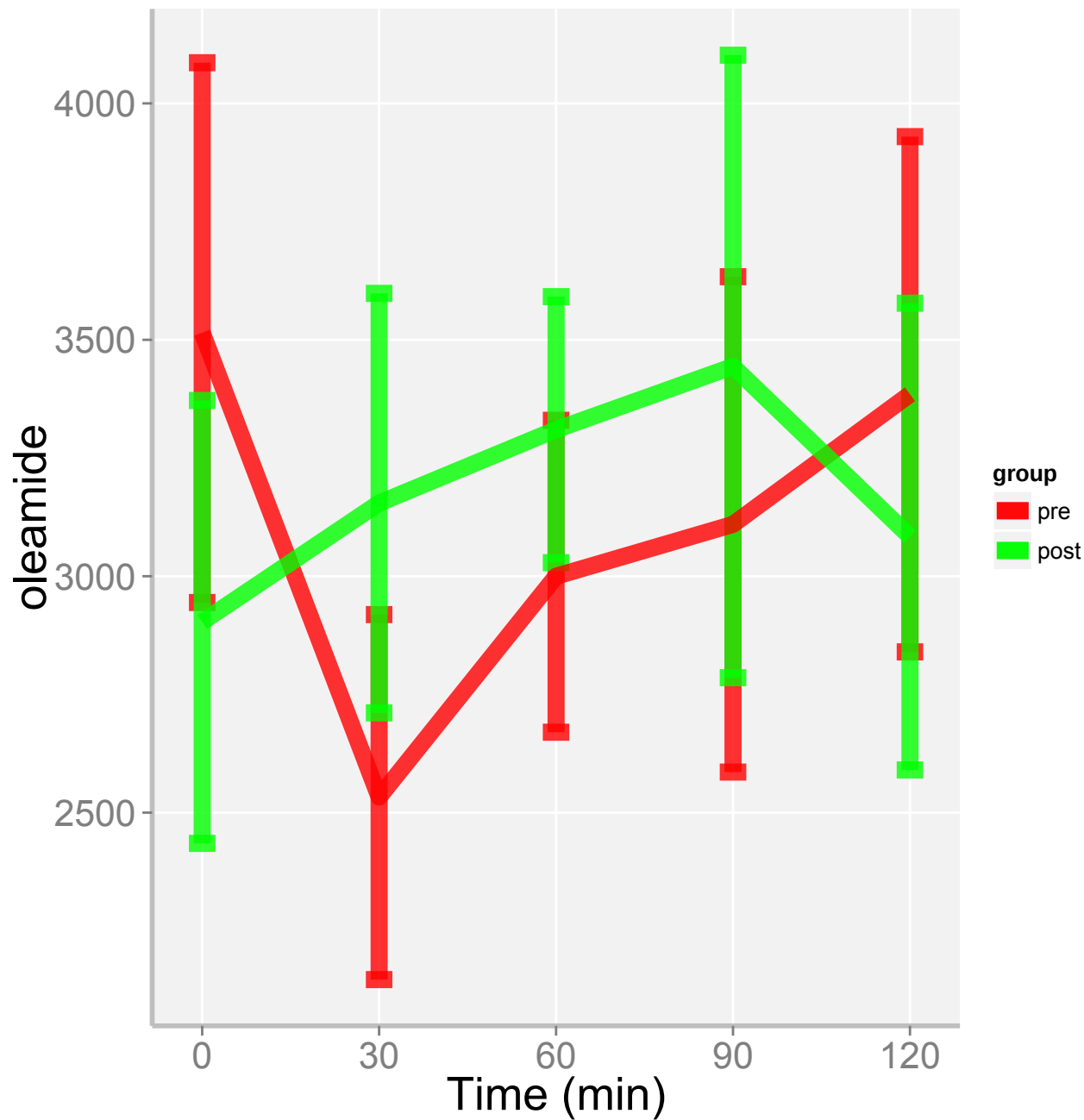
Time (min)

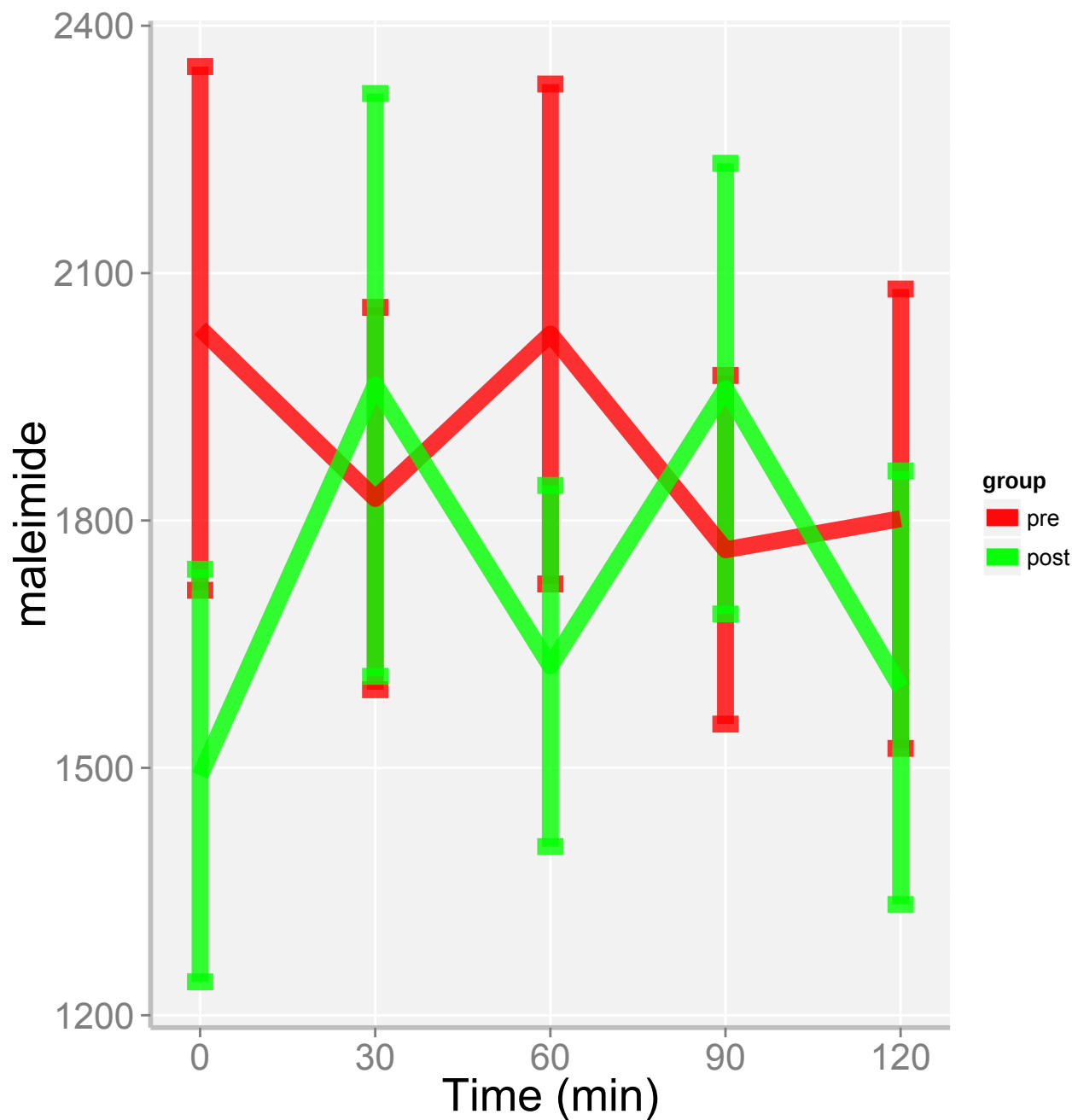
group

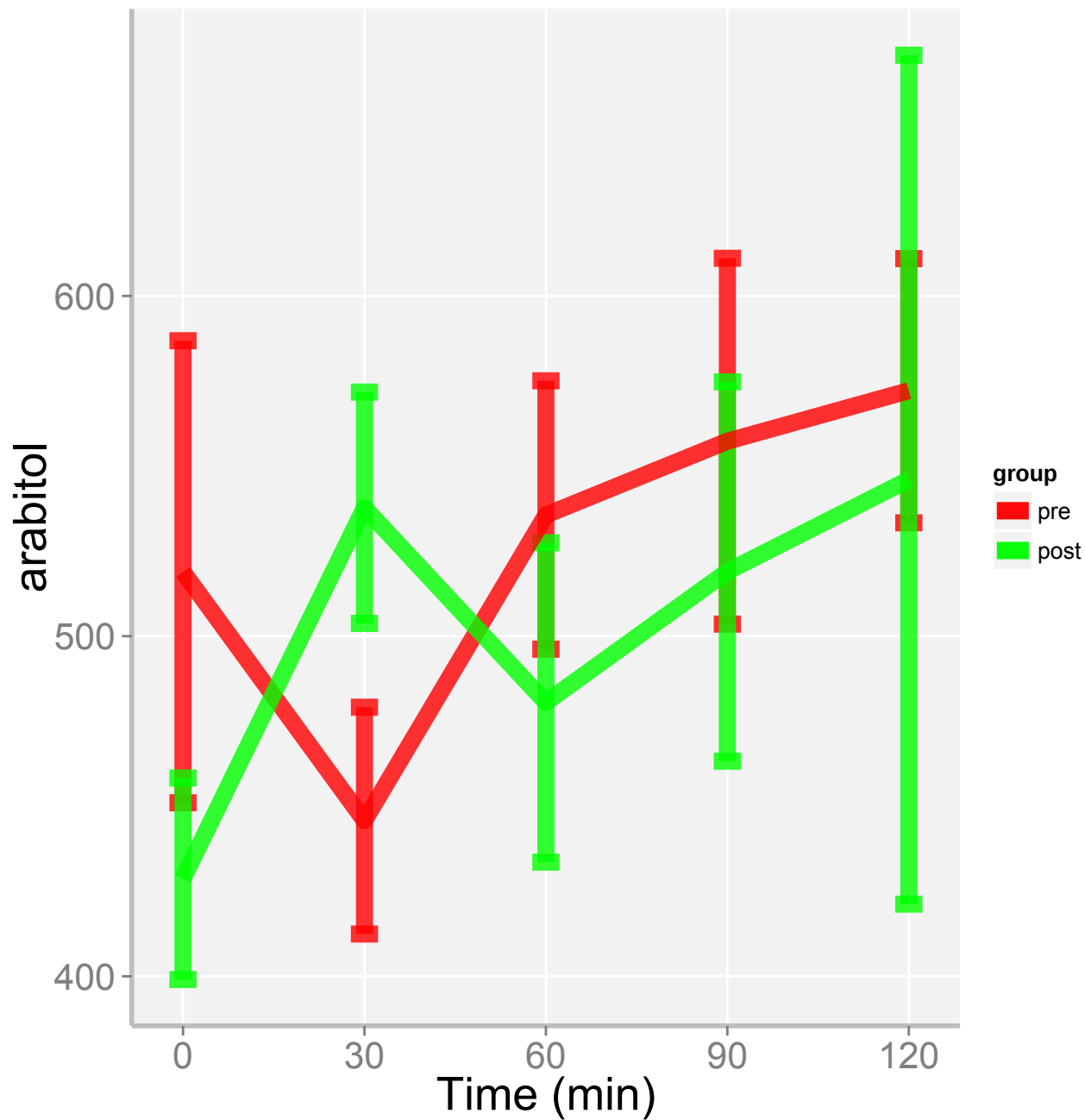
pre

post









dihydro-3-coumaric acid

6000

5000

4000

3000

0

30

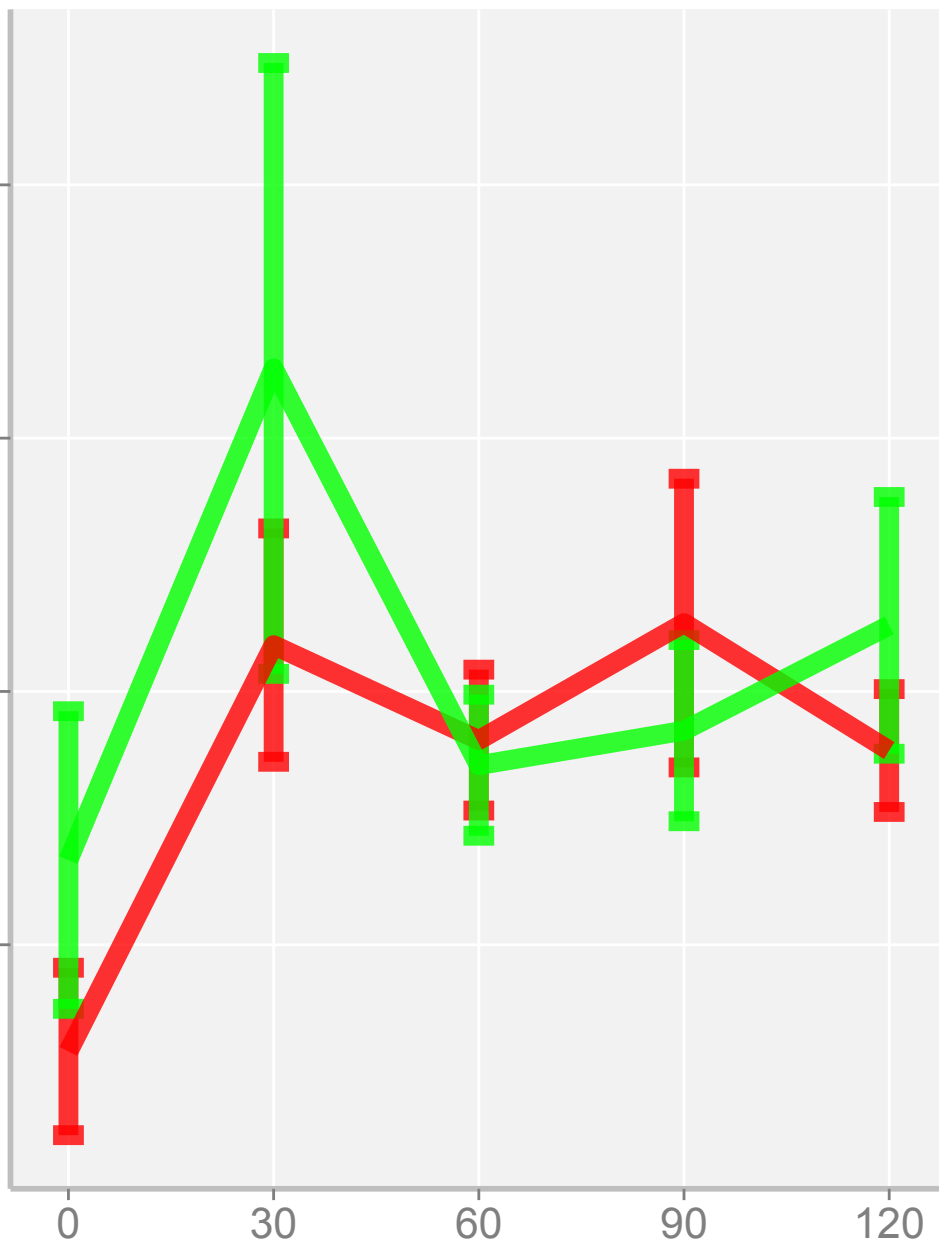
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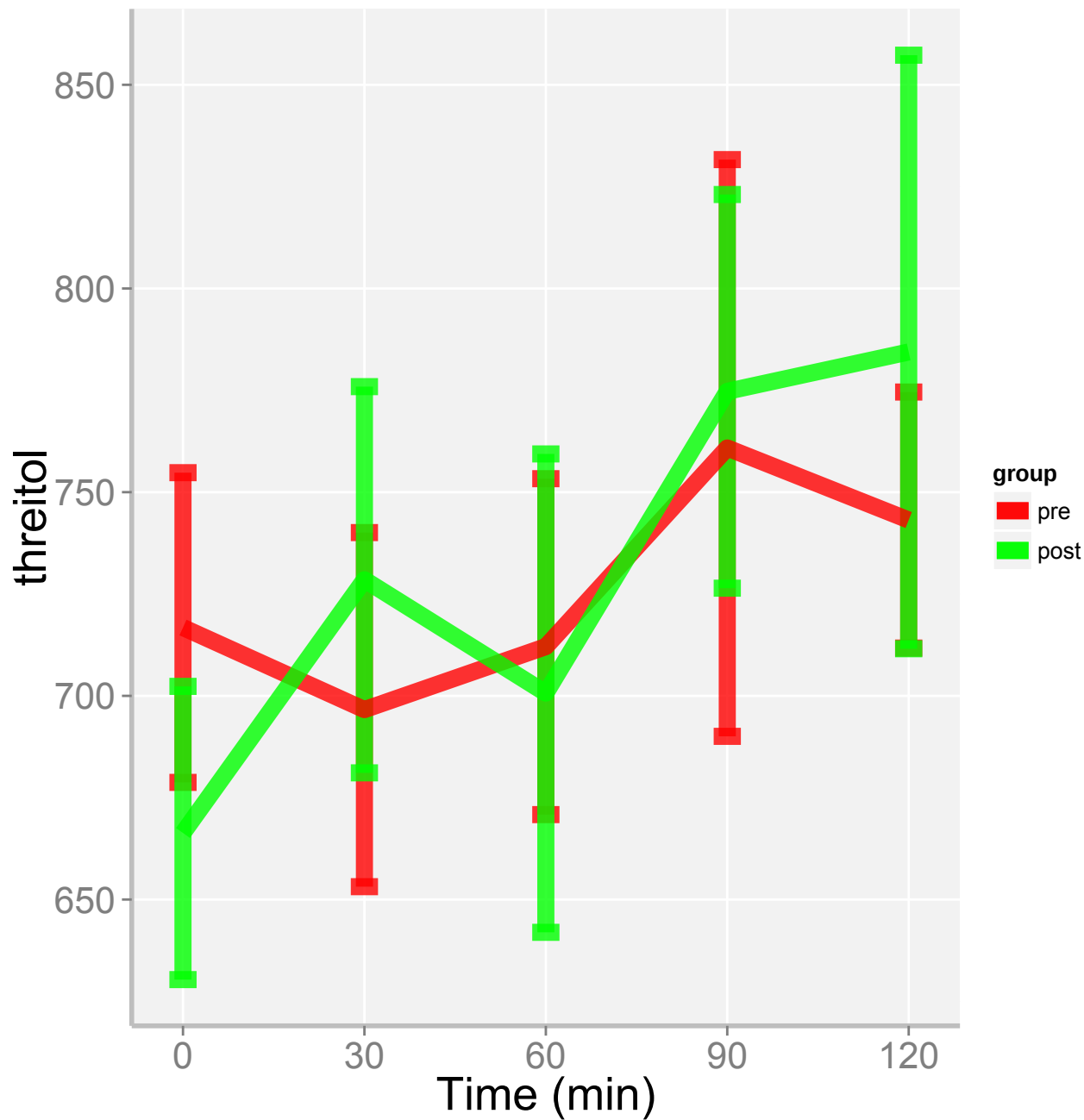
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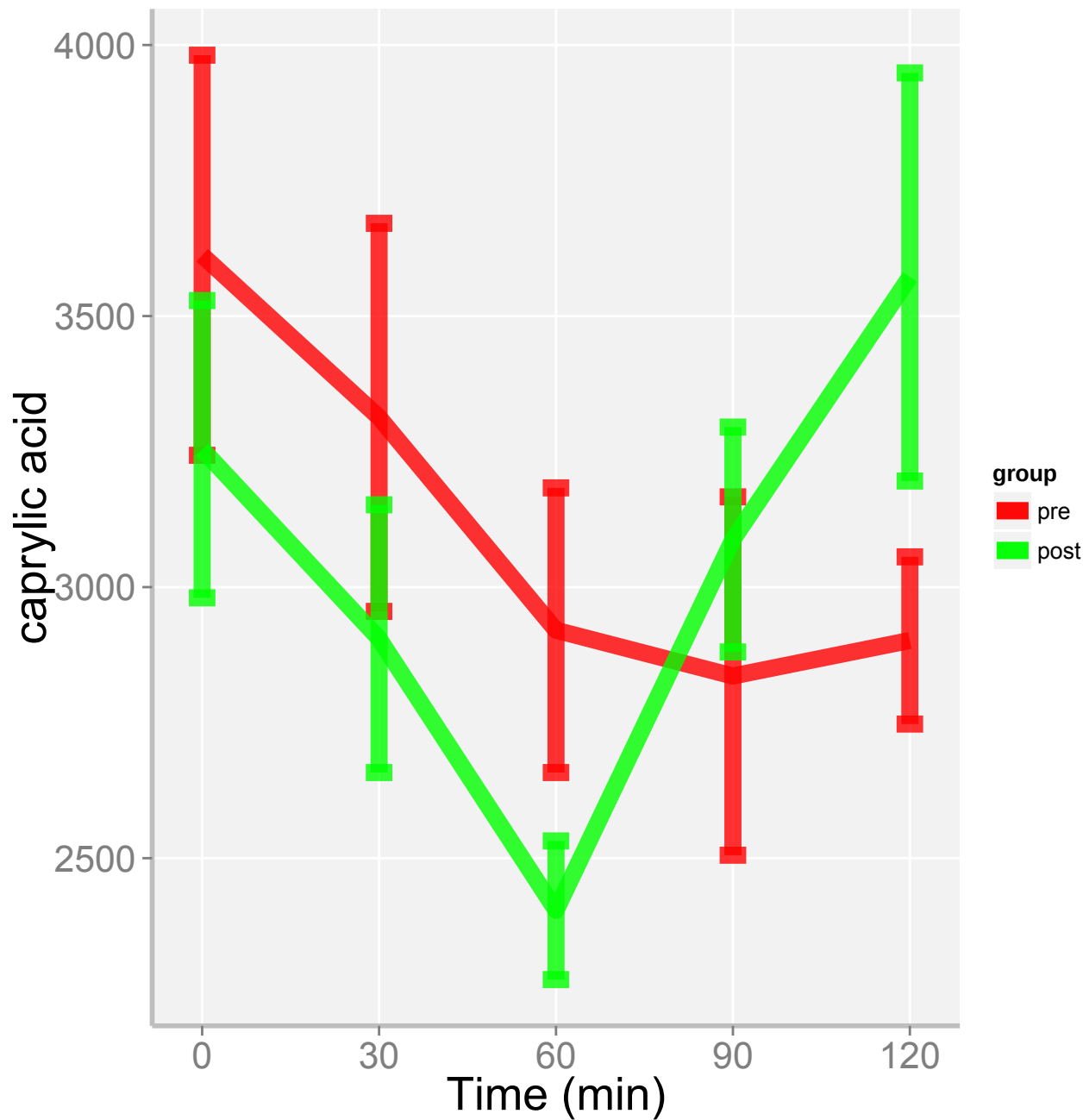
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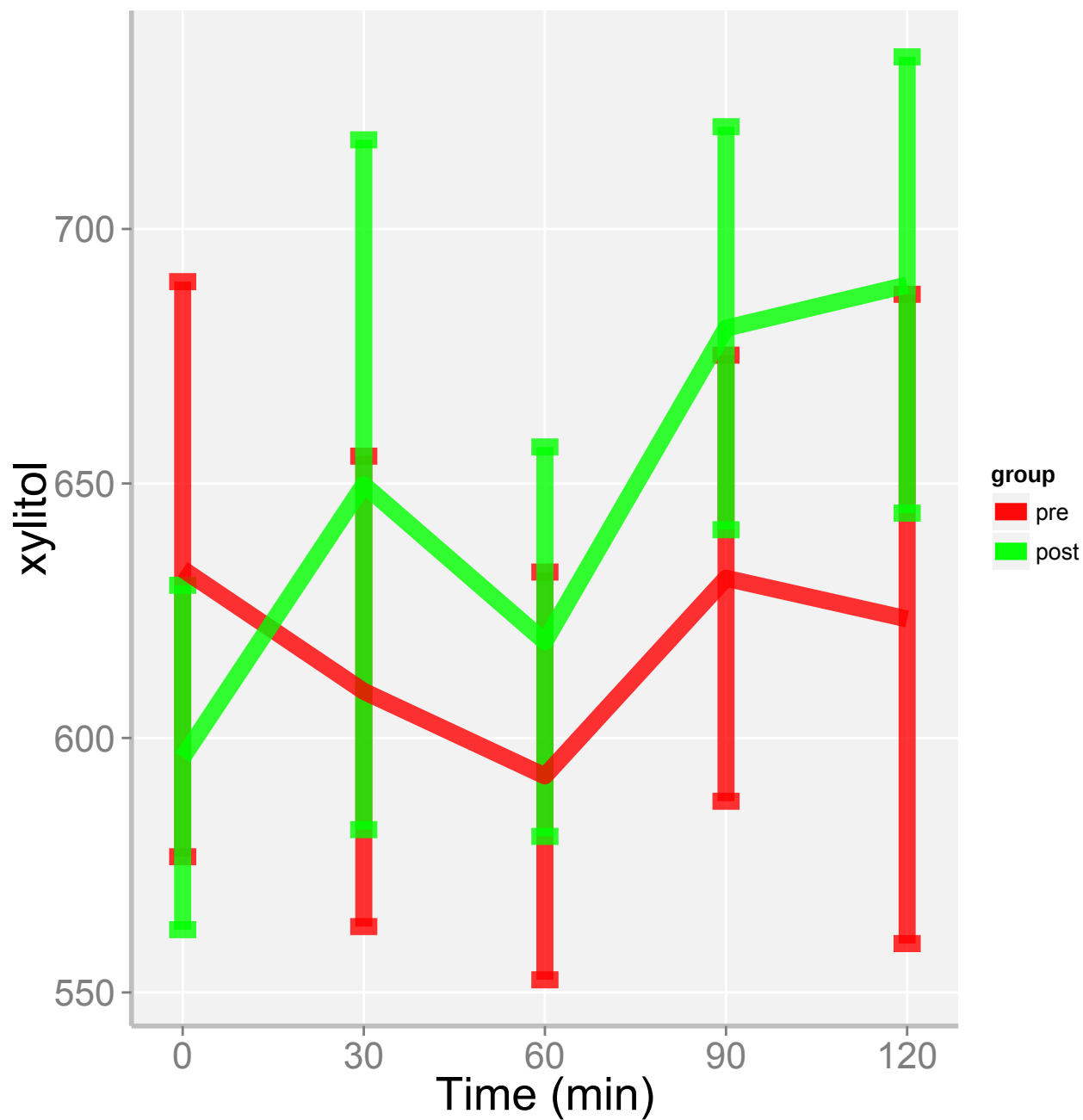
Time (min)

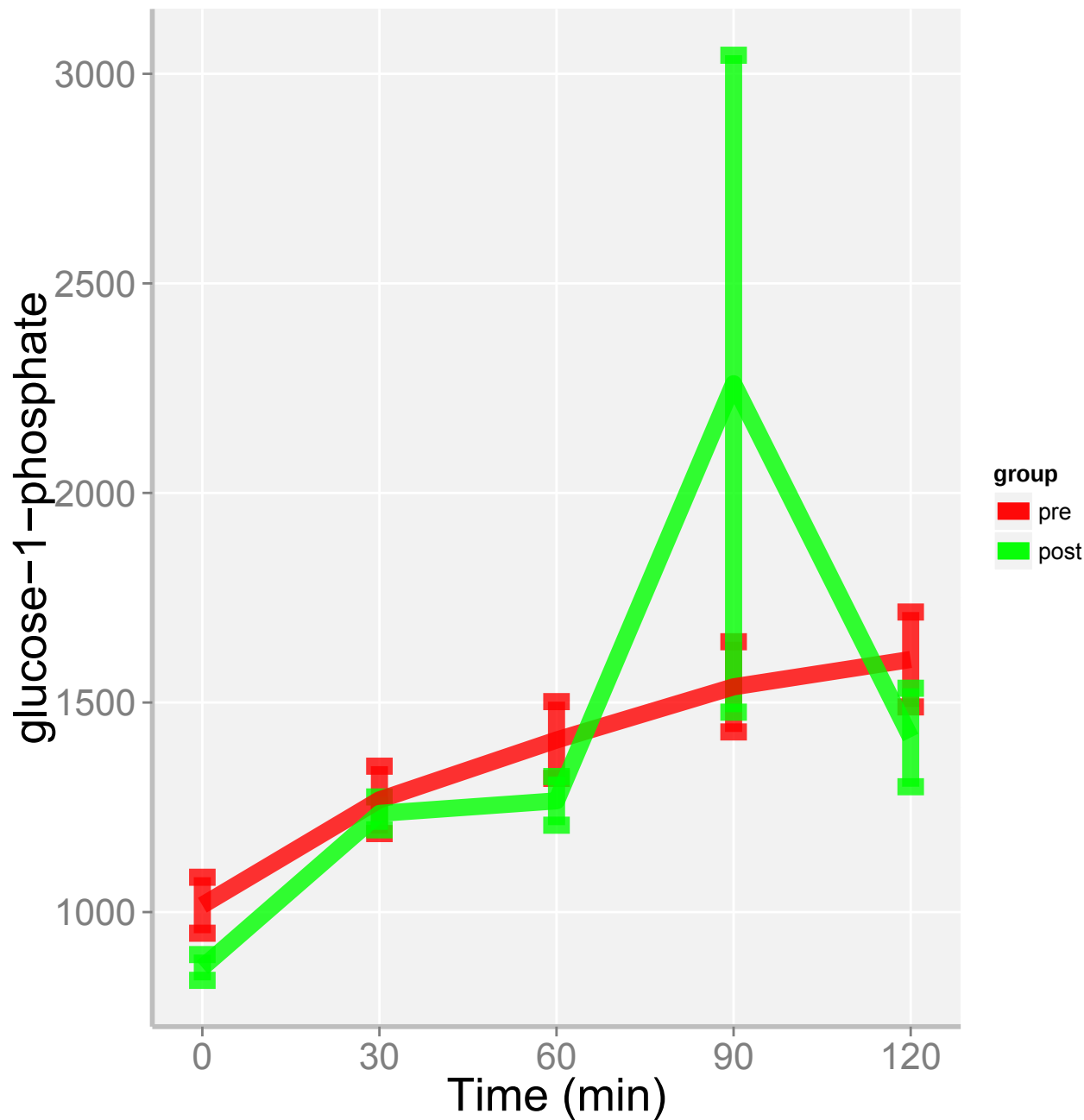
group
pre
post

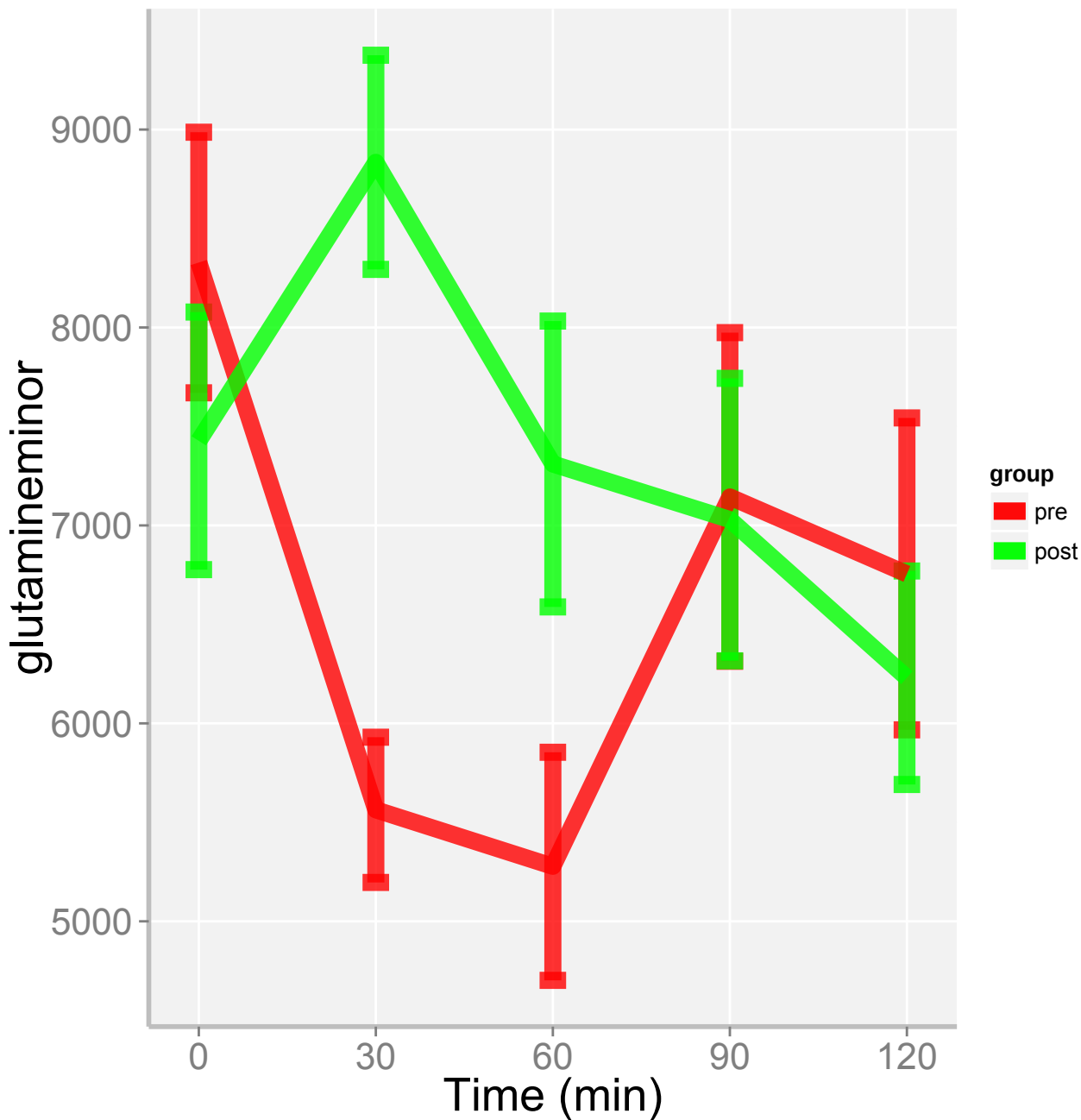


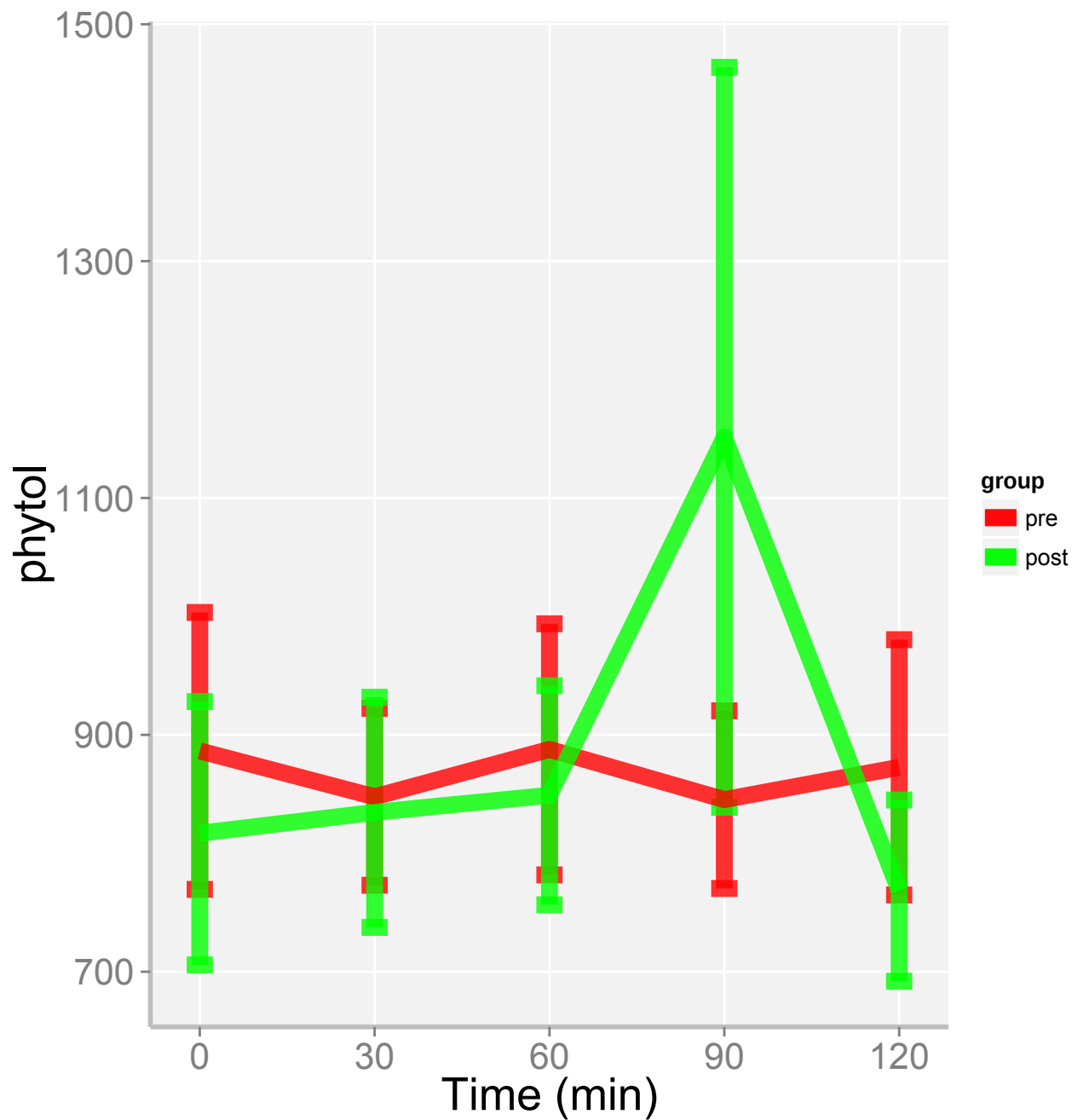












glutamine dehydrated

1100

900

700

500

0

30

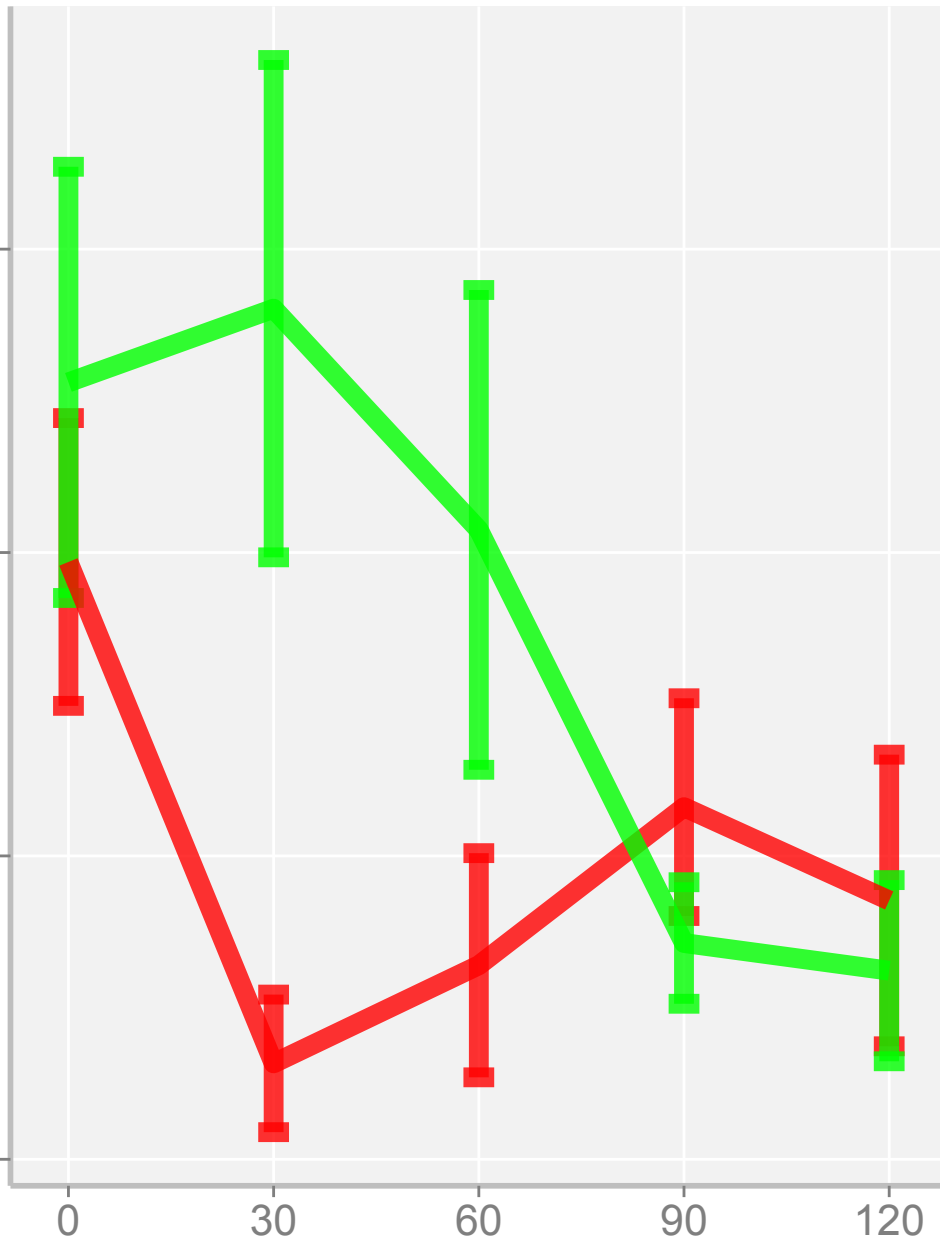
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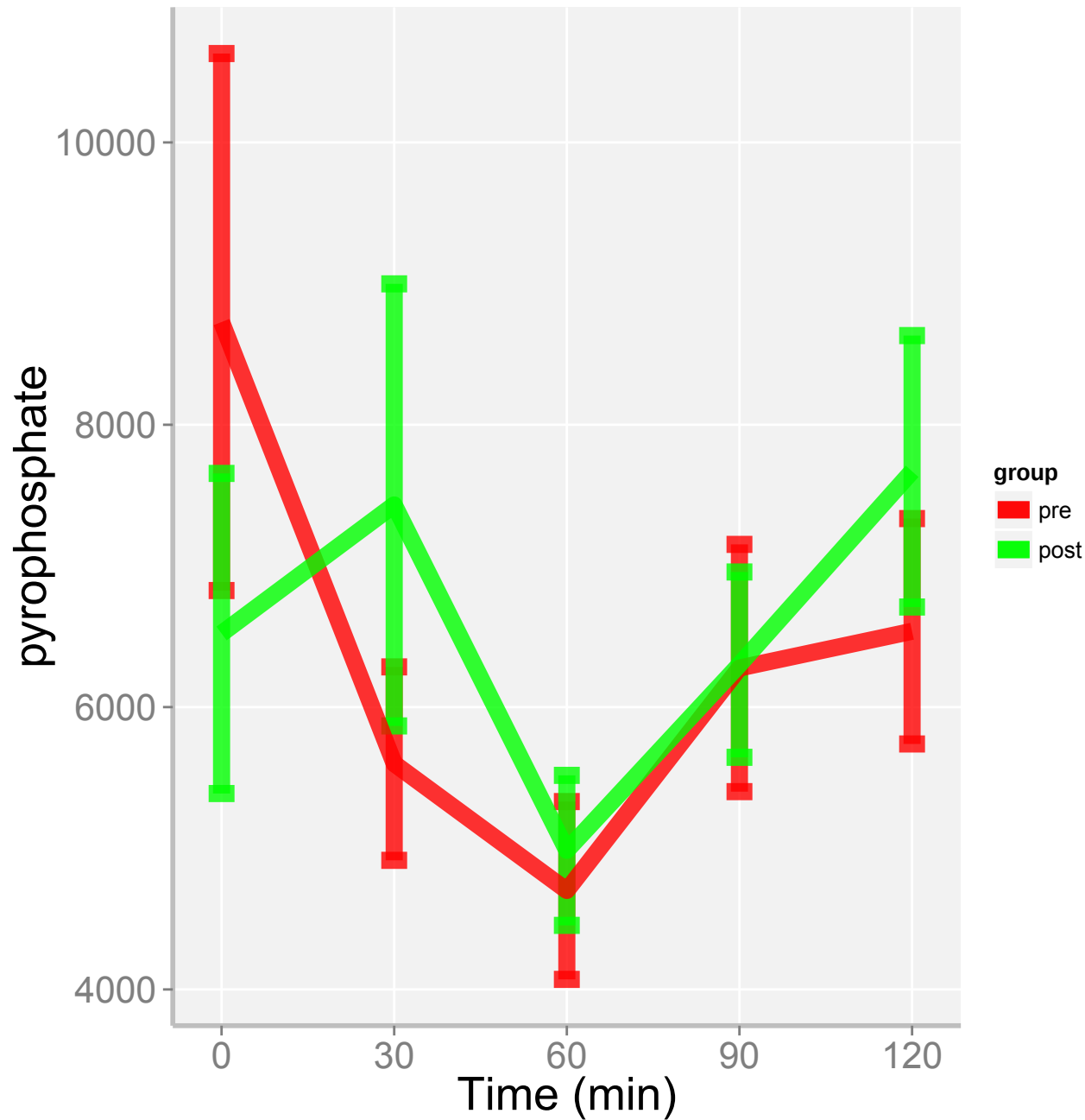
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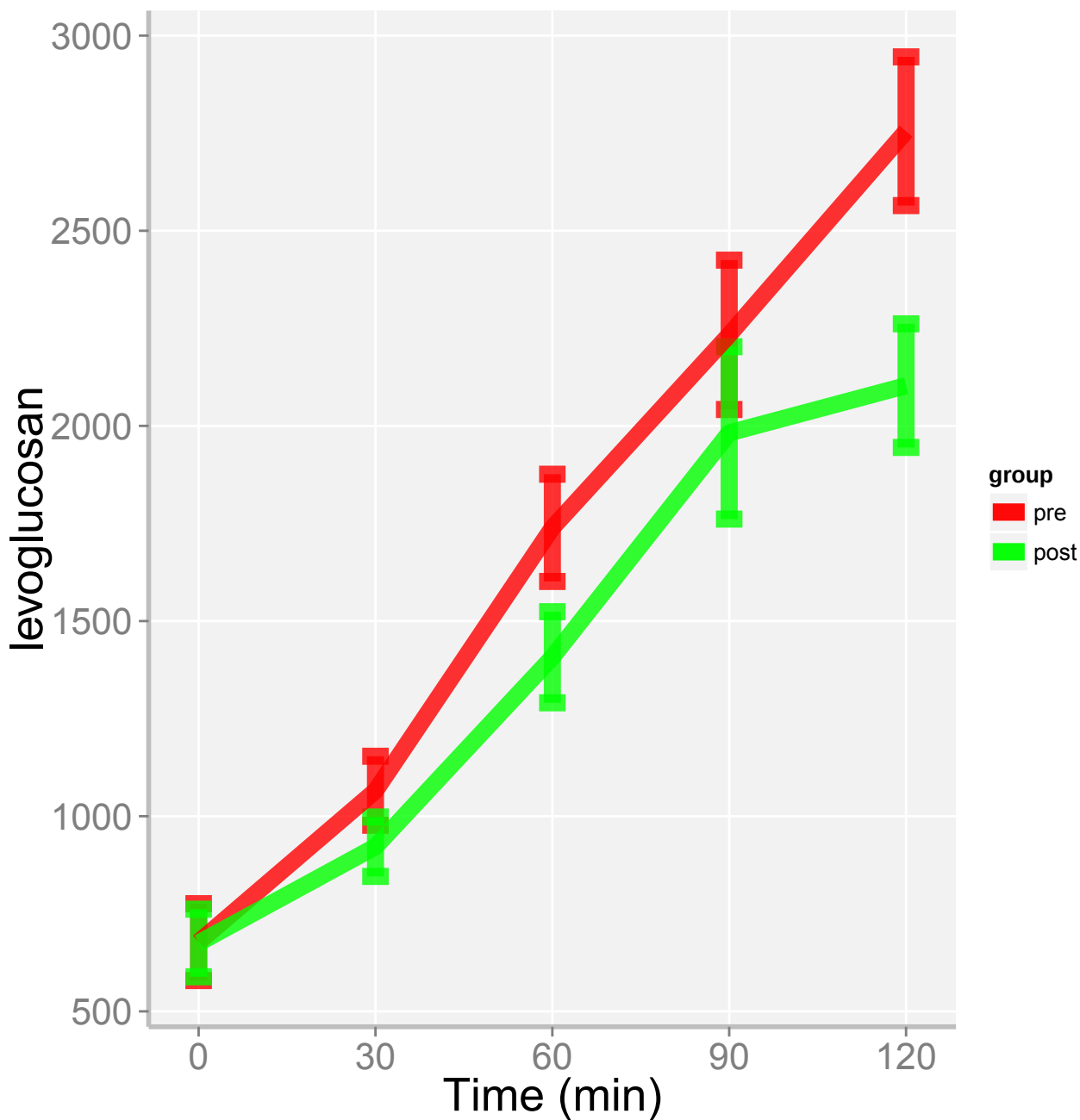
120

Time (min)

group
pre
post







4-hydroxybenzoate

2000

1500

1000

500

0

30

60

90

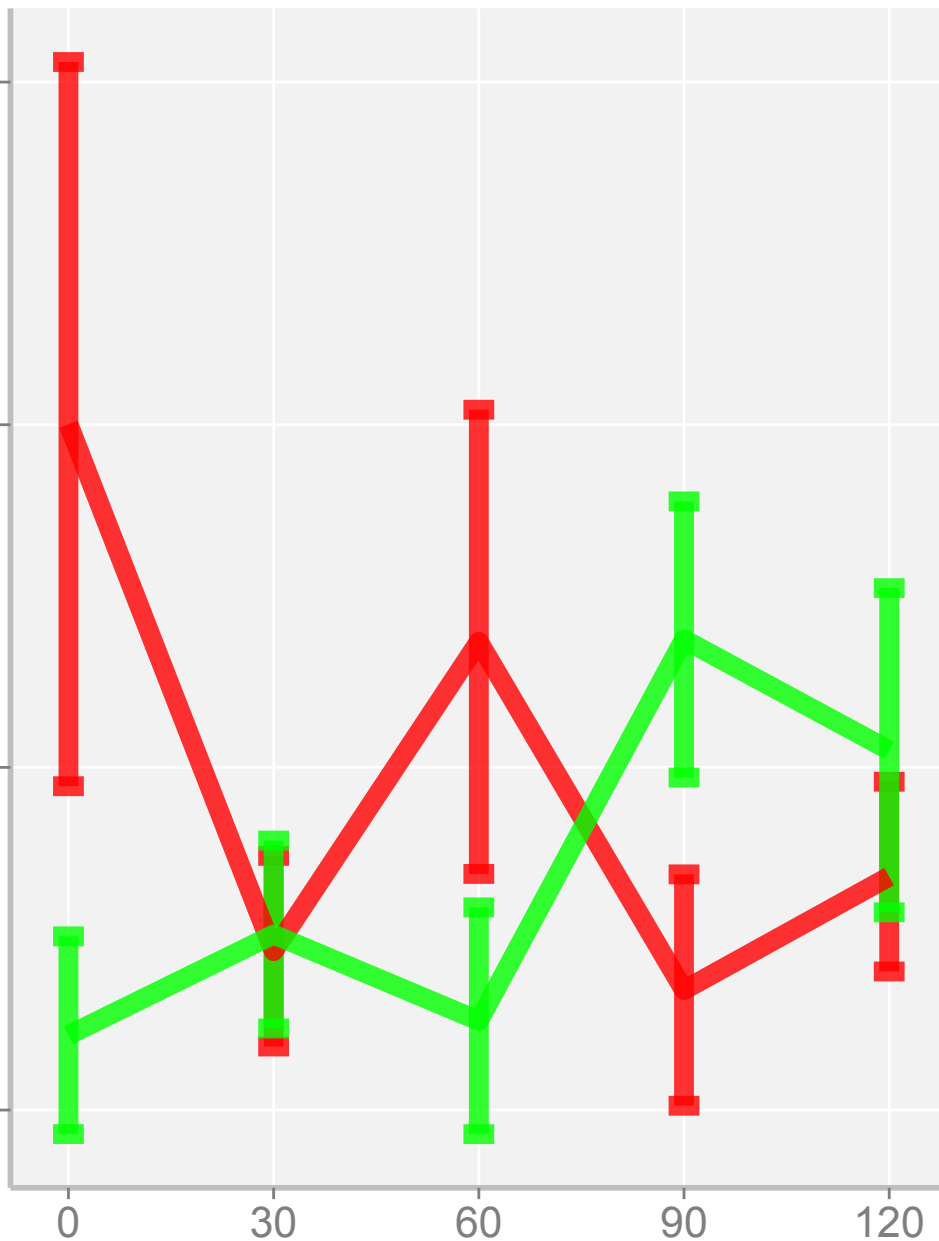
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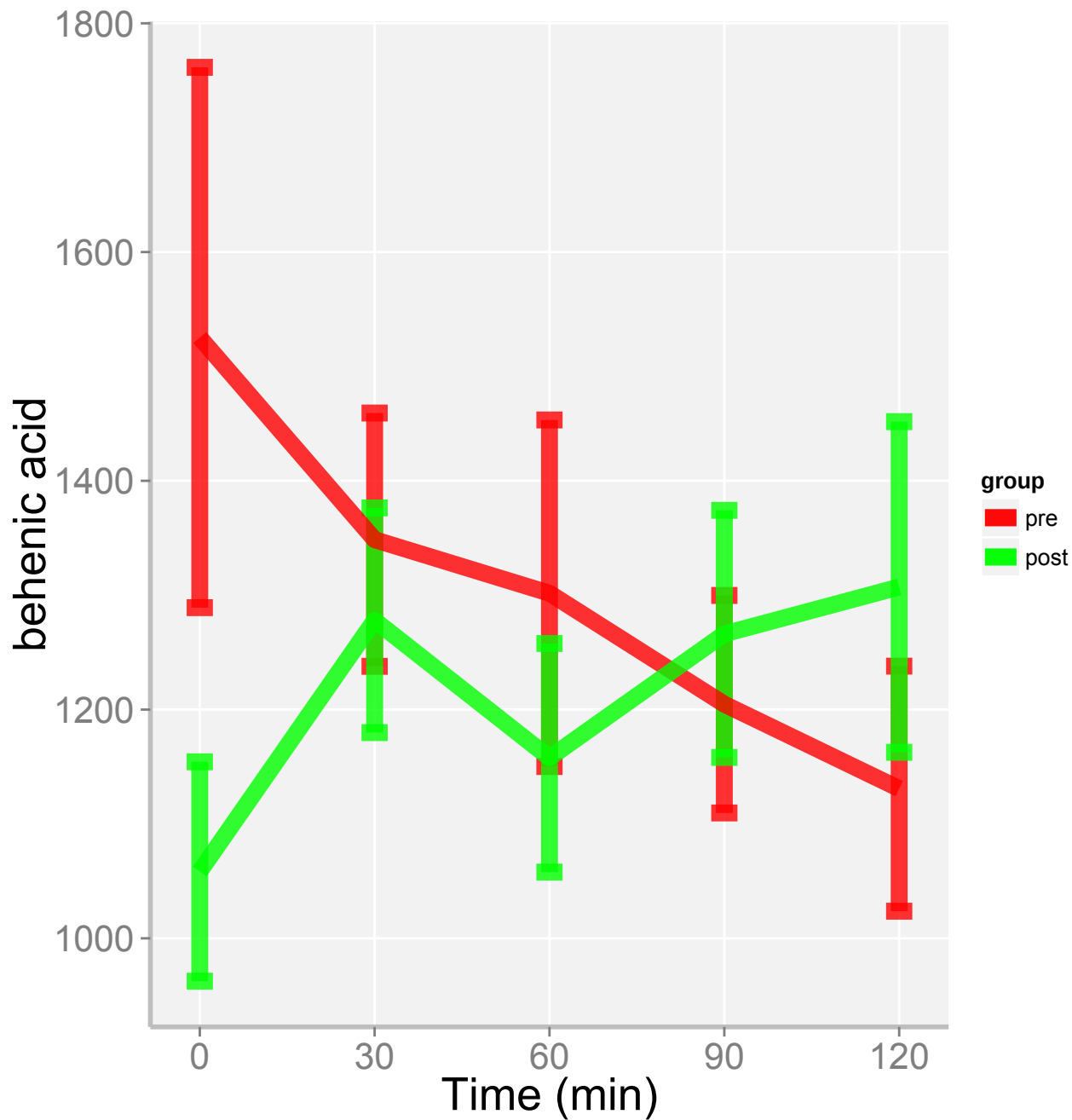
Time (min)

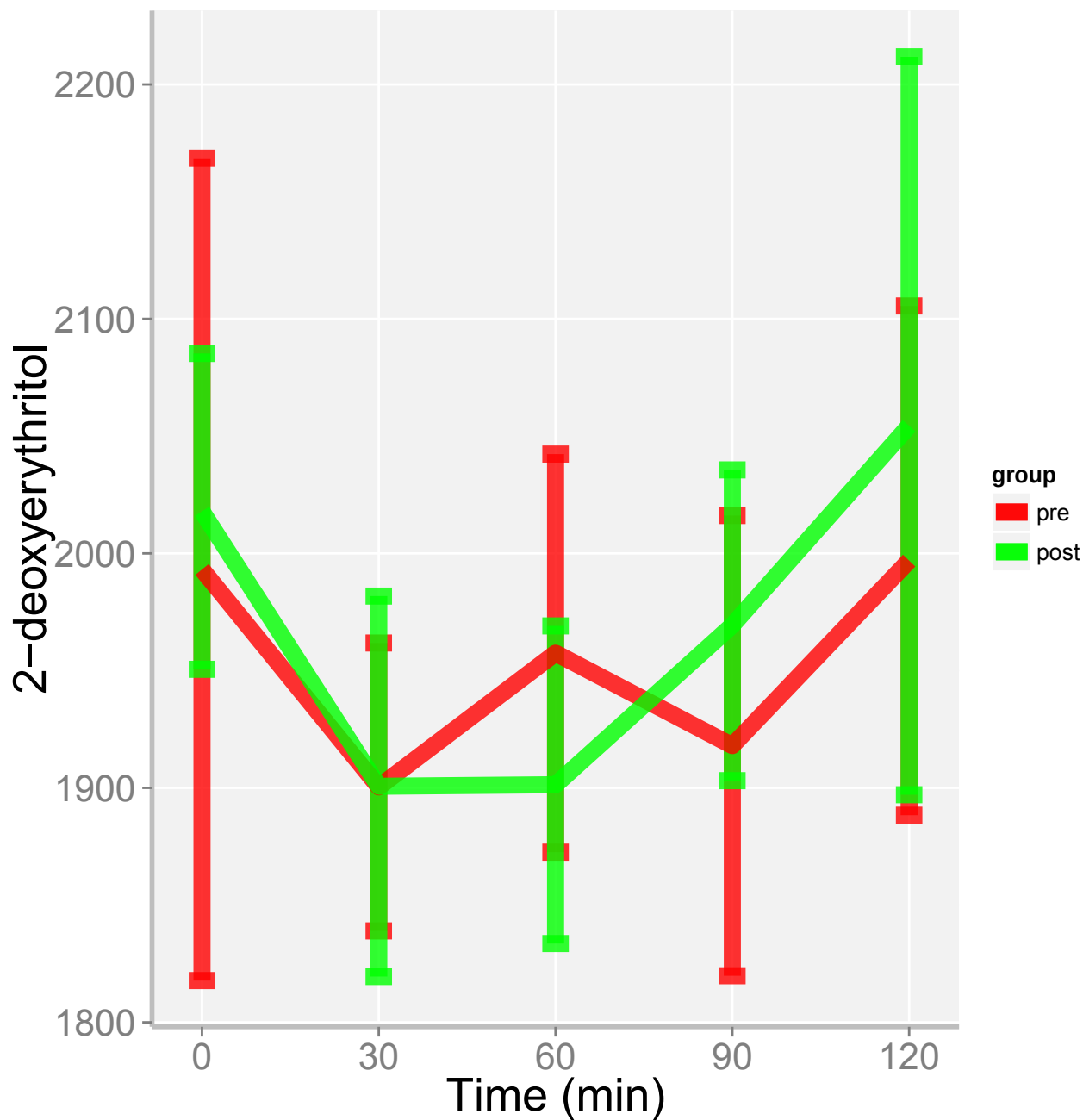
group

pre

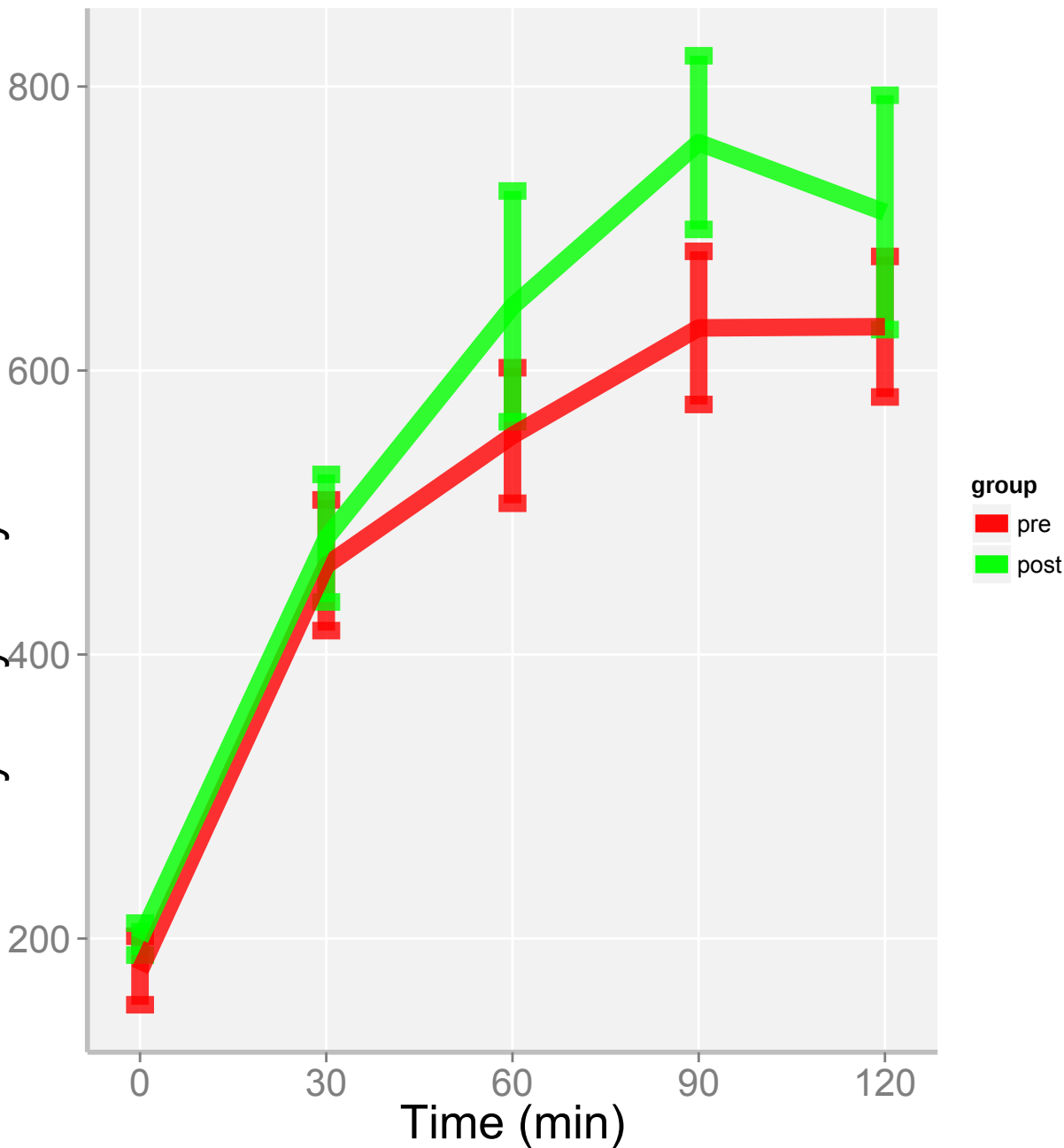
post

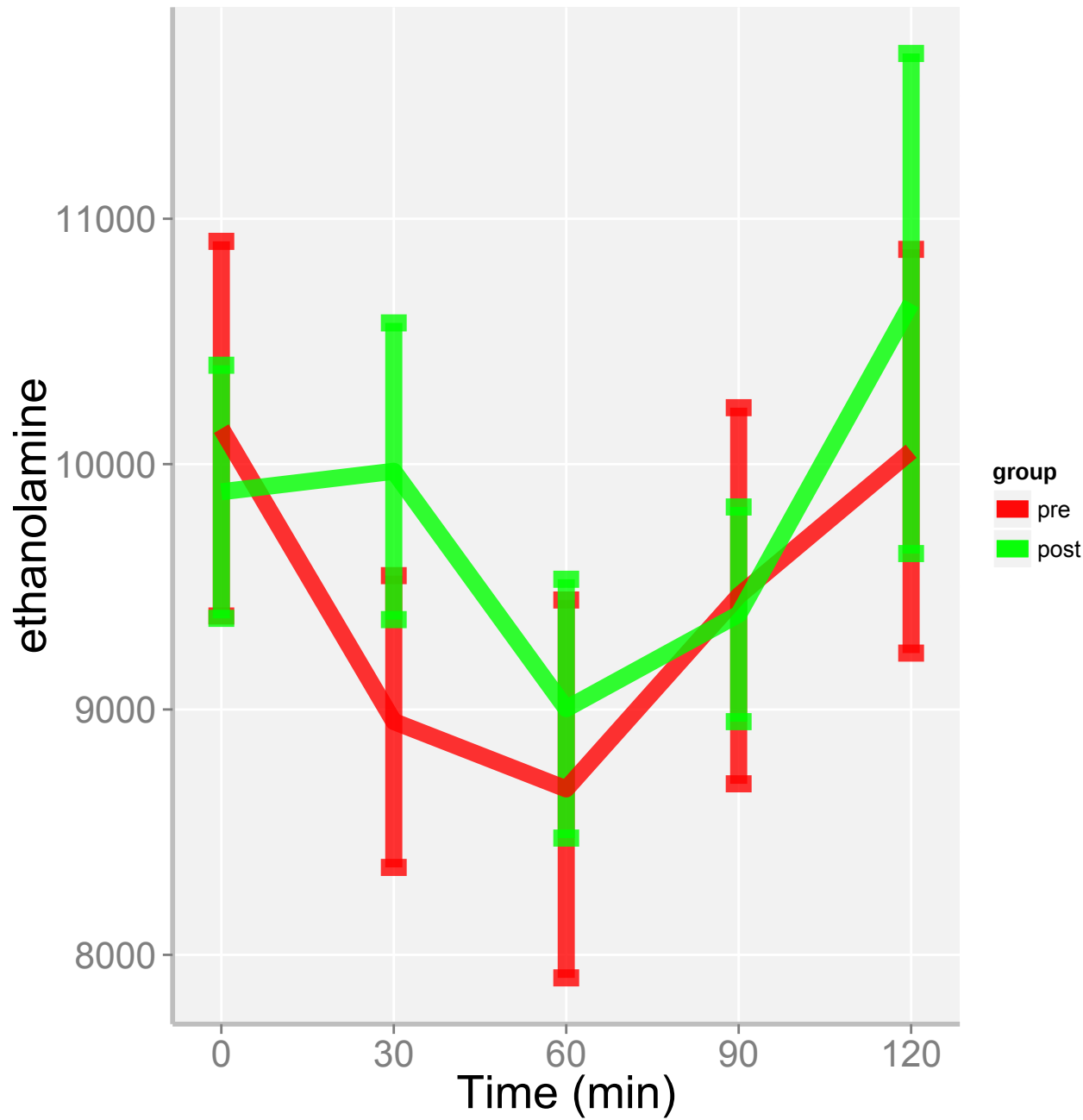






5-hydroxymethyl-2-furoic acid.





glycerol-3-galactoside

800

700

600

500

0

30

60

90

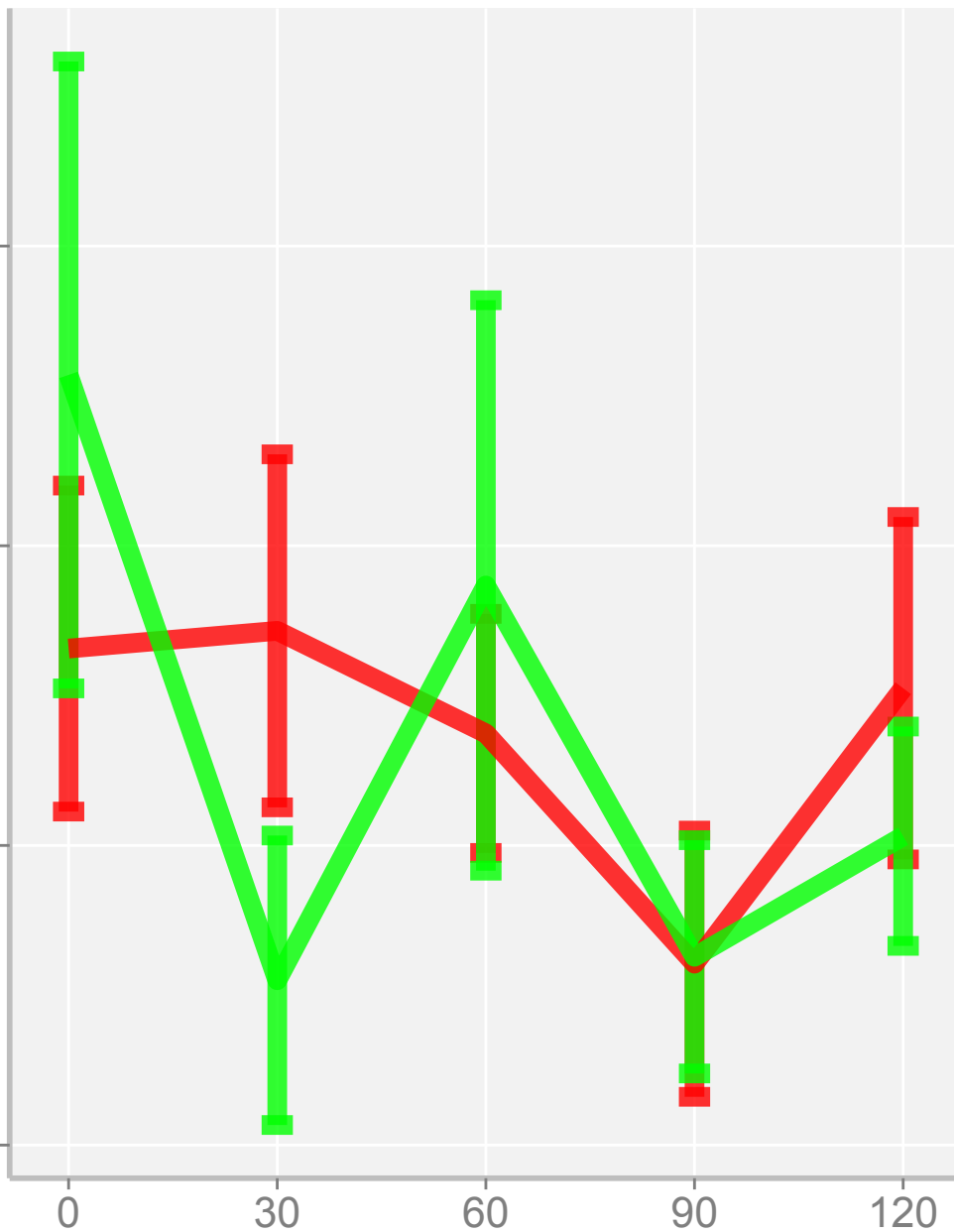
120

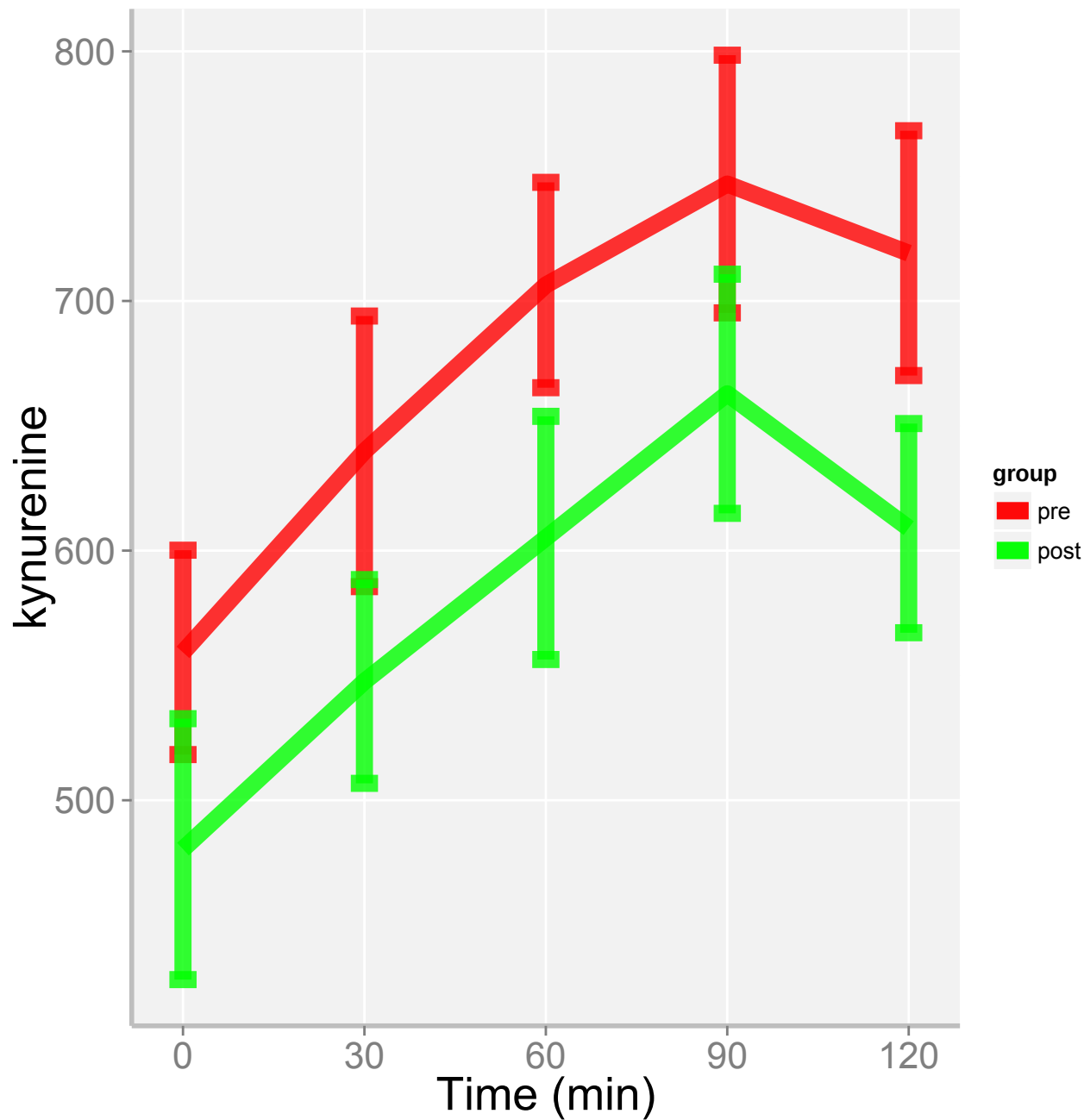
Time (min)

group

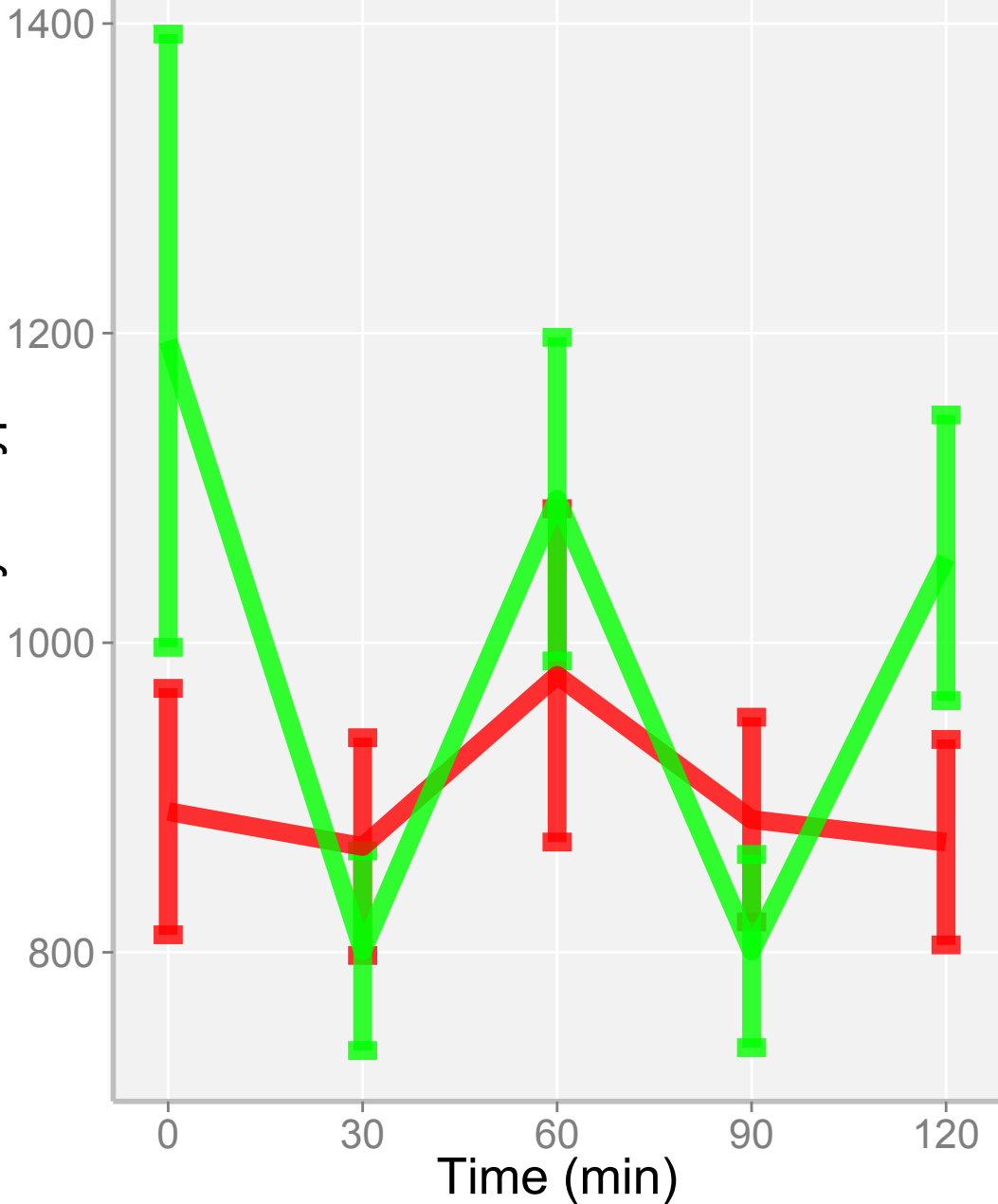
pre

post

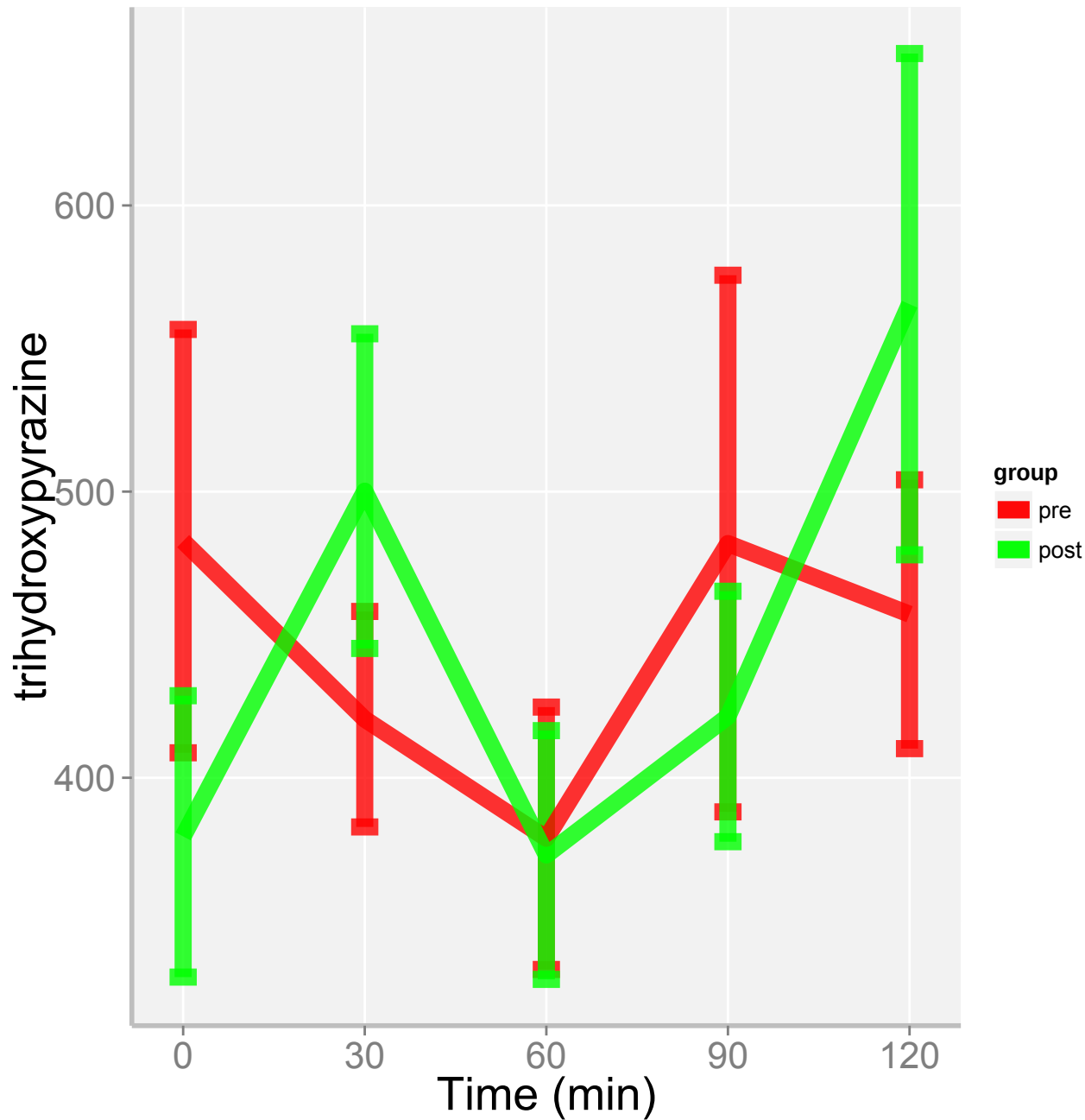


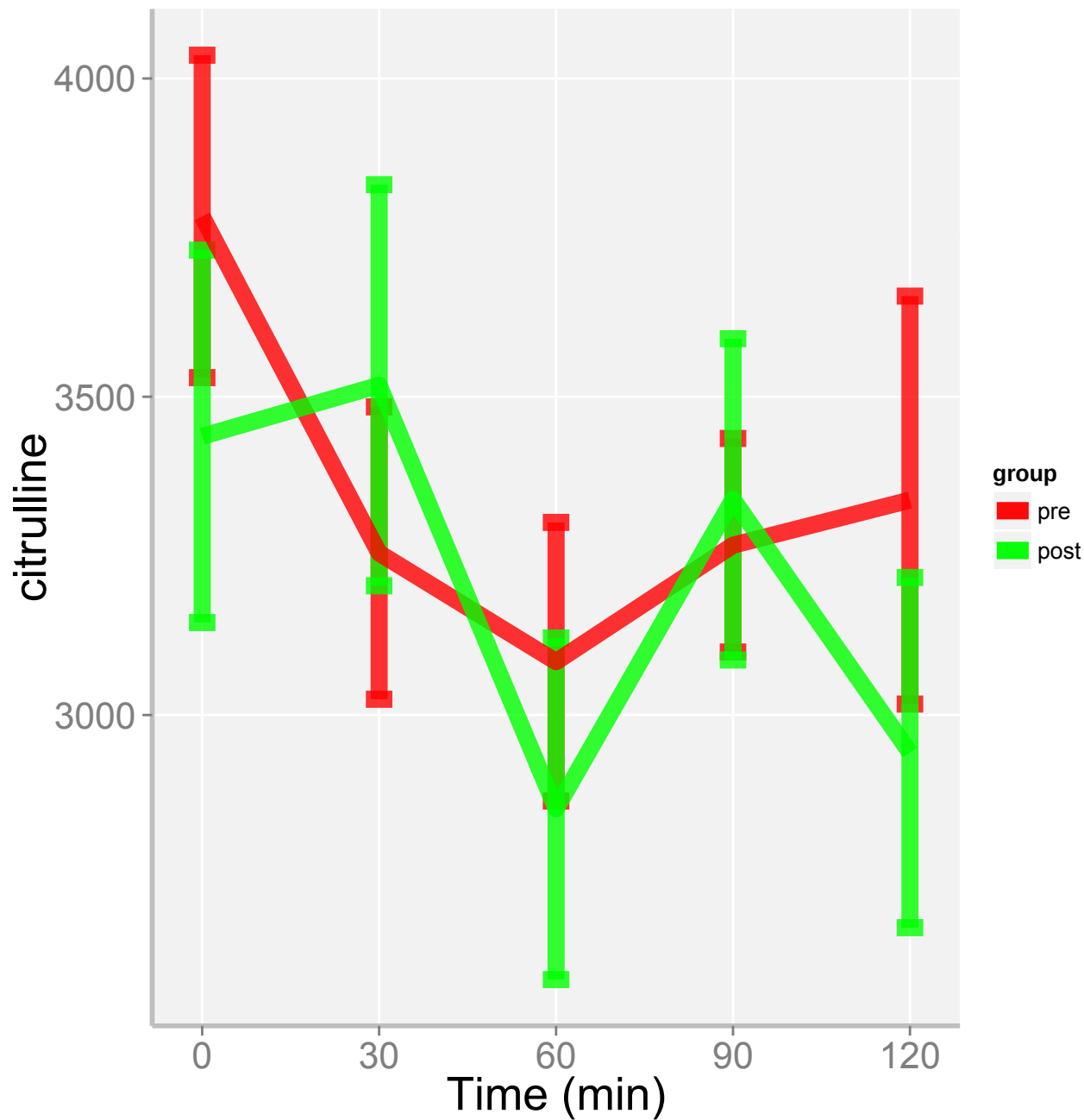


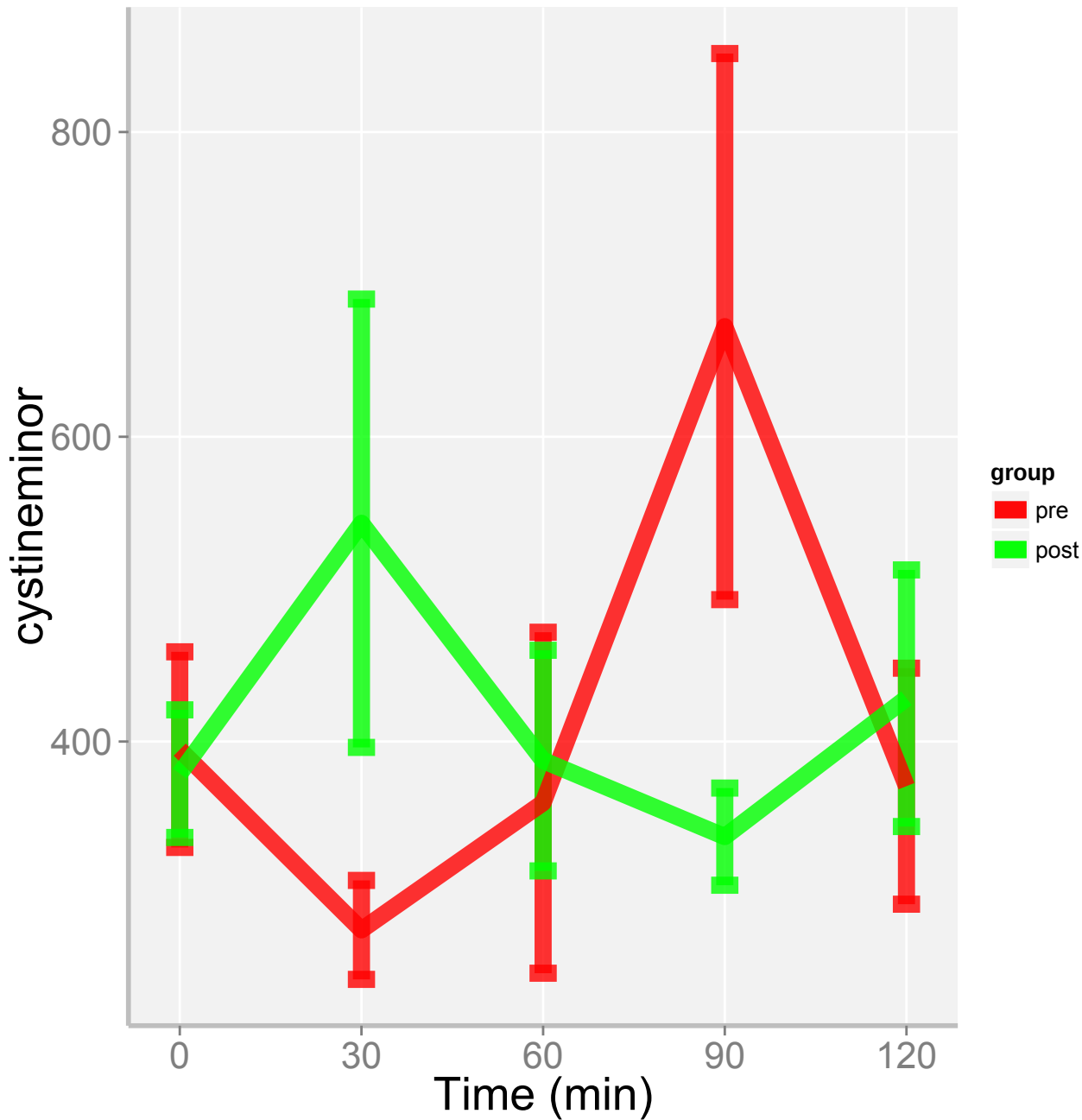
trans-4-hydroxyproline

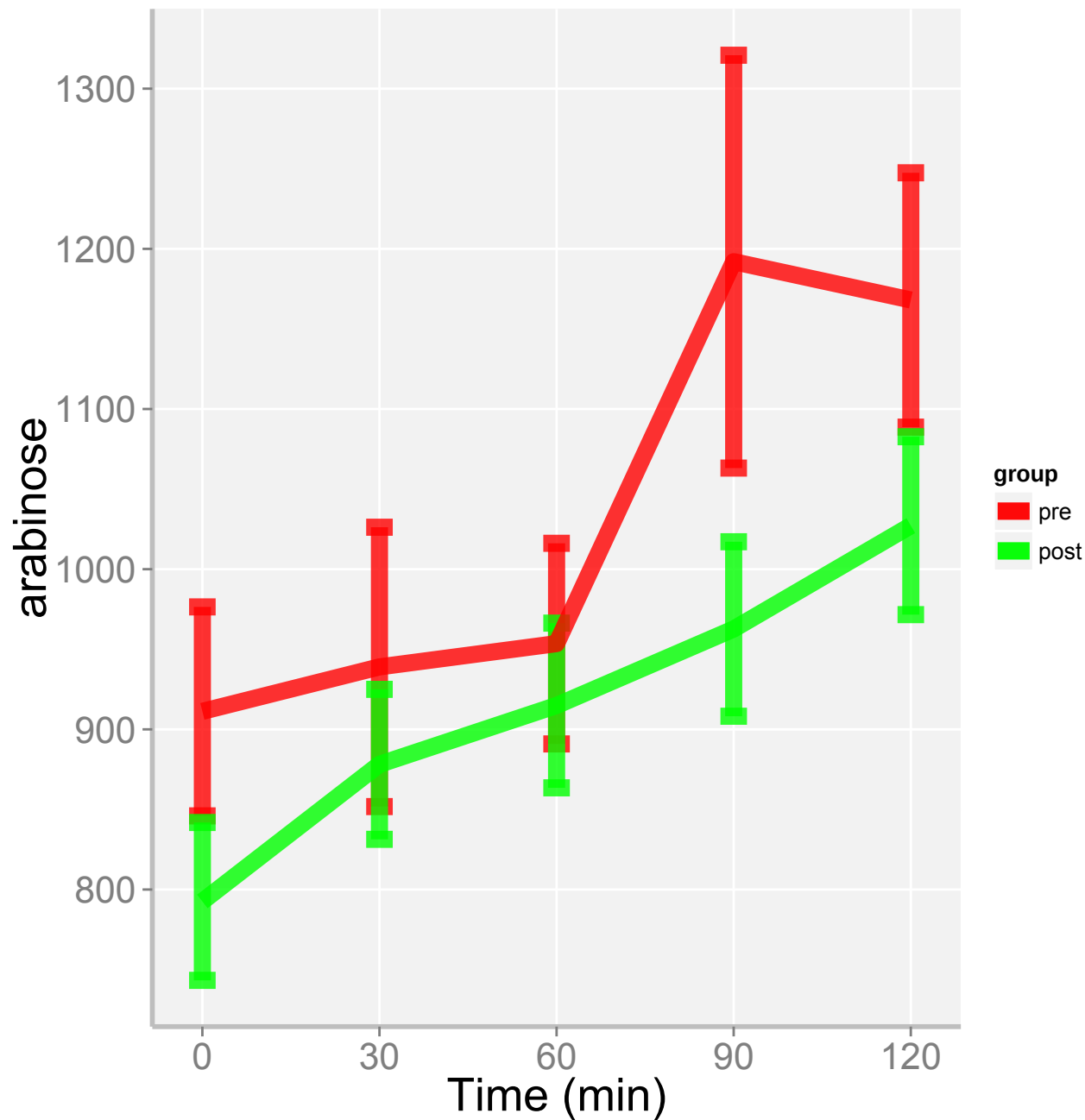


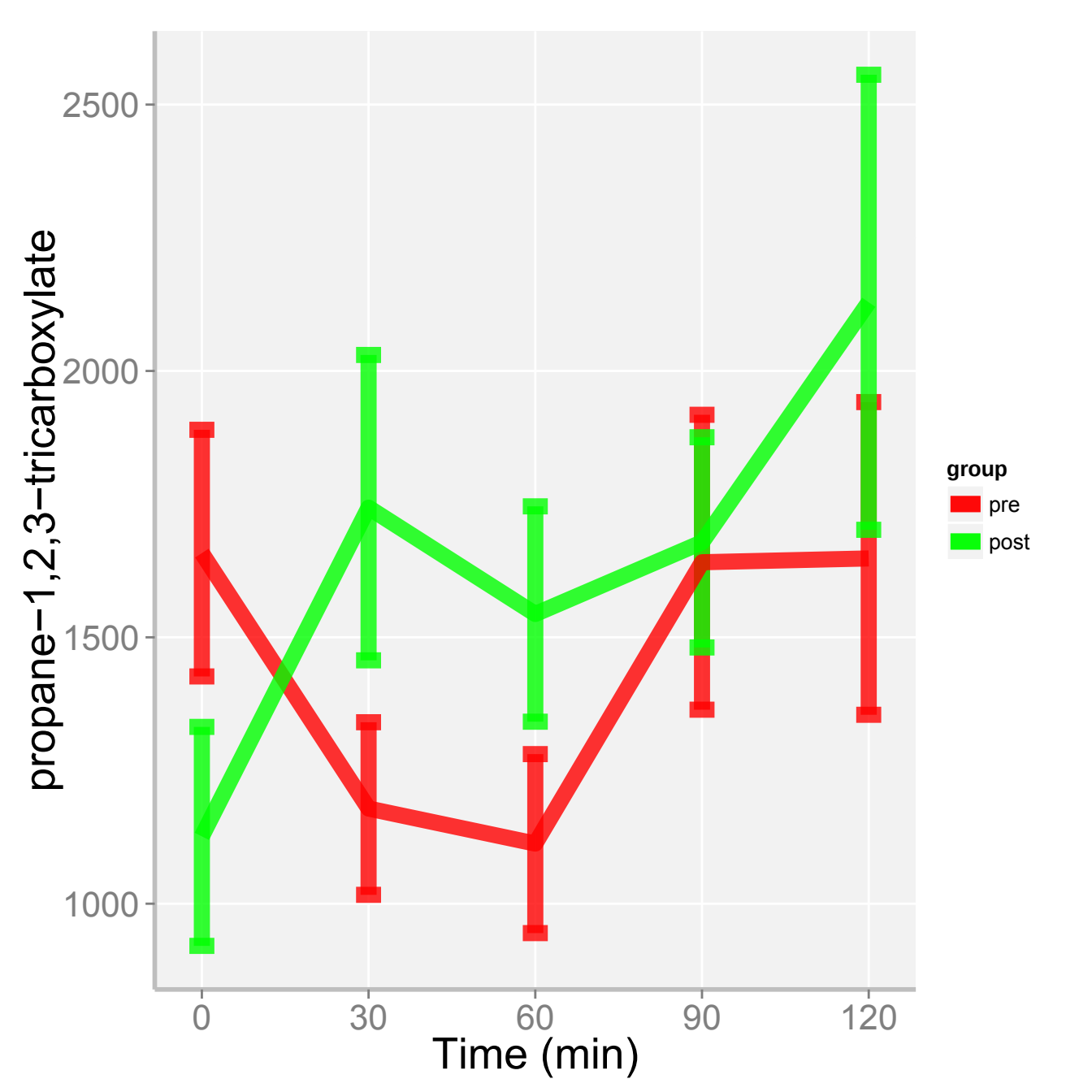
group
pre
post

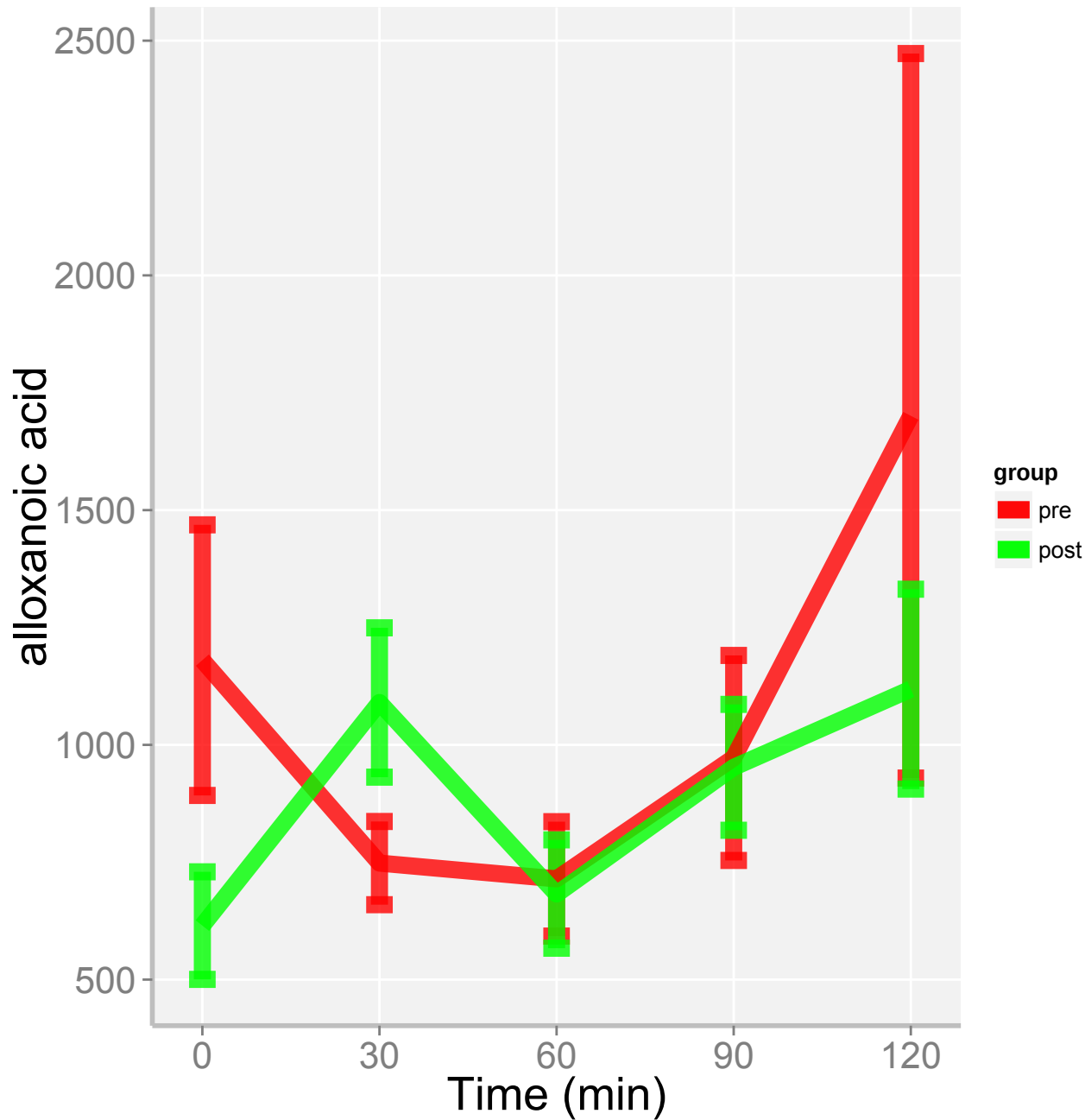


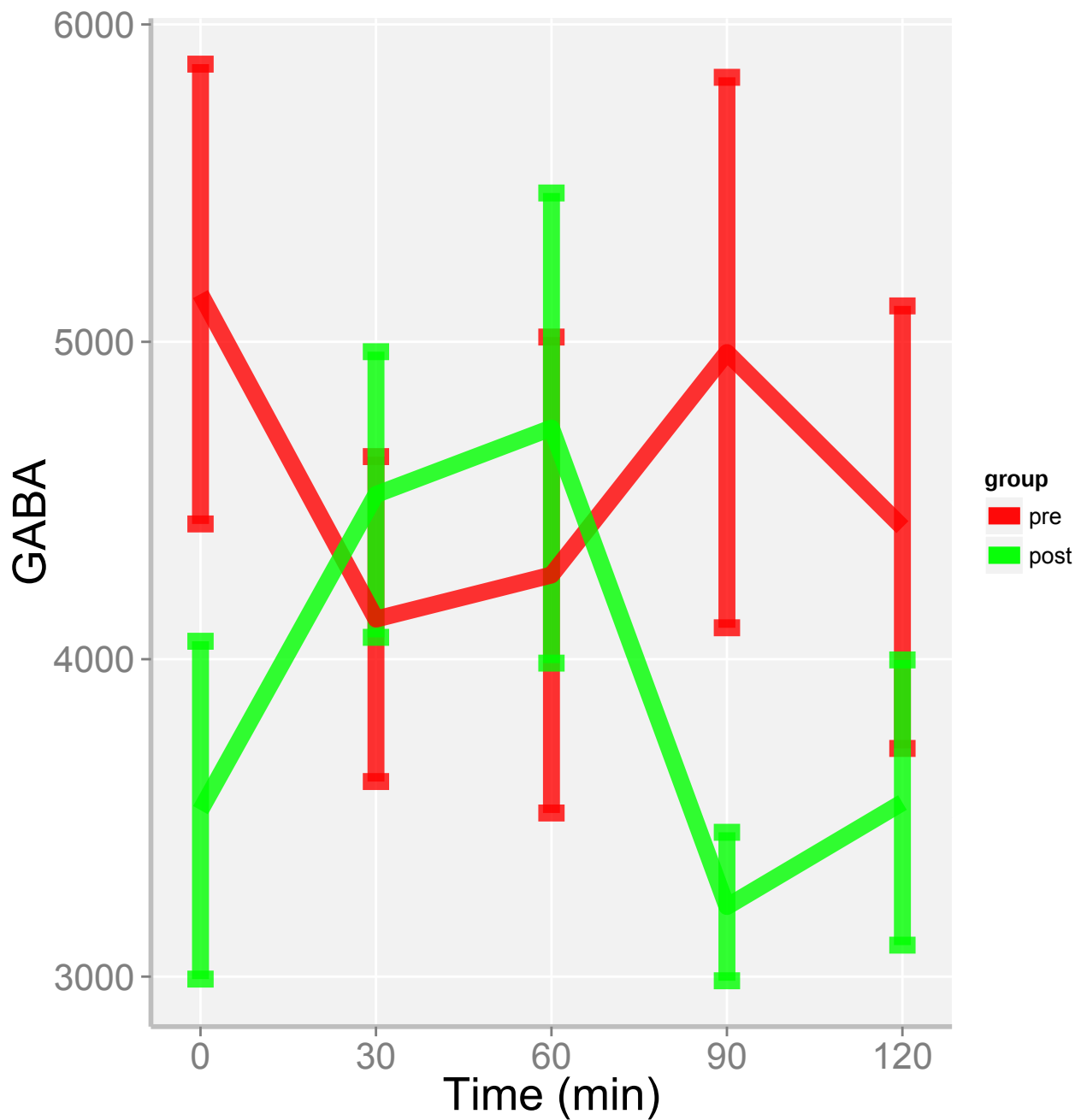


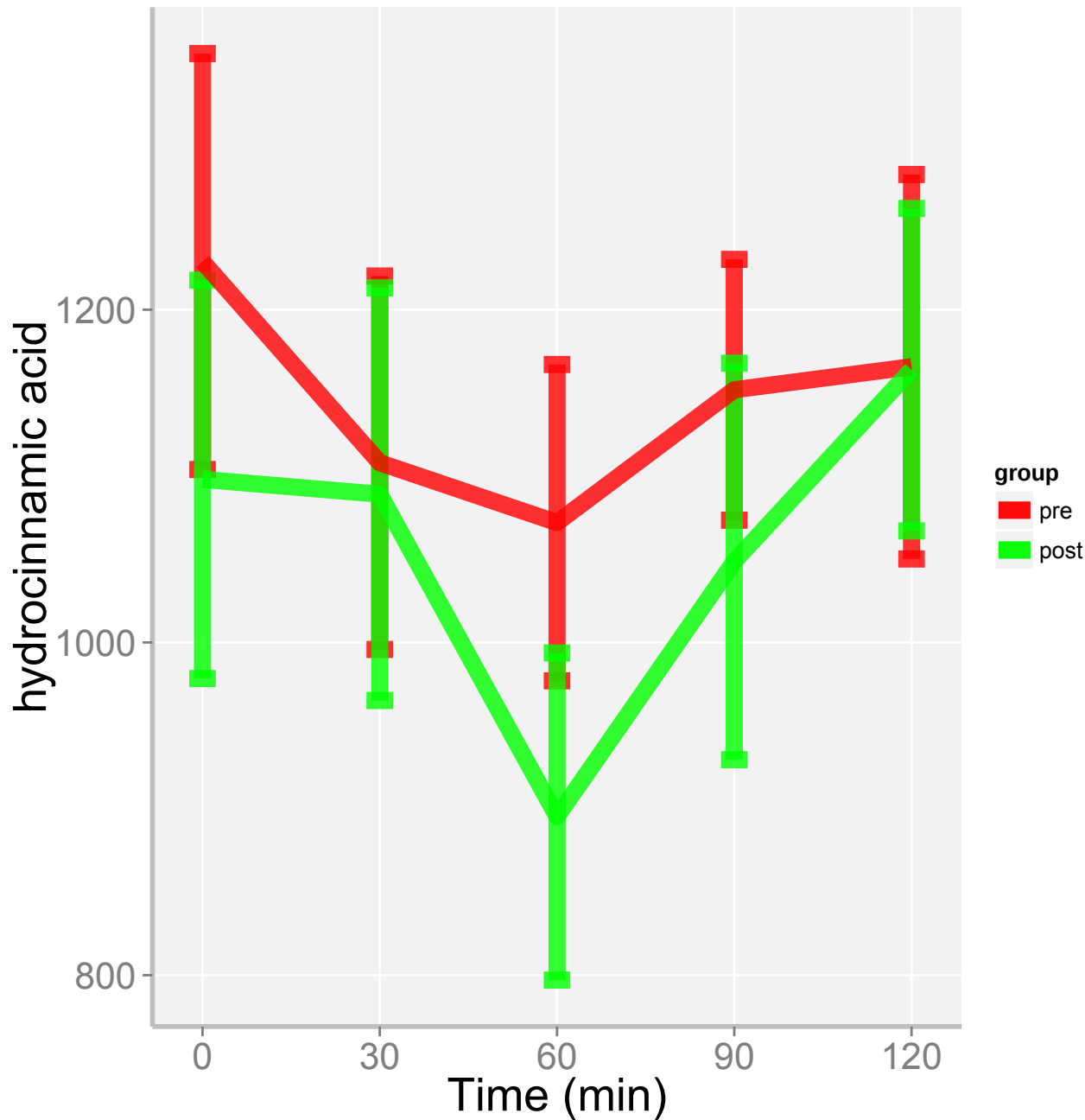


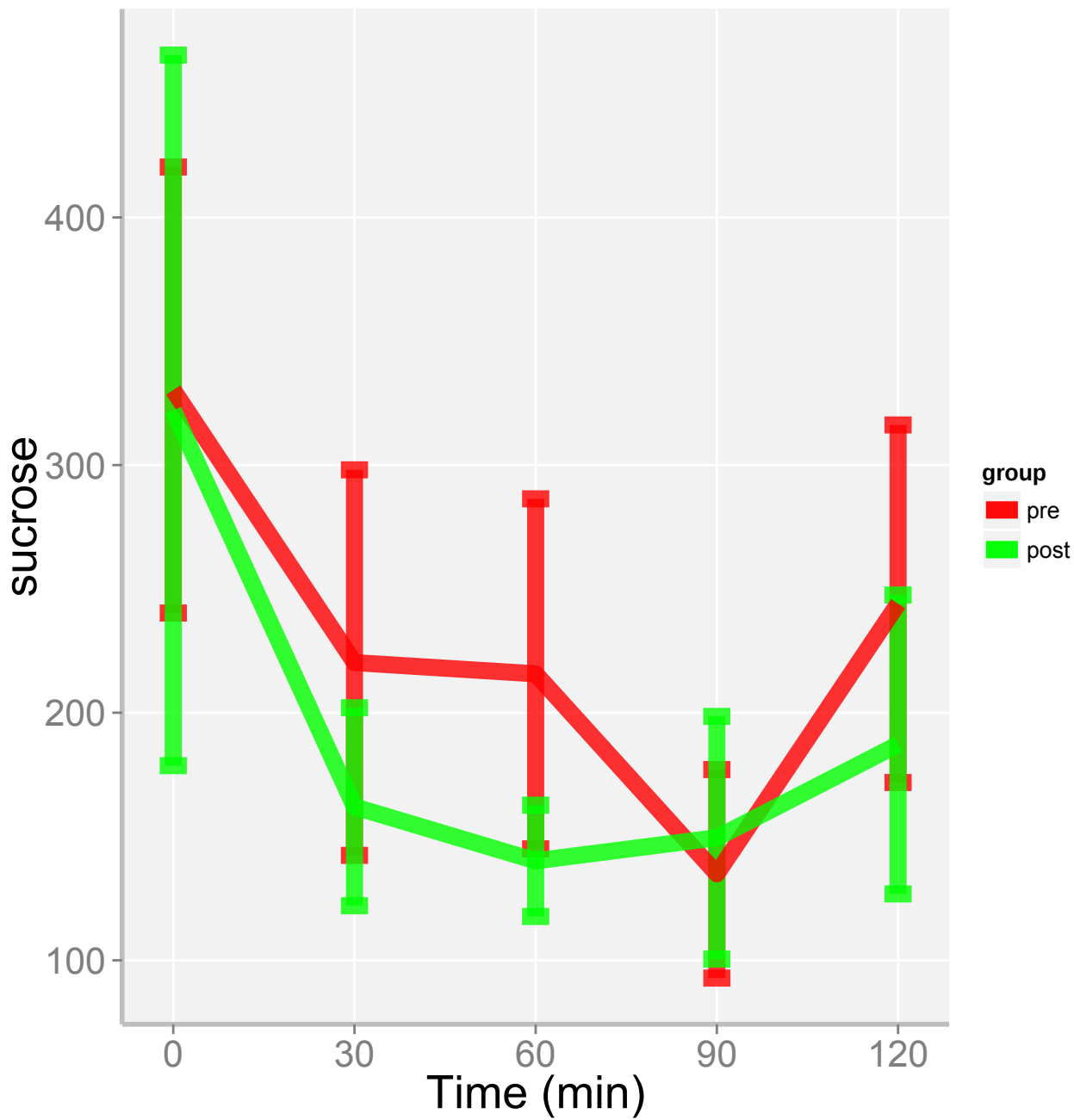


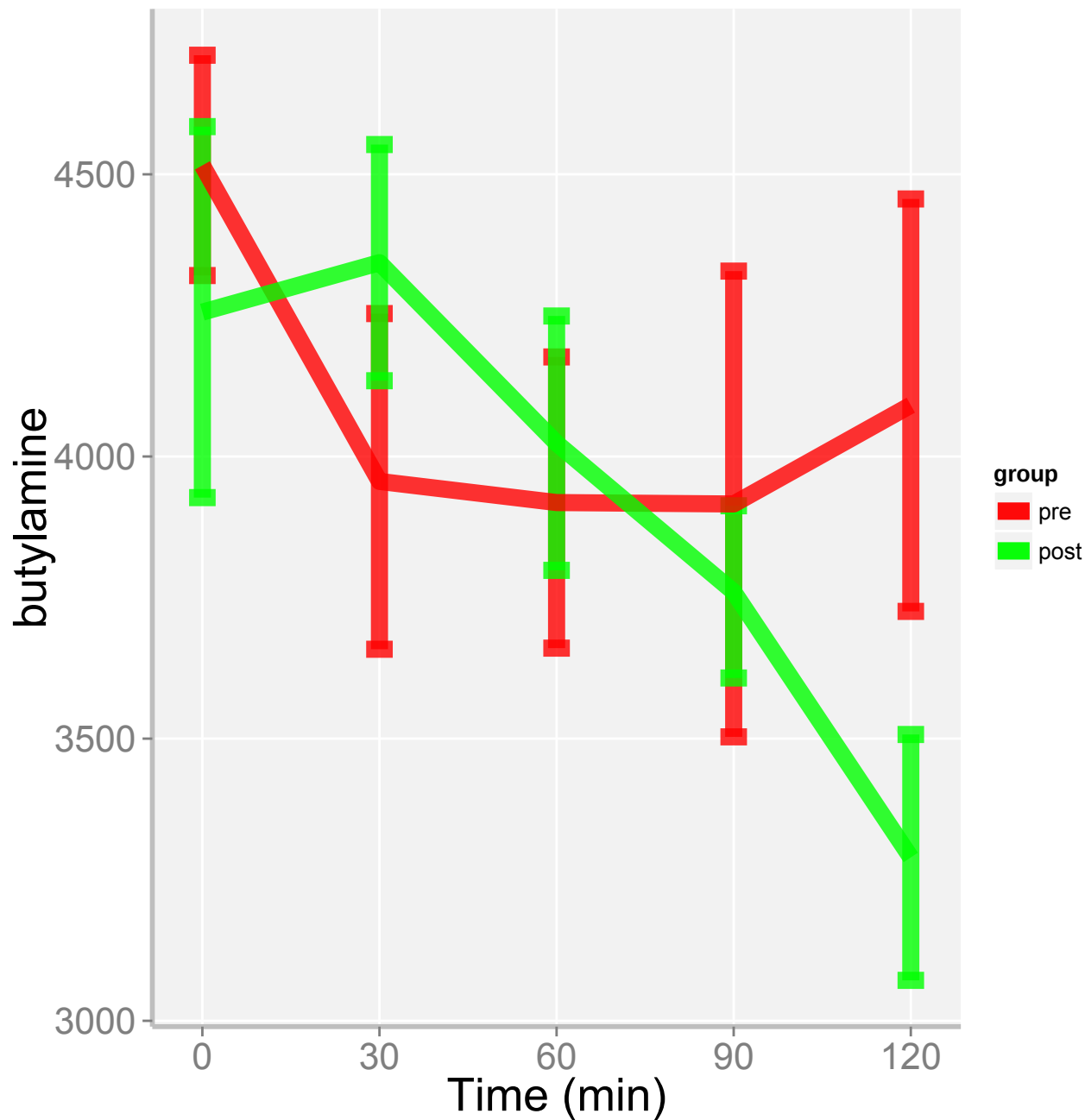


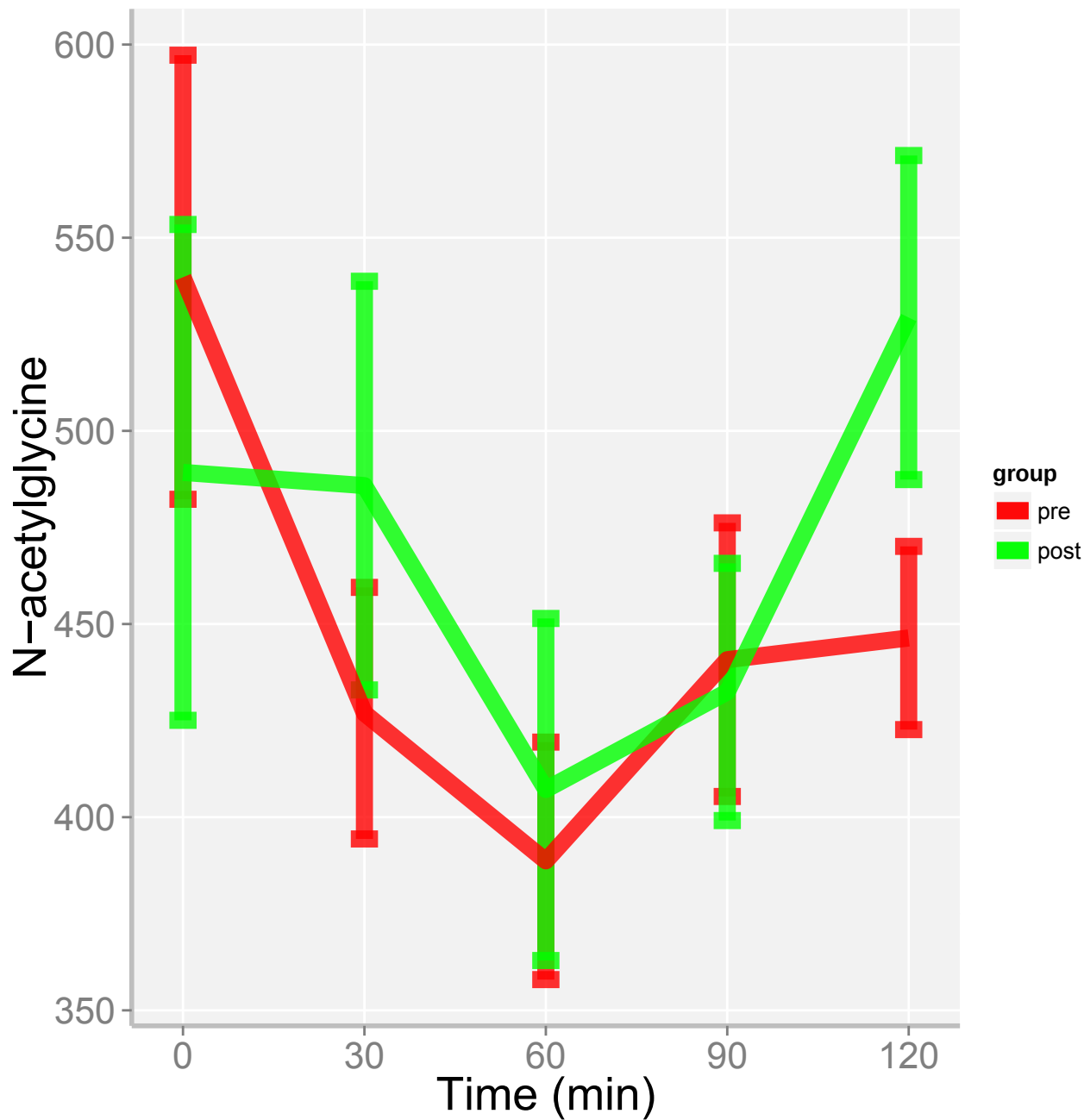


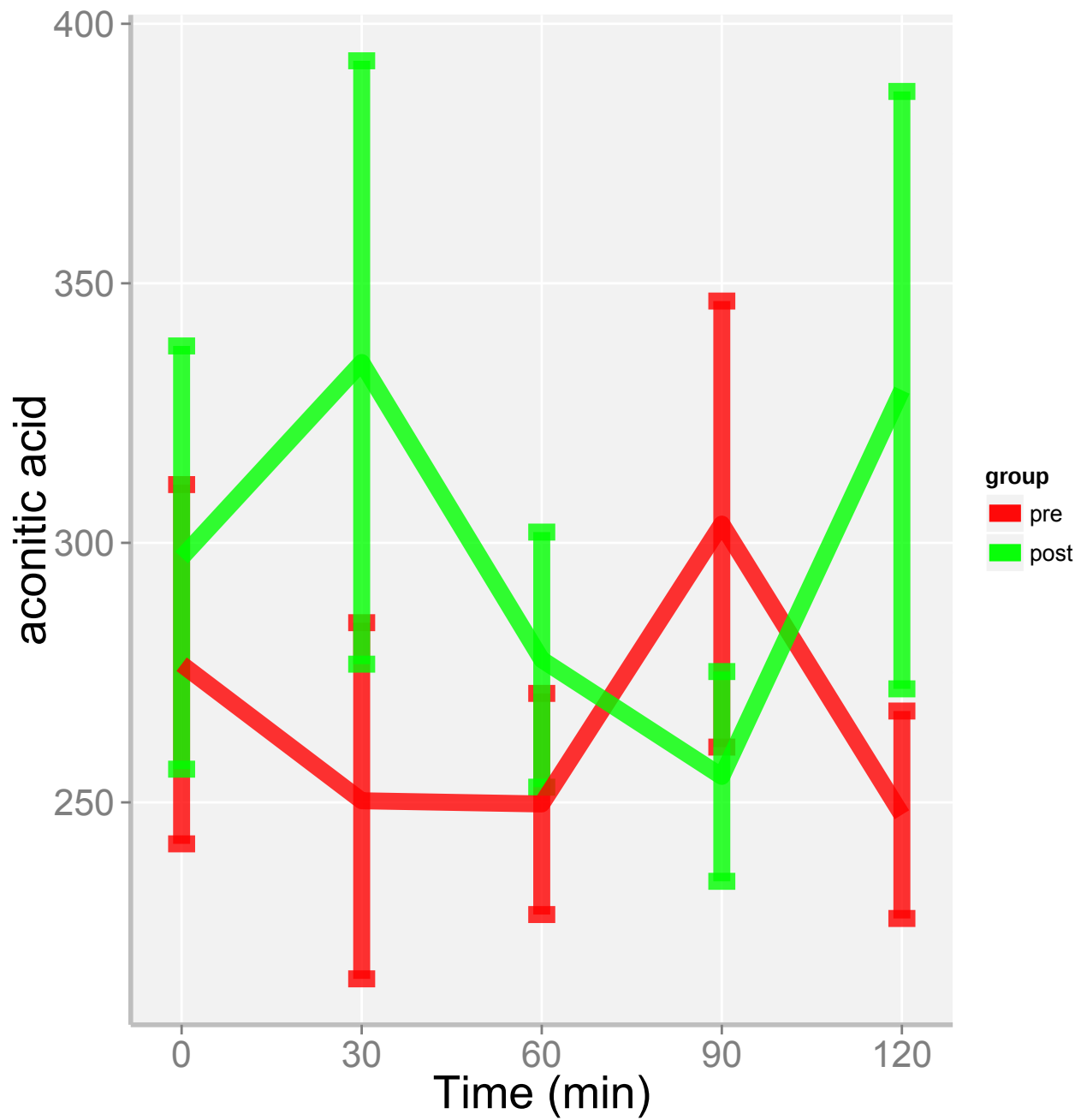


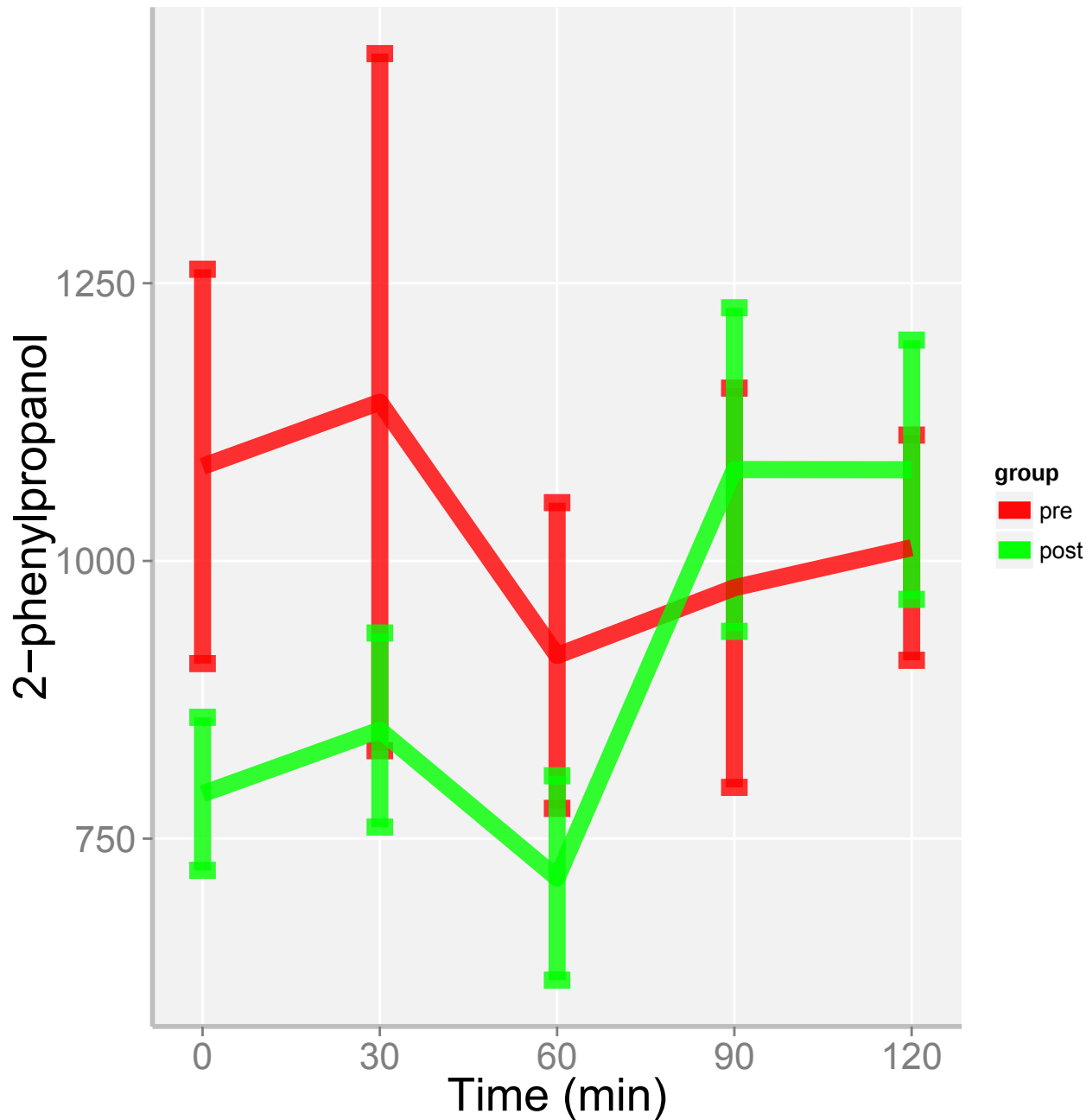


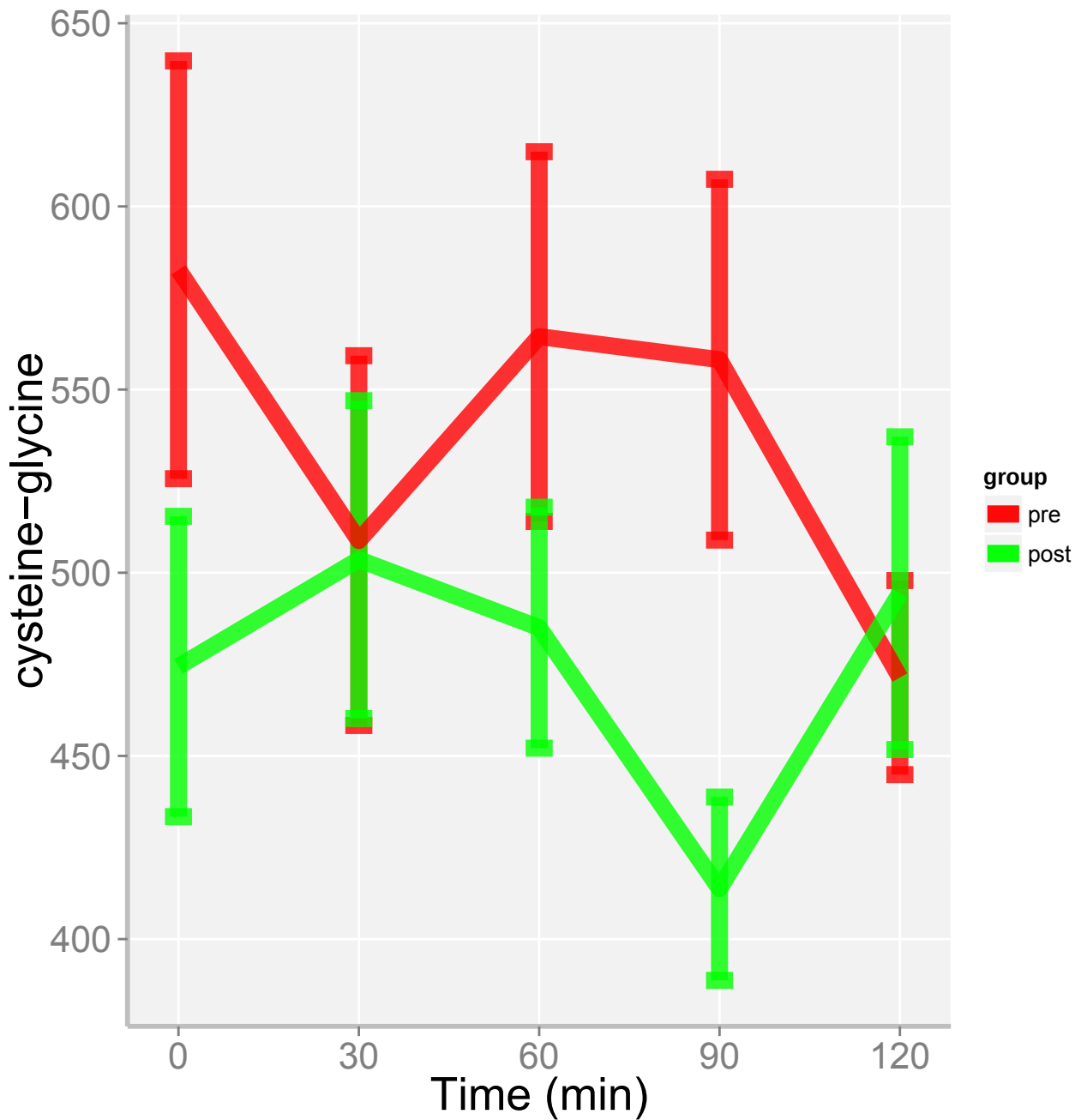


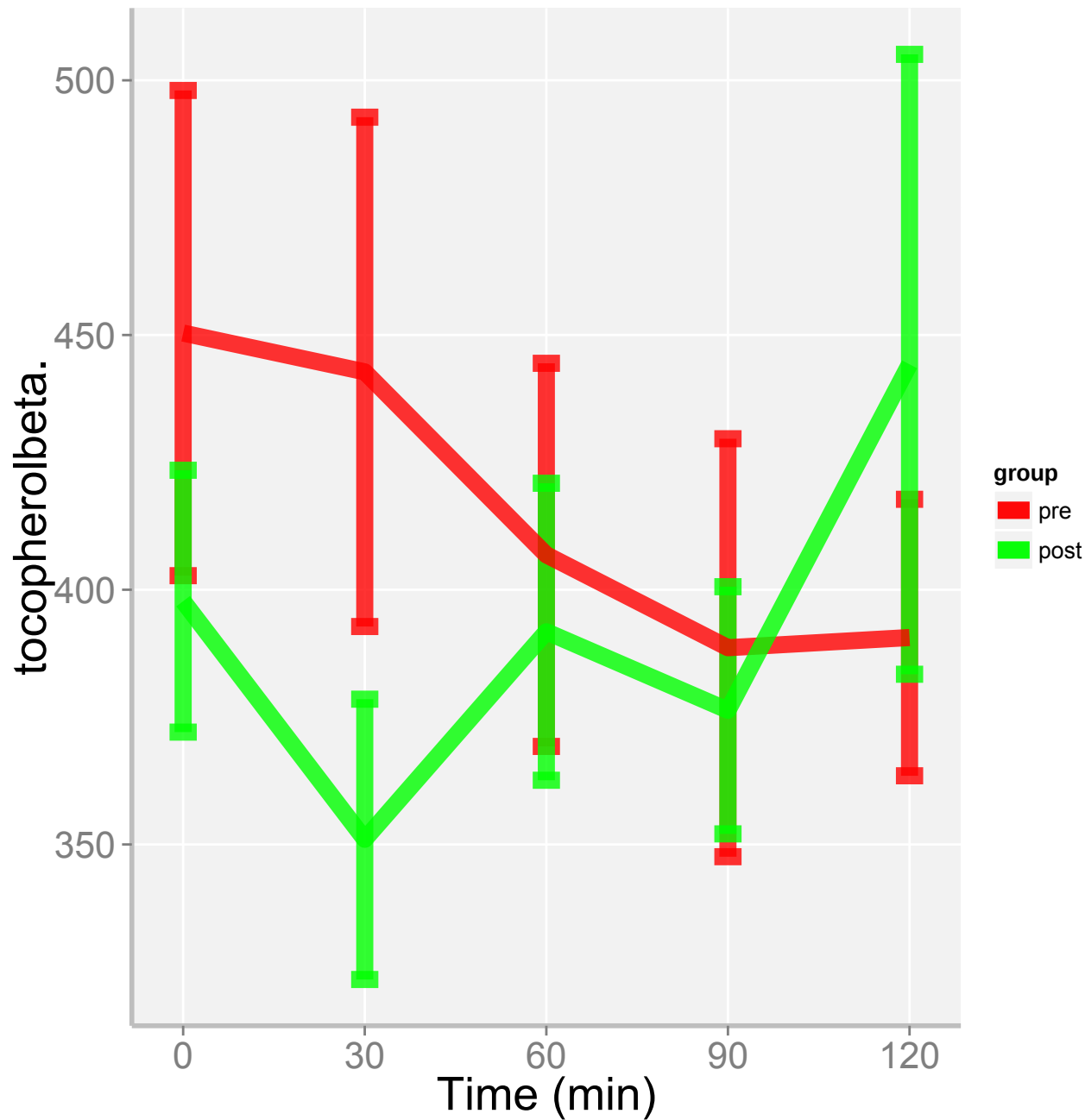




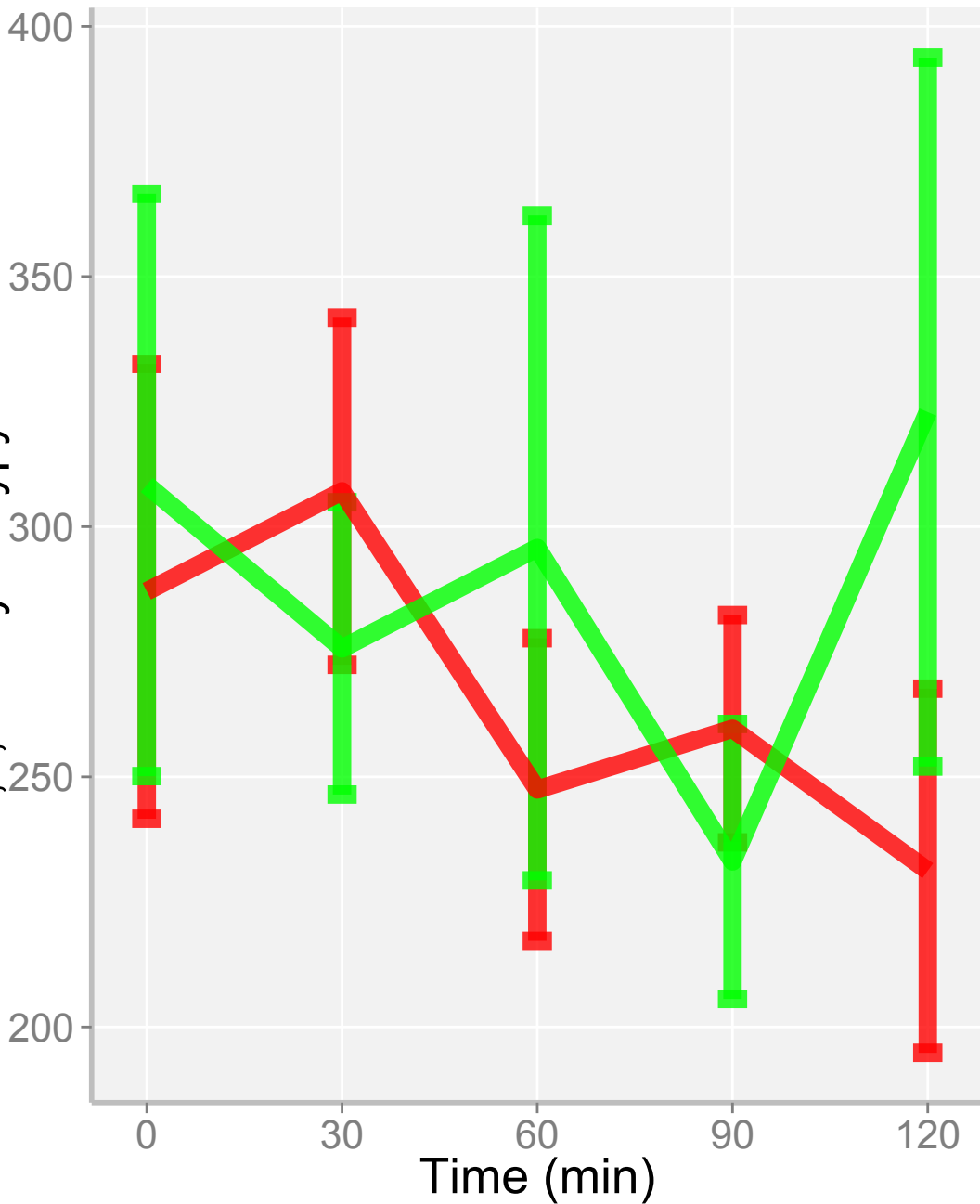


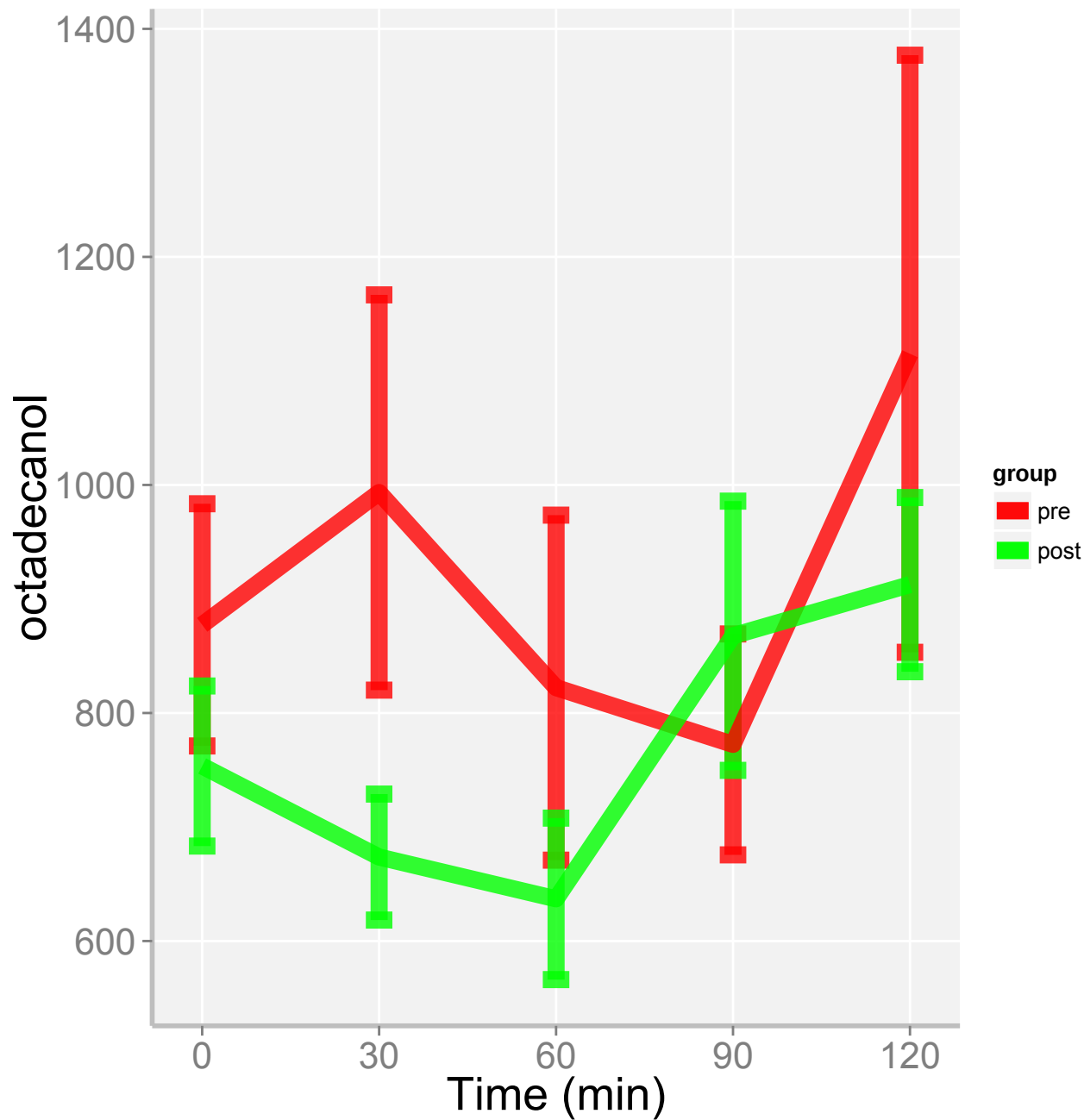


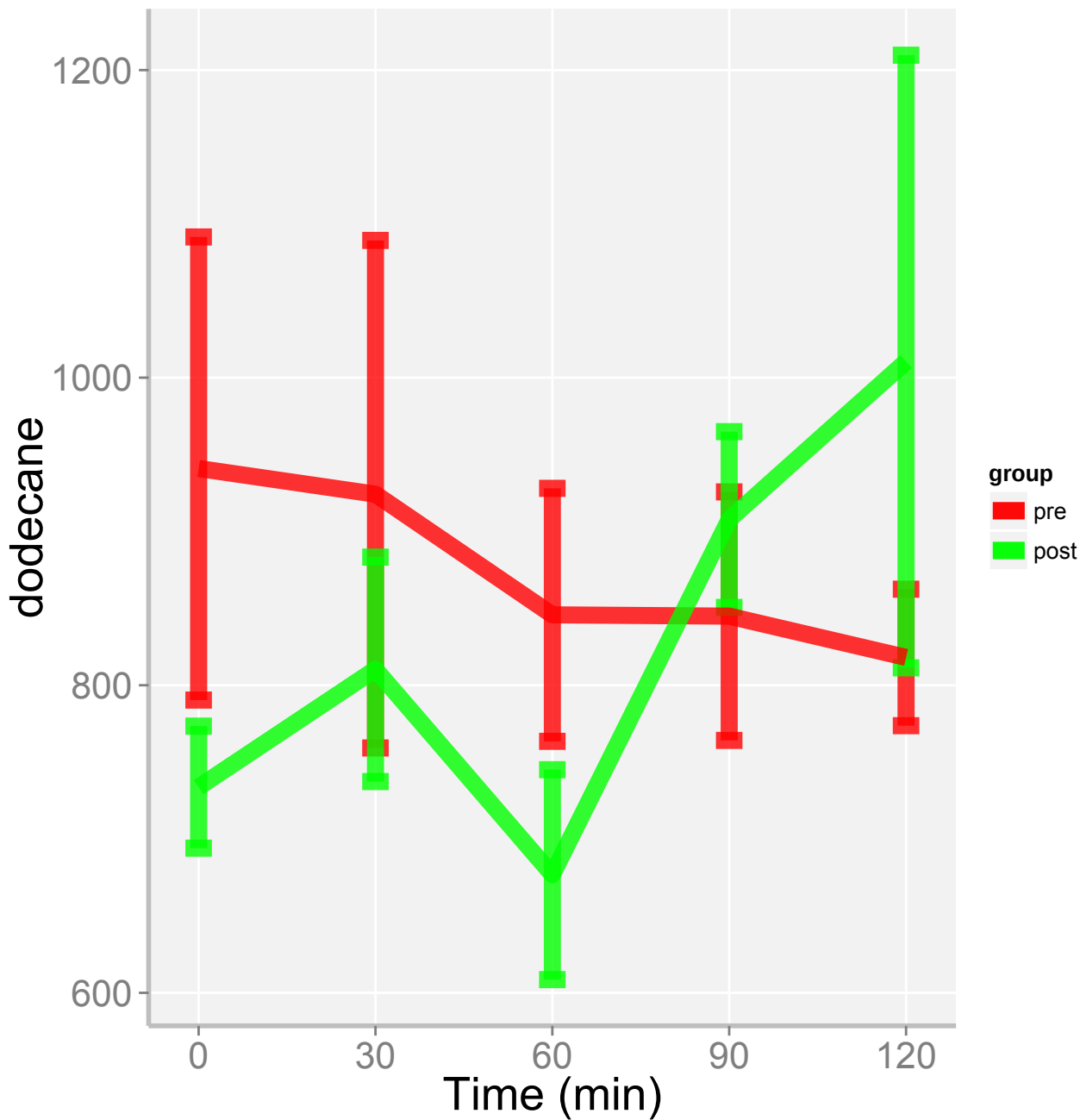


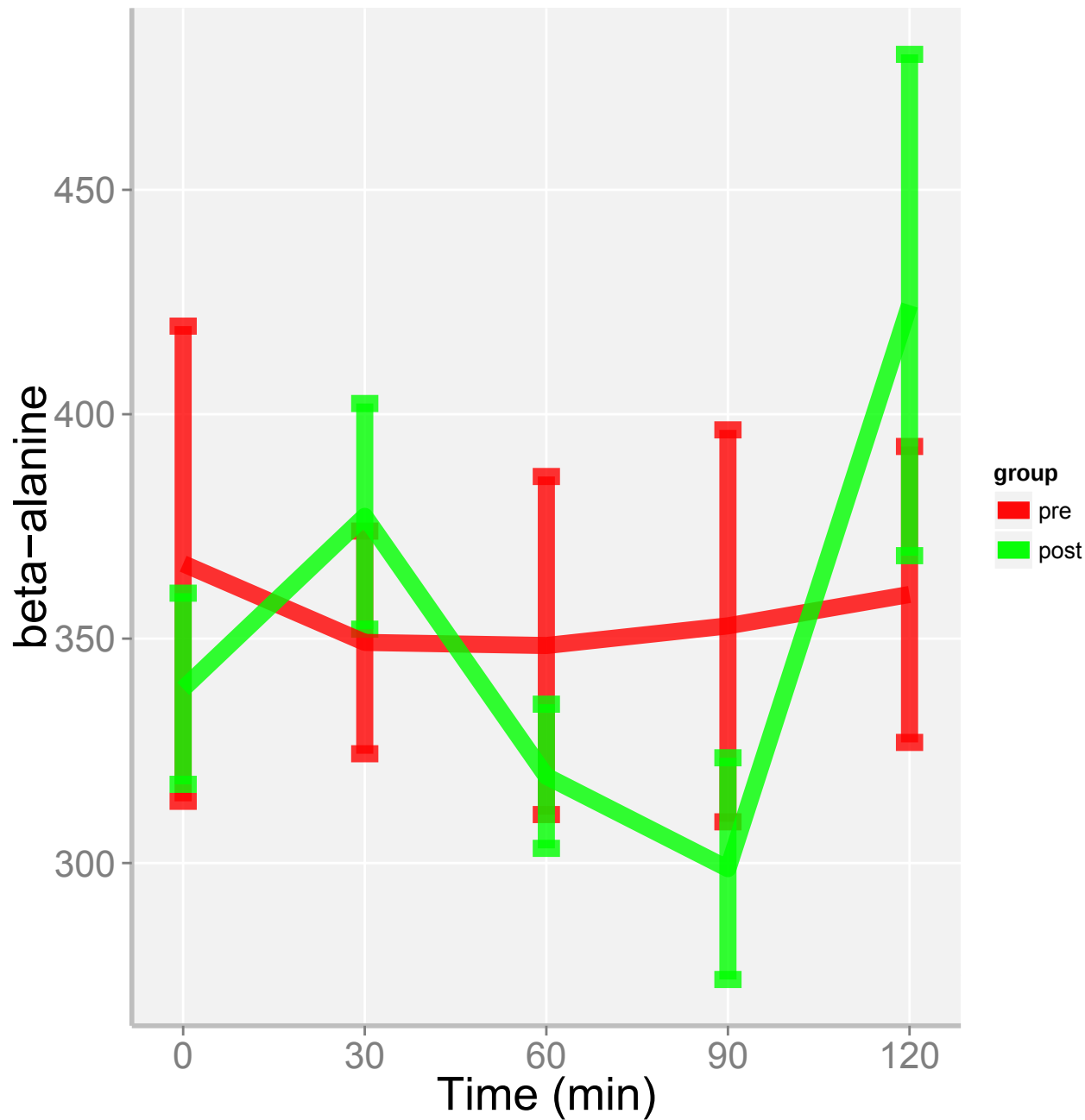


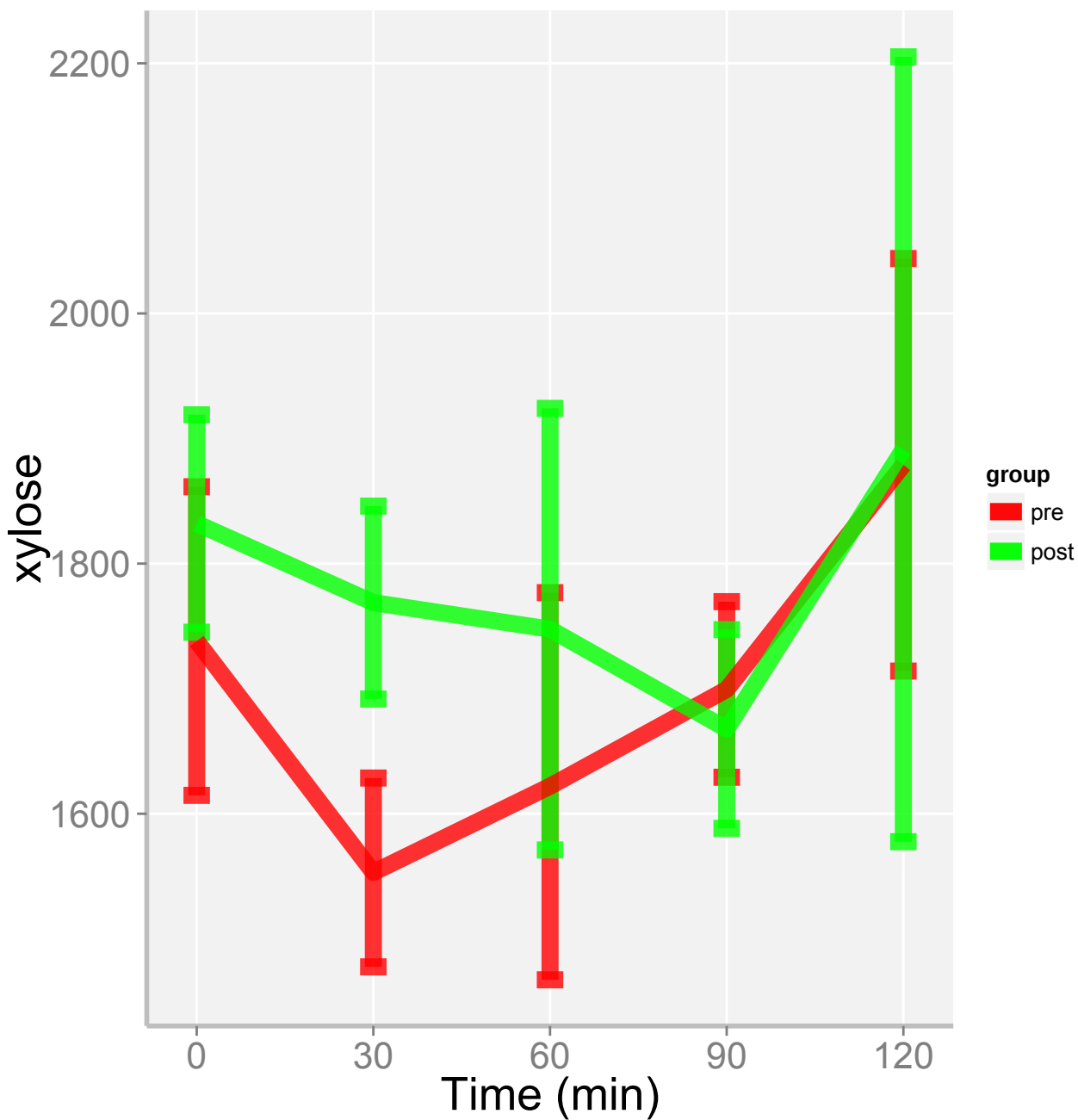
2,3,5-trihydroxypyrazine











propane-1,3-diol

1750

1500

1250

1000

0

30

60

90

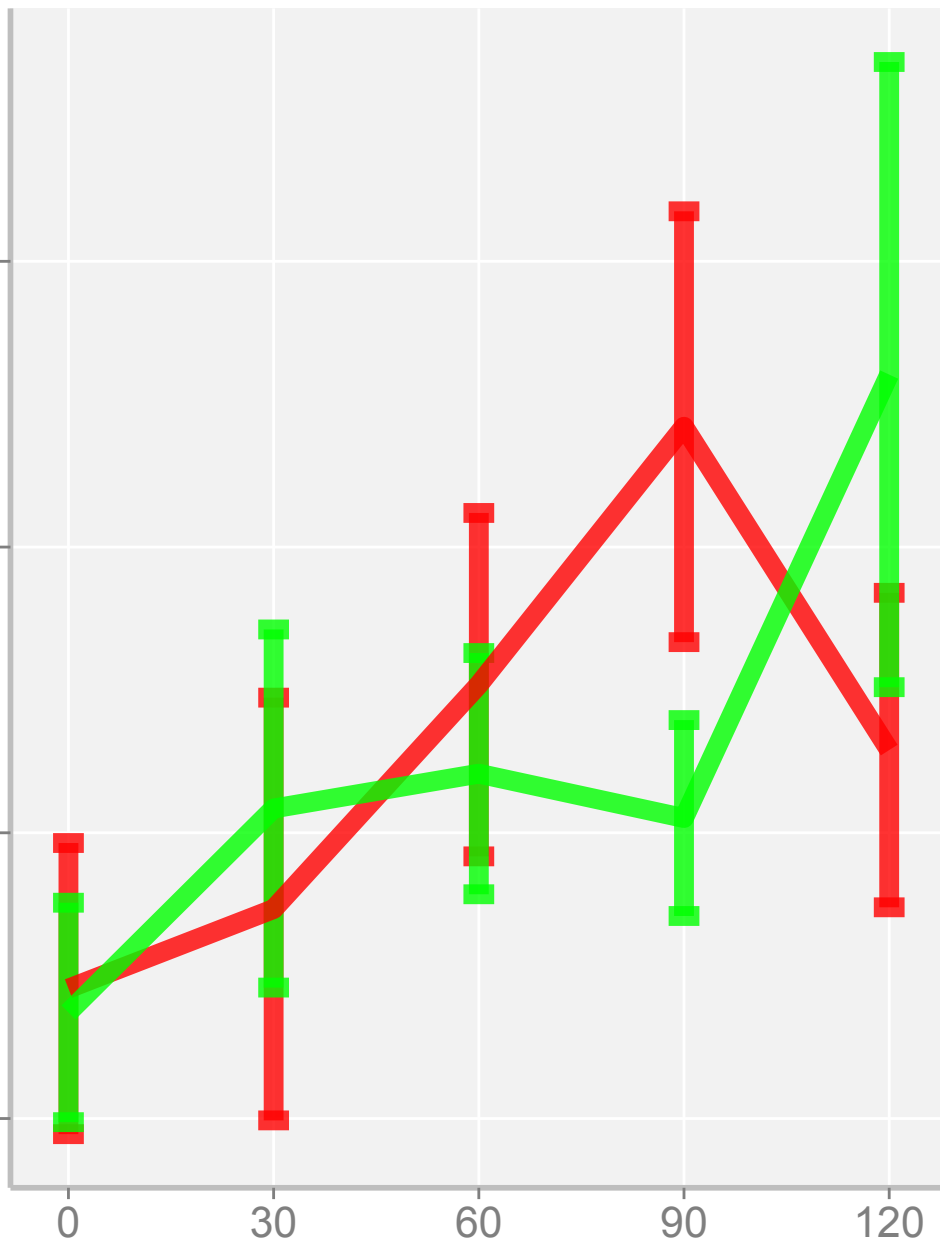
120

Time (min)

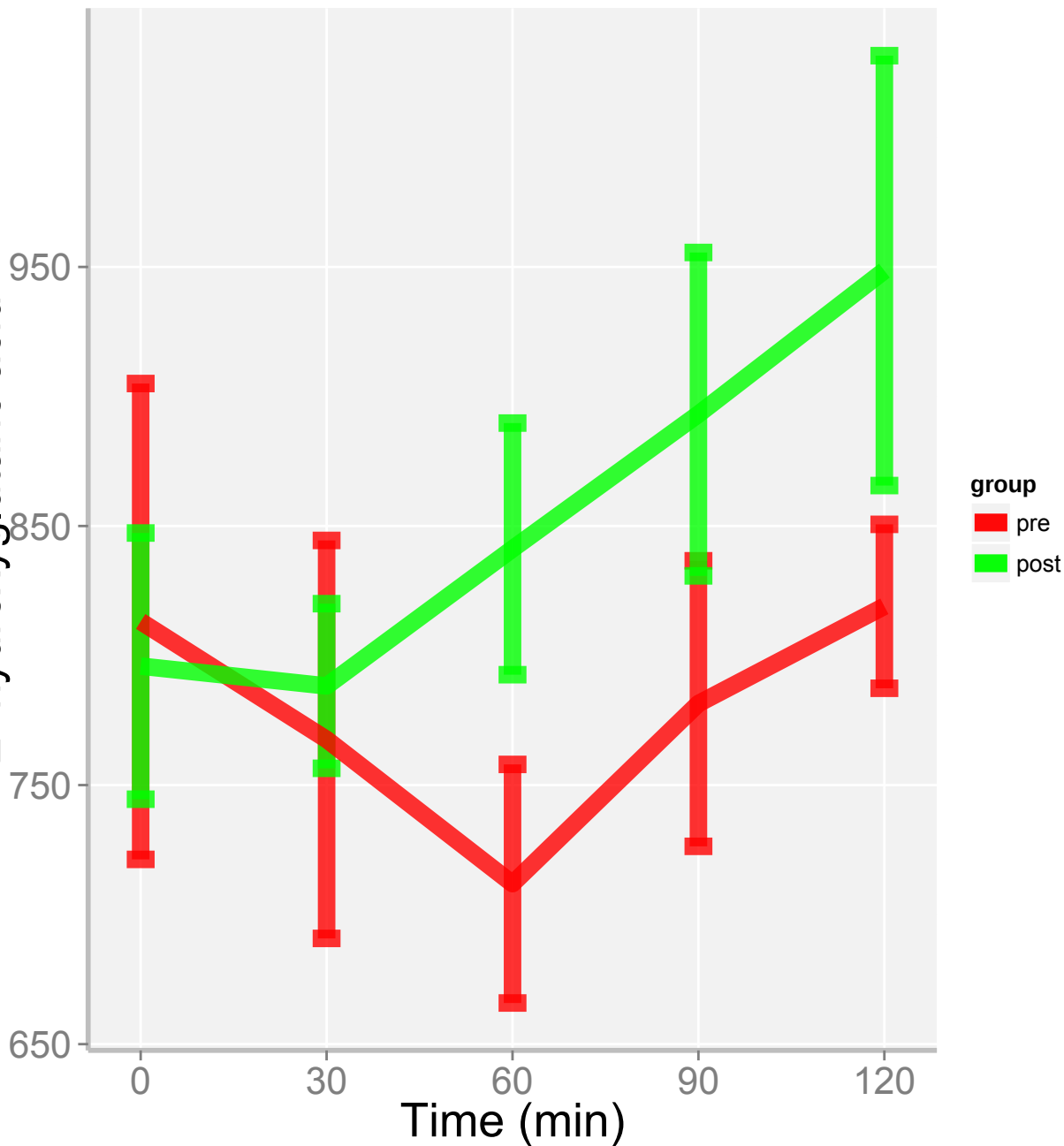
group

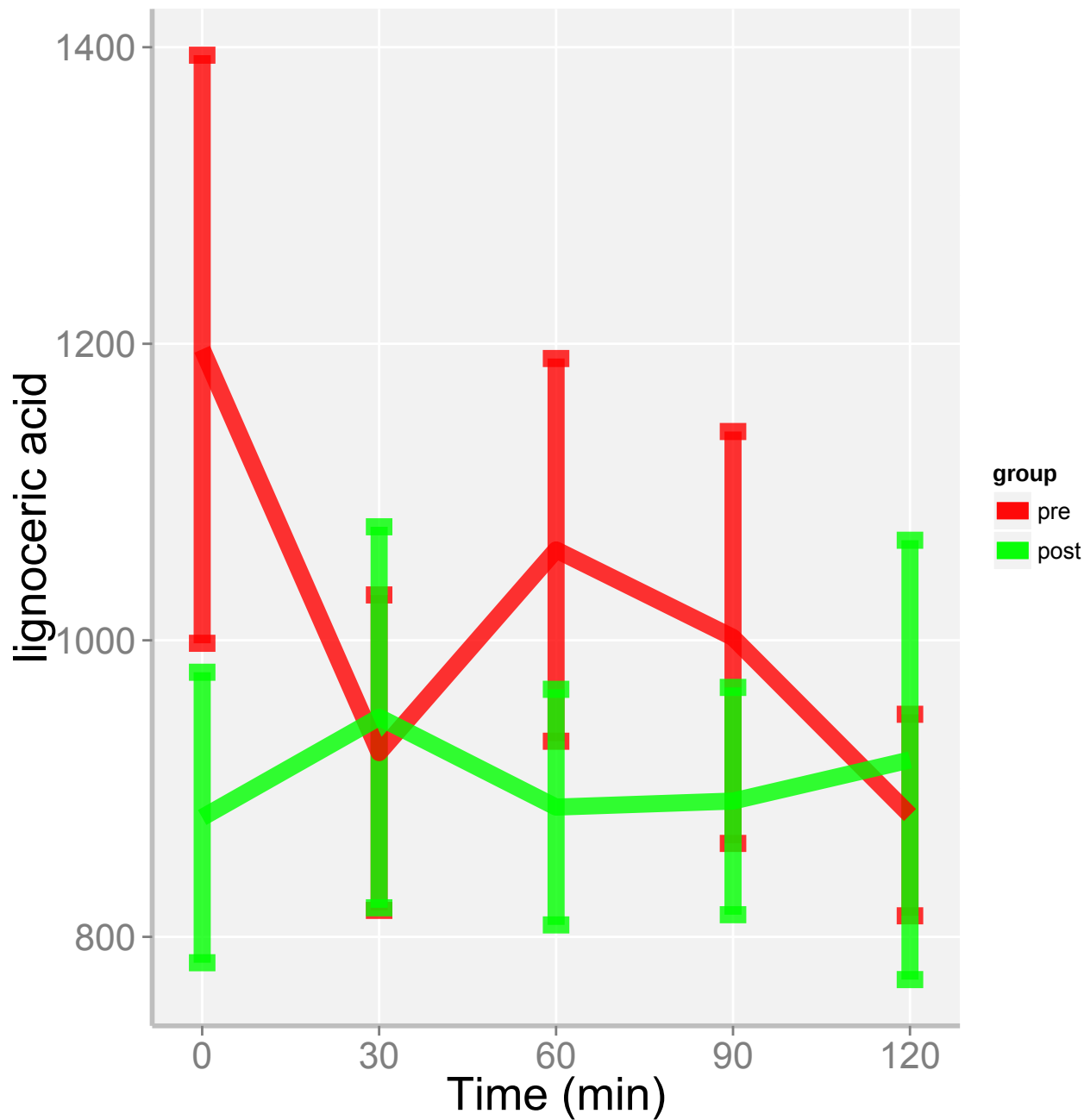
pre

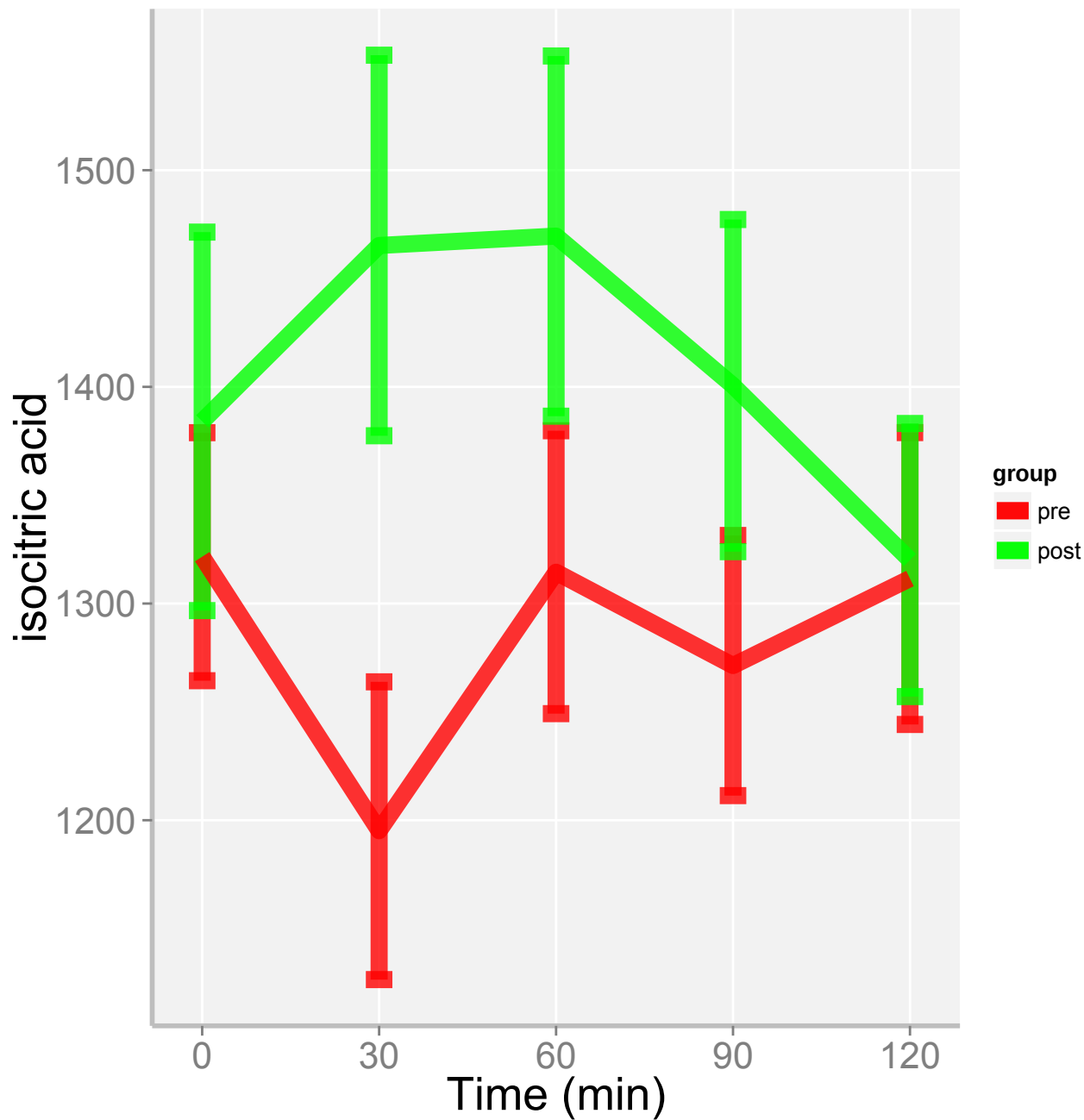
post

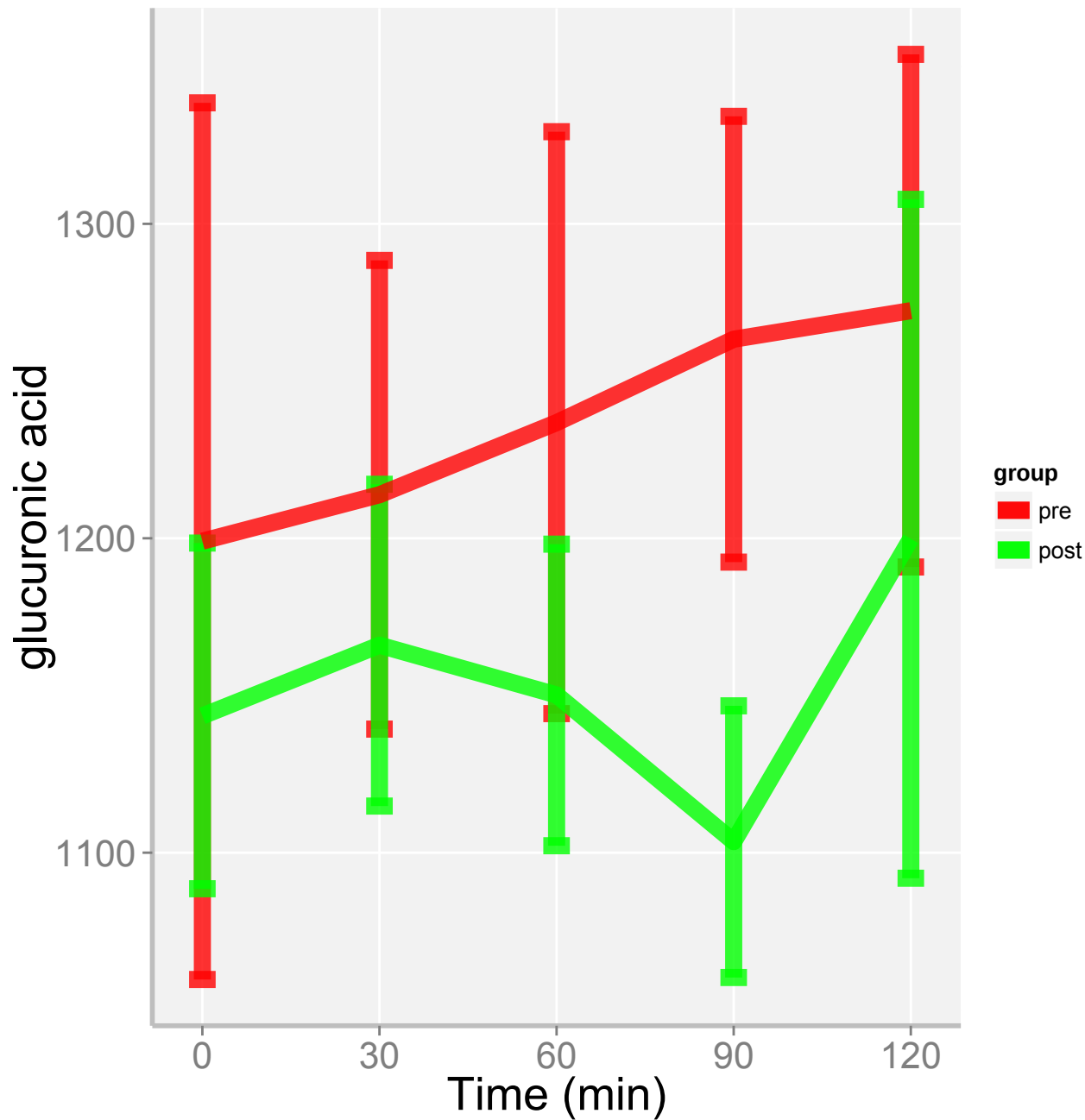


2-hydroxyglutaric acid









adenosine-5-phosphate

300

250

200

0

30

60

90

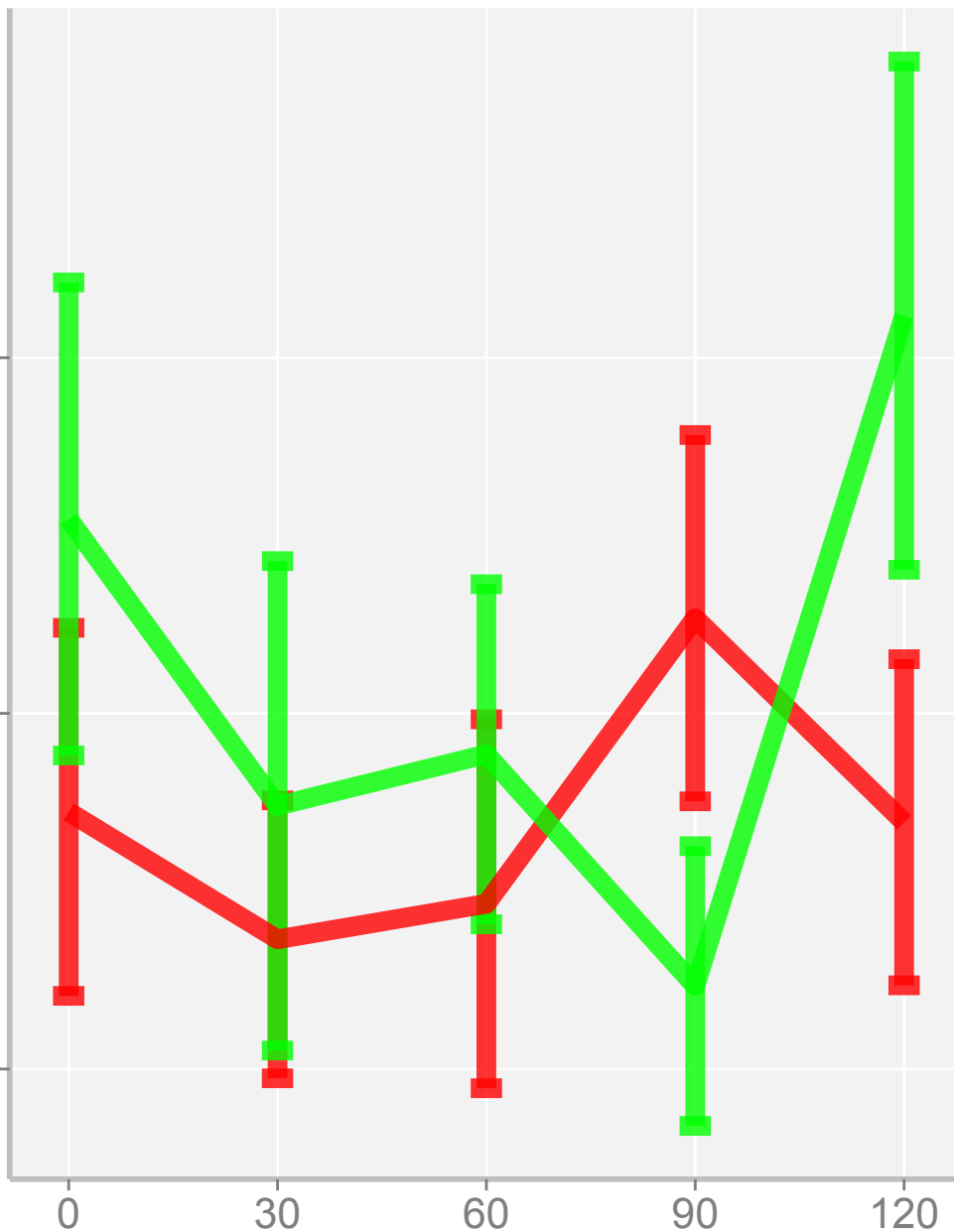
120

Time (min)

group

pre

post



glycerol- α -phosphate

1100
1000
900
800

0

30

60

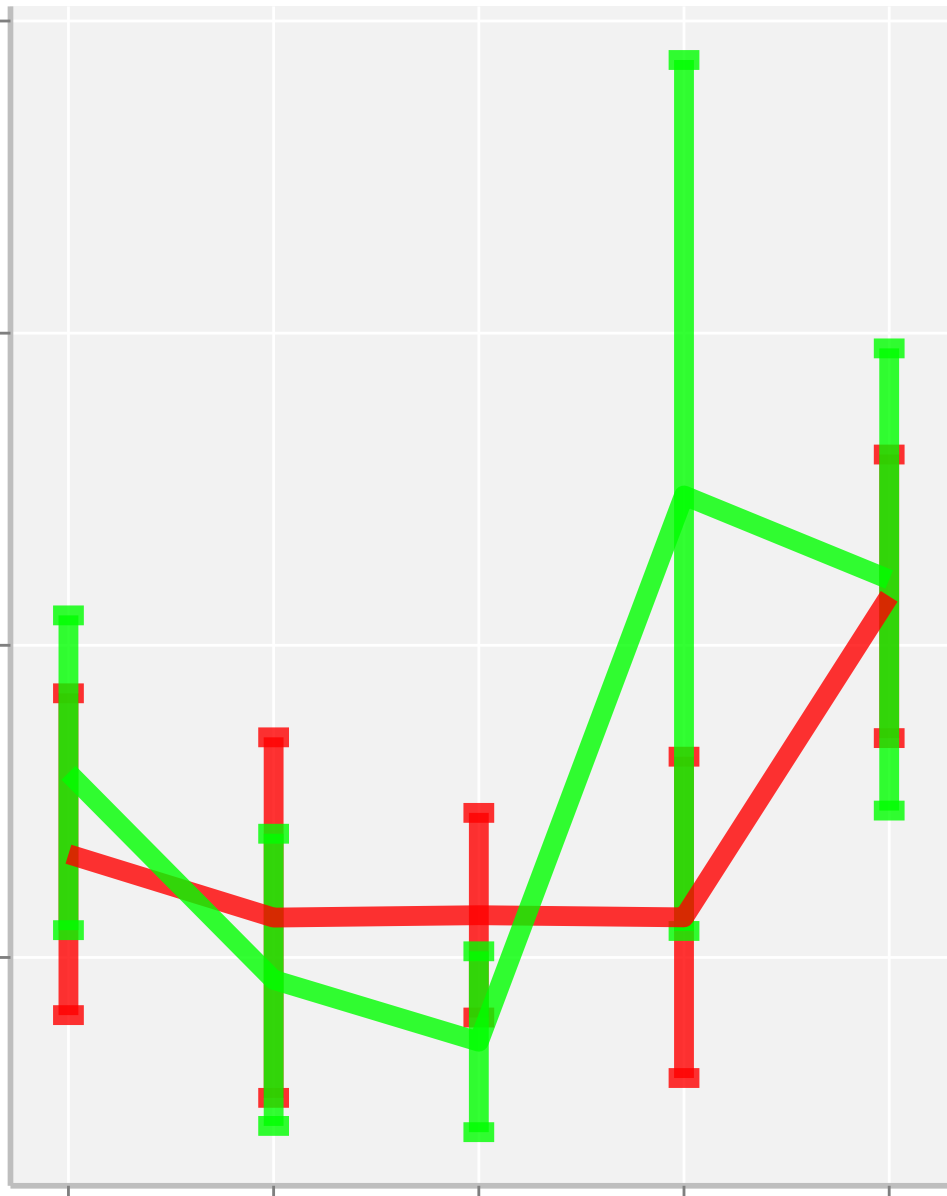
90

120

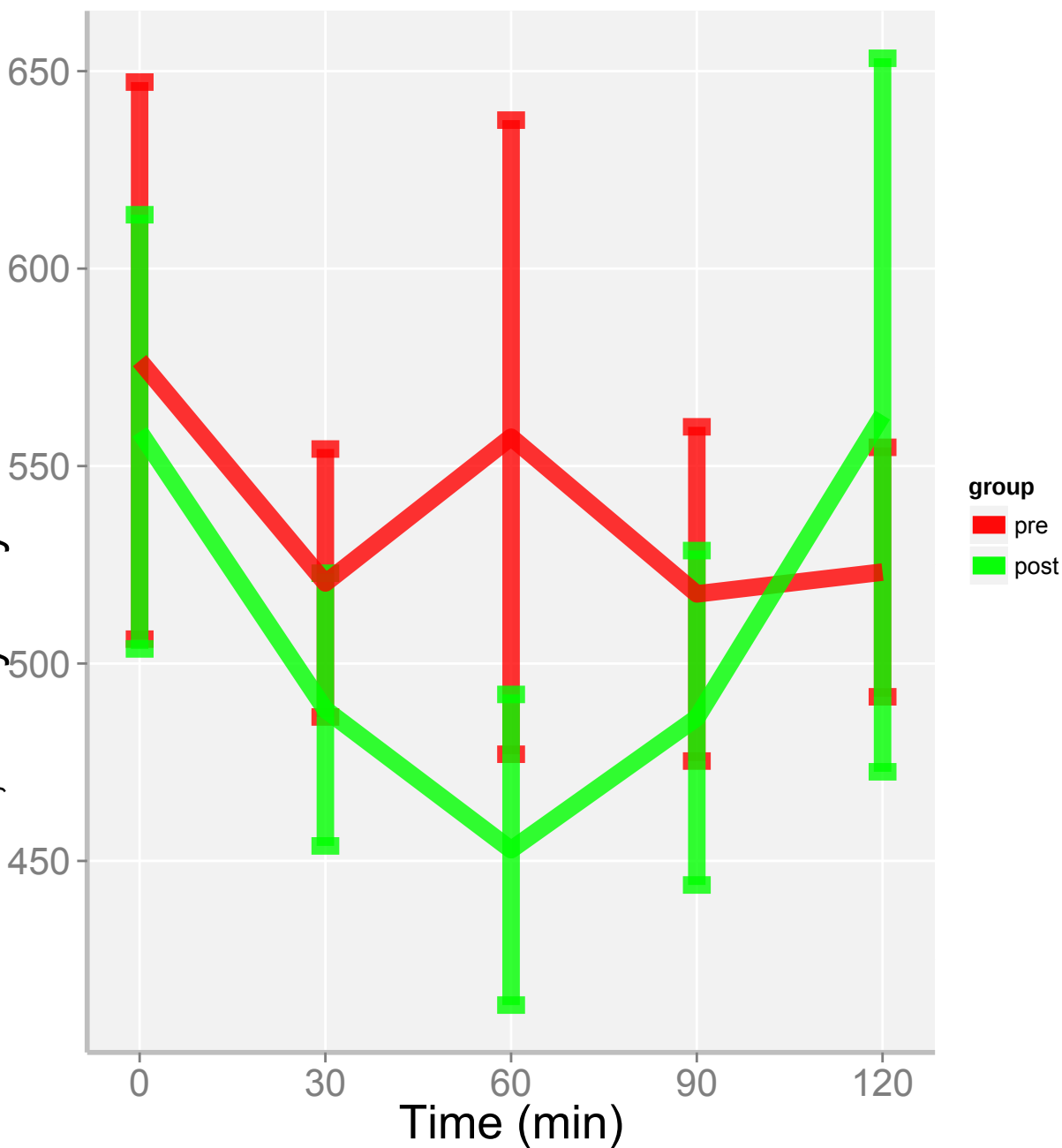
Time (min)

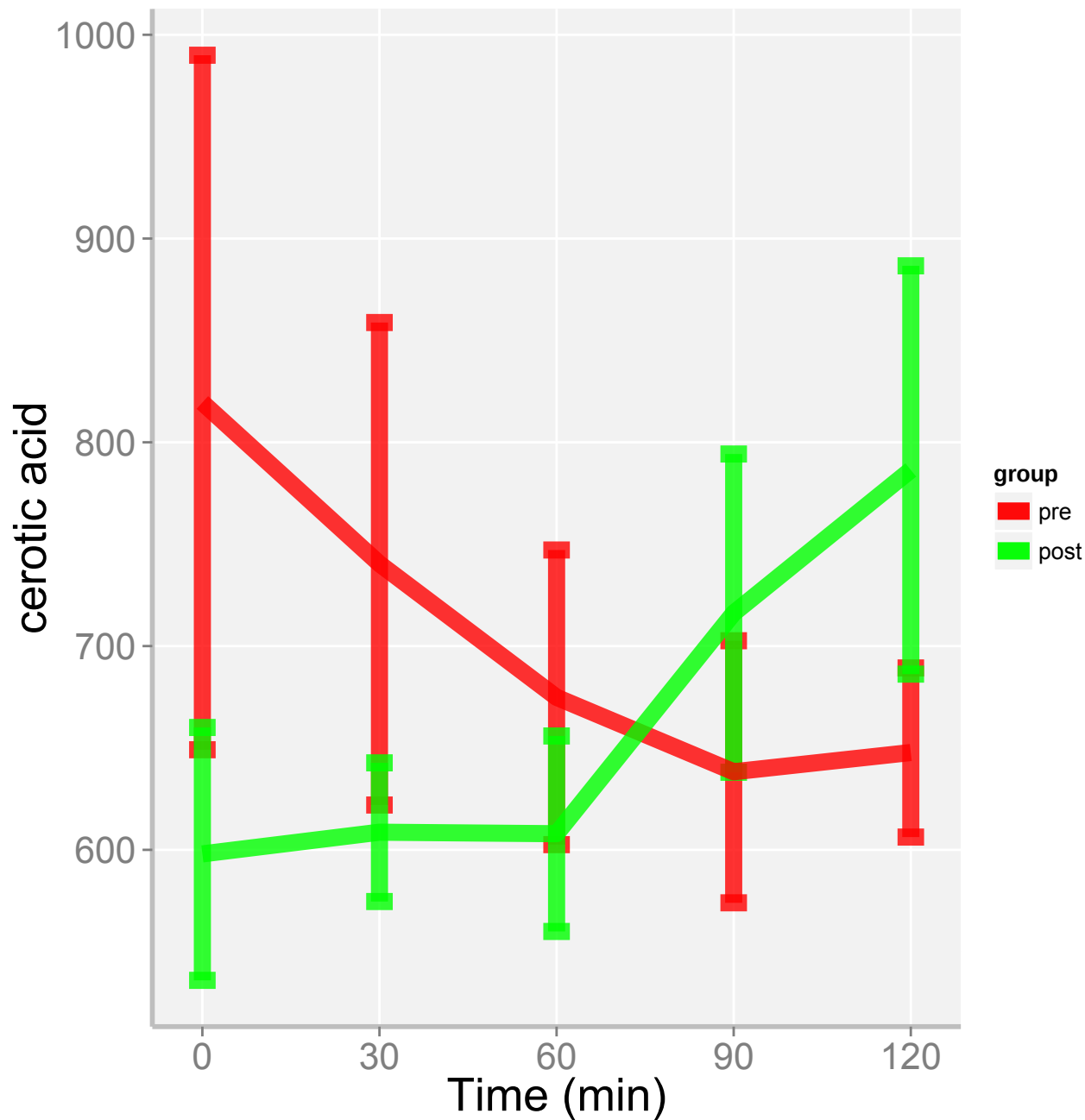
group

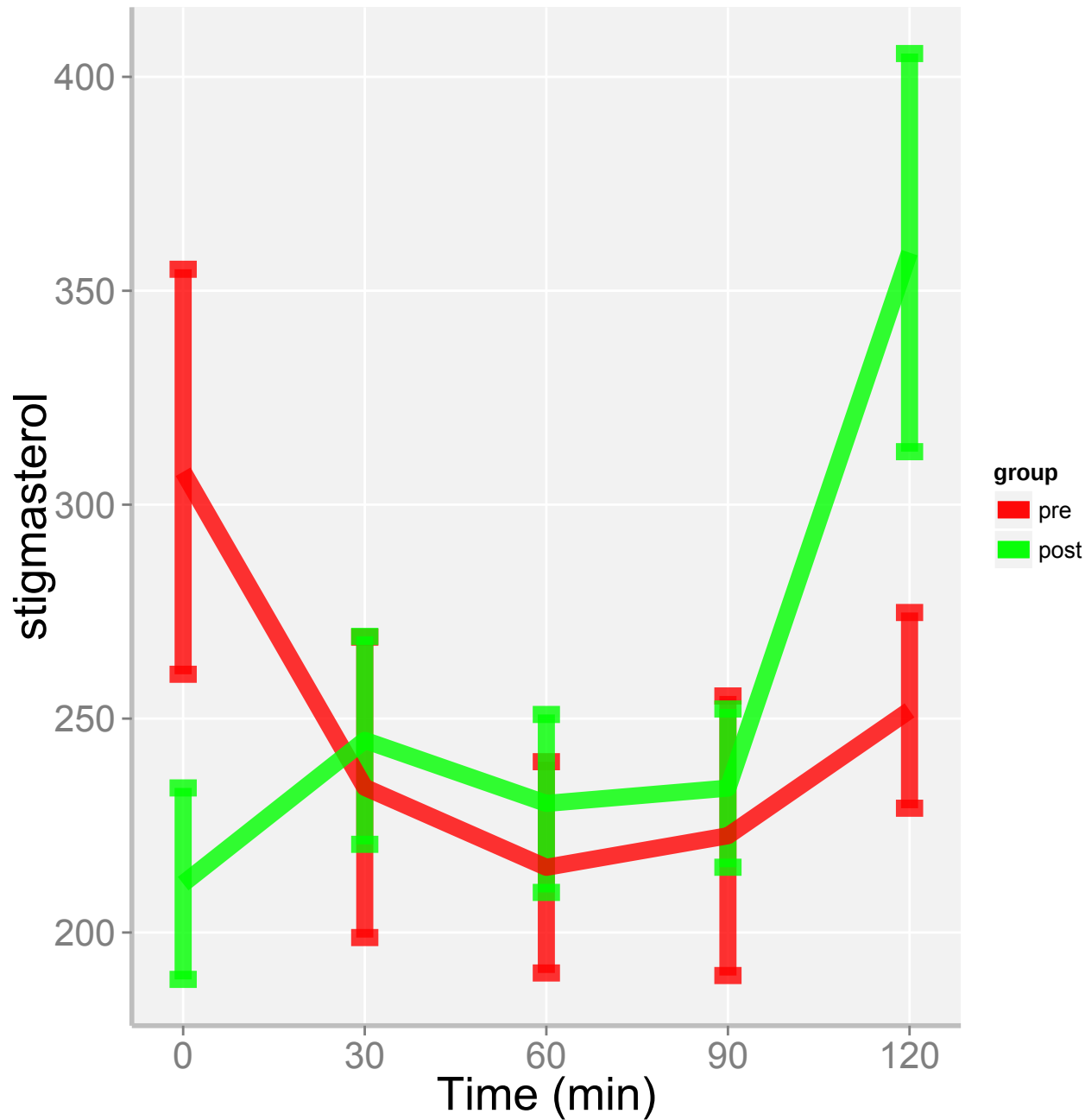
pre
post

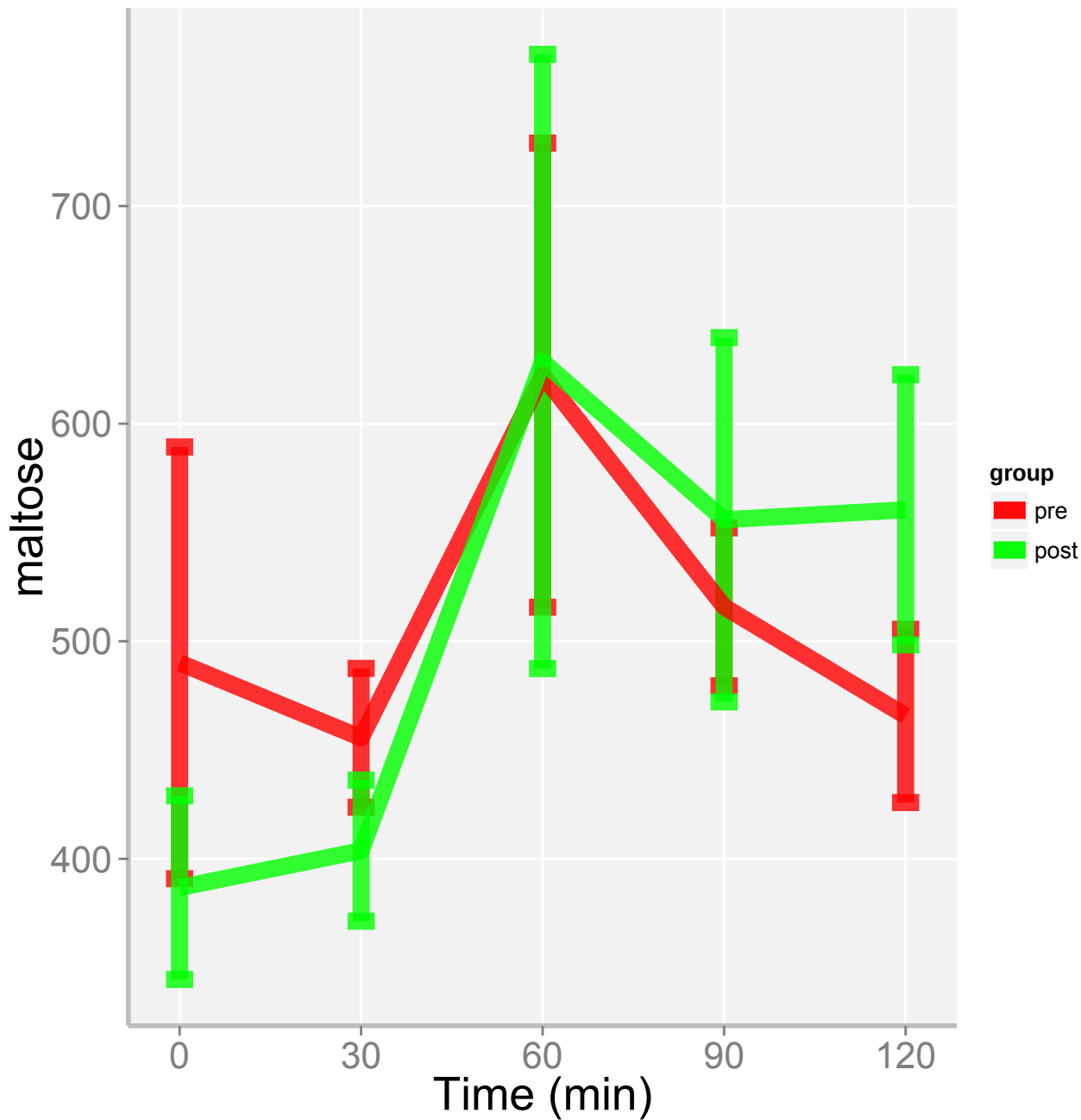


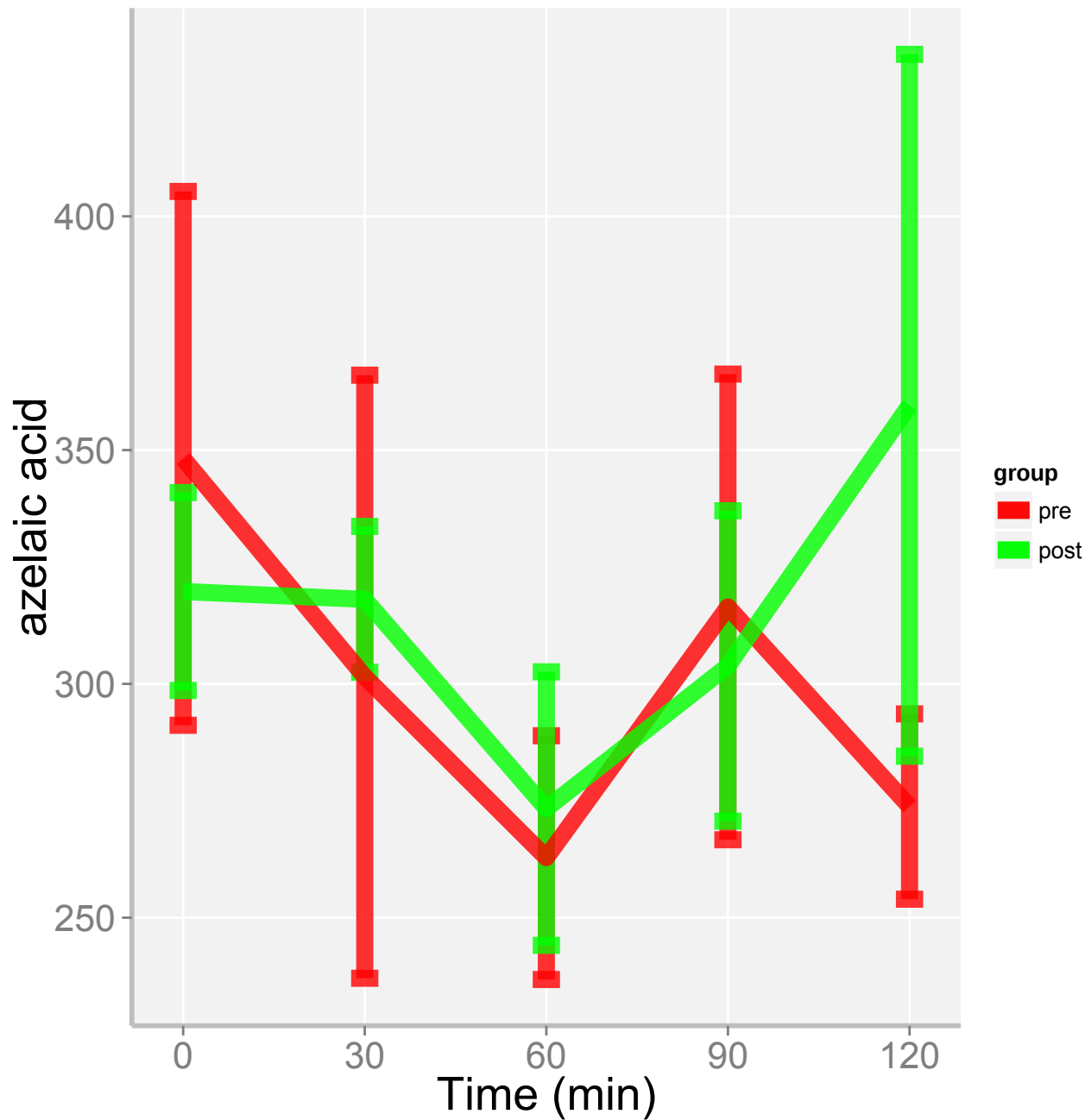
2,3-dihydroxybutanoic acid.

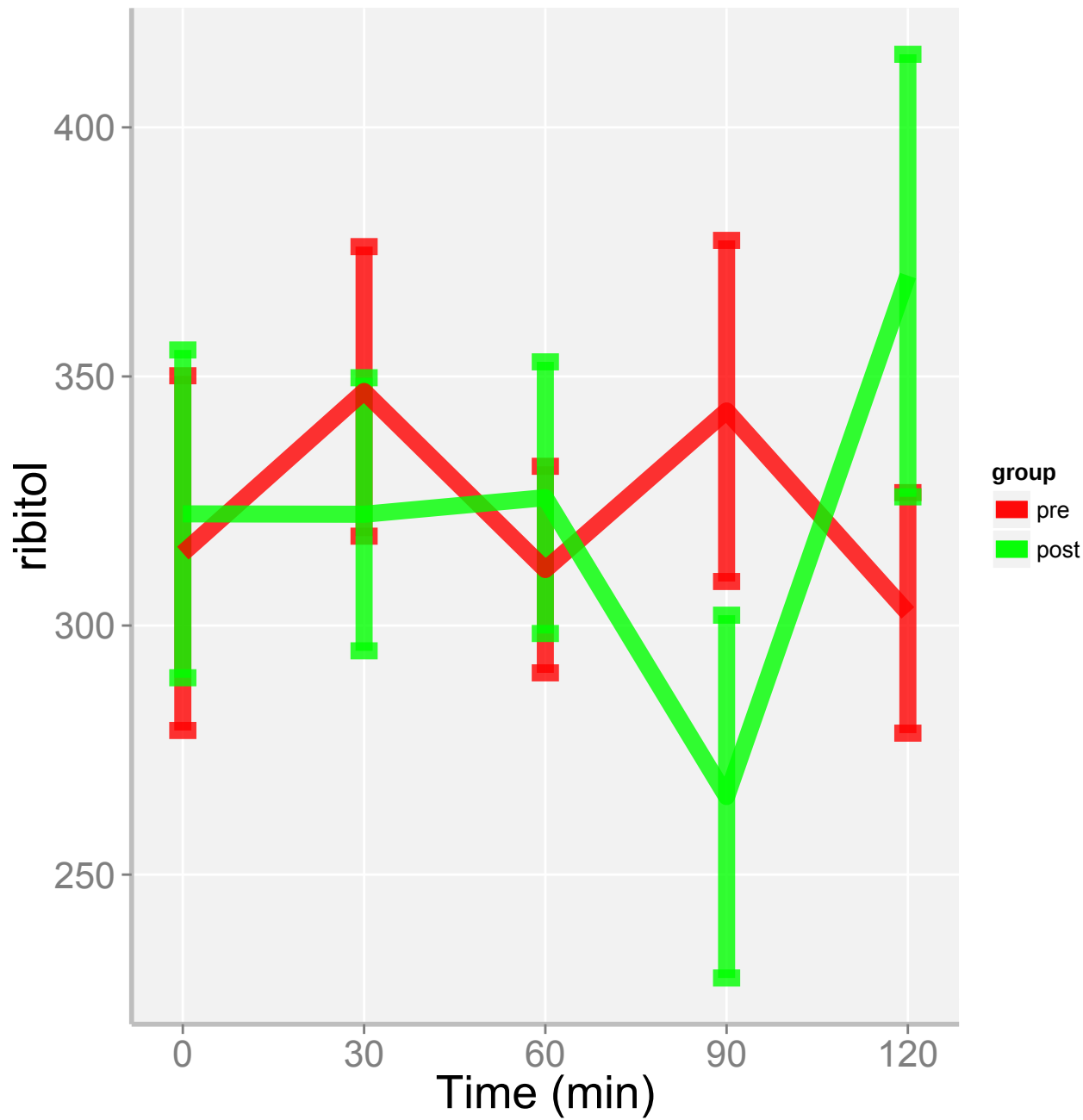


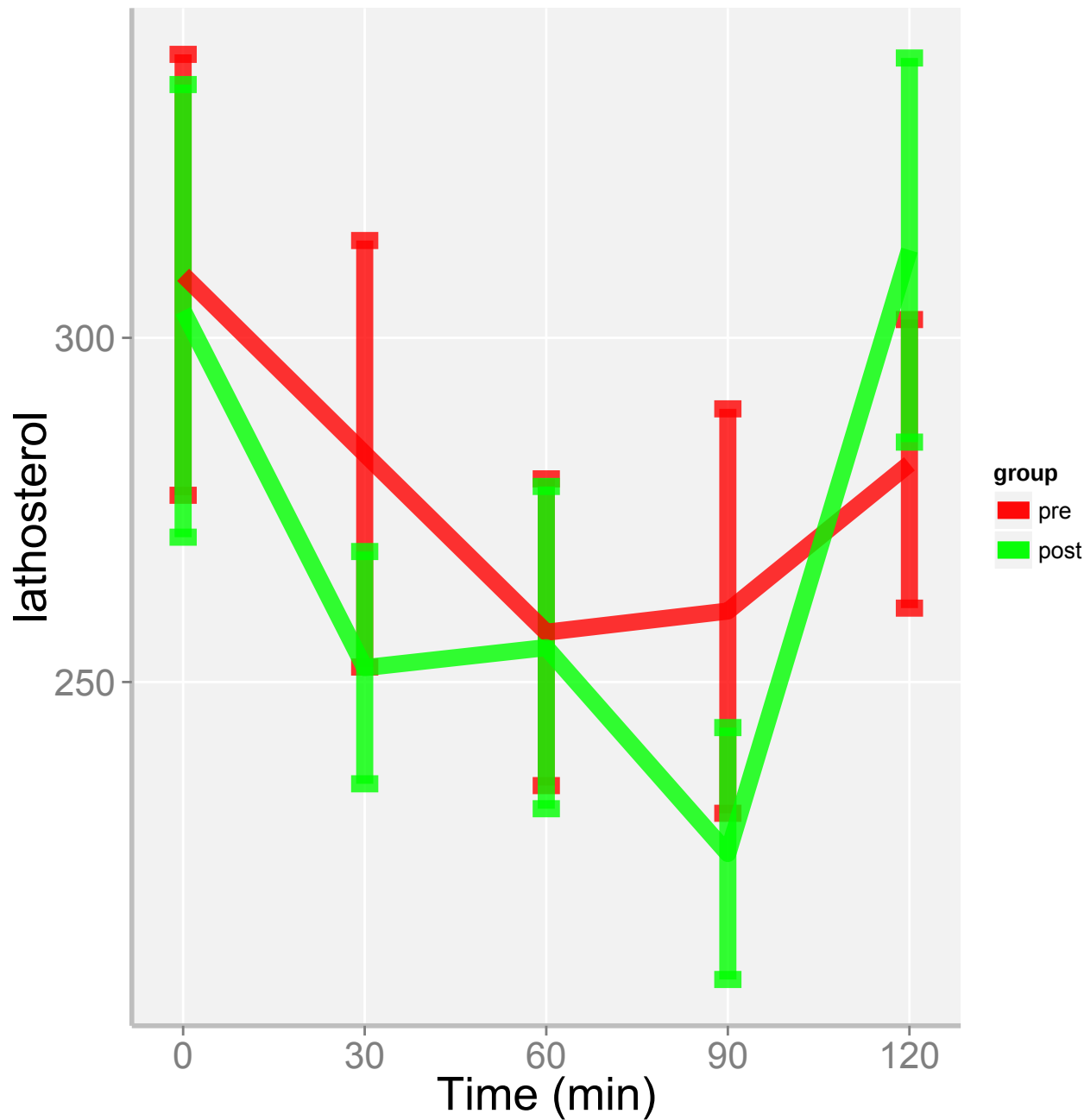












5-methoxytryptamine

450

400

350

300

0

30

60

90

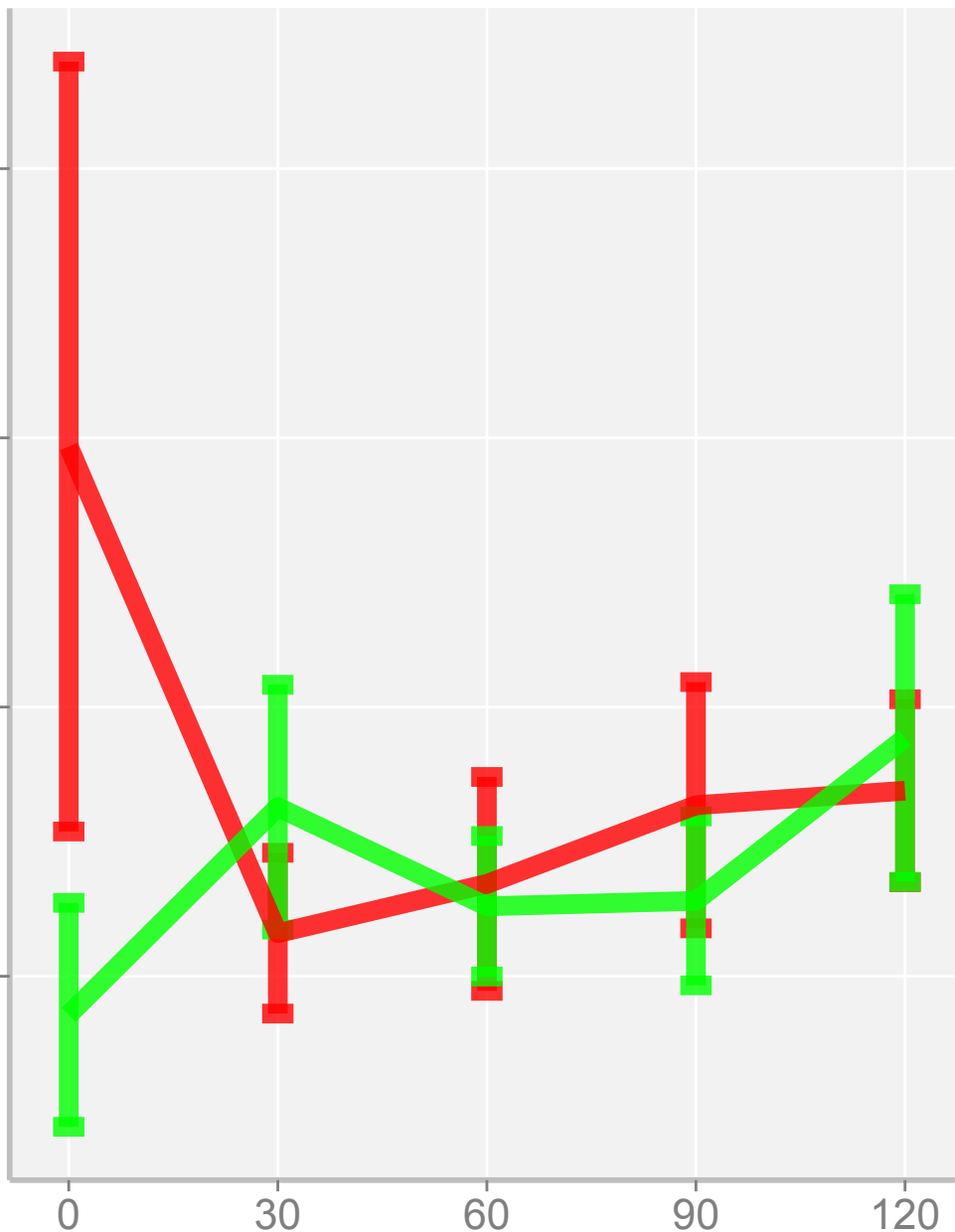
120

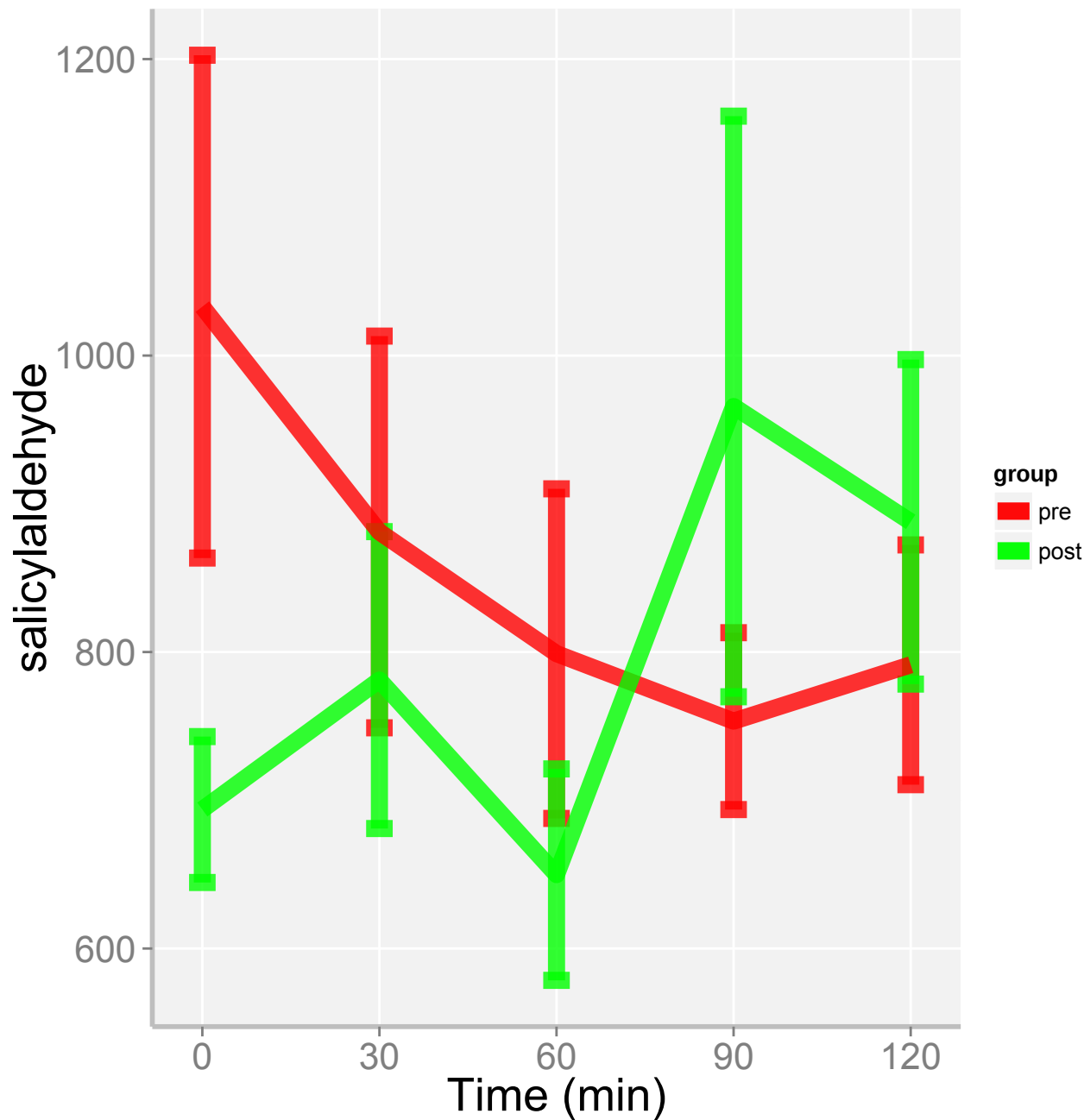
Time (min)

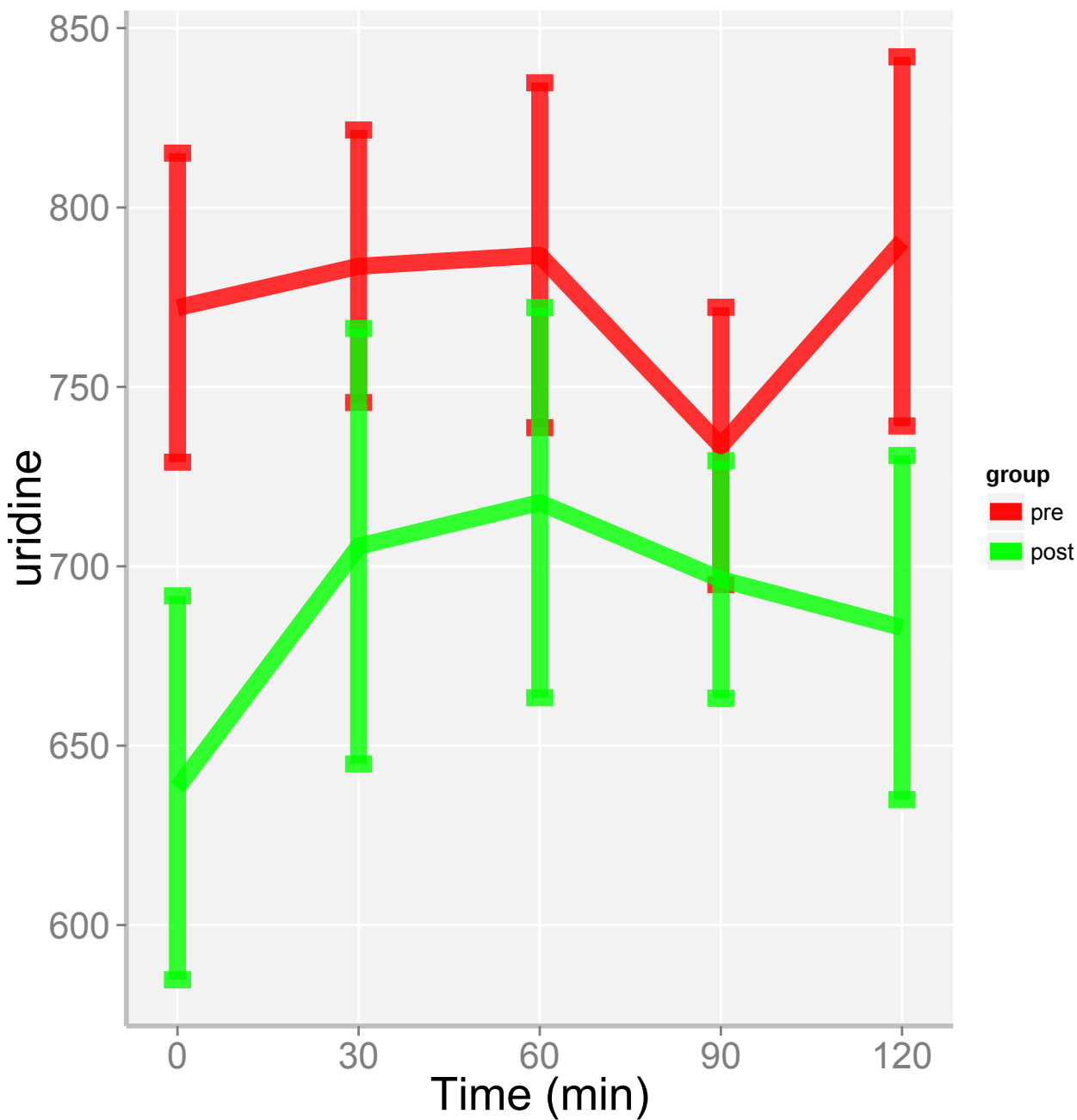
group

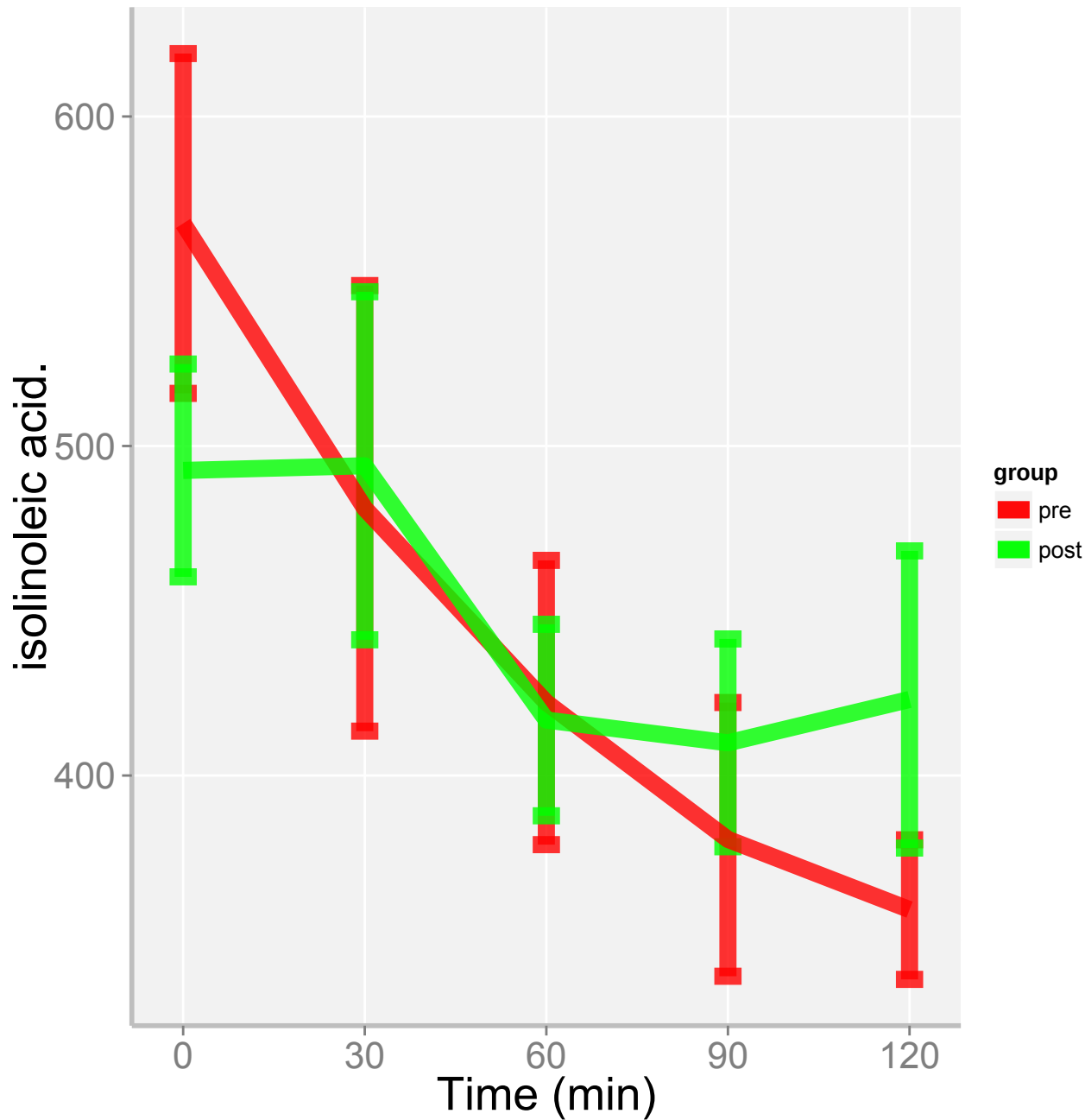
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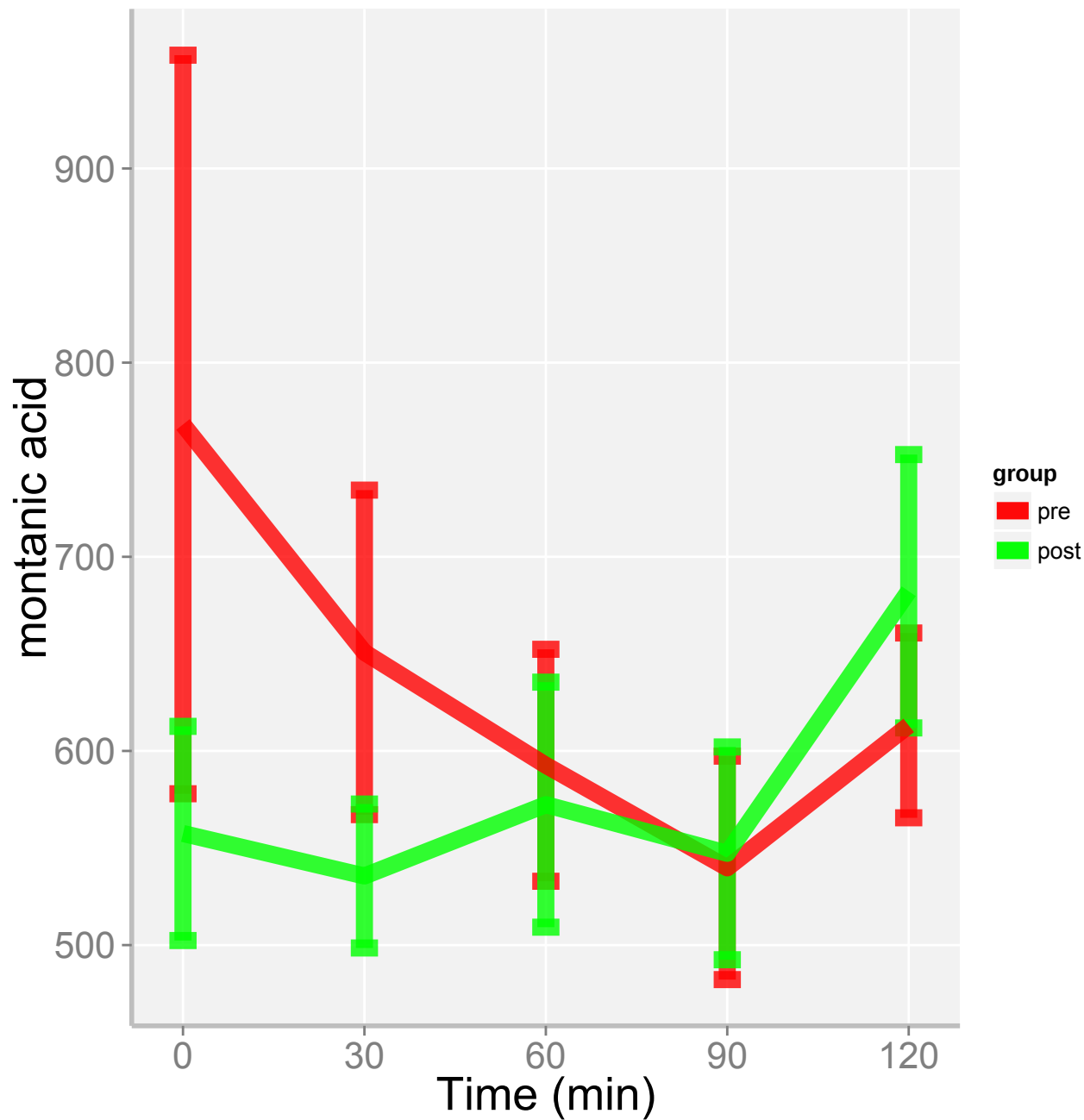
post











2,5-furandicarboxylic acid.

400

300

200

0

30

60

90

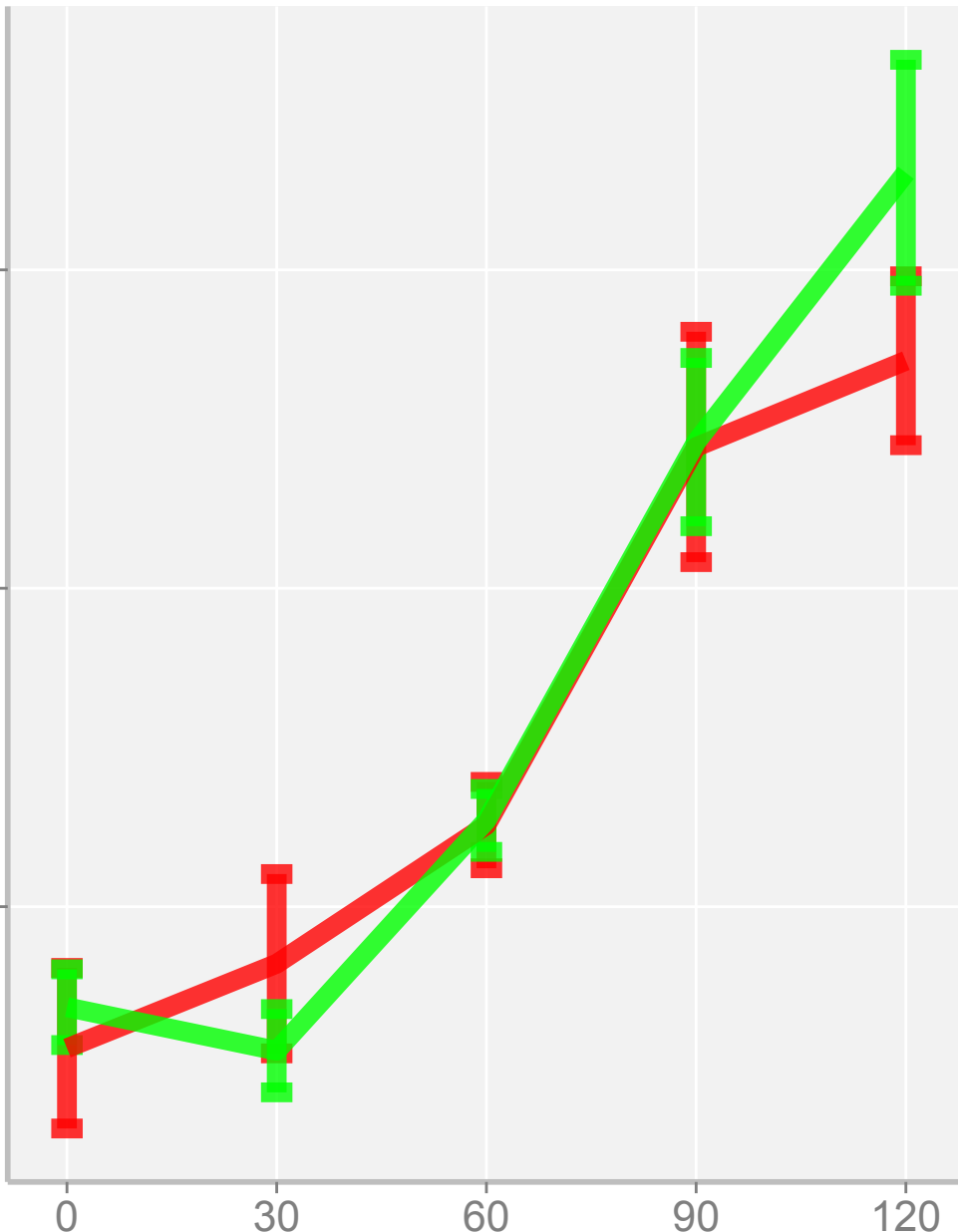
120

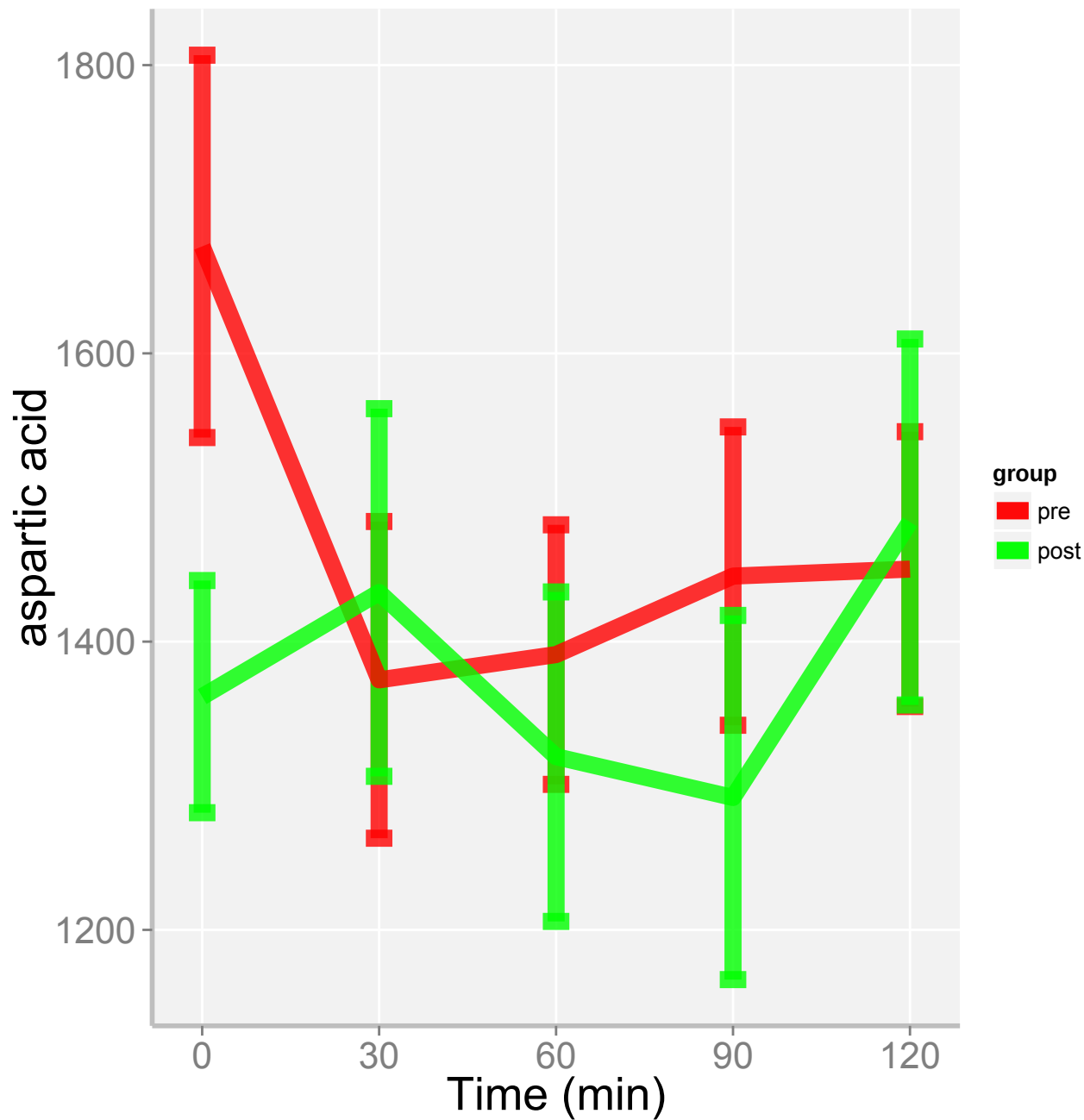
Time (min)

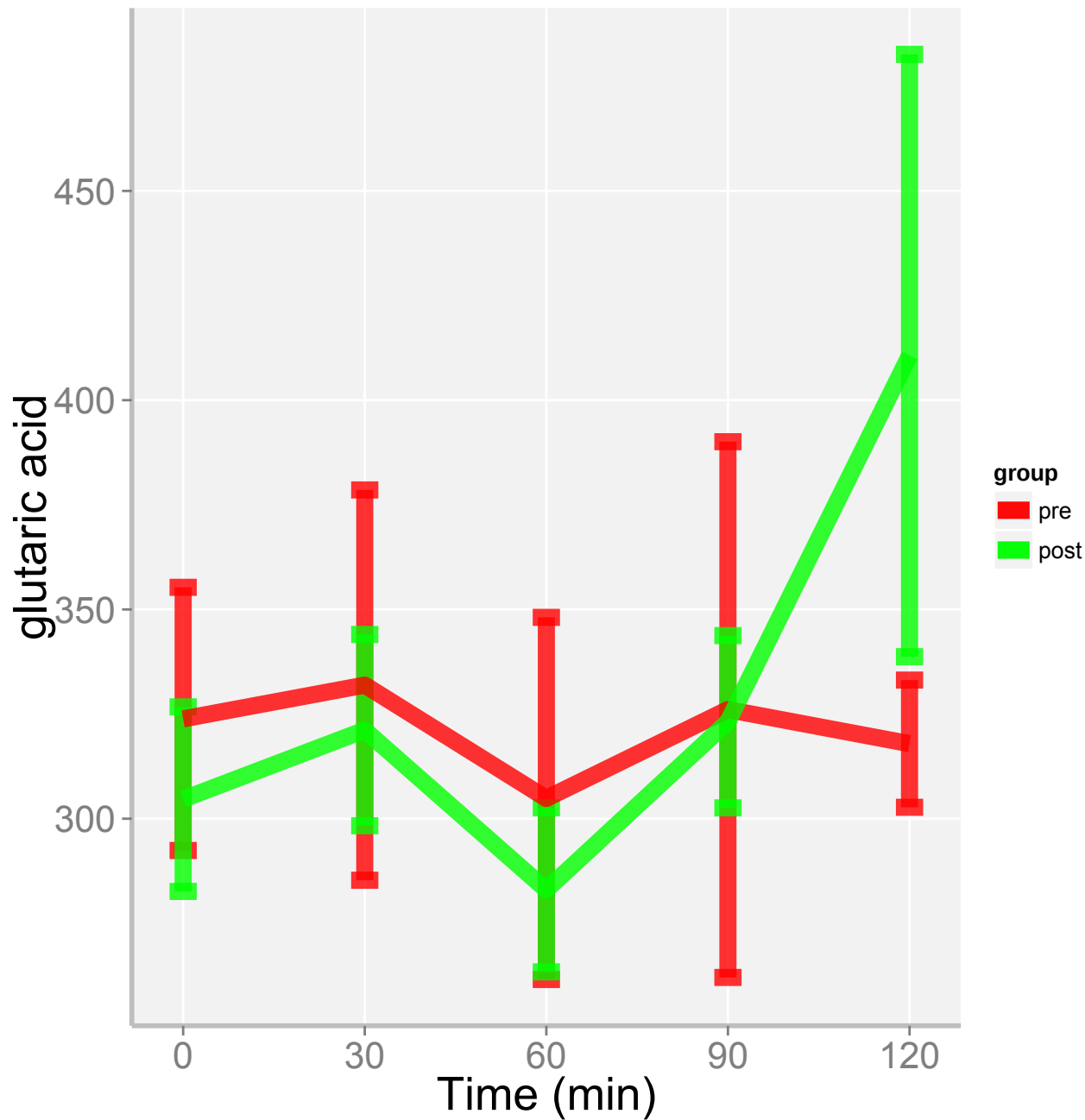
group

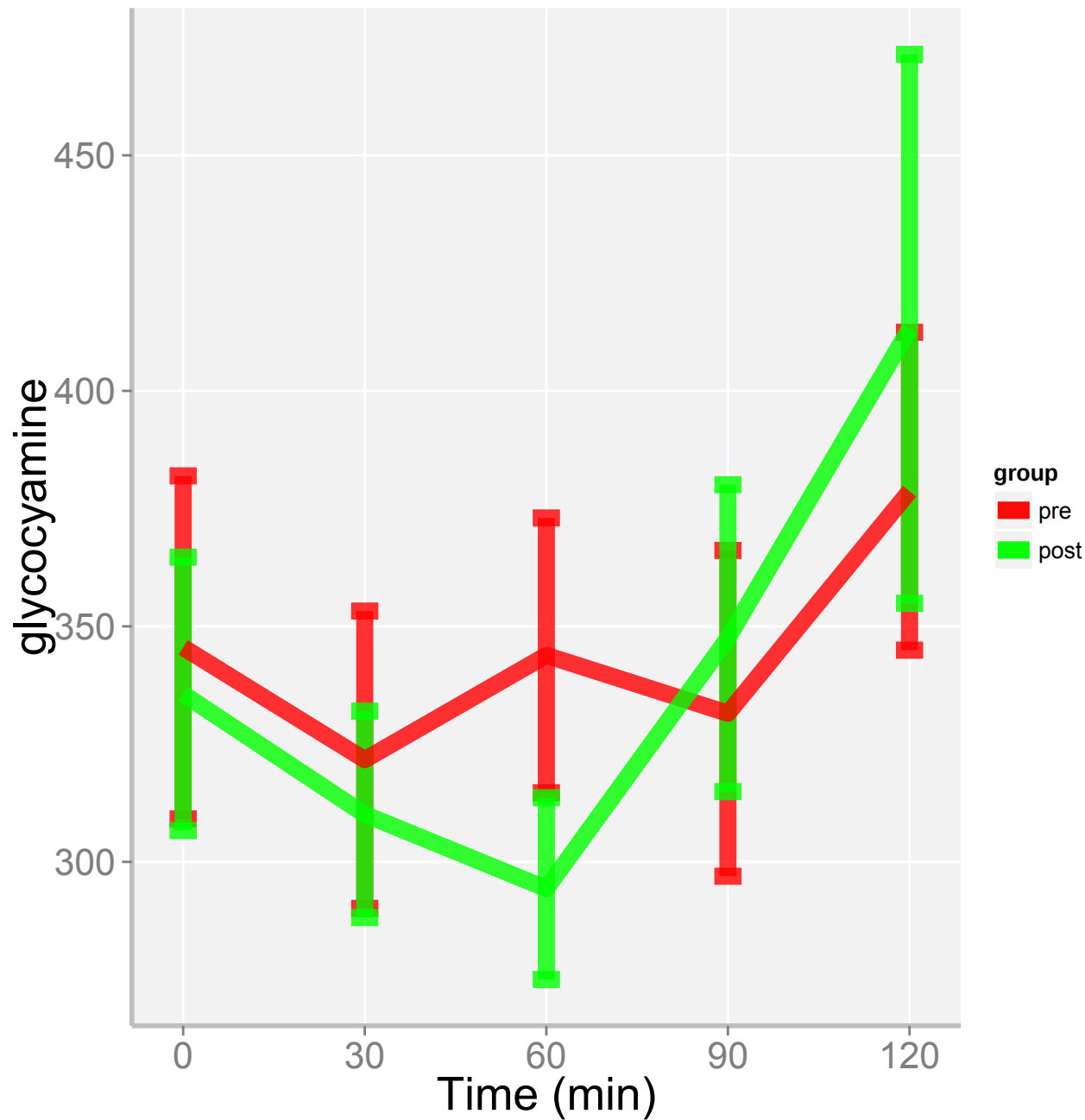
pre

post

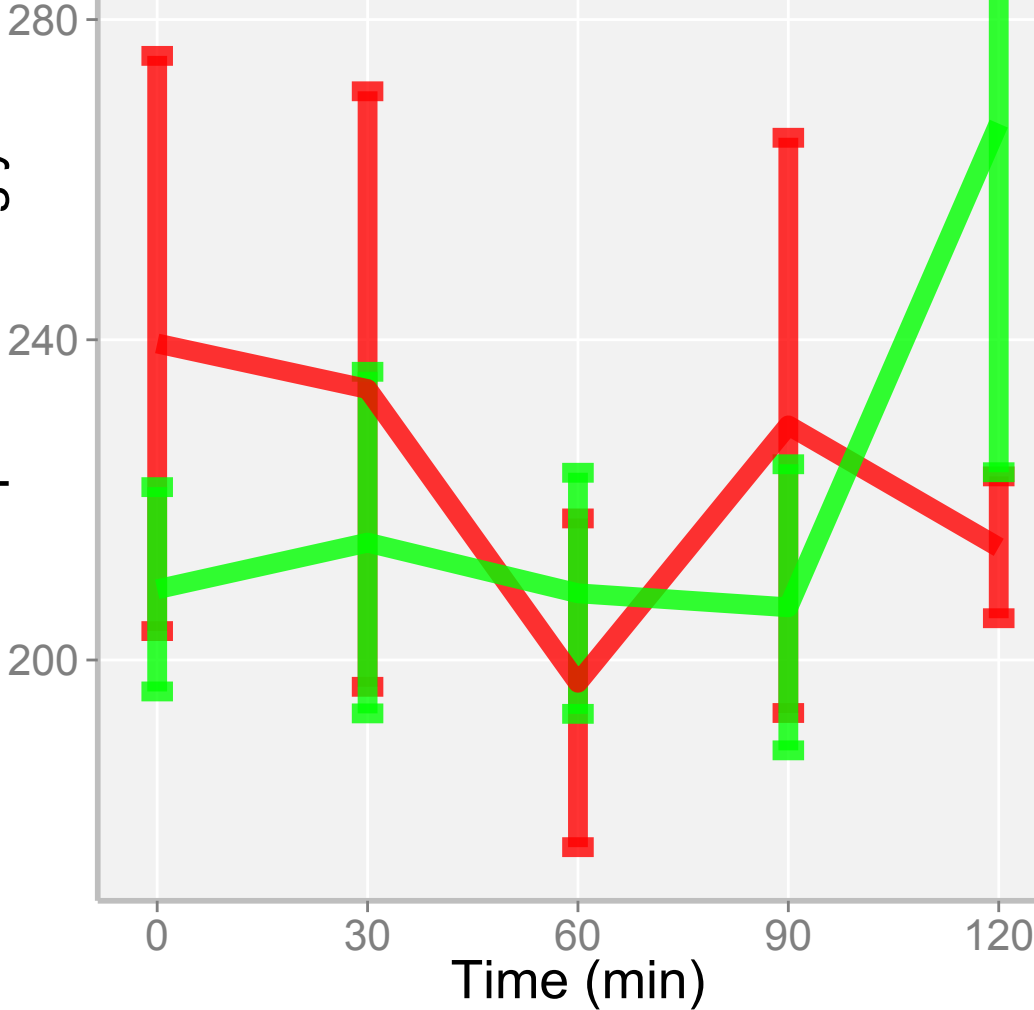








monopalmitin-1-glyceride

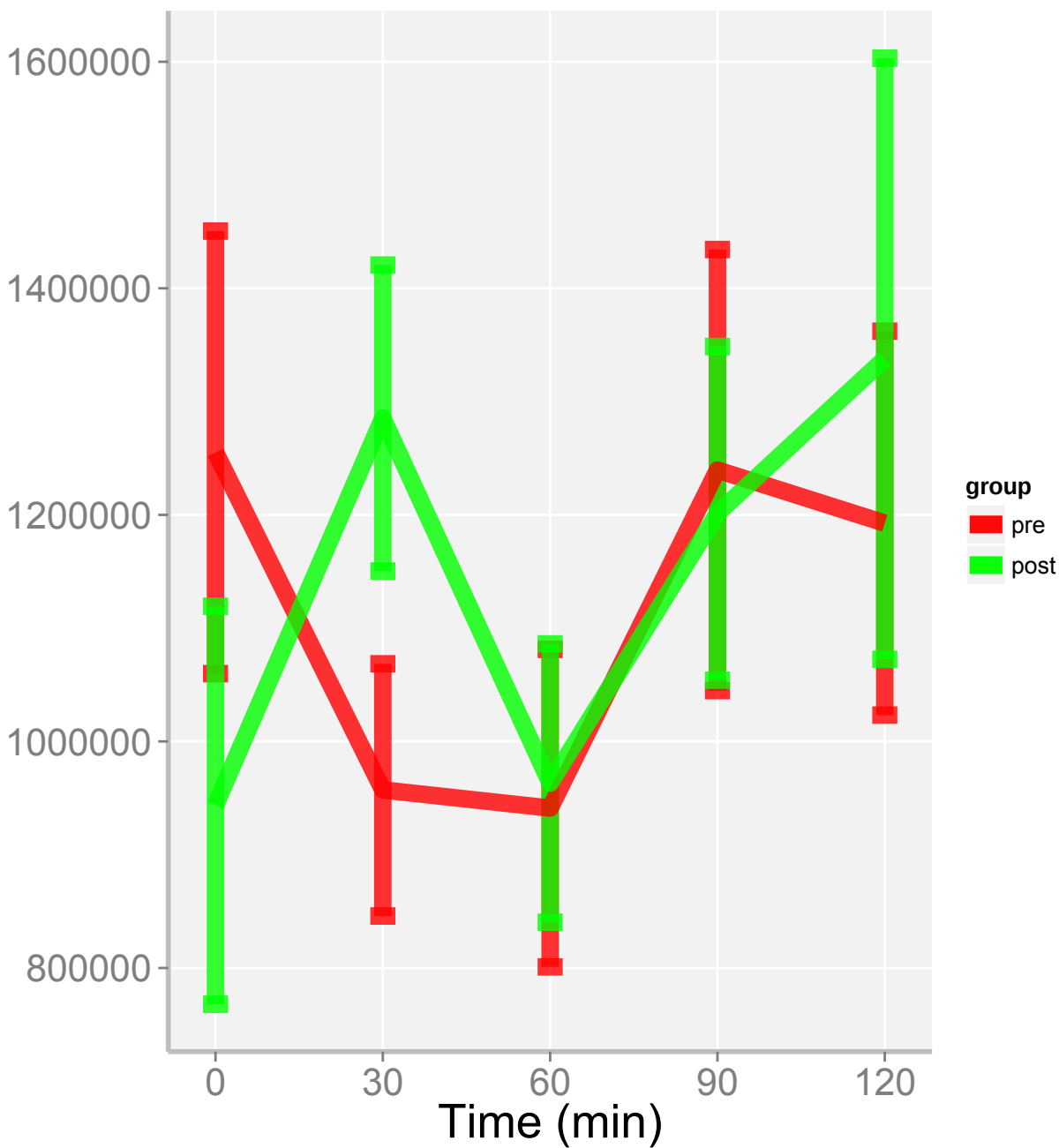


group

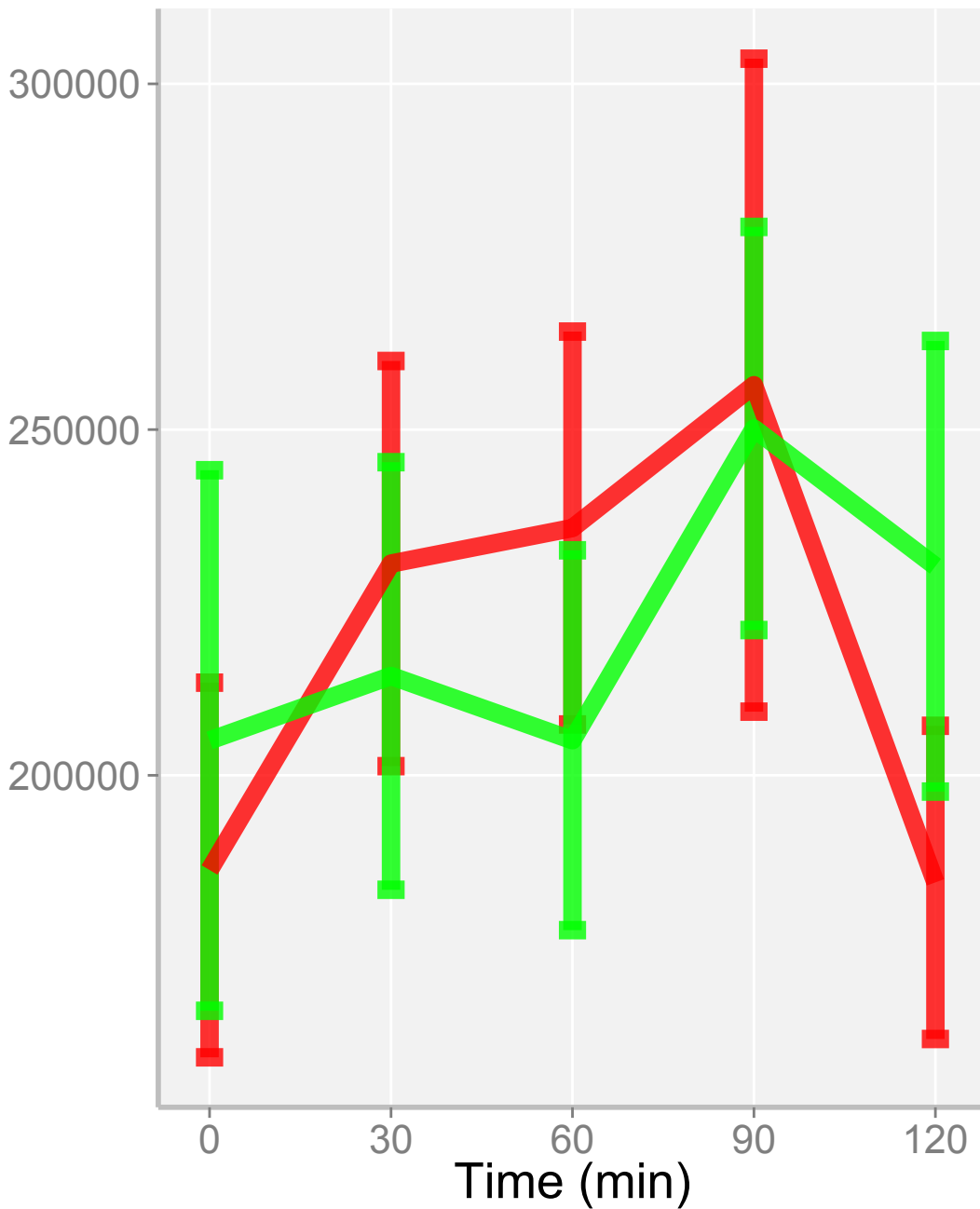
pre

post

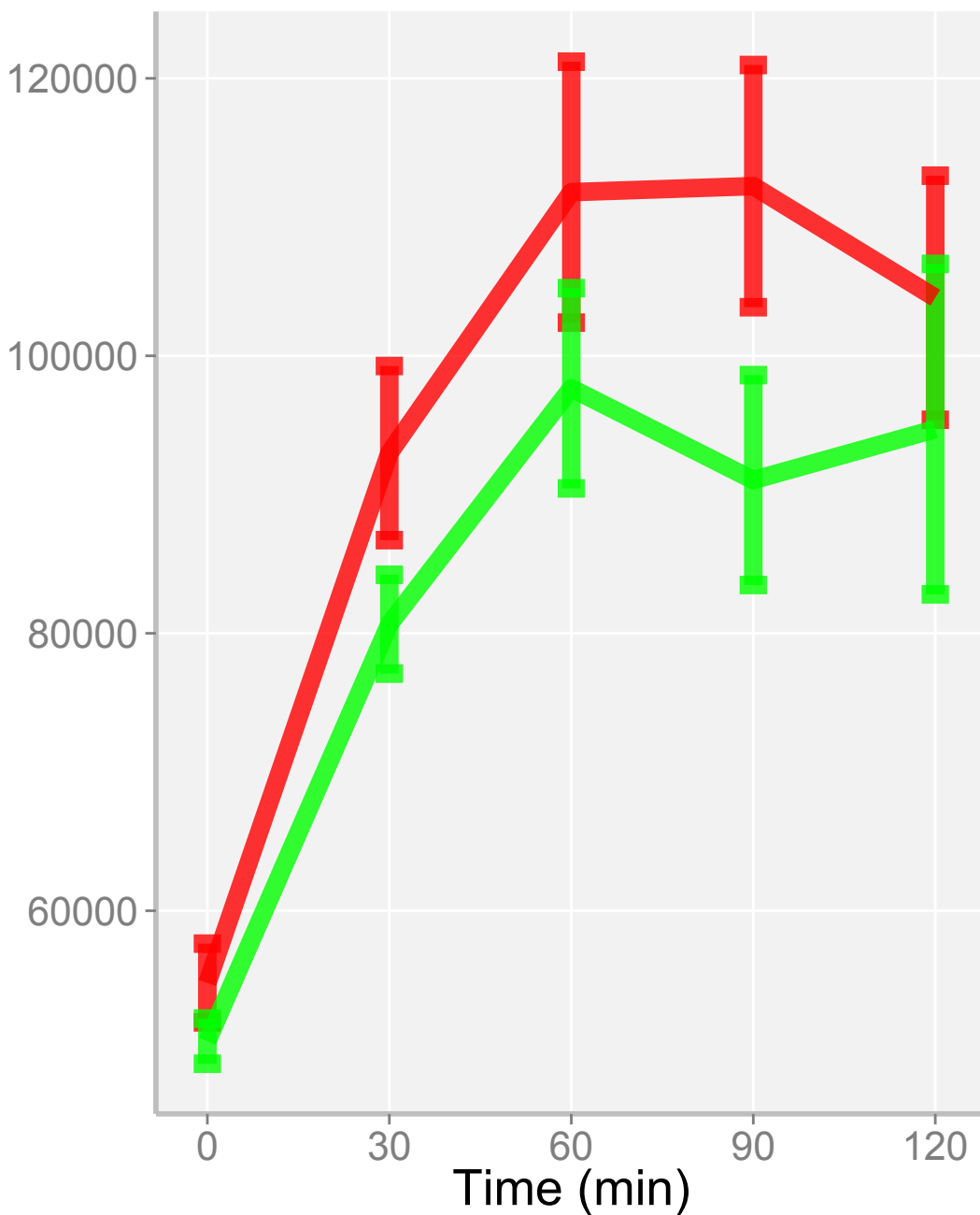
219021



202571



199777



204344

120000

110000

100000

90000

80000

0

30

60

90

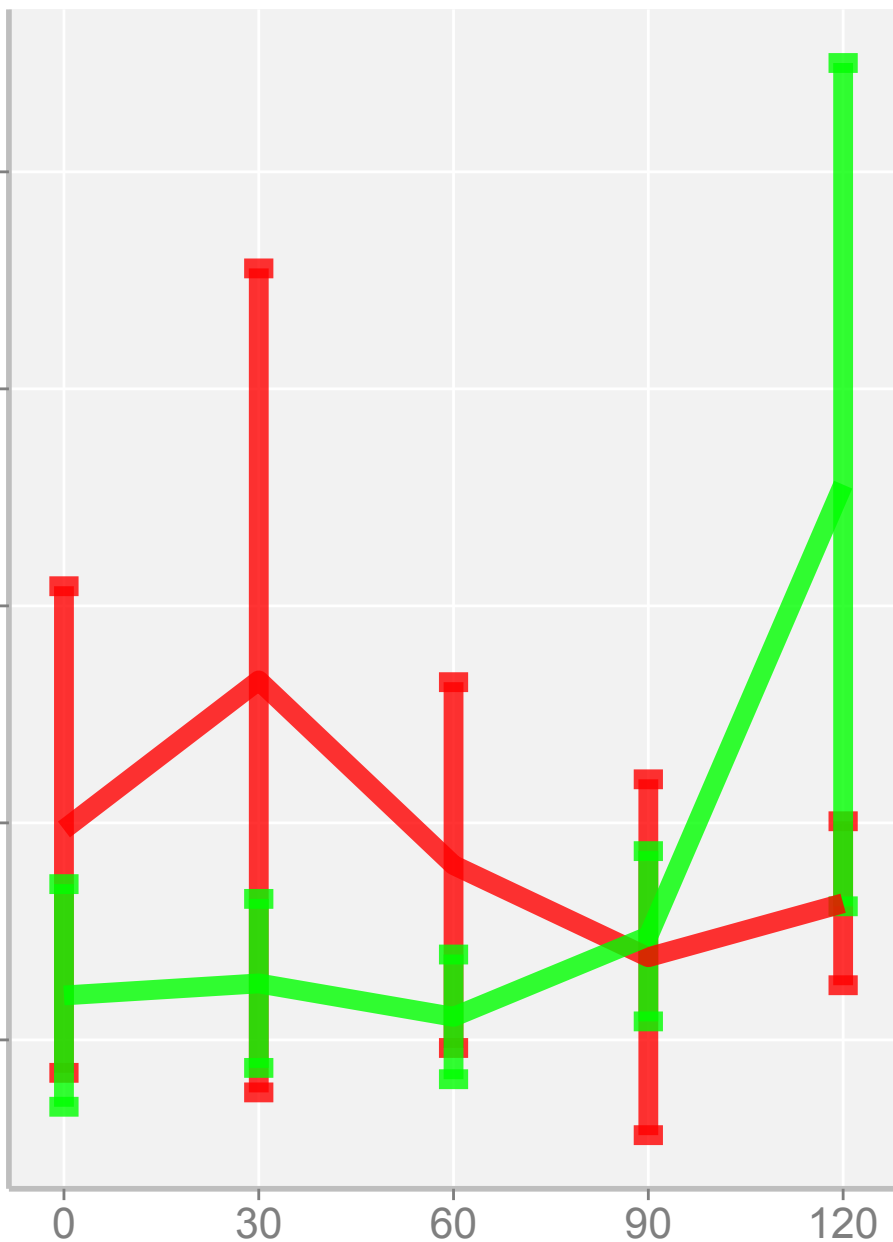
120

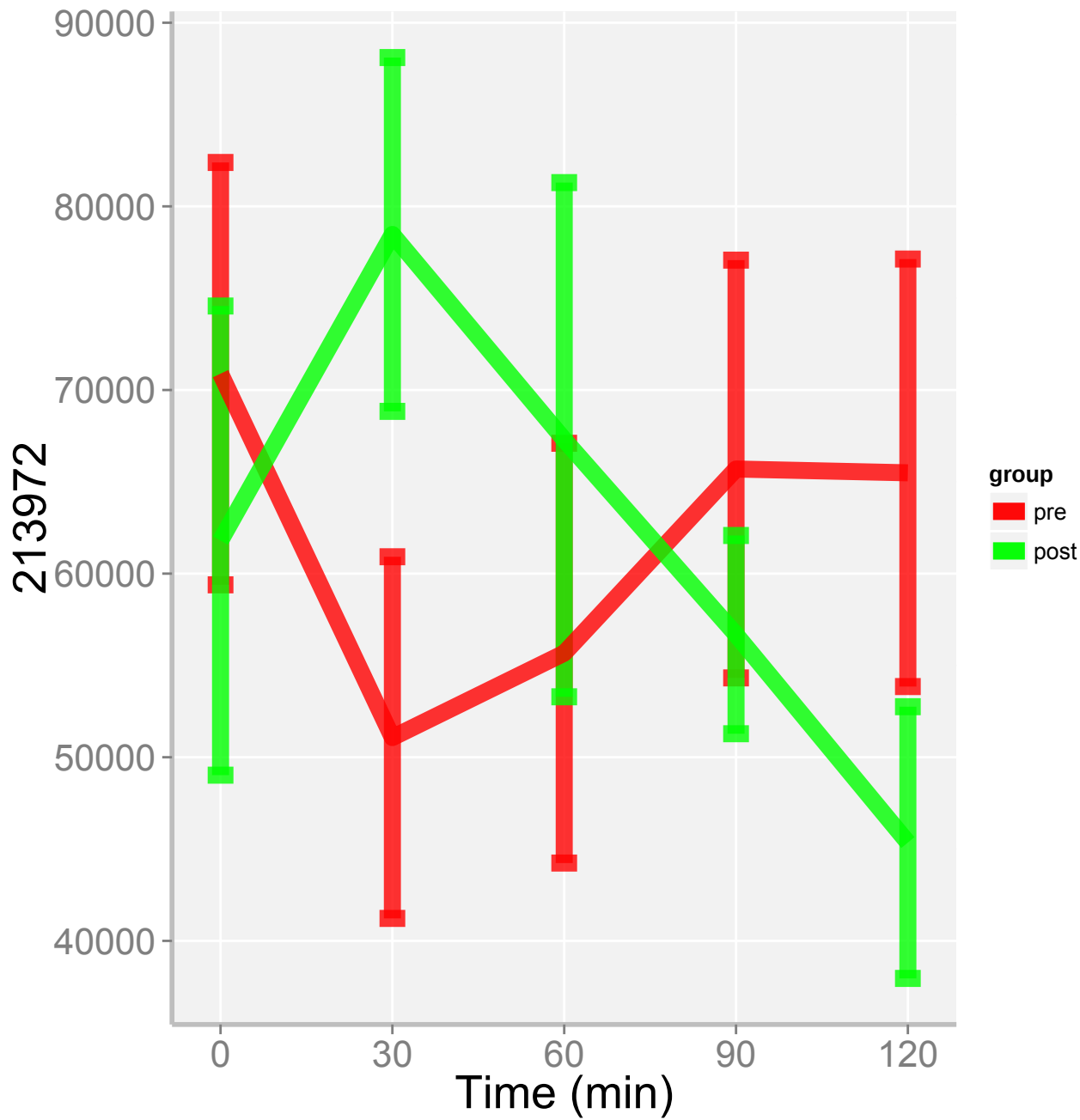
Time (min)

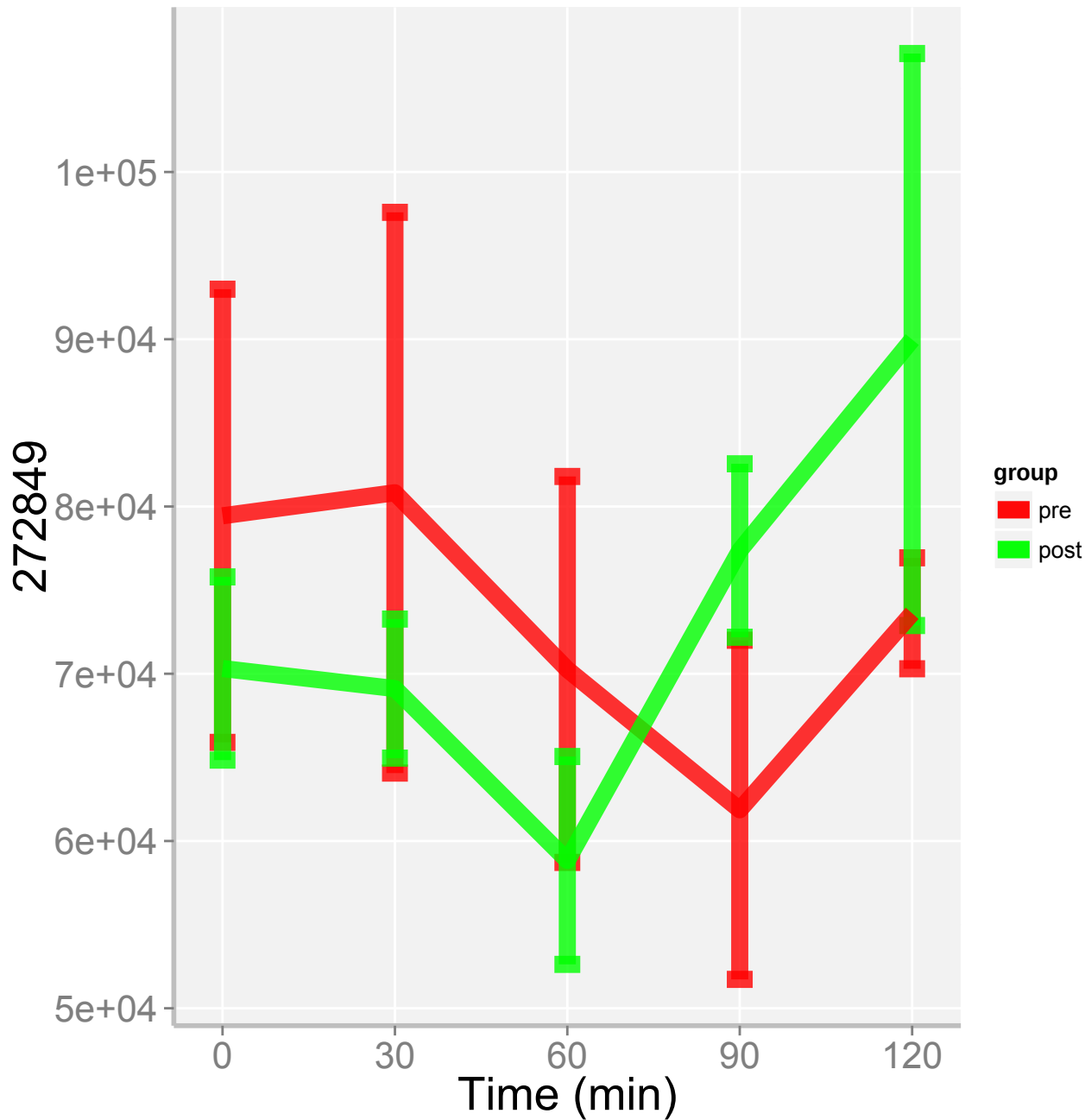
group

pre

post







232087

1e+05
9e+04
8e+04
7e+04

0

30

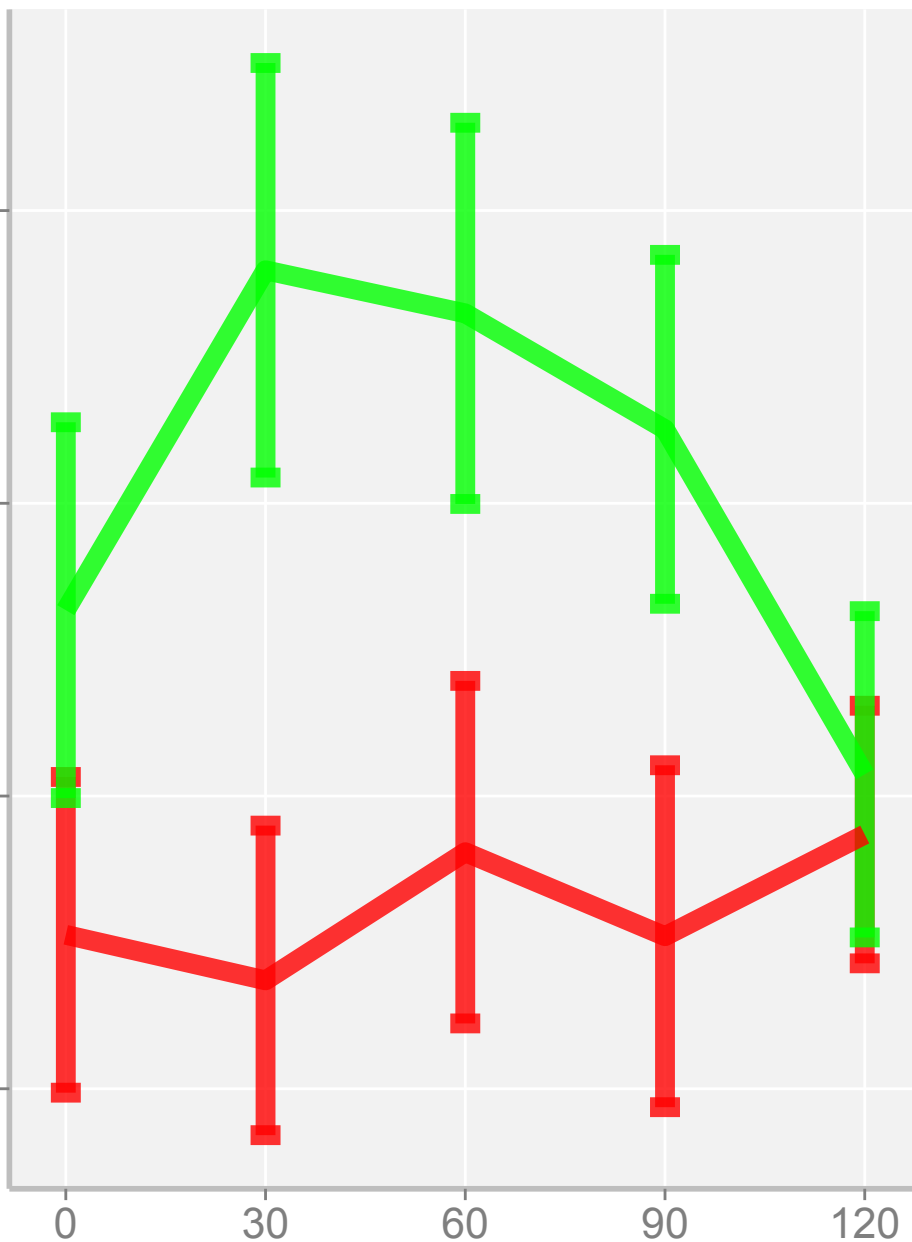
60

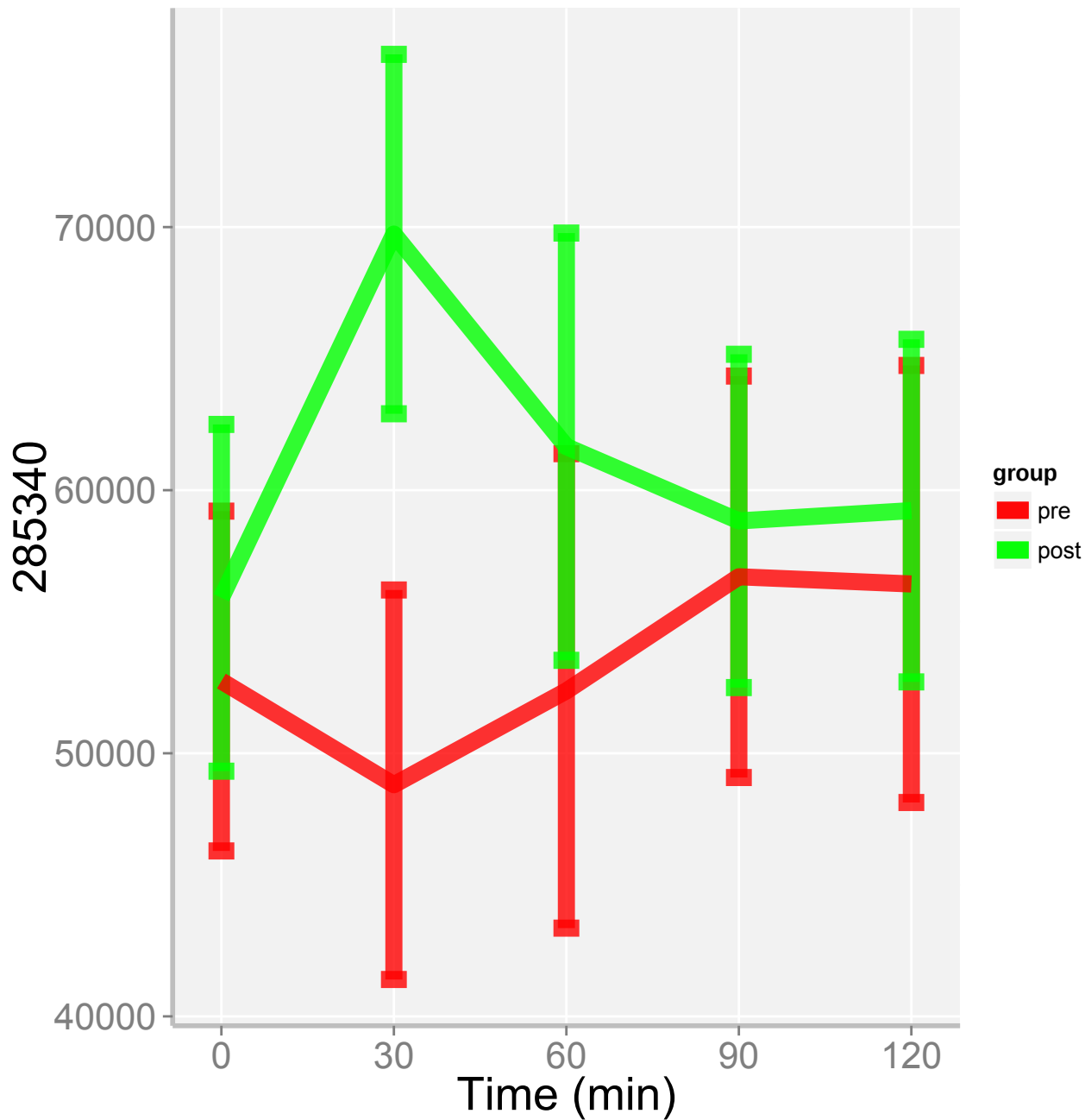
90

120

Time (min)

group
pre
post





199773

60000

50000

40000

0

30

60

90

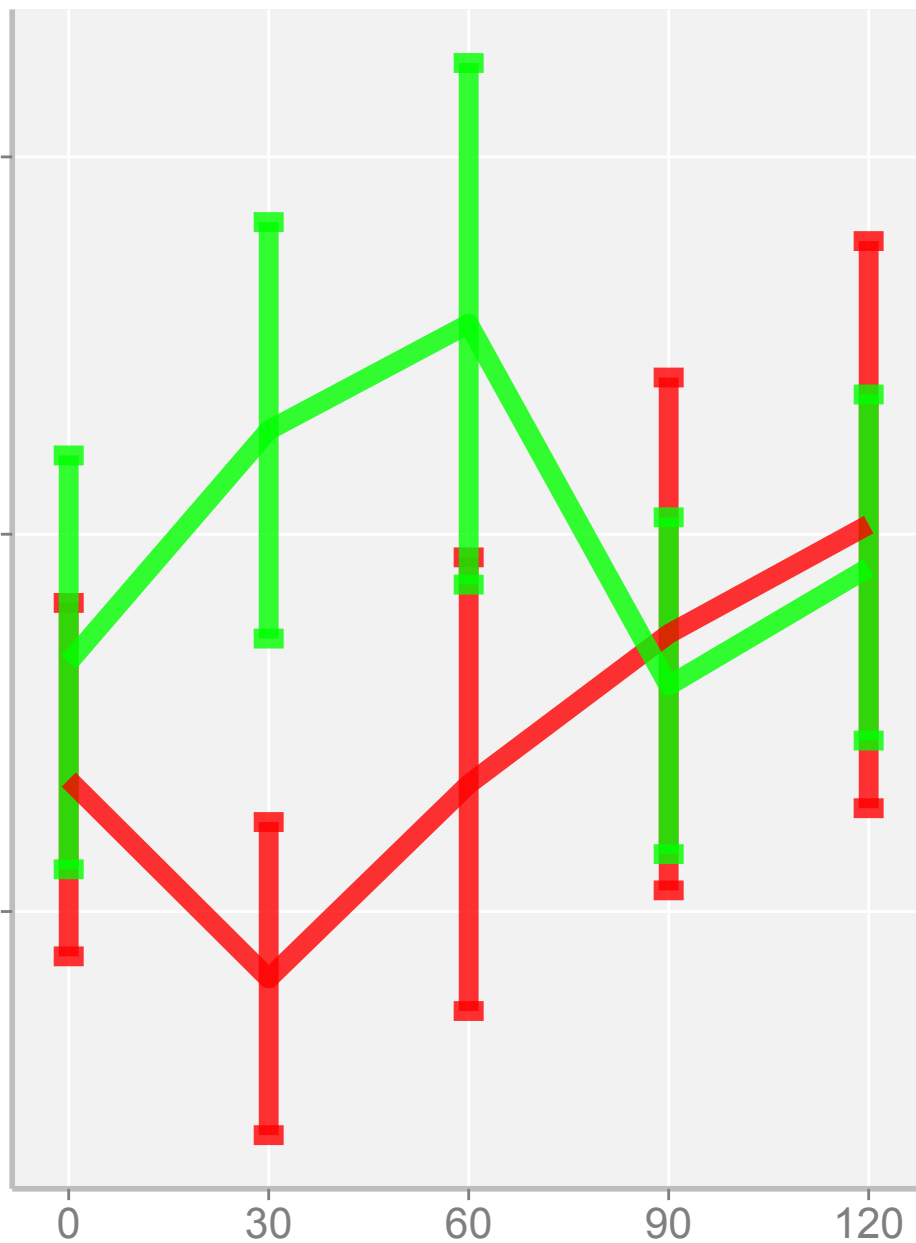
120

Time (min)

group

pre

post



213253

80000

70000

60000

50000

40000

0

30

60

90

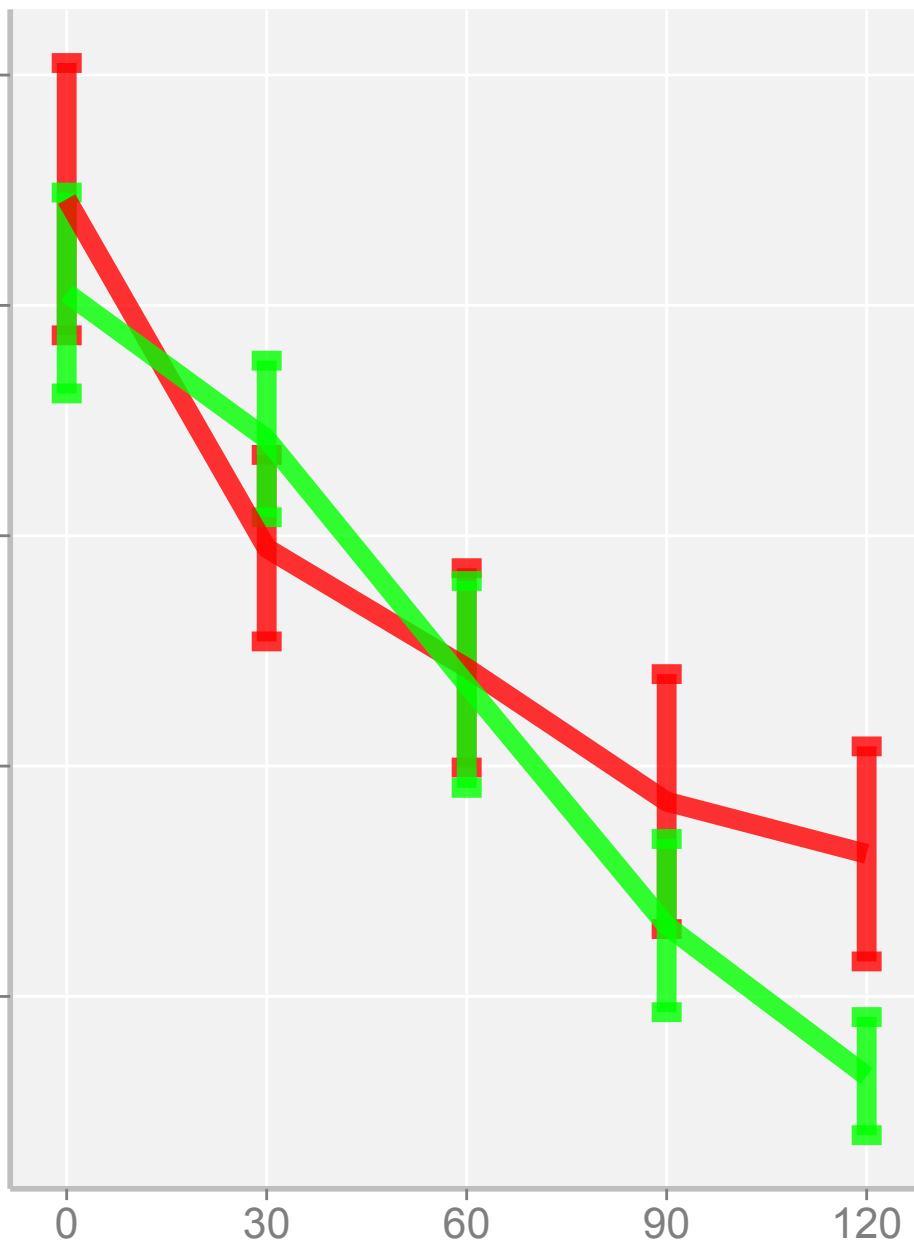
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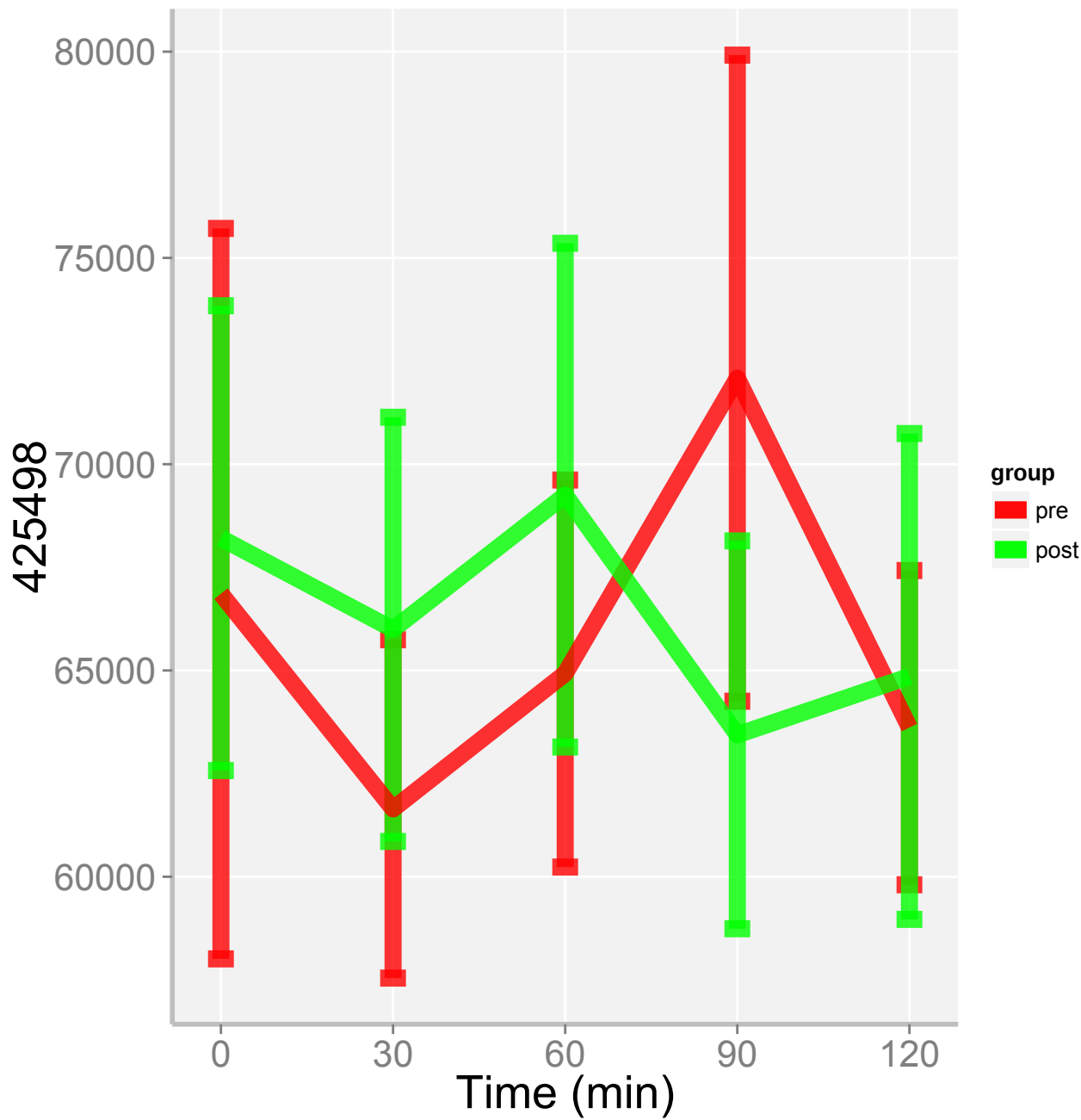
Time (min)

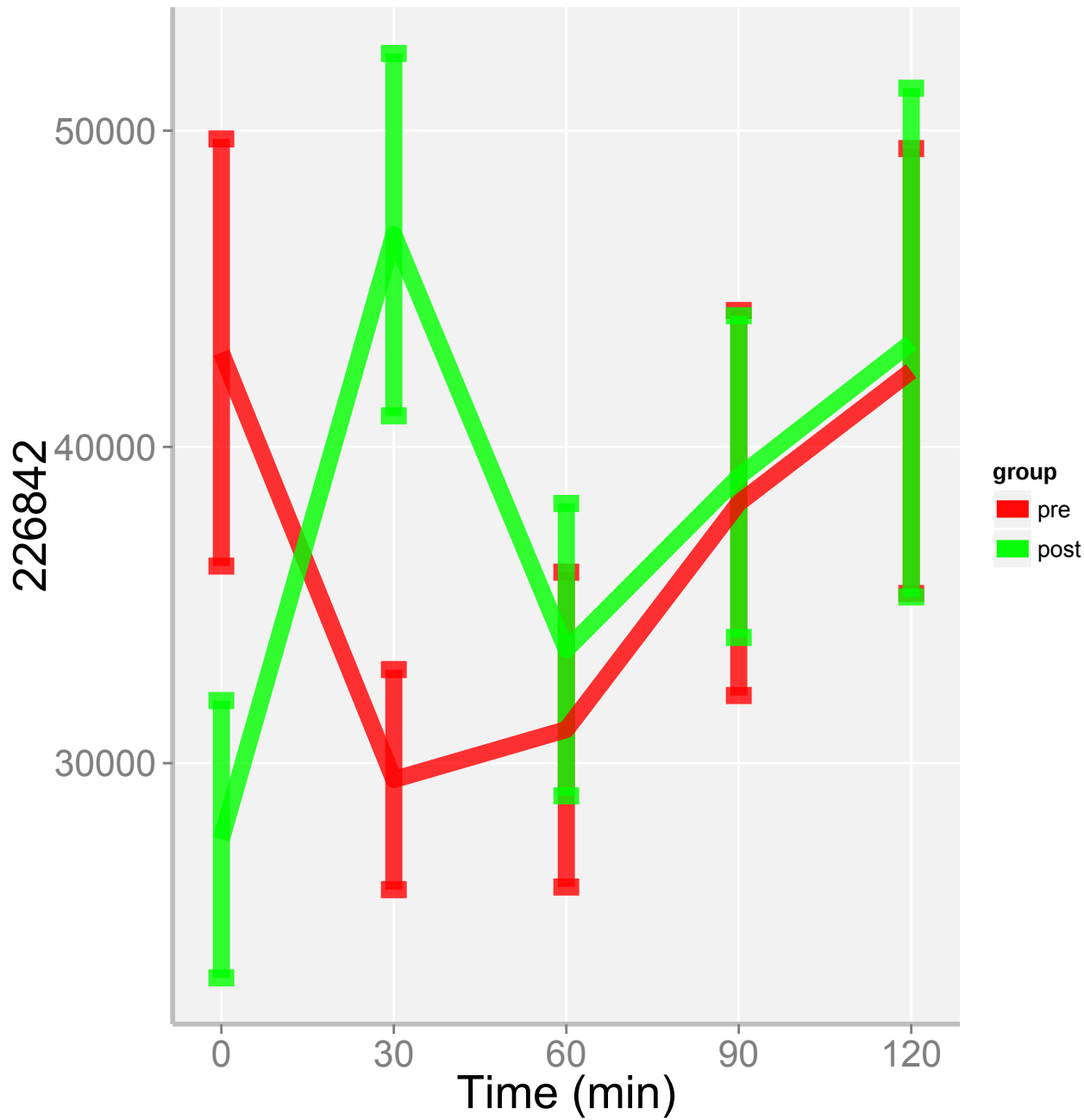
group

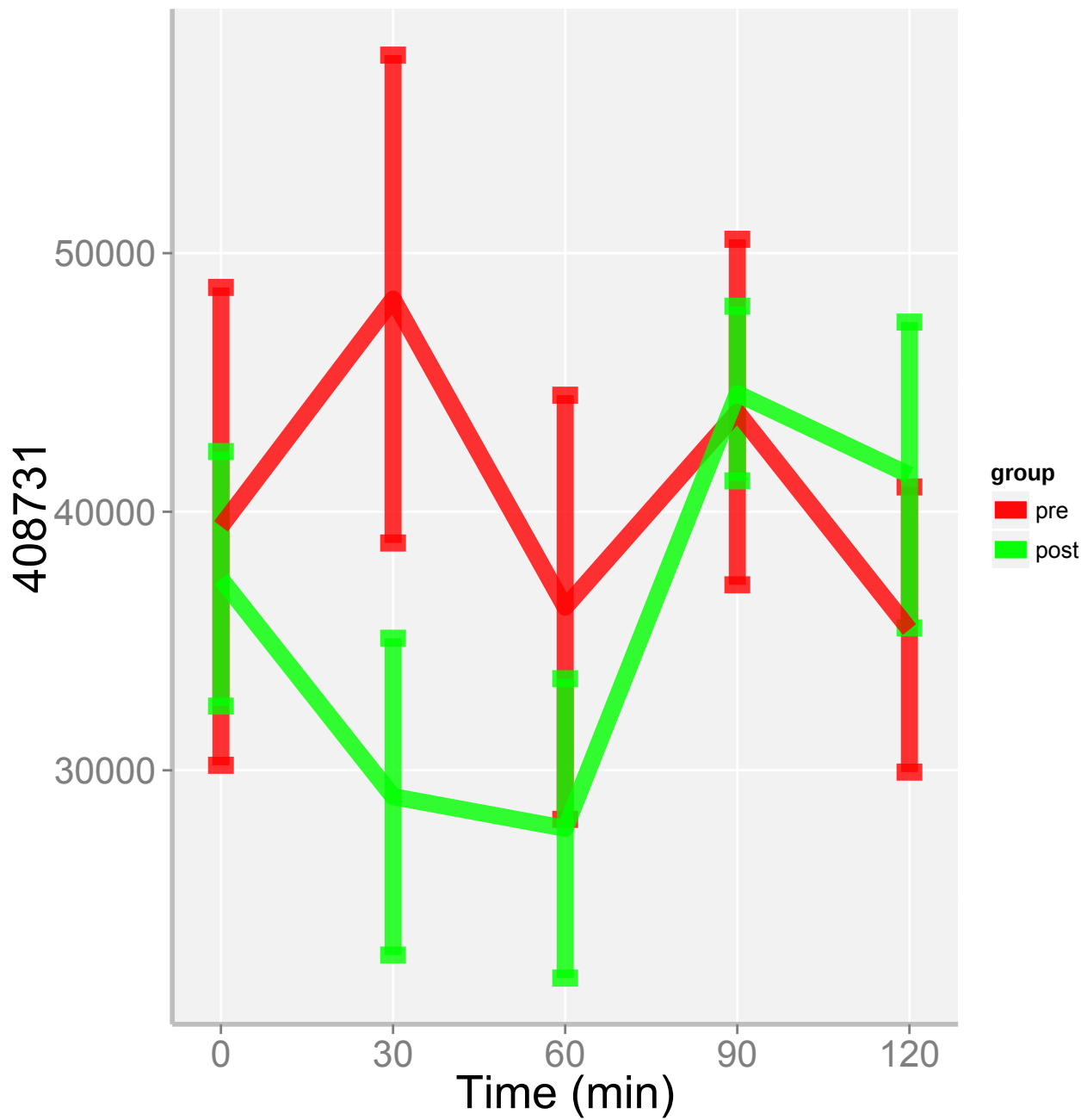
pre

post









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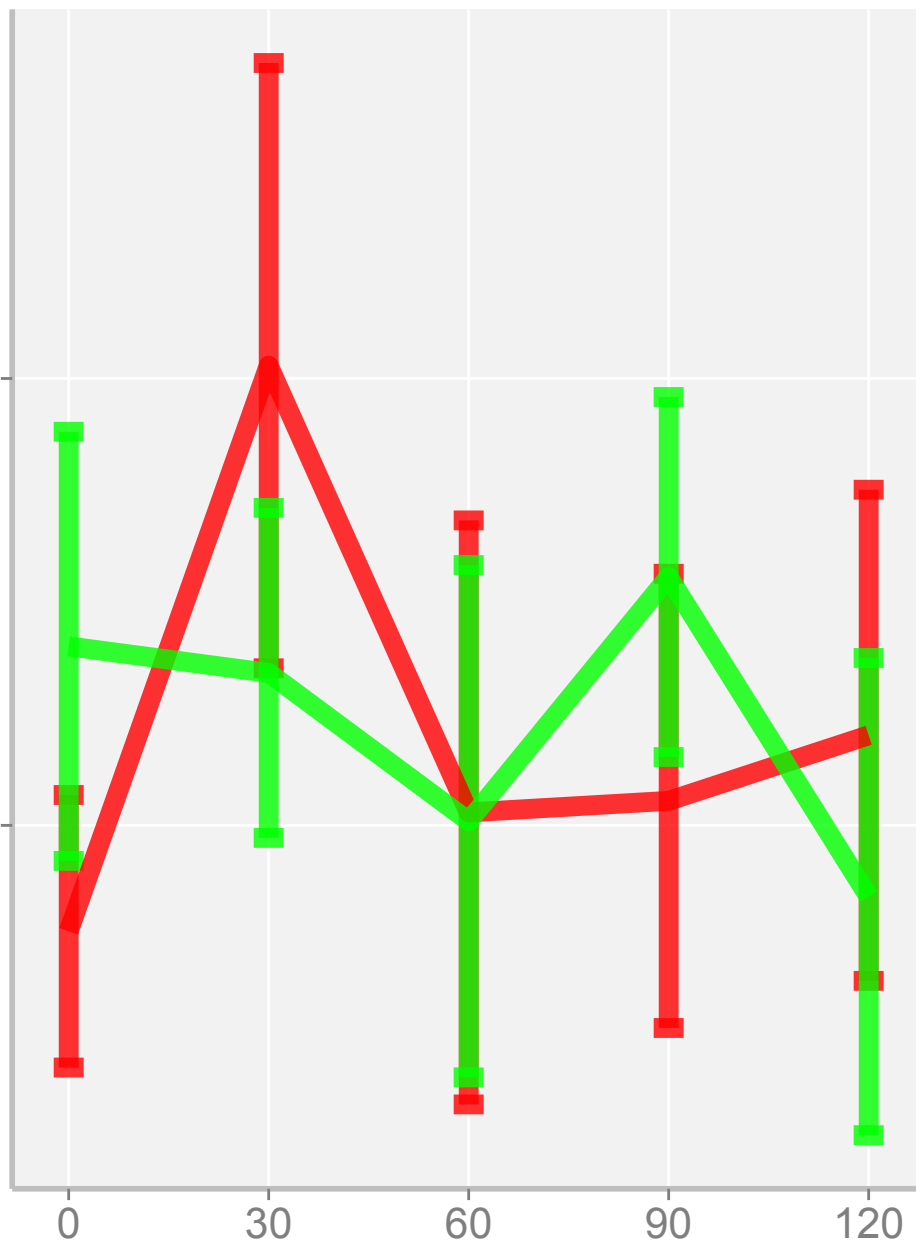
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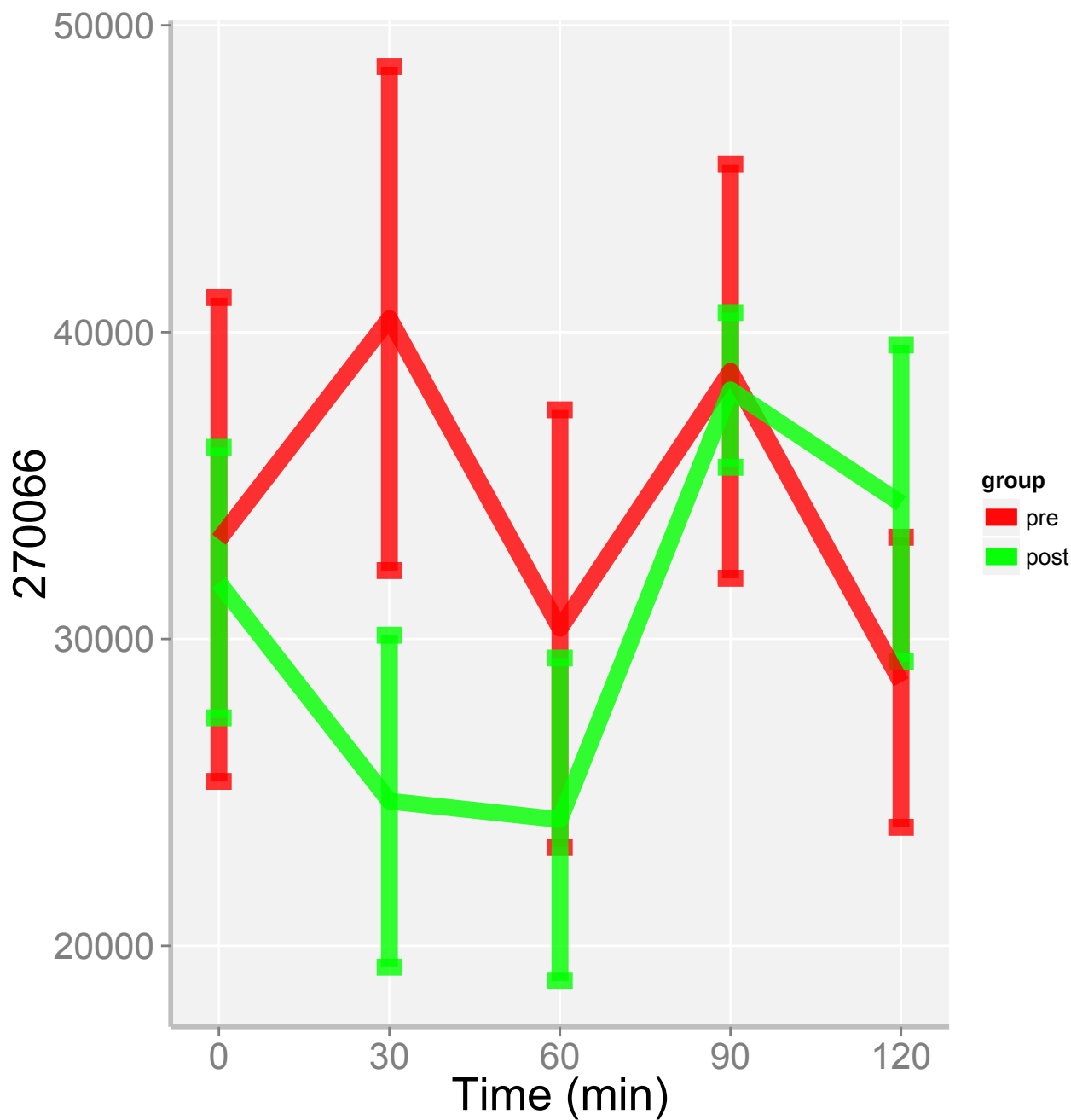
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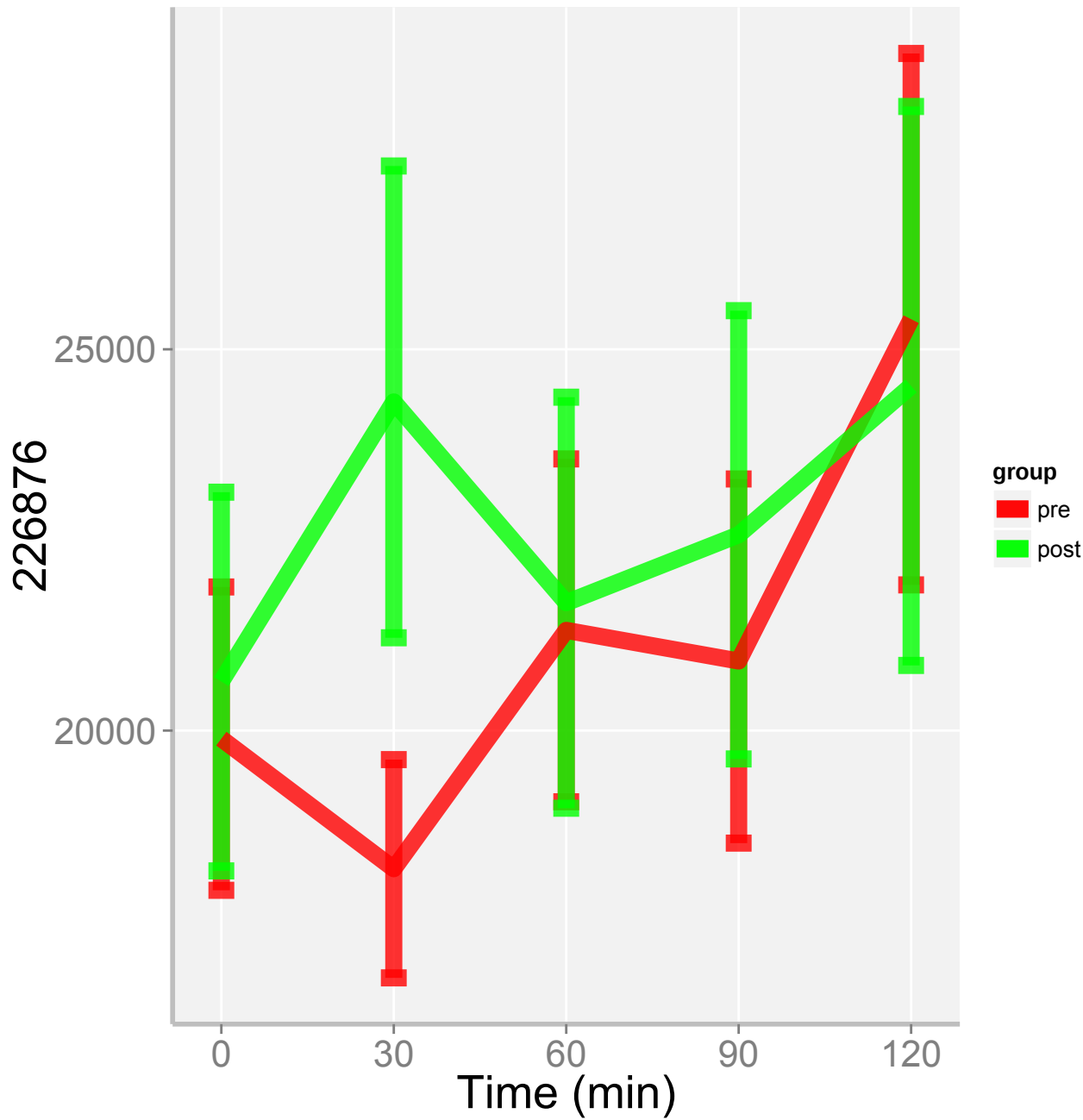
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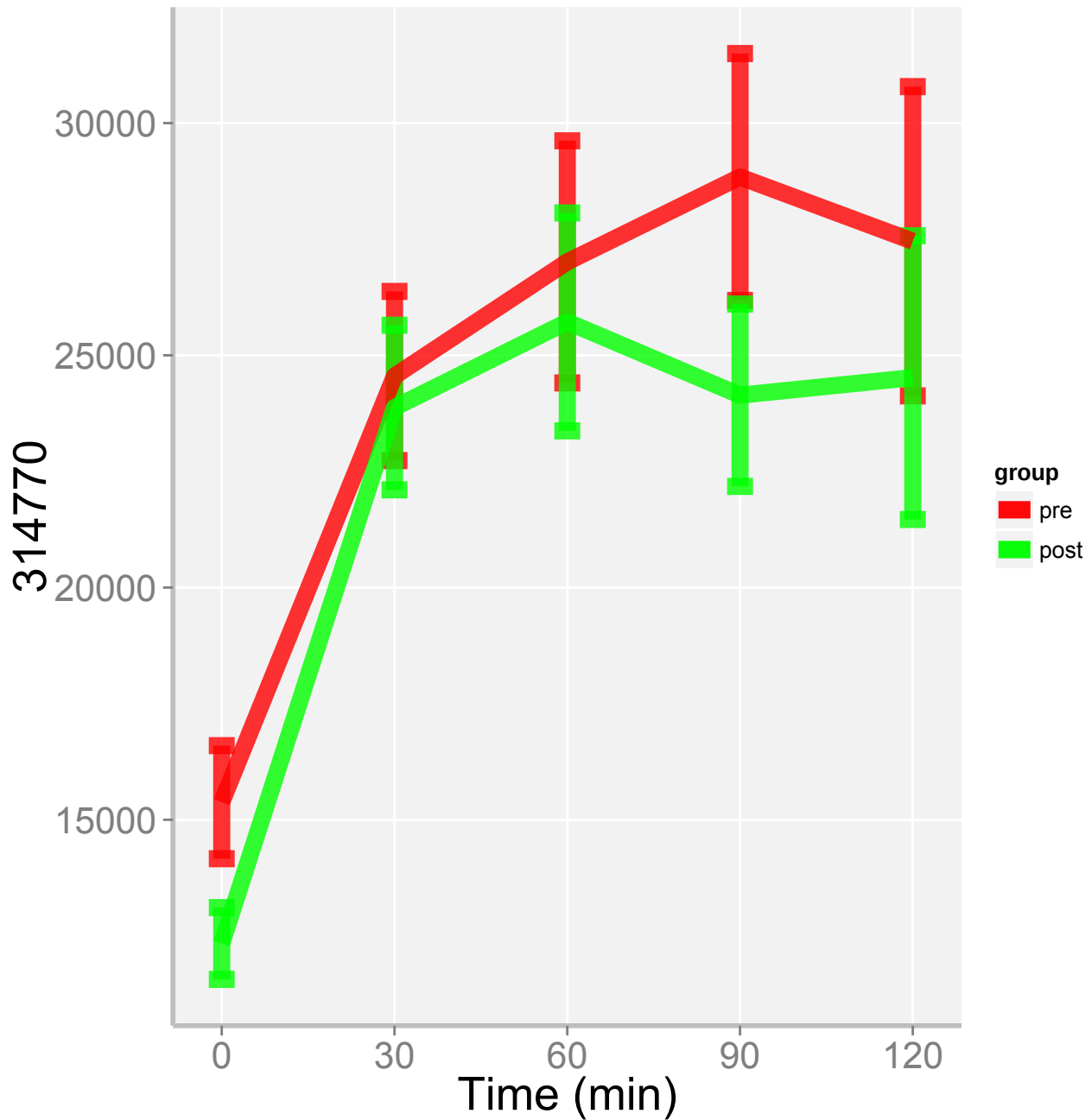
Time (min)

group
pre
post

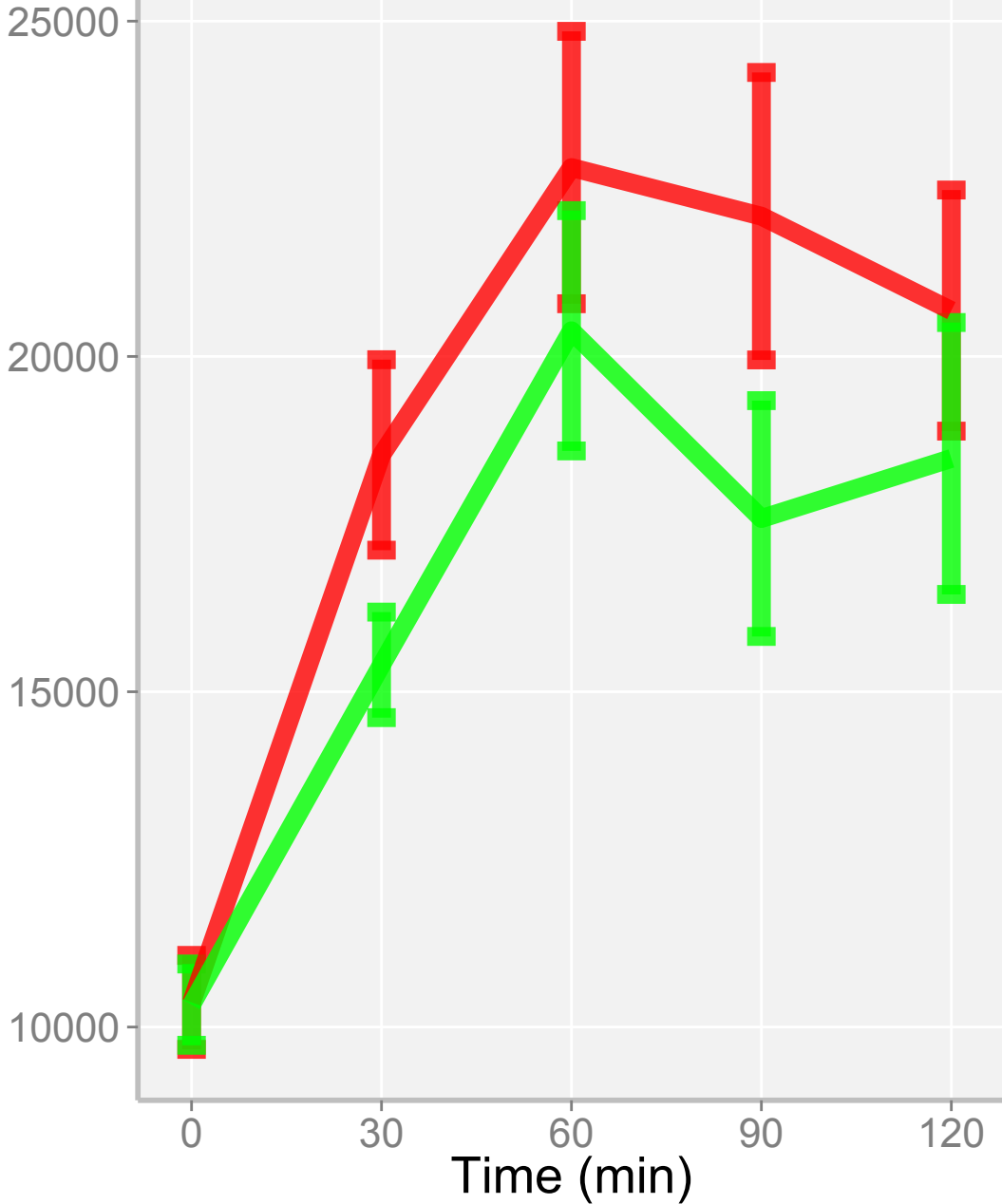


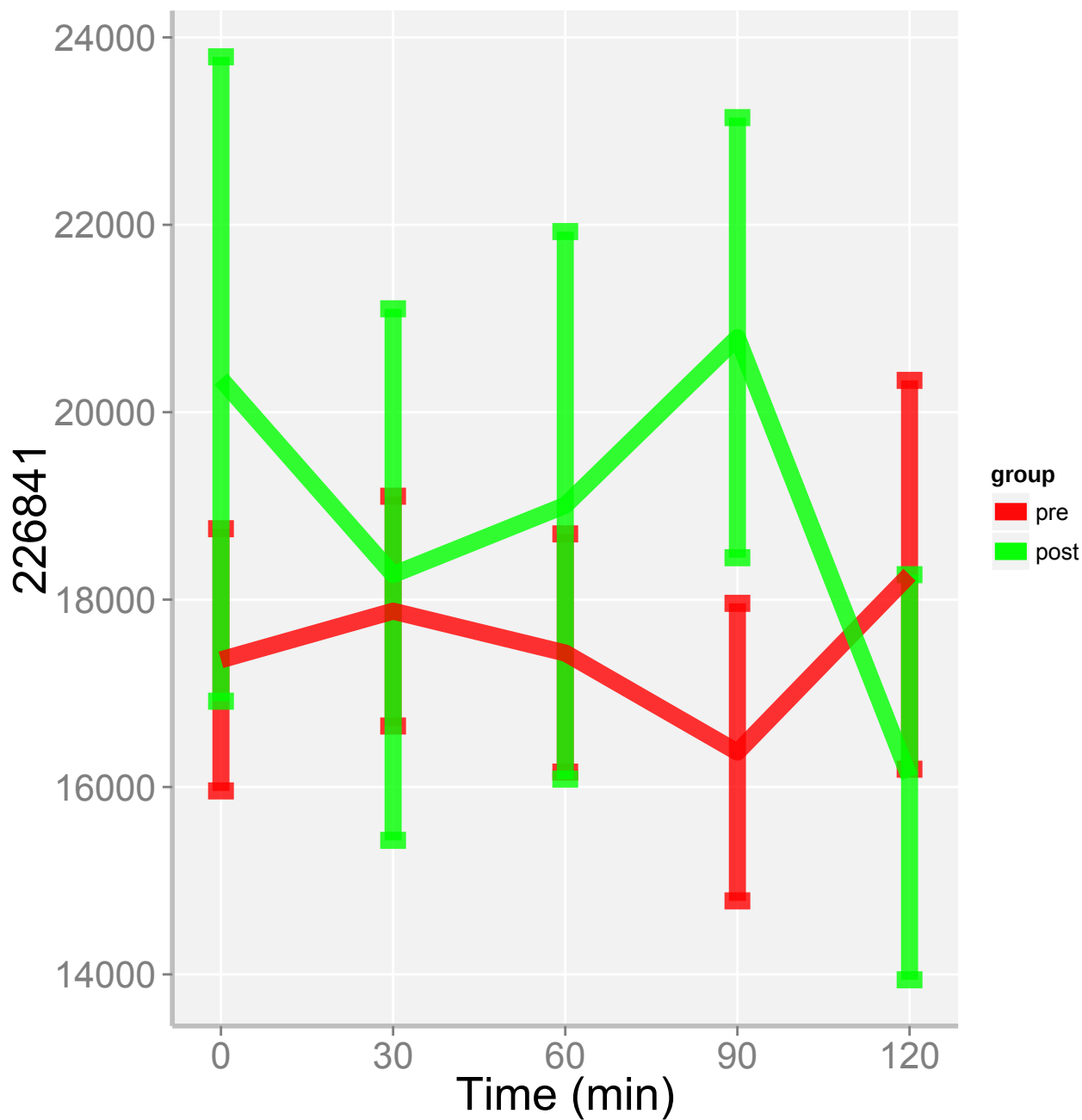




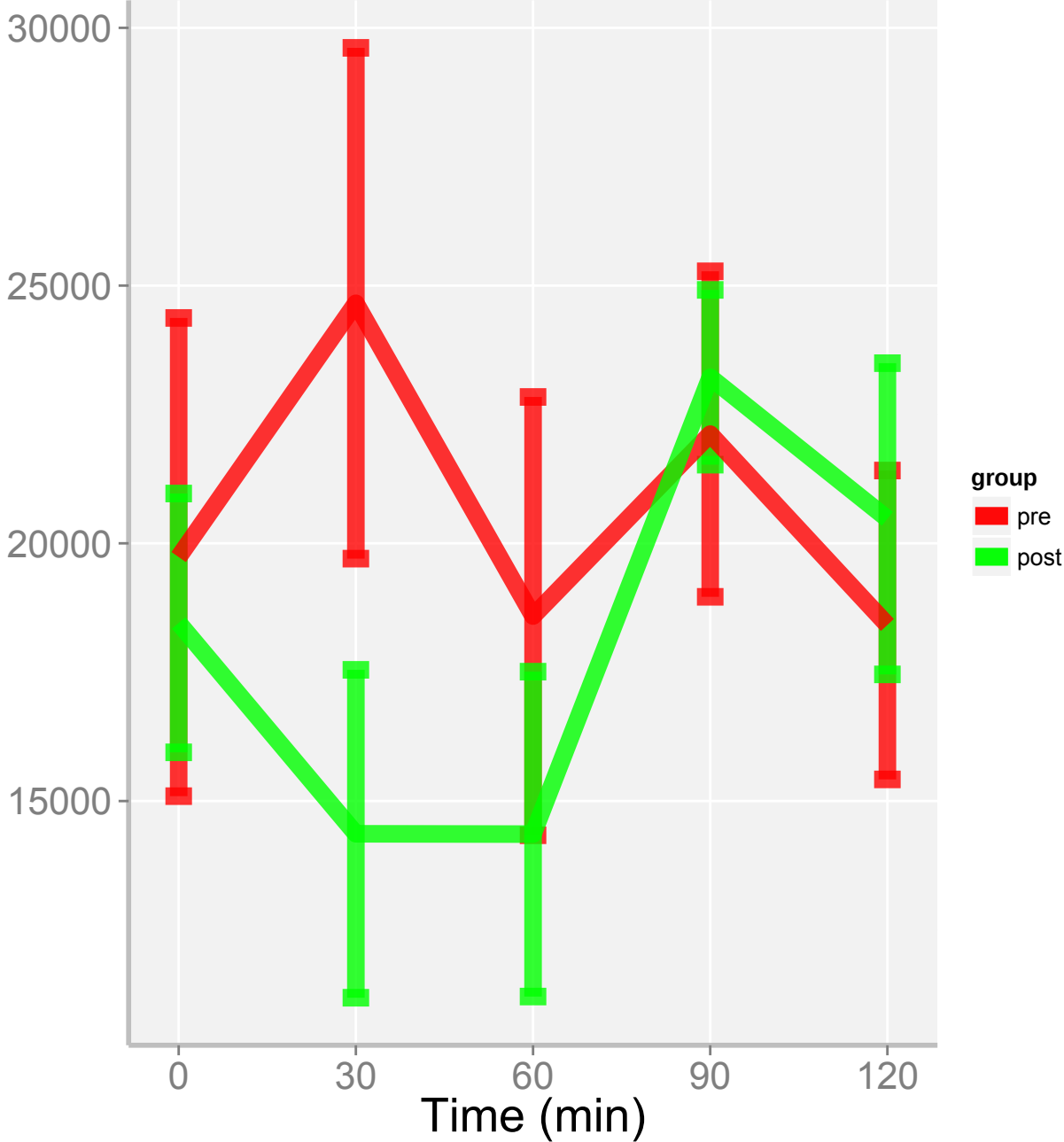


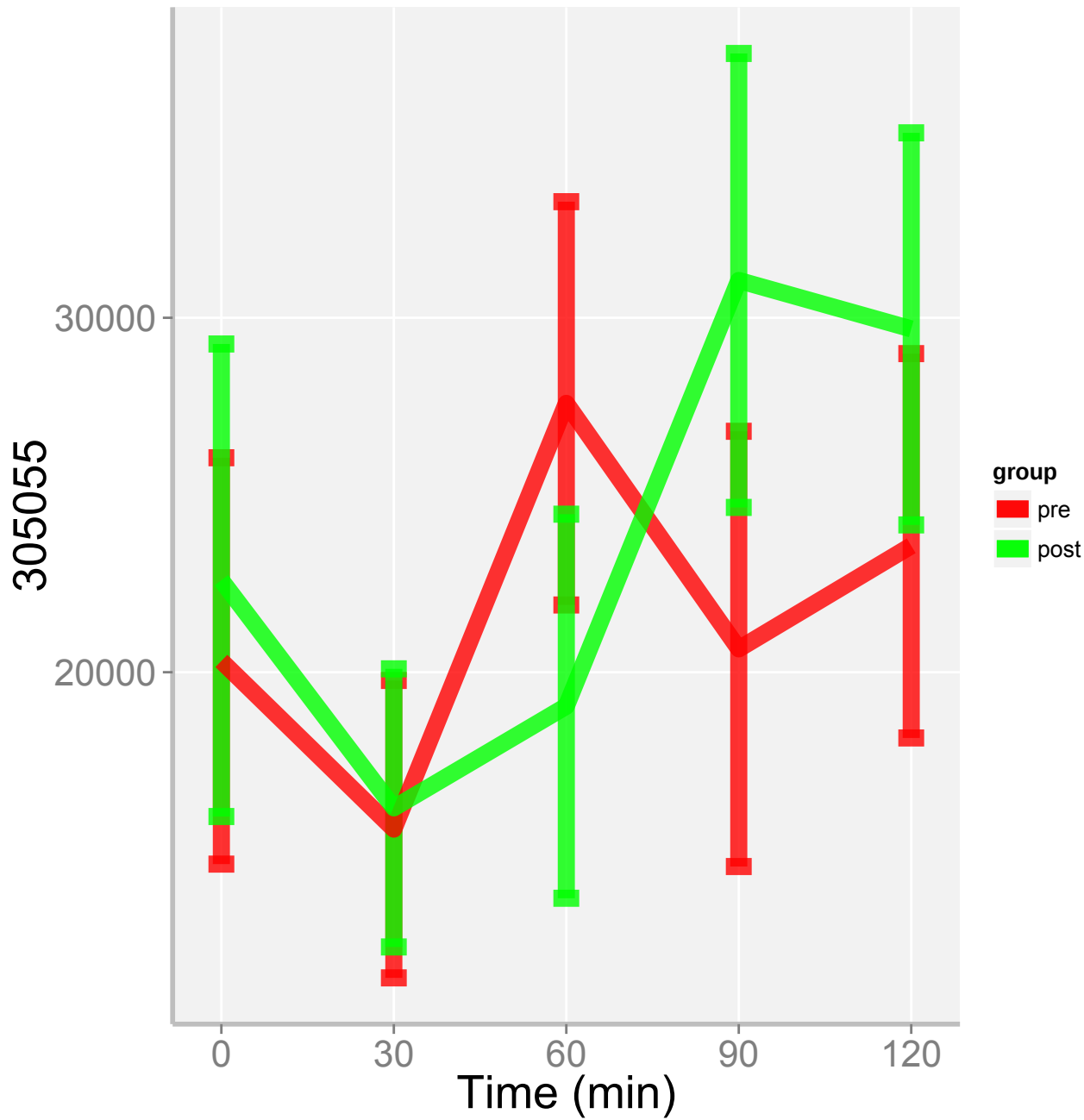
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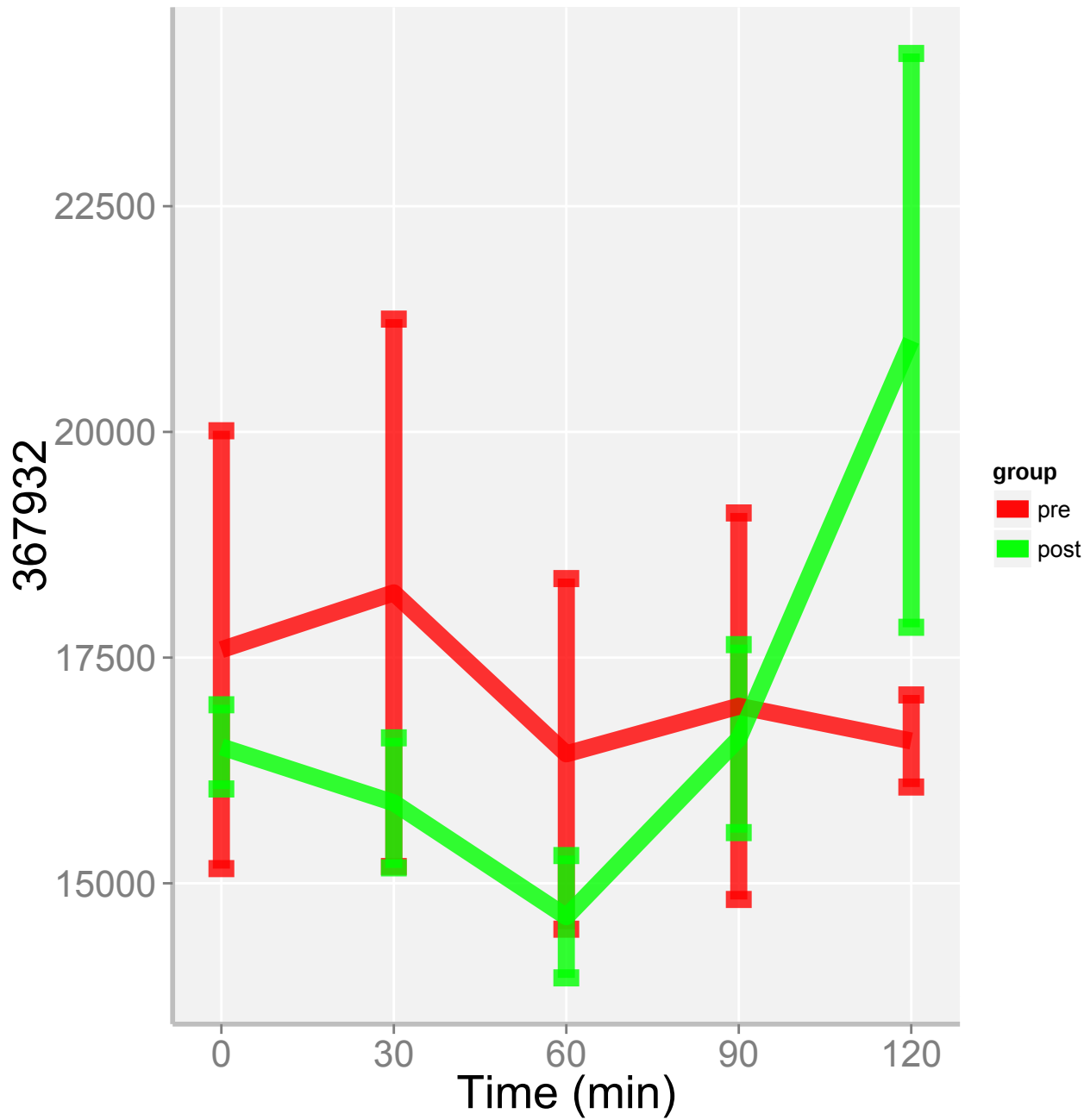


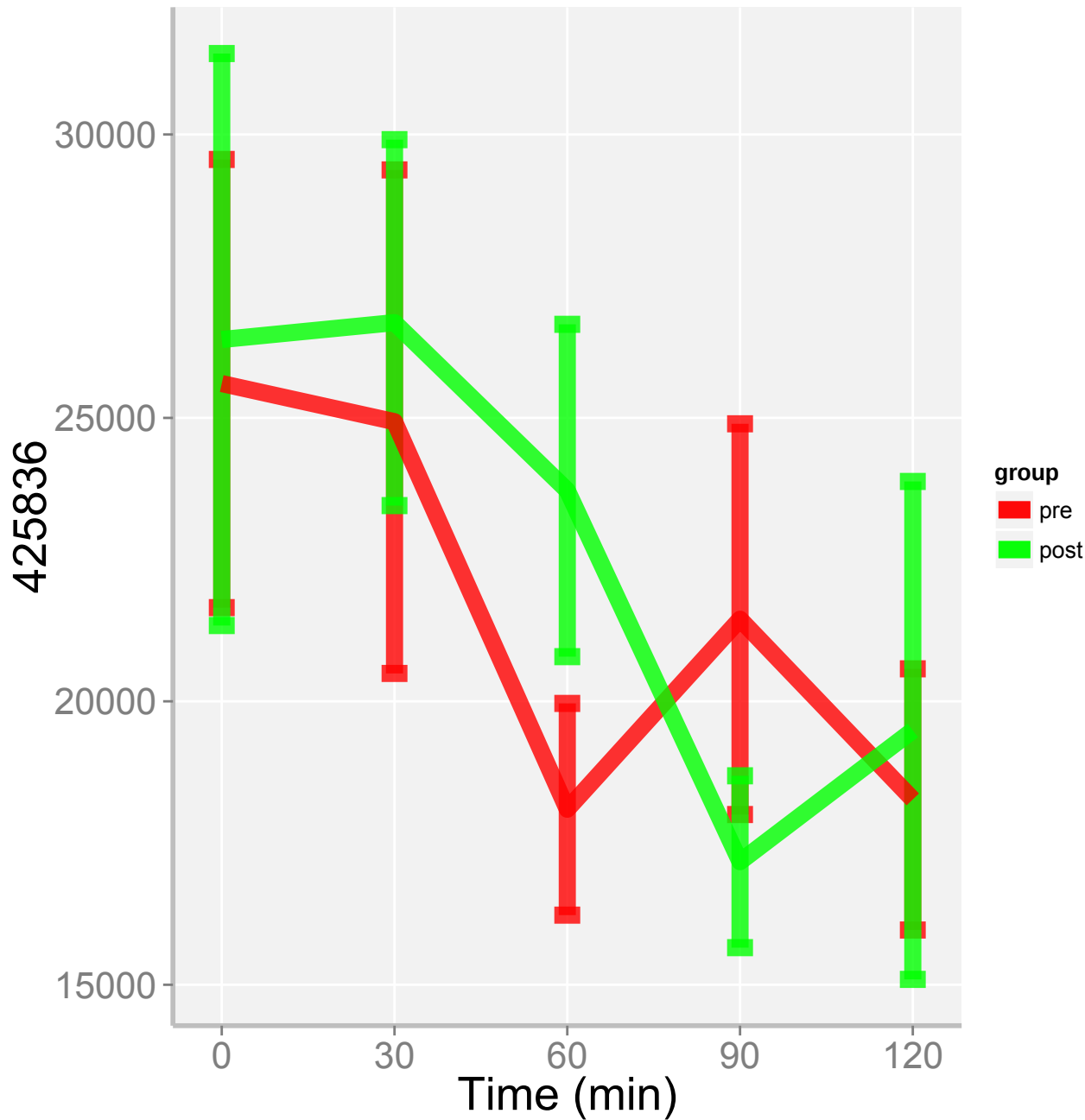


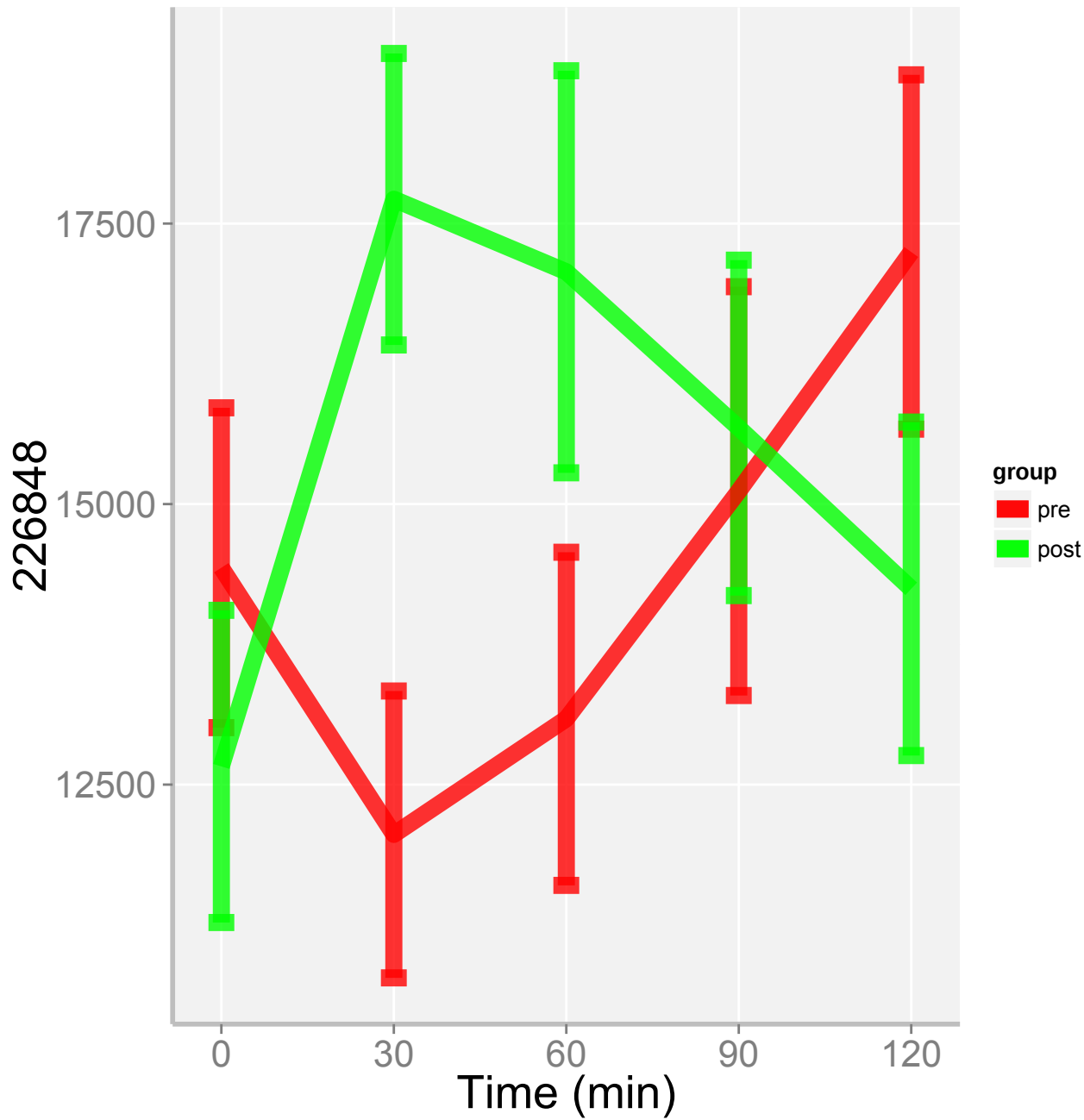
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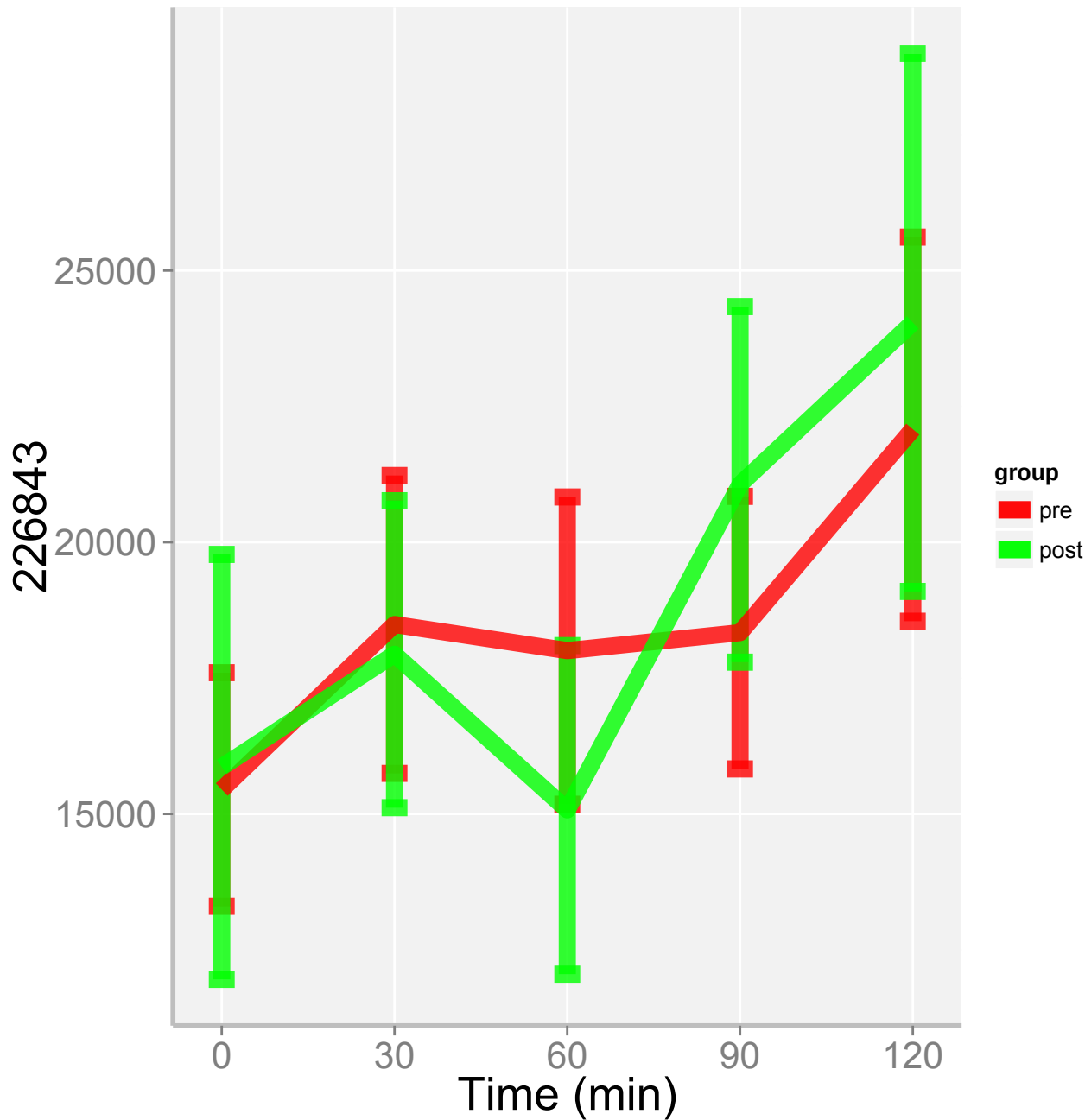


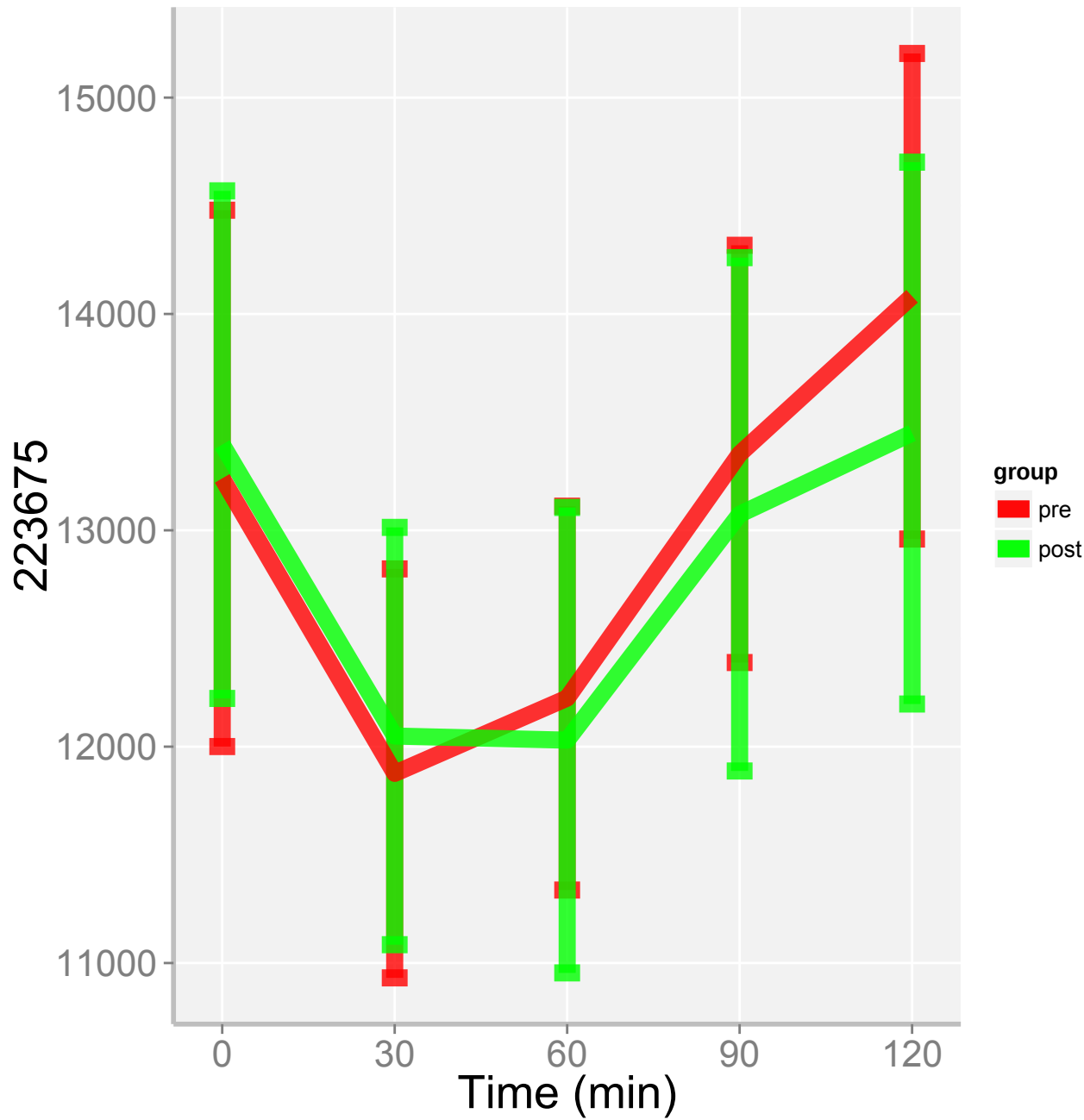




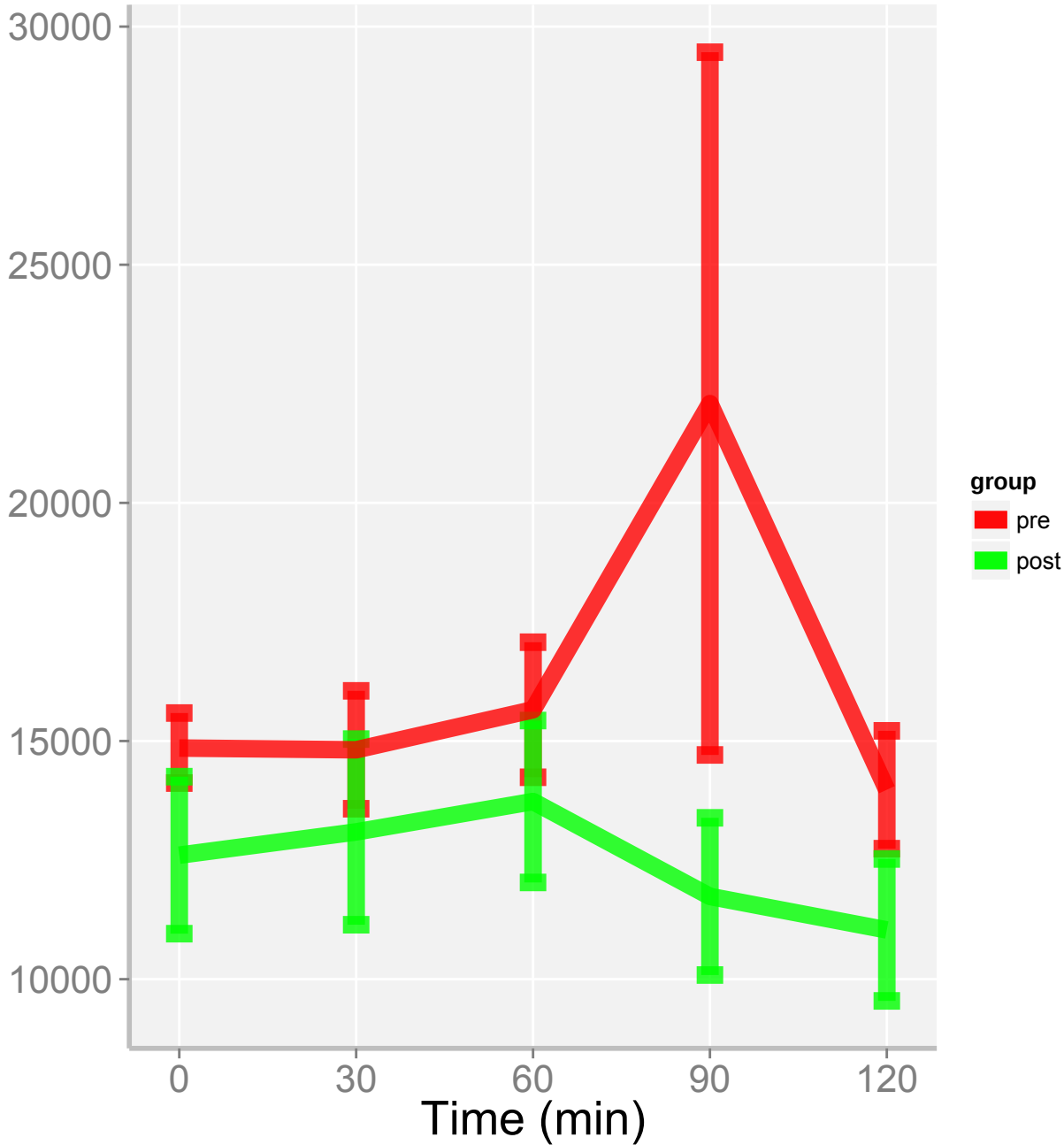


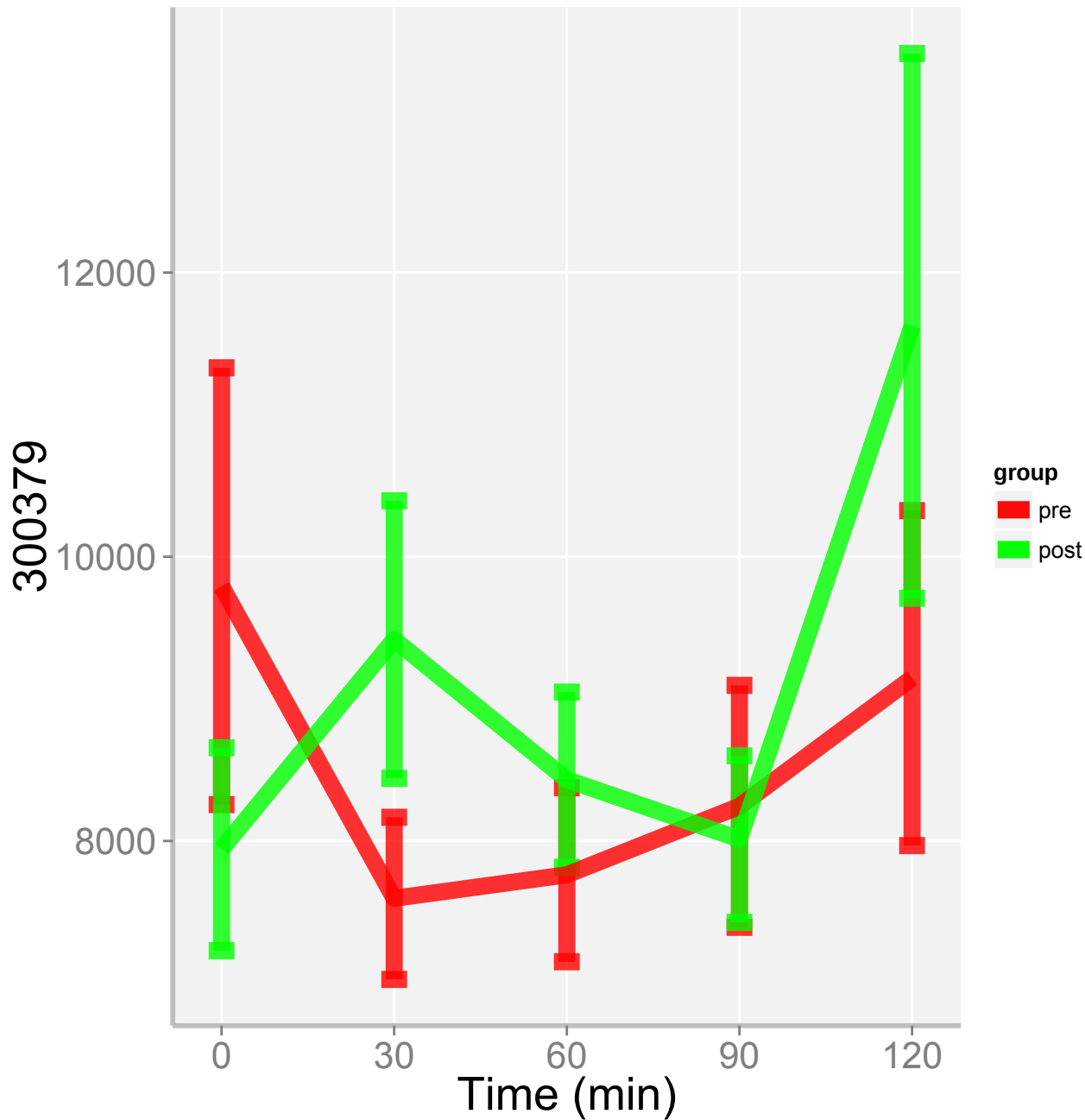




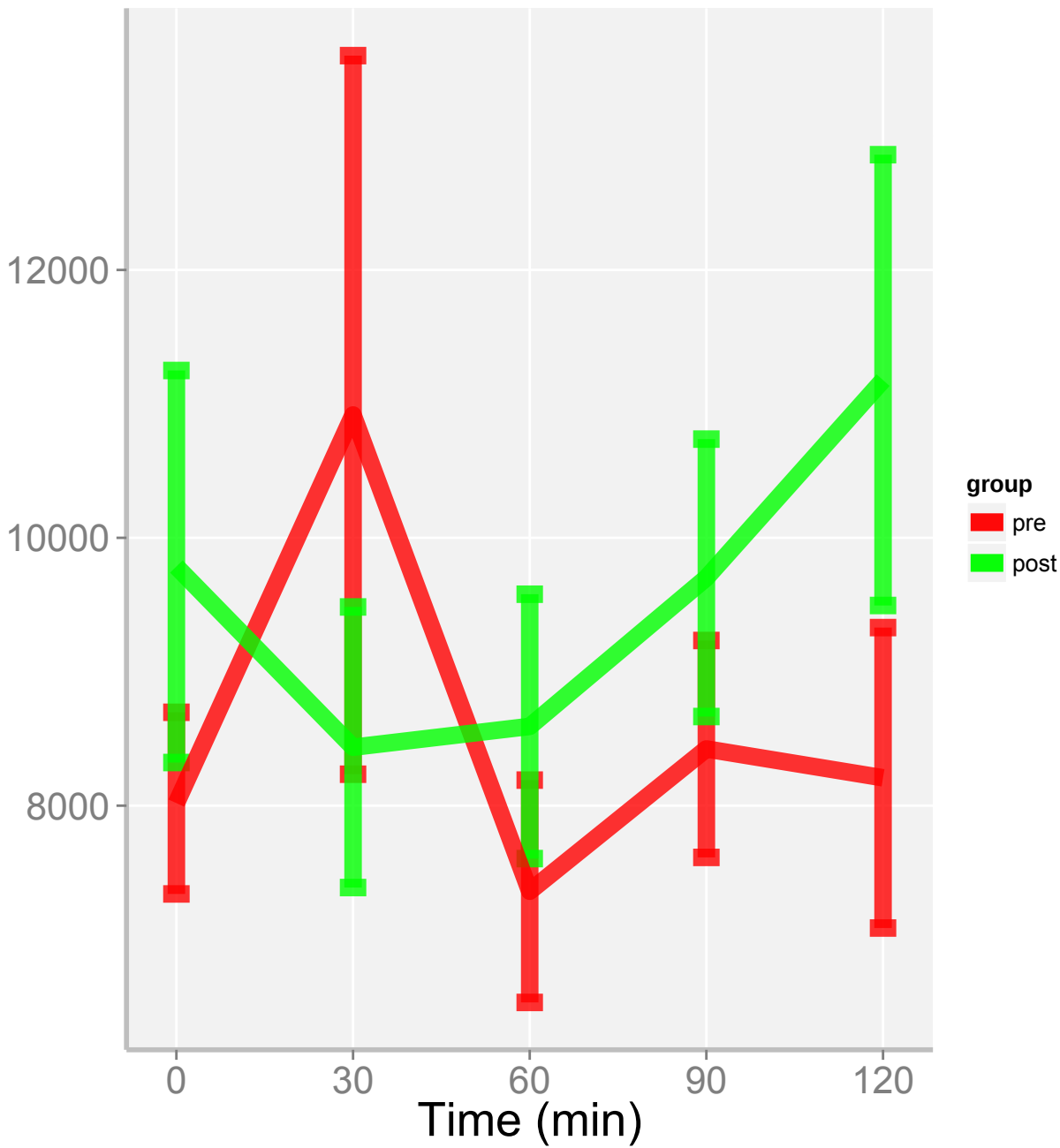


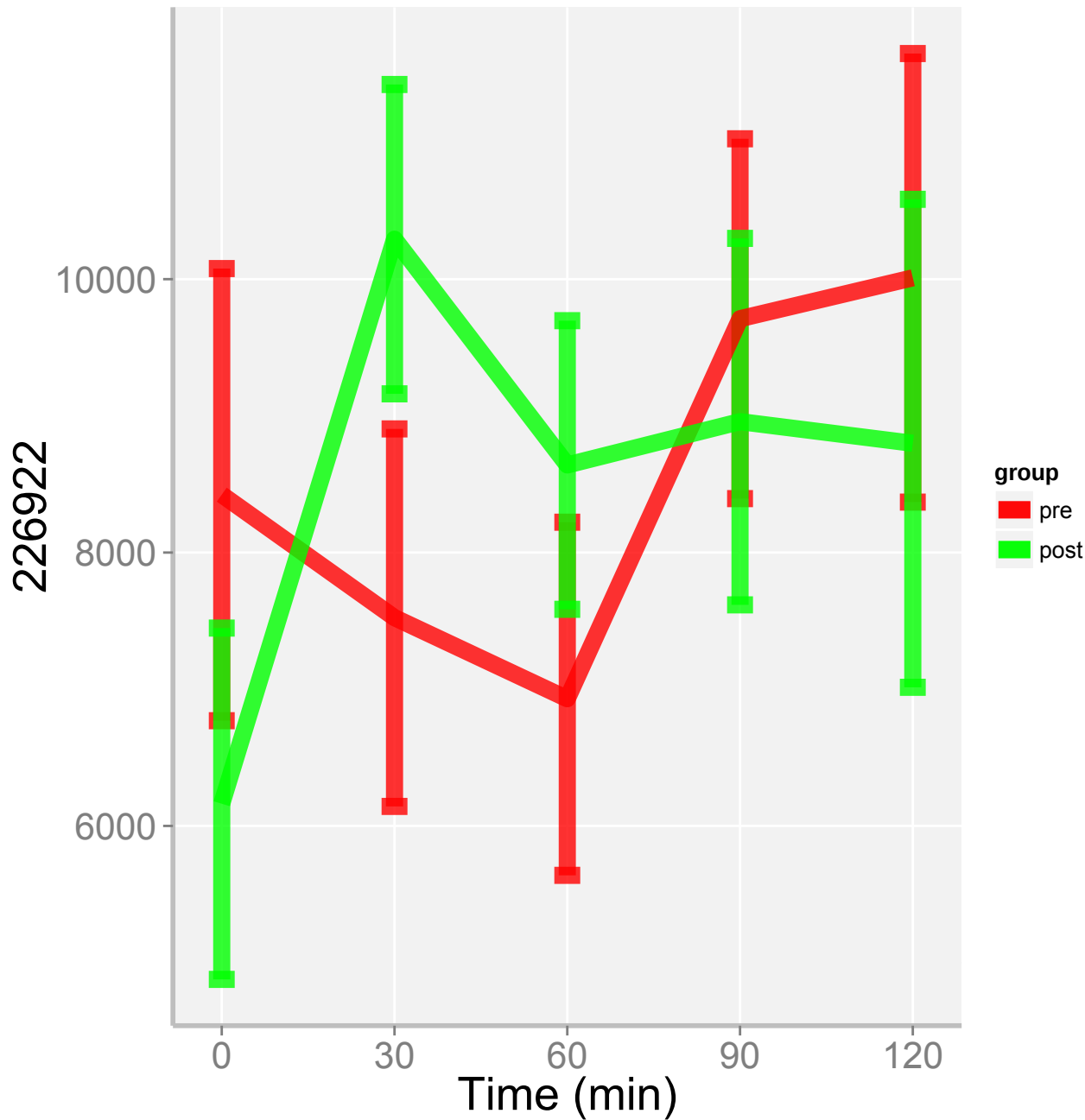
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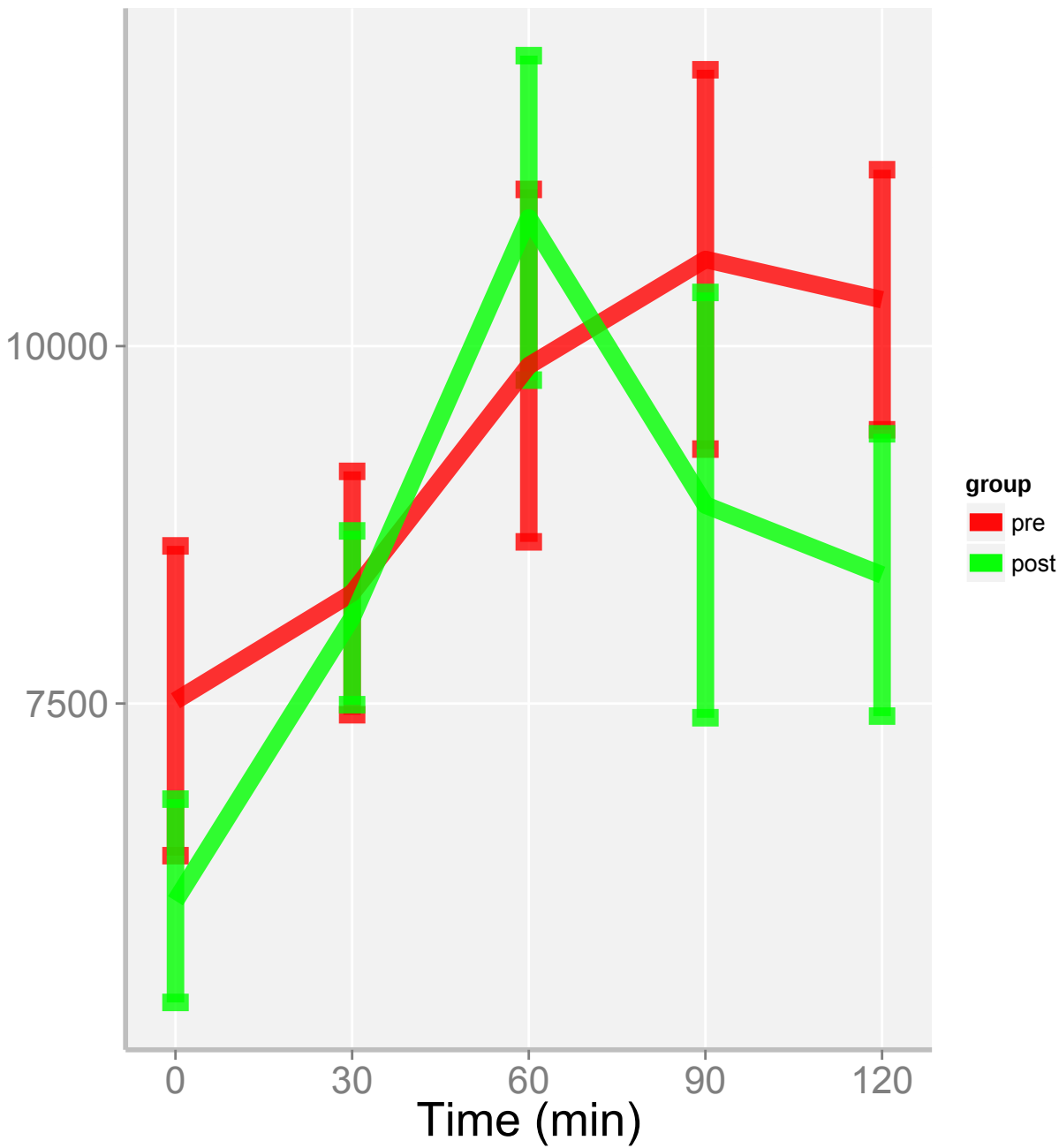


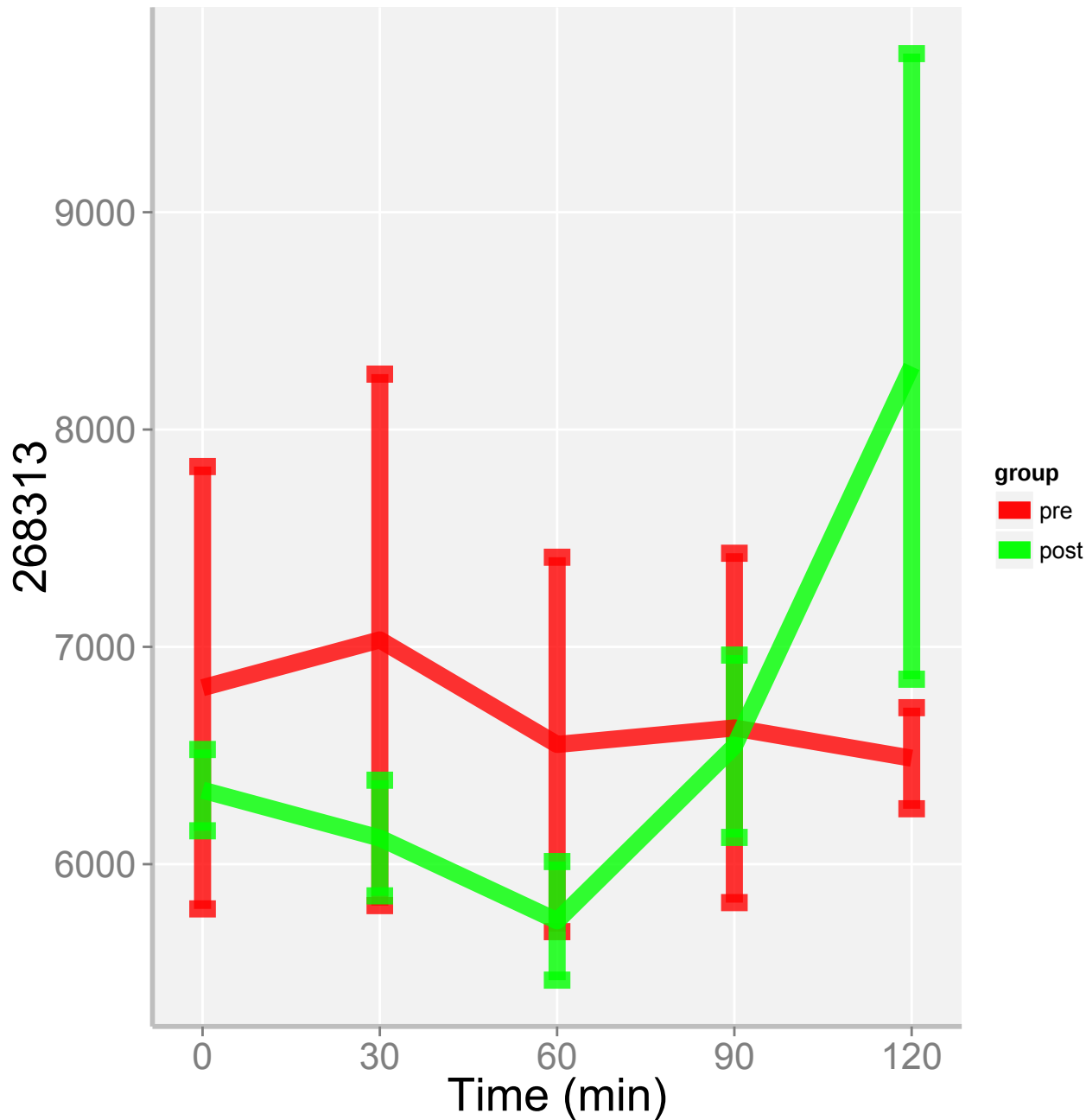
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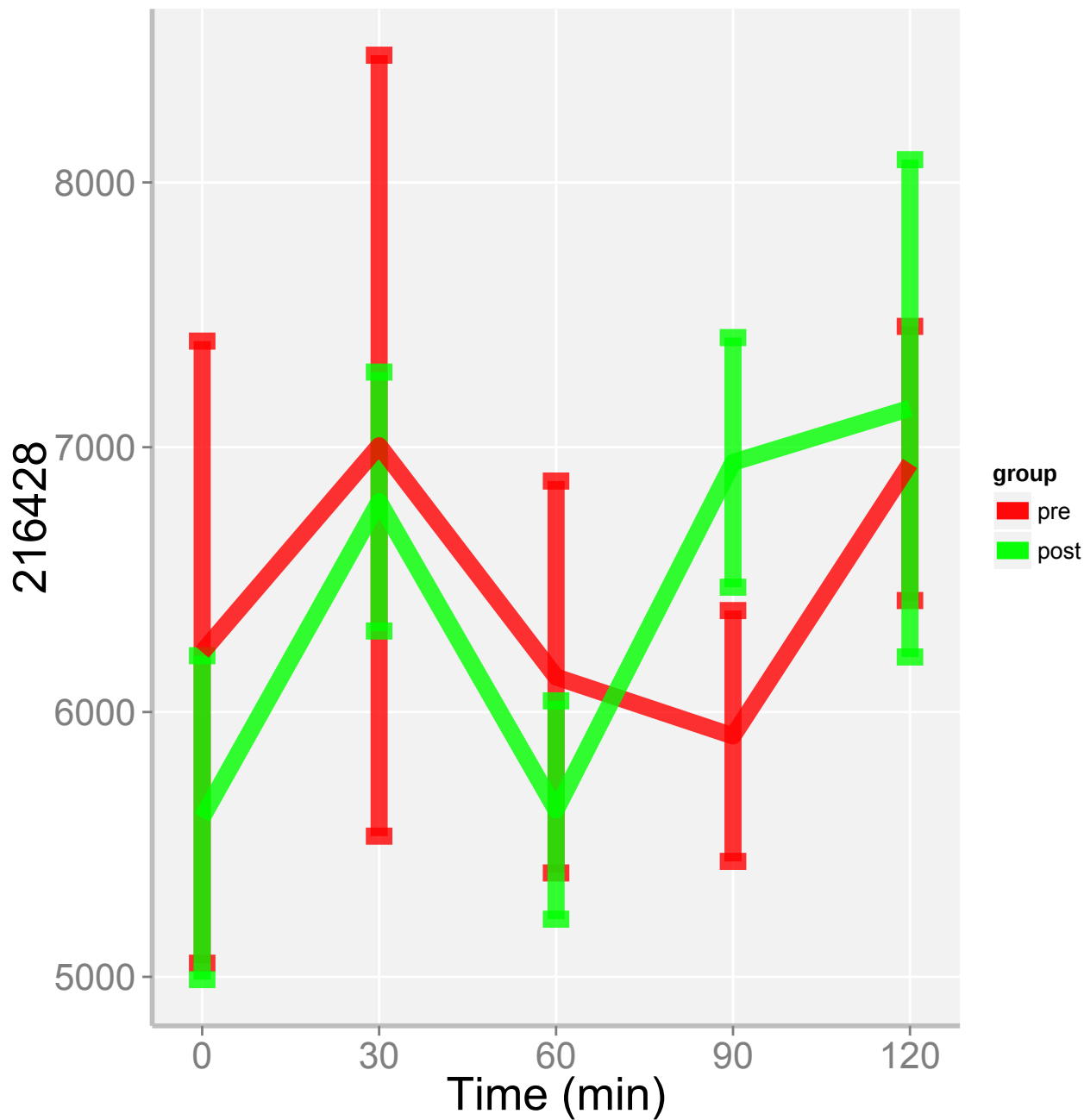


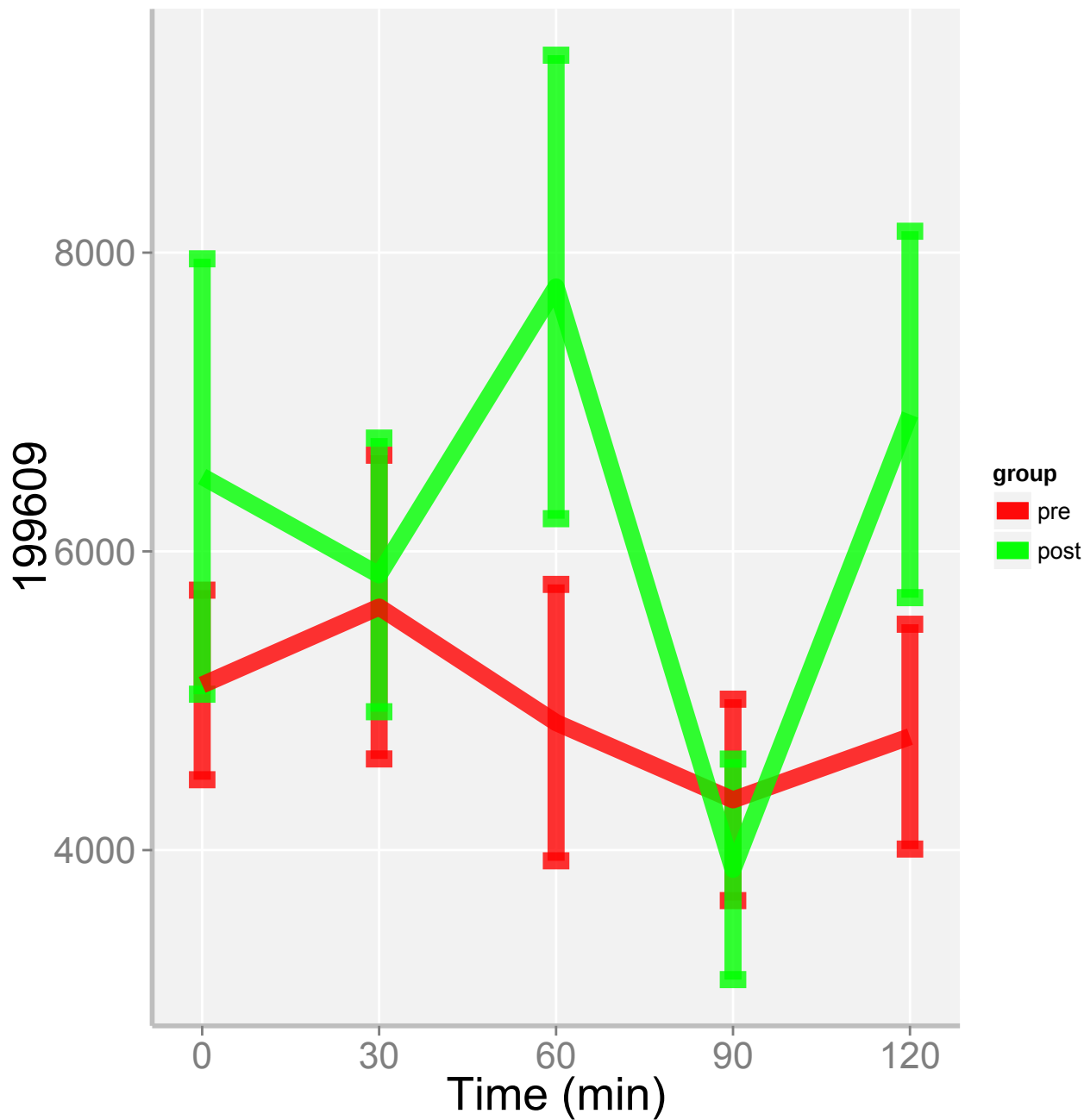


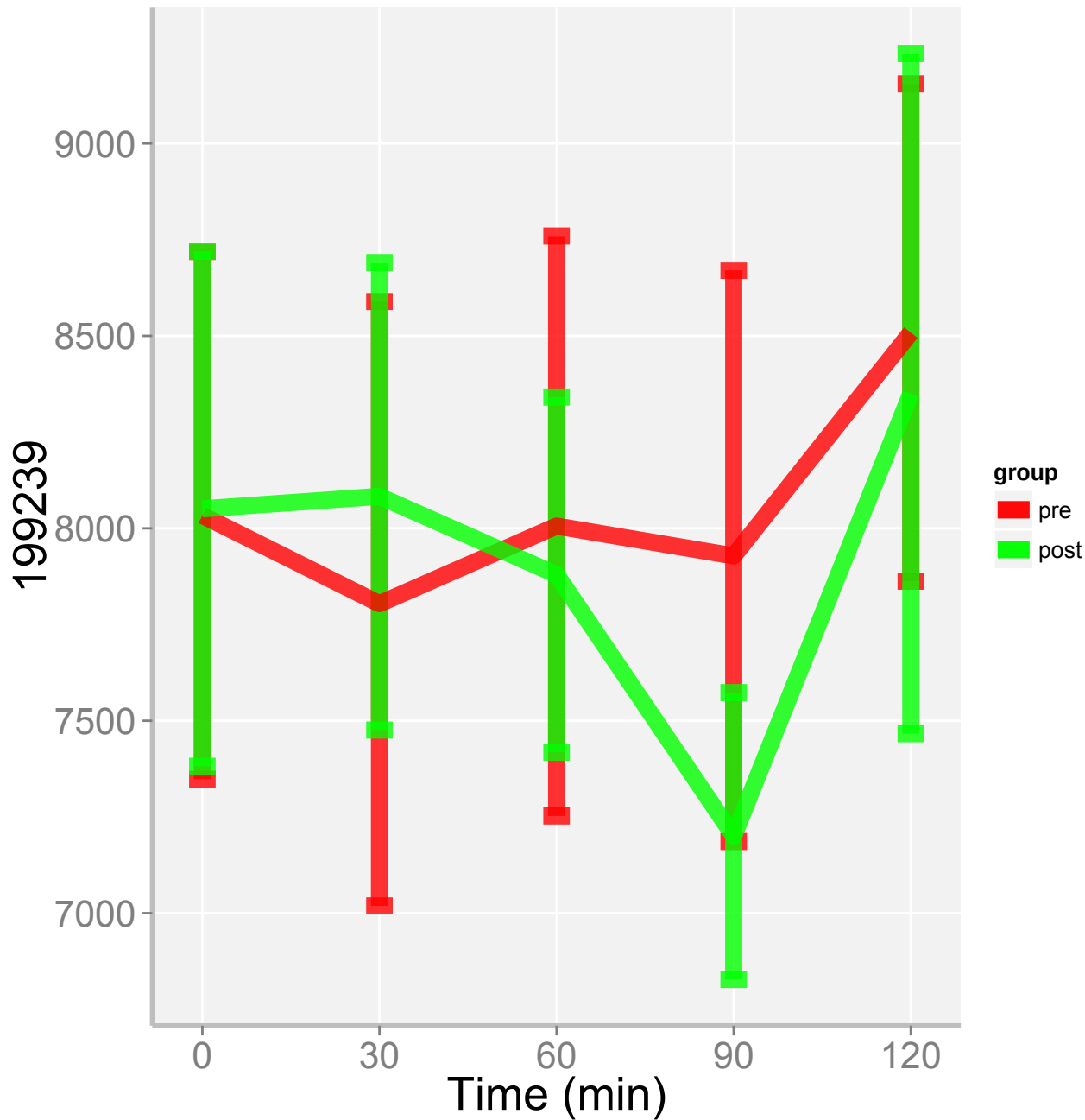
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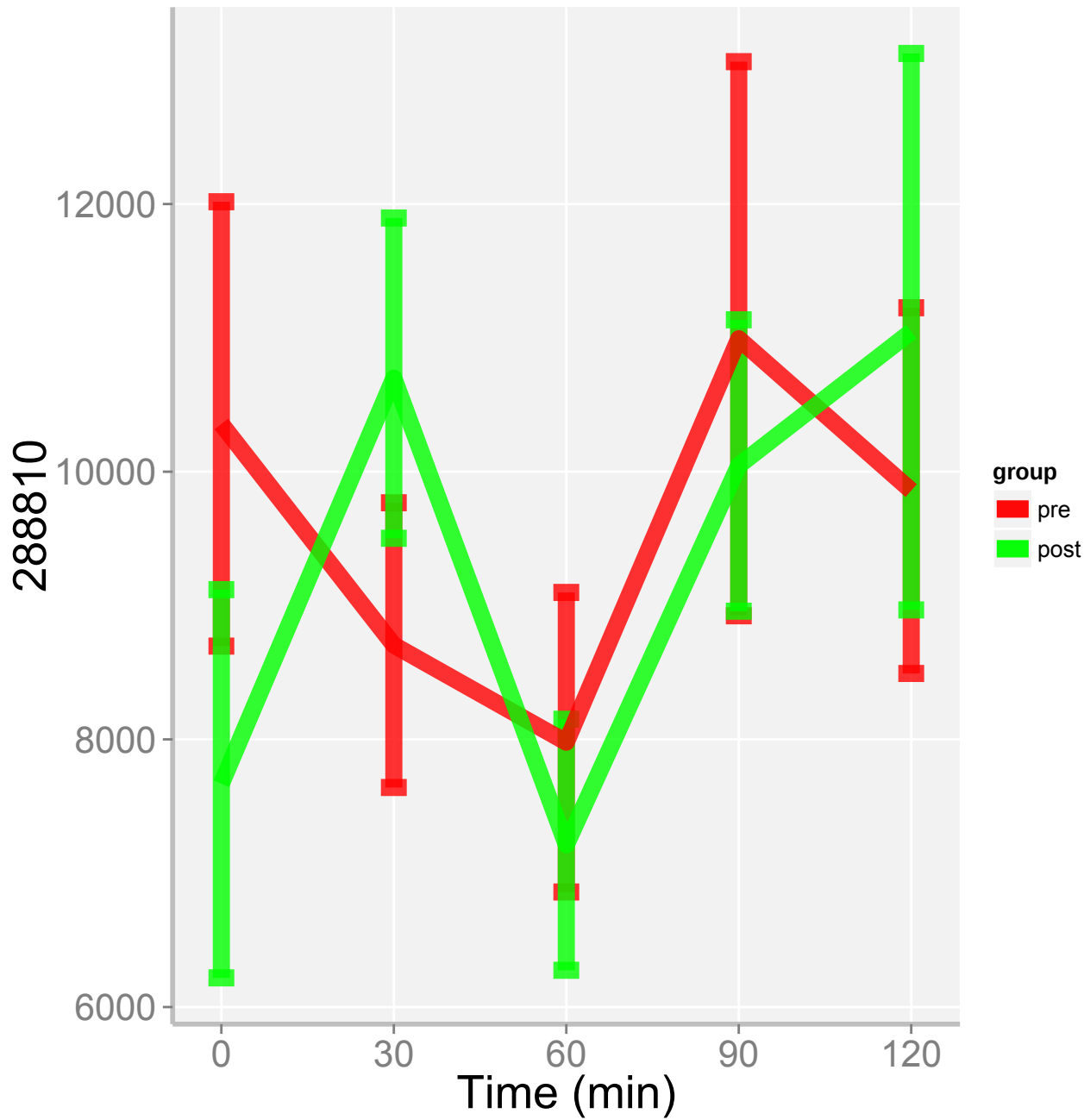


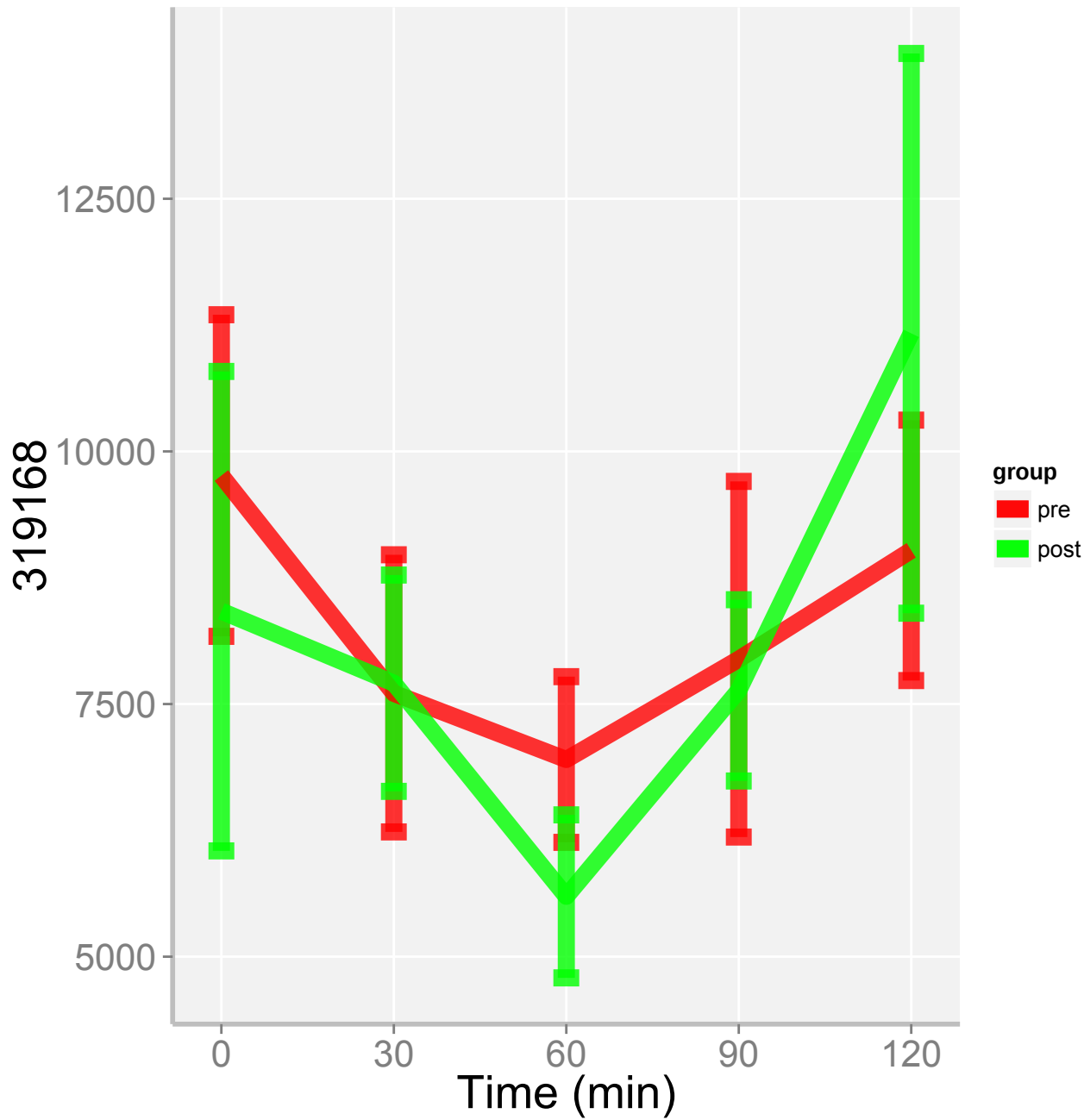


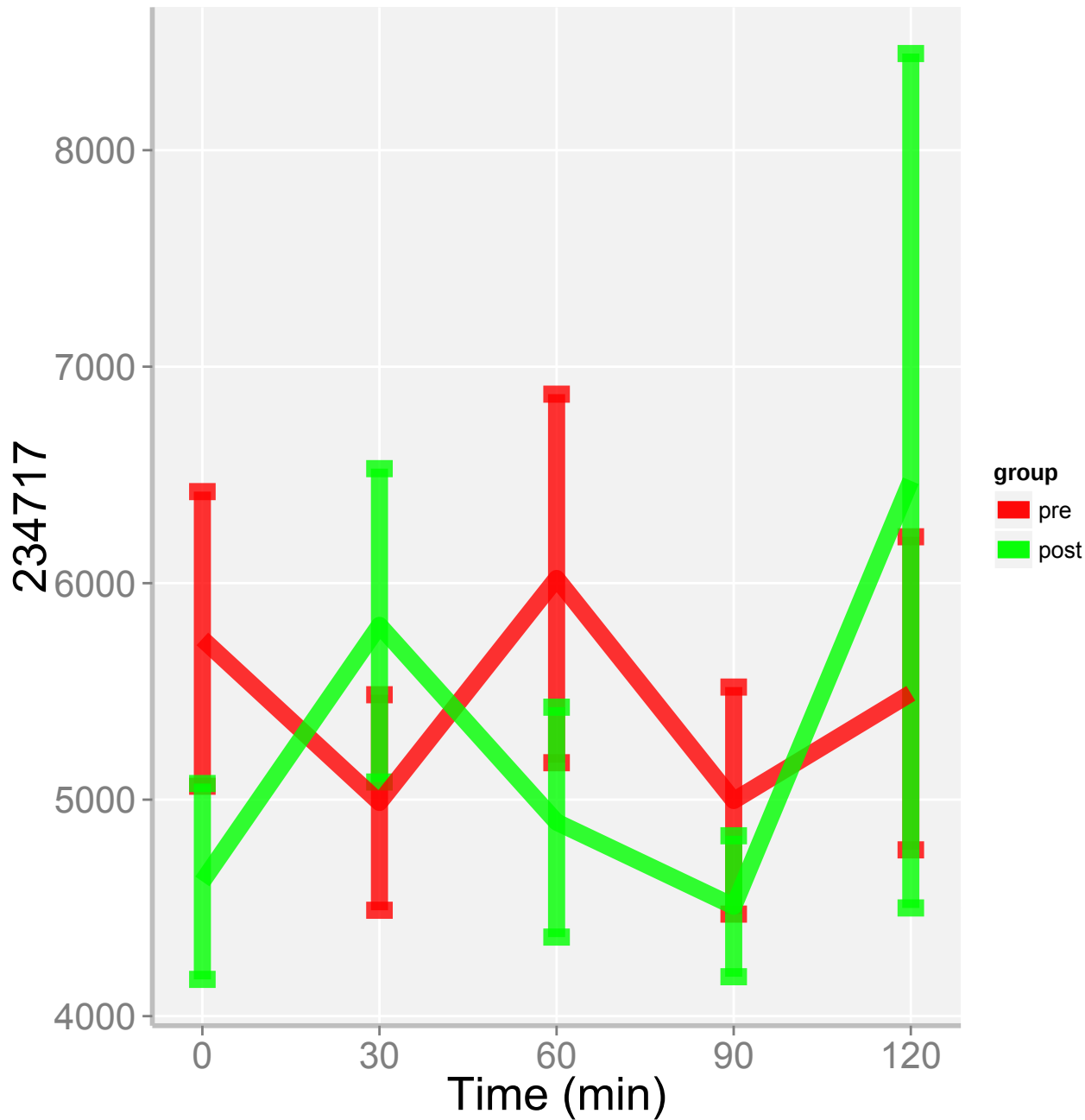


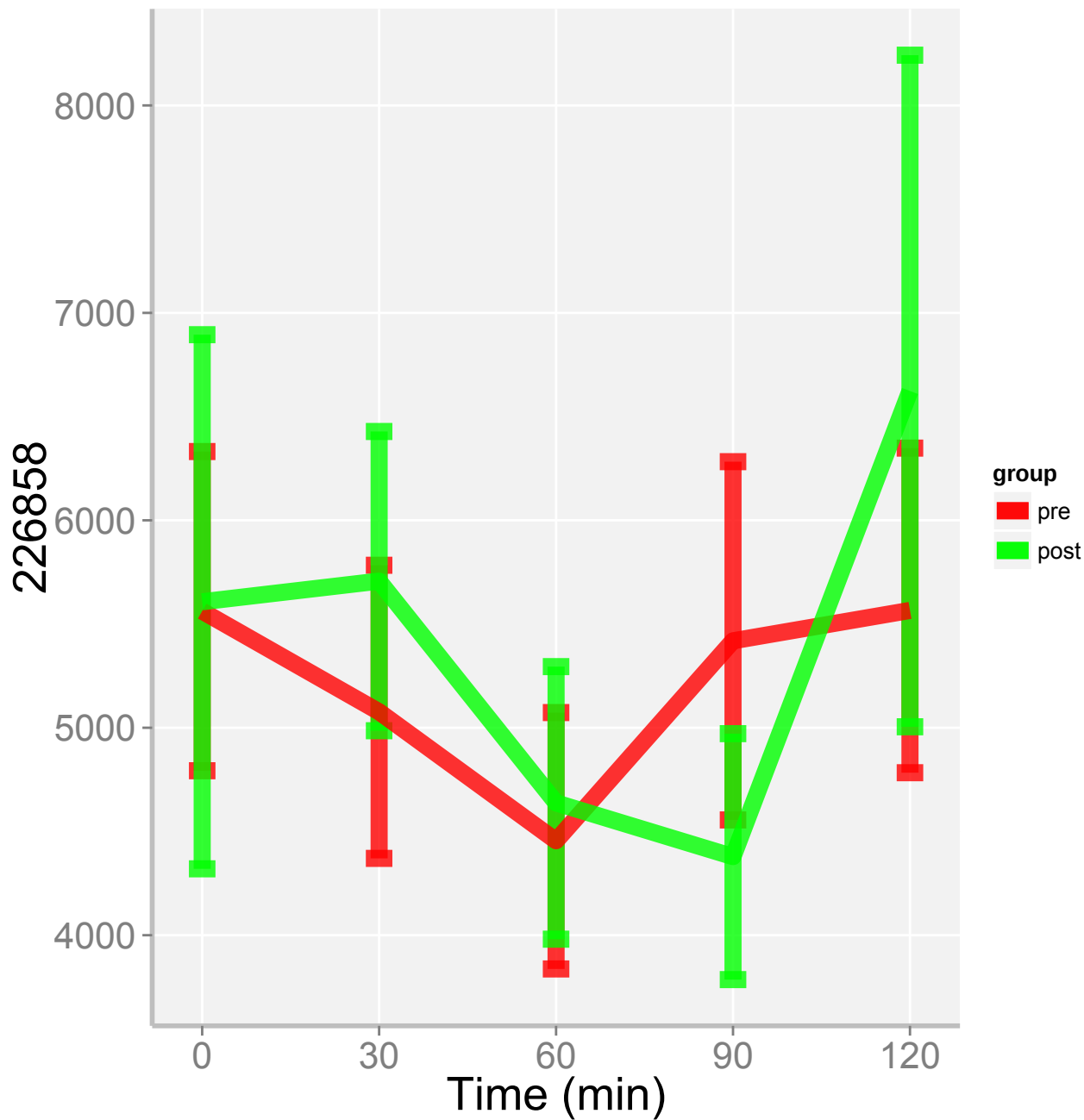


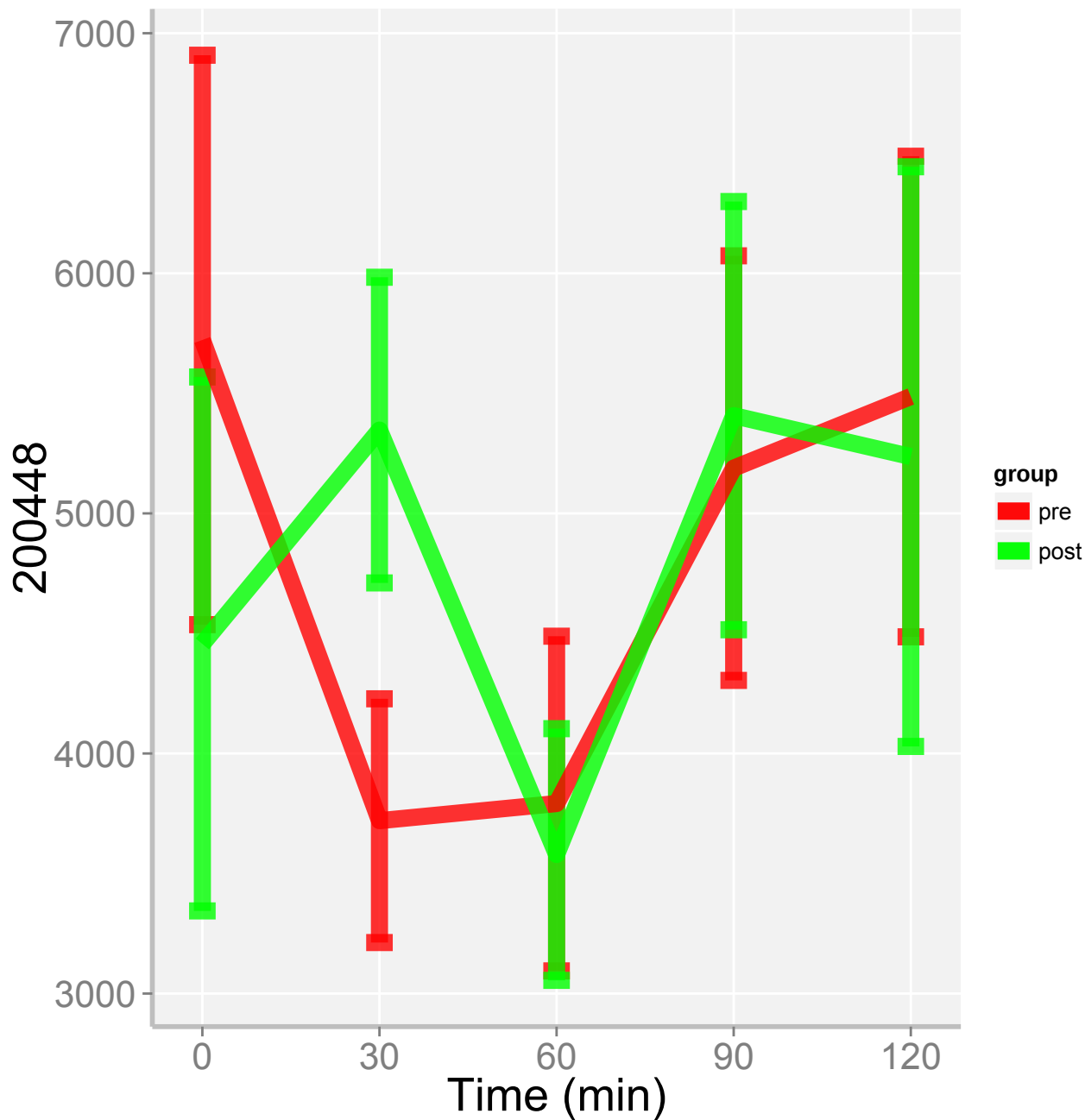


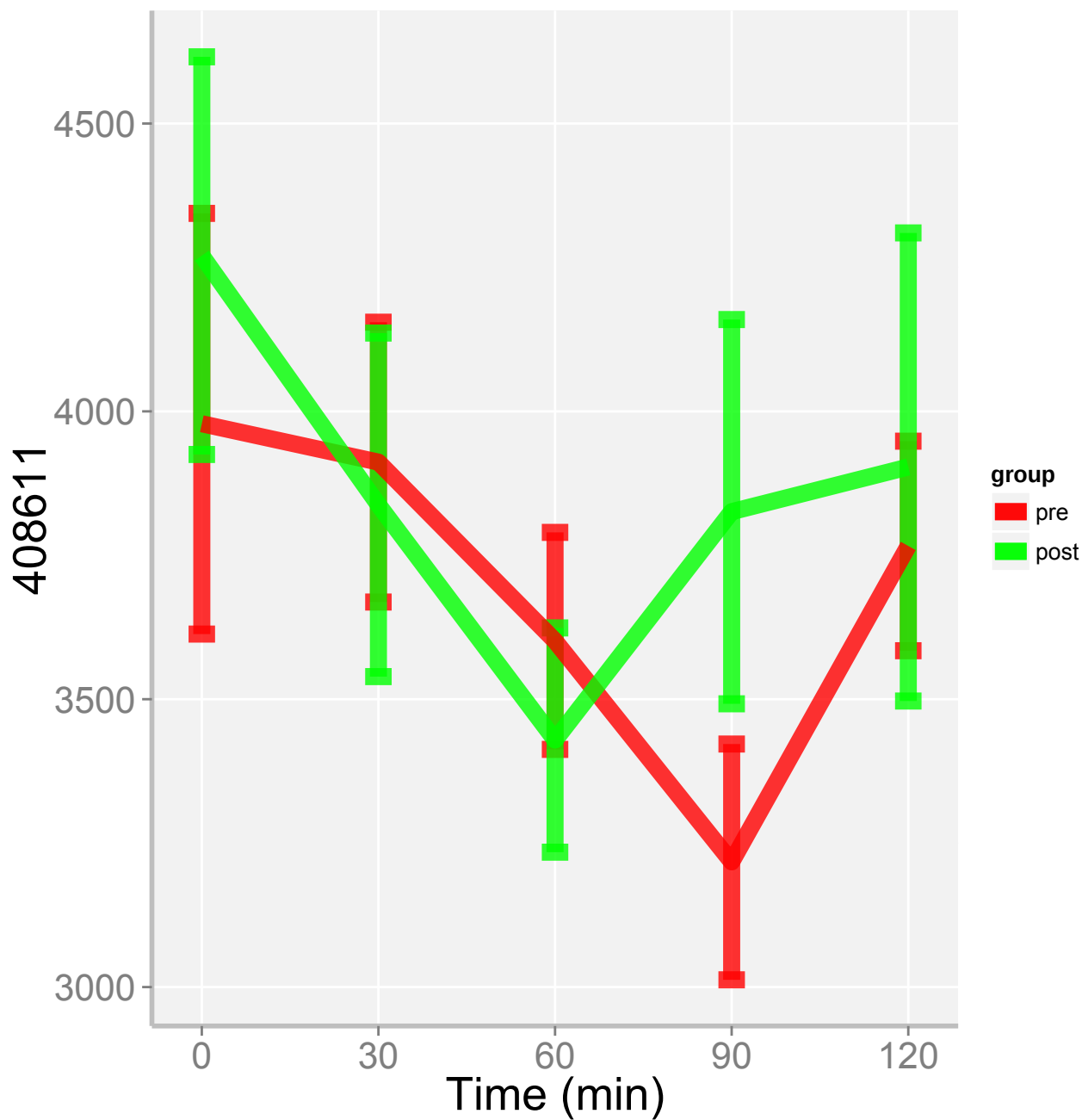


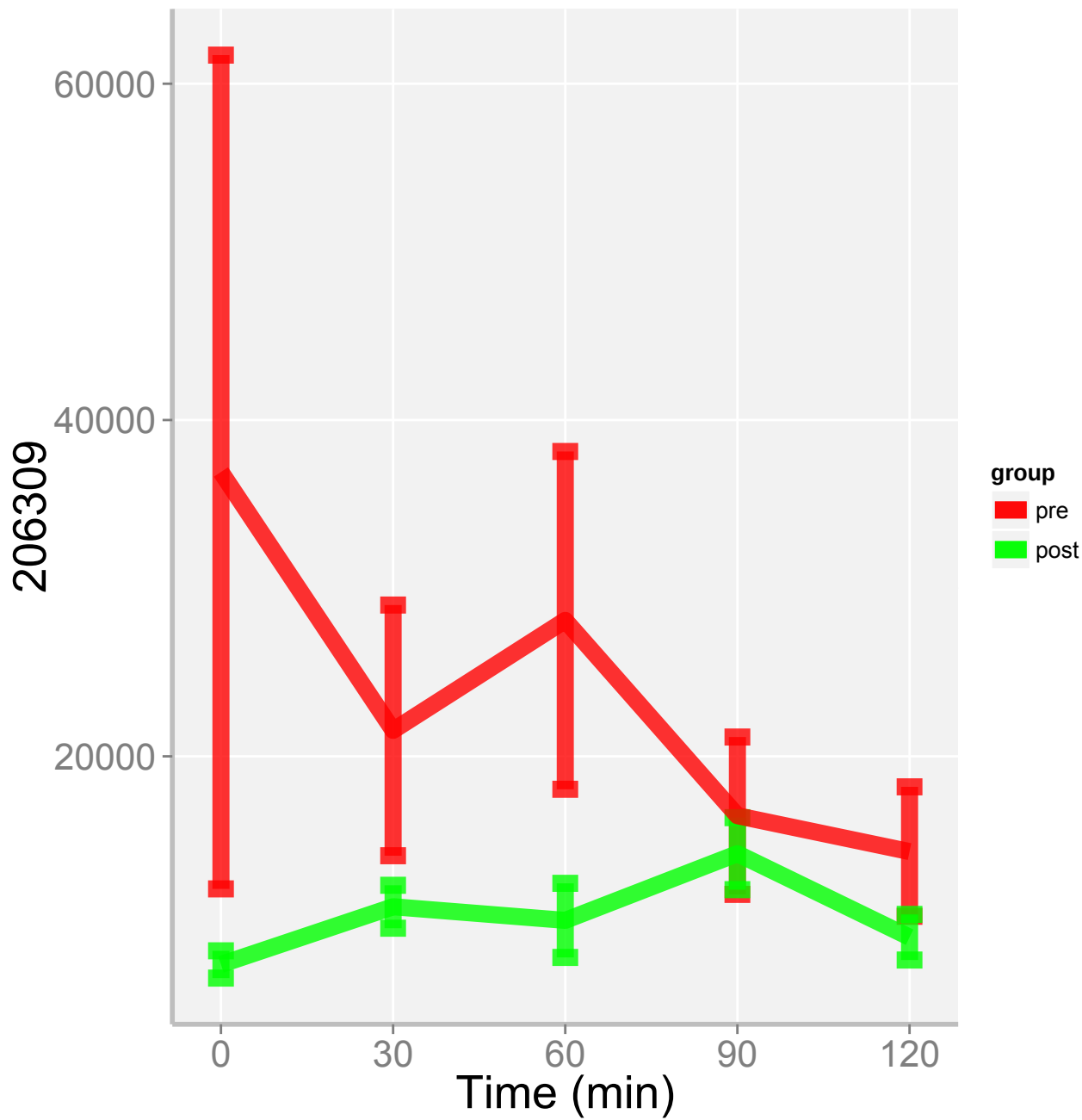


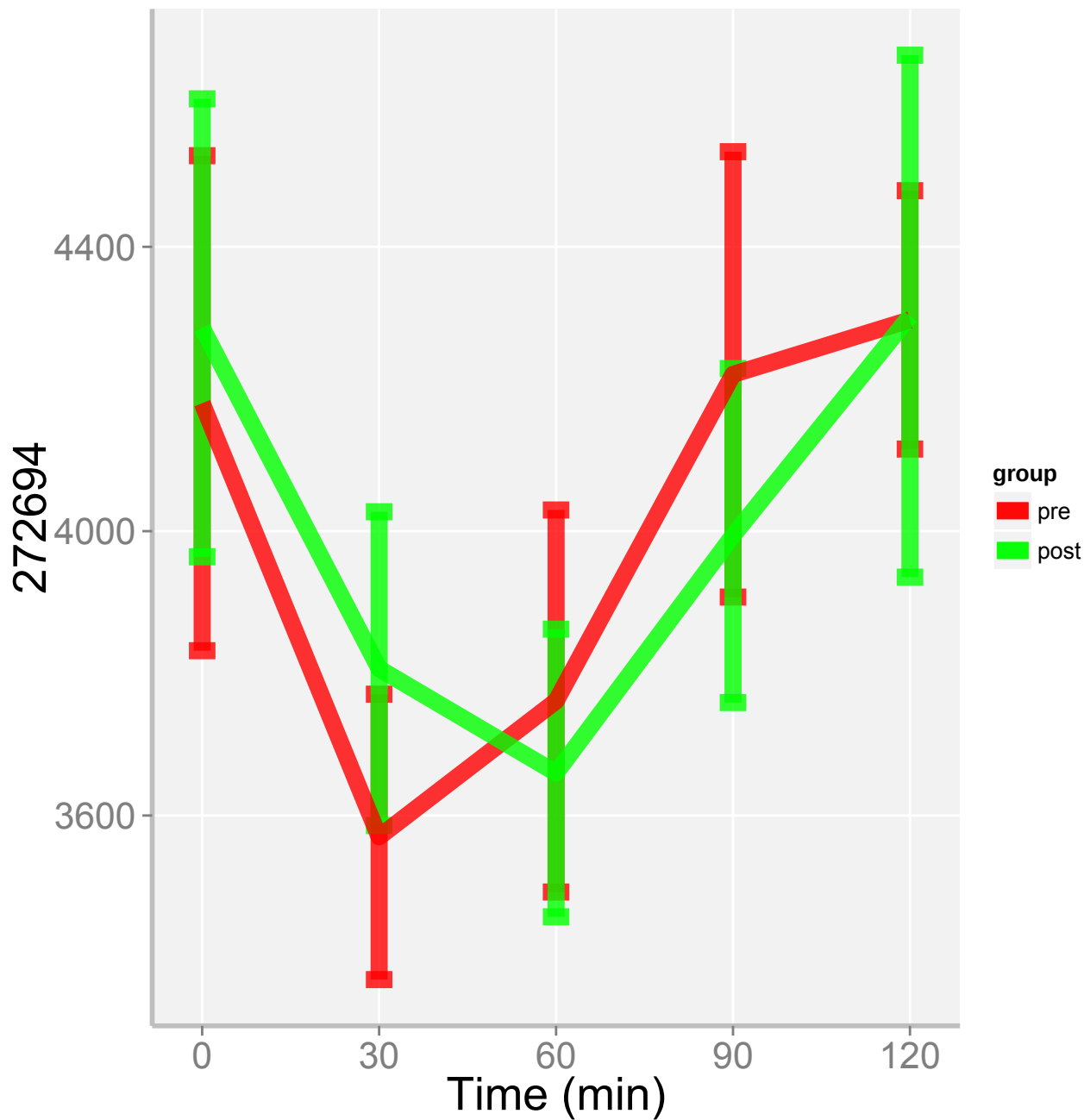


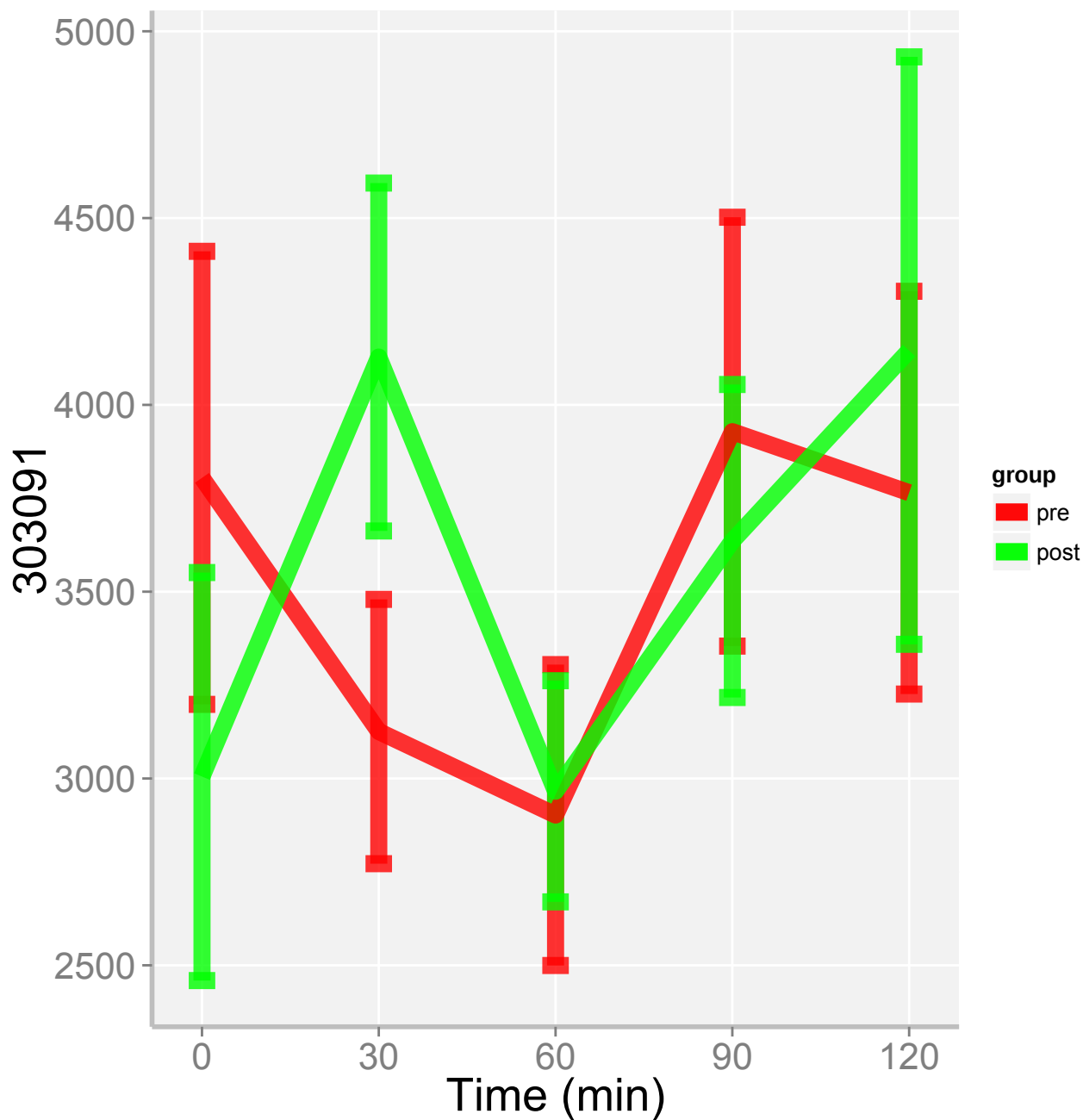


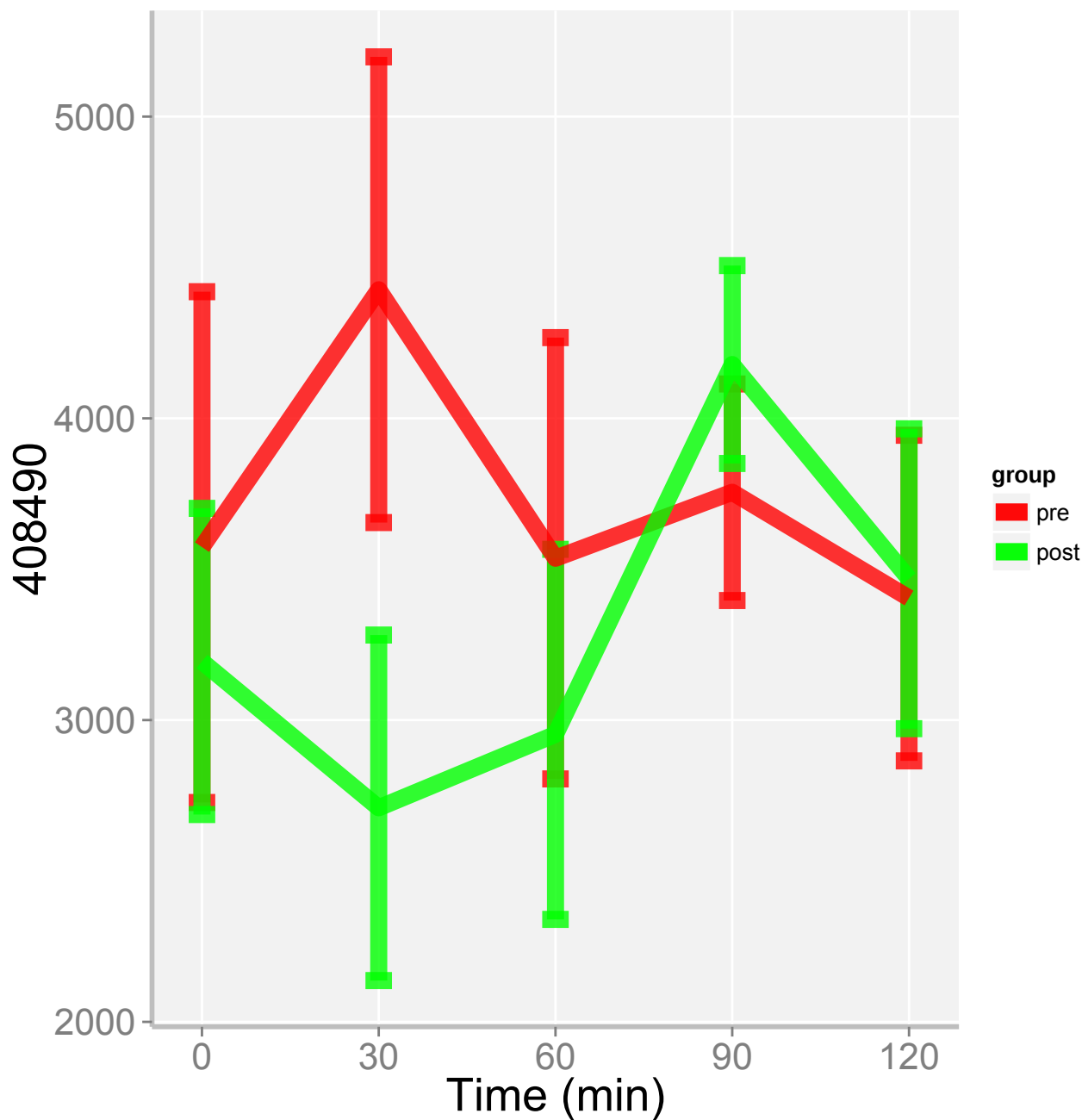


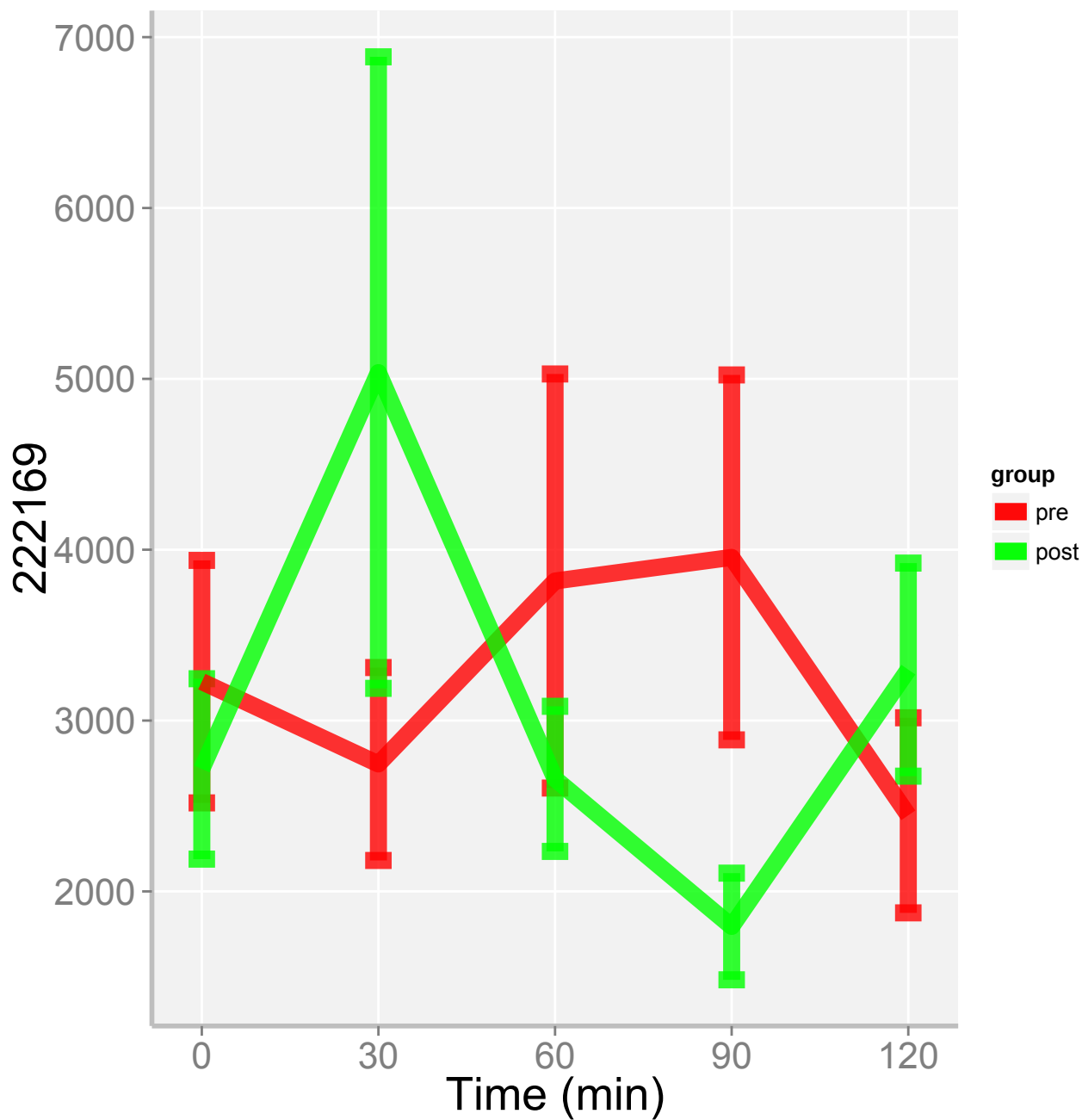


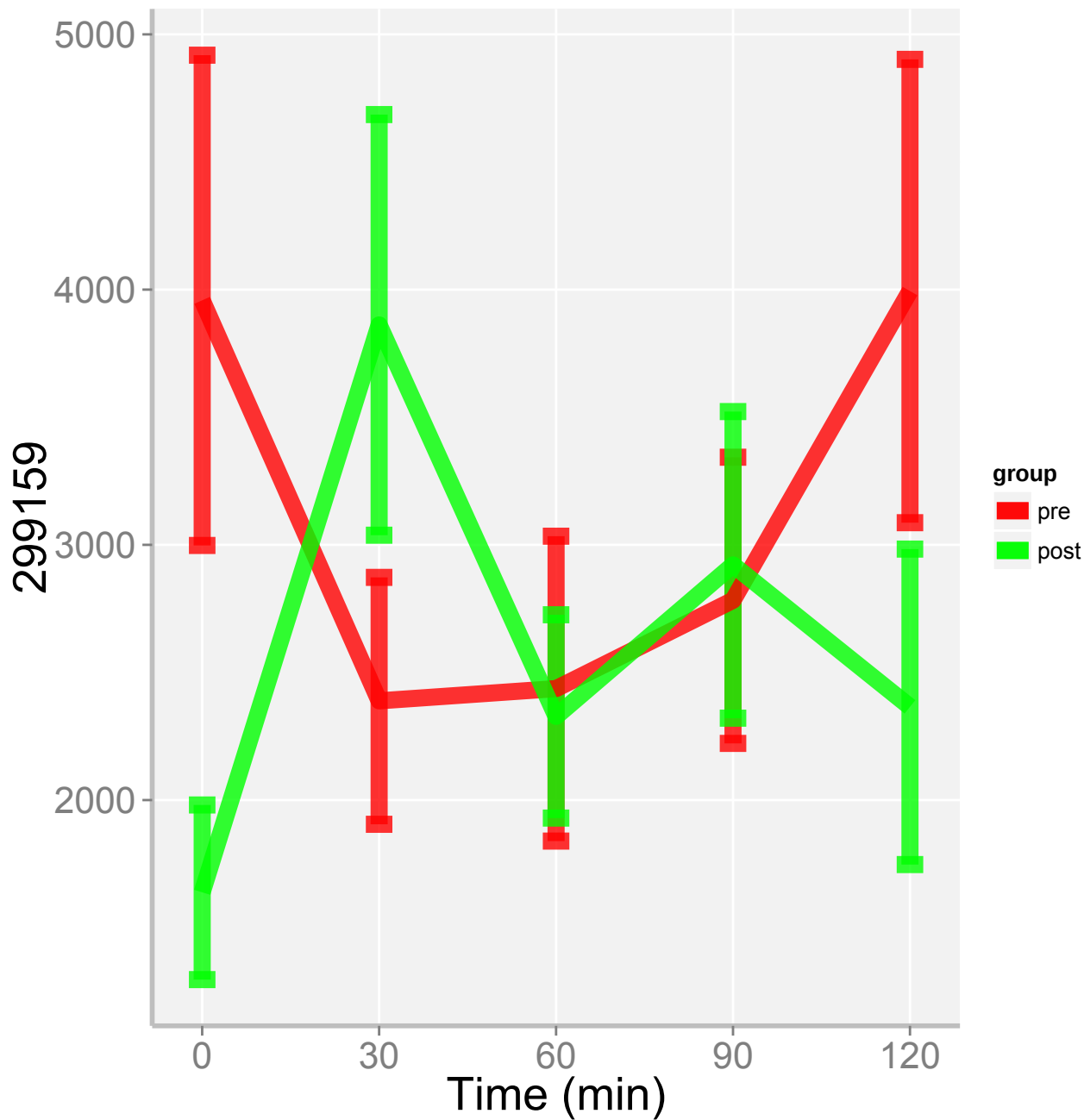


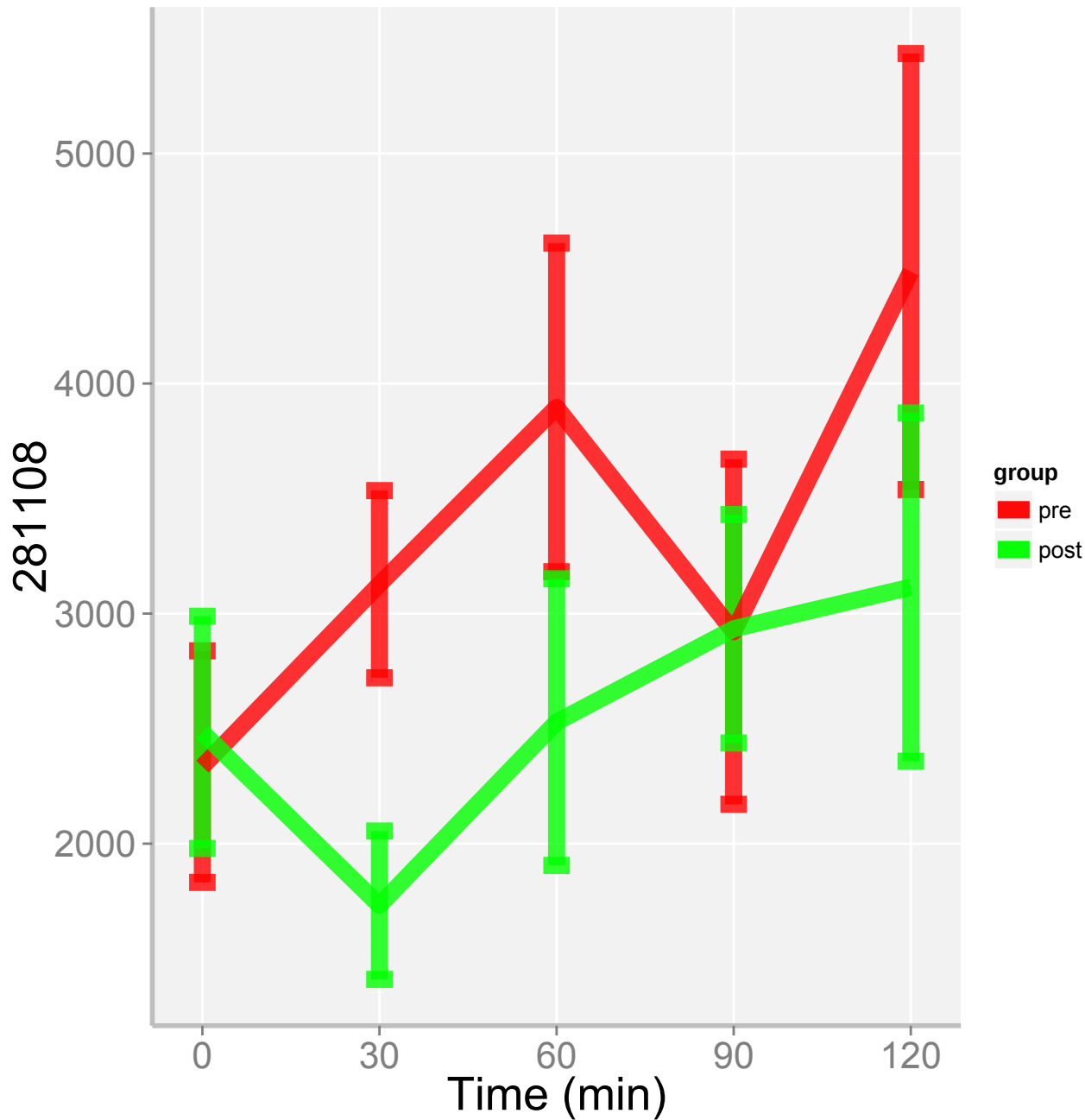




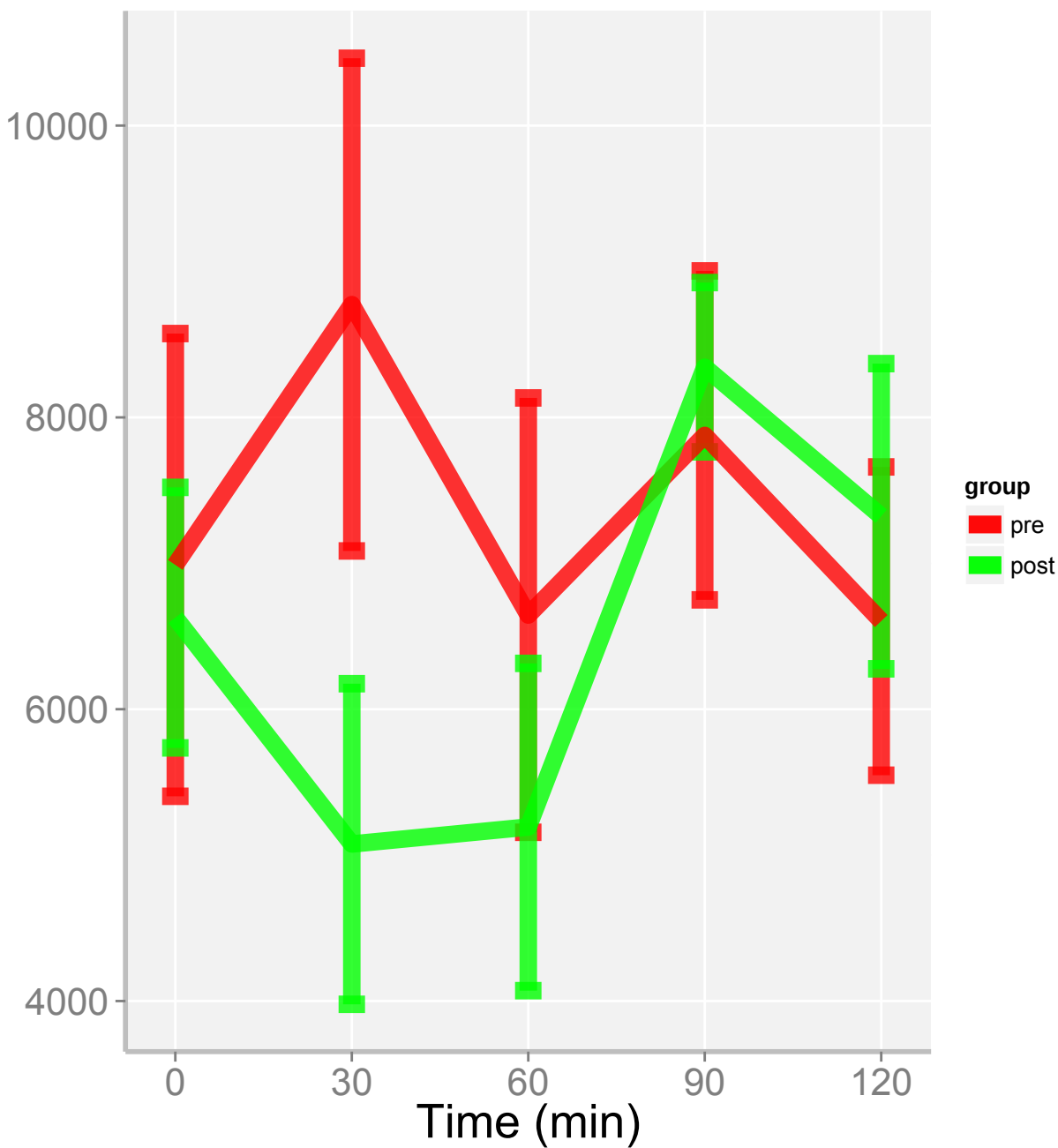


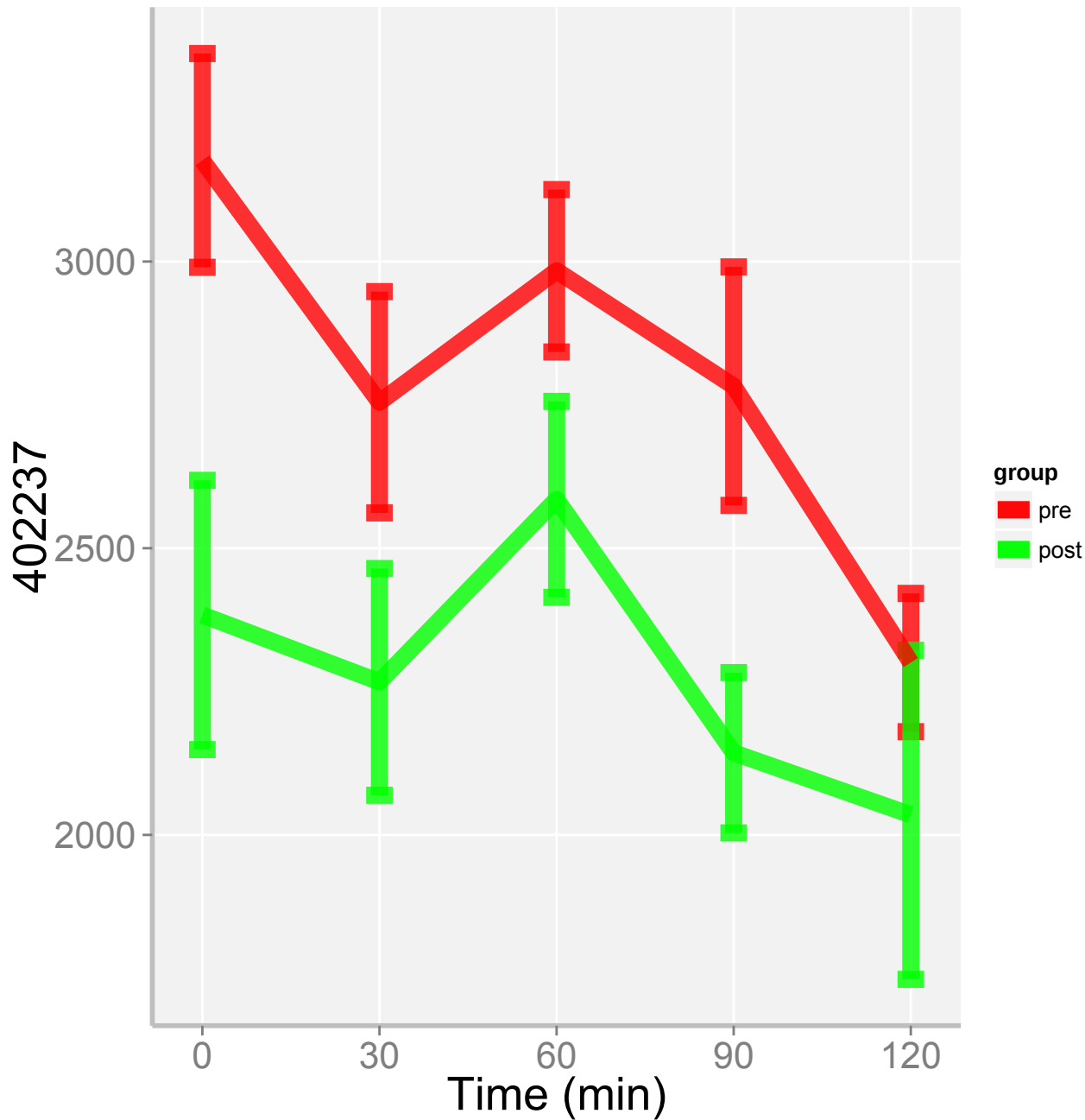


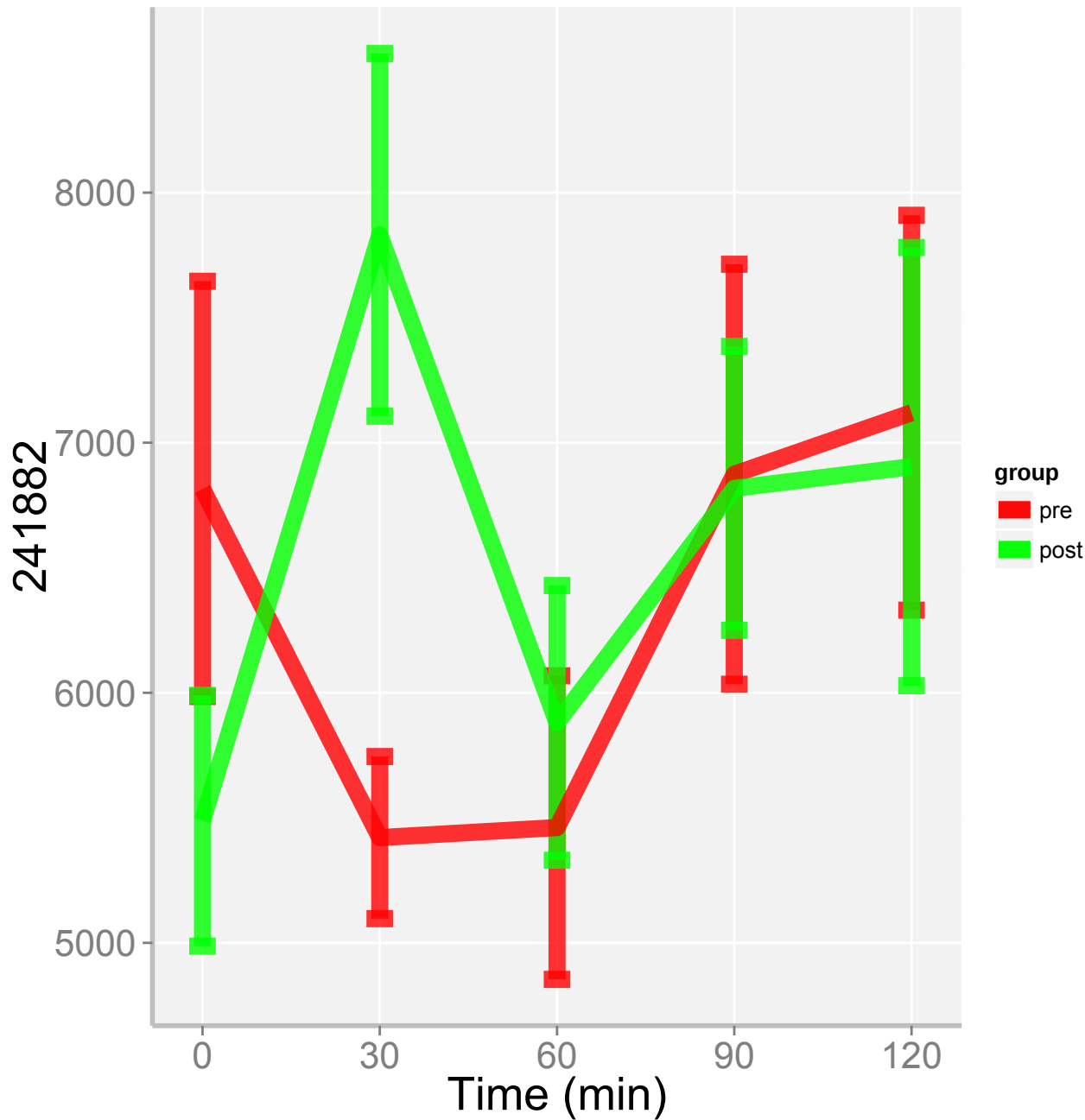


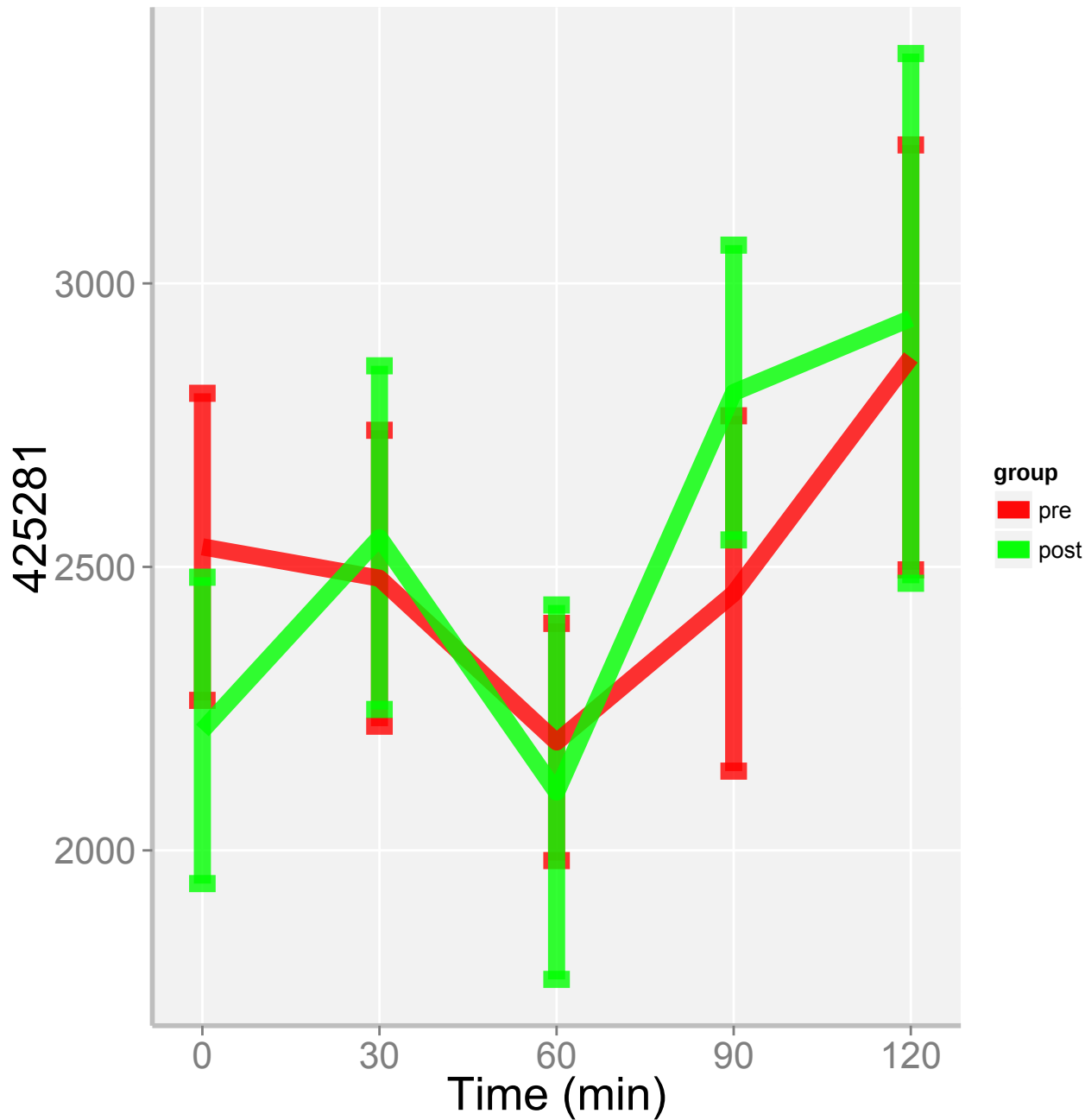


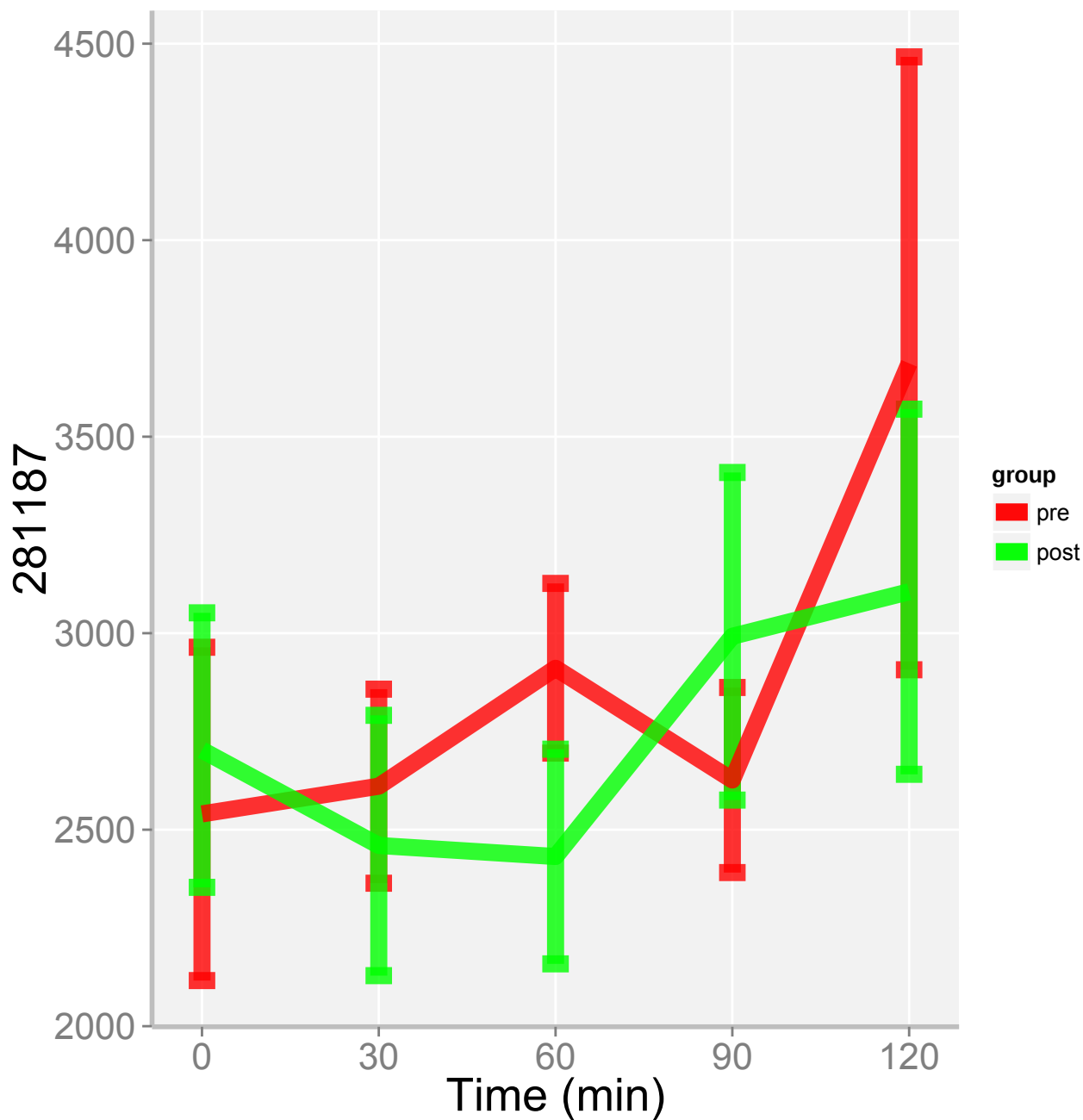
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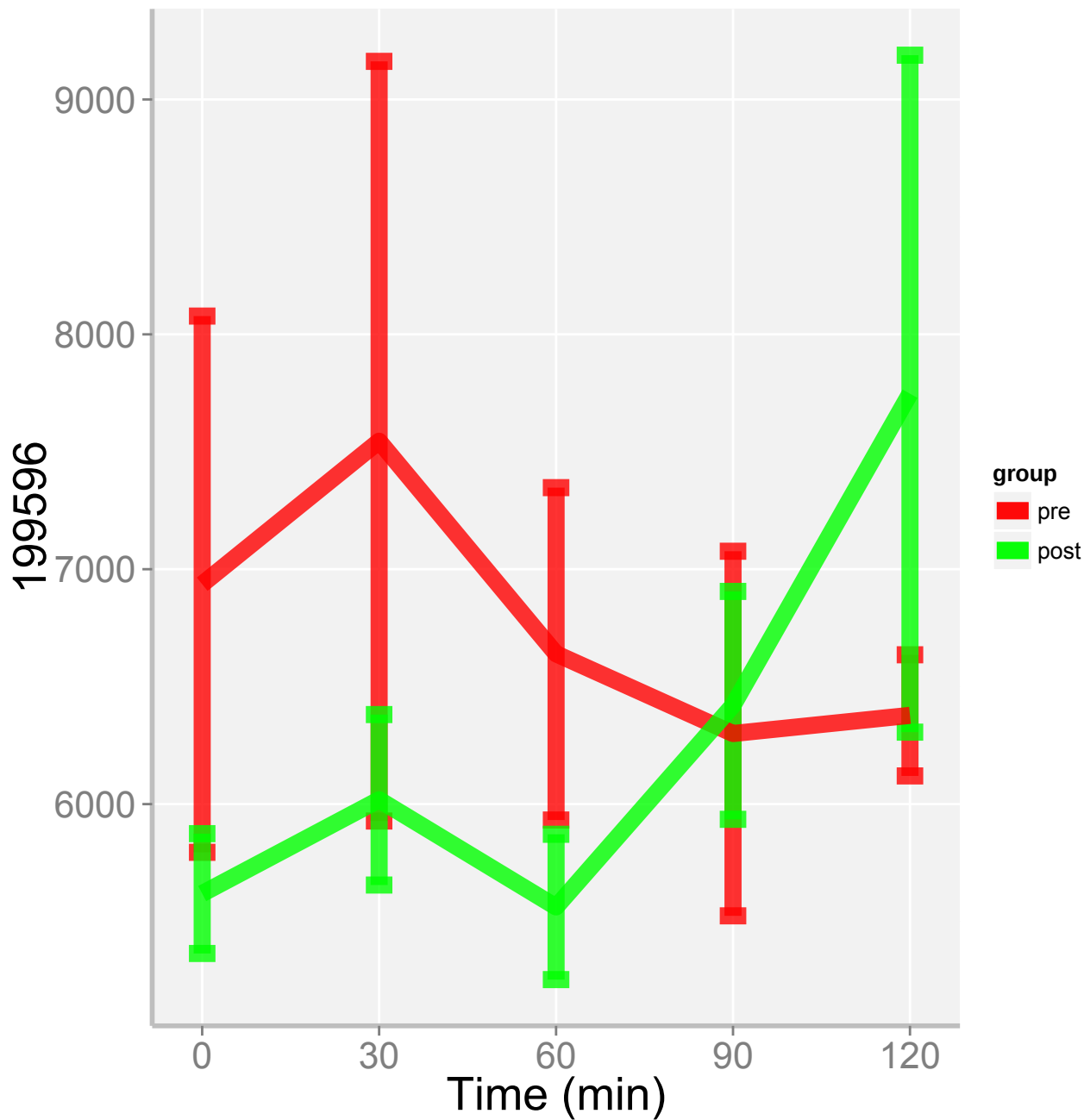


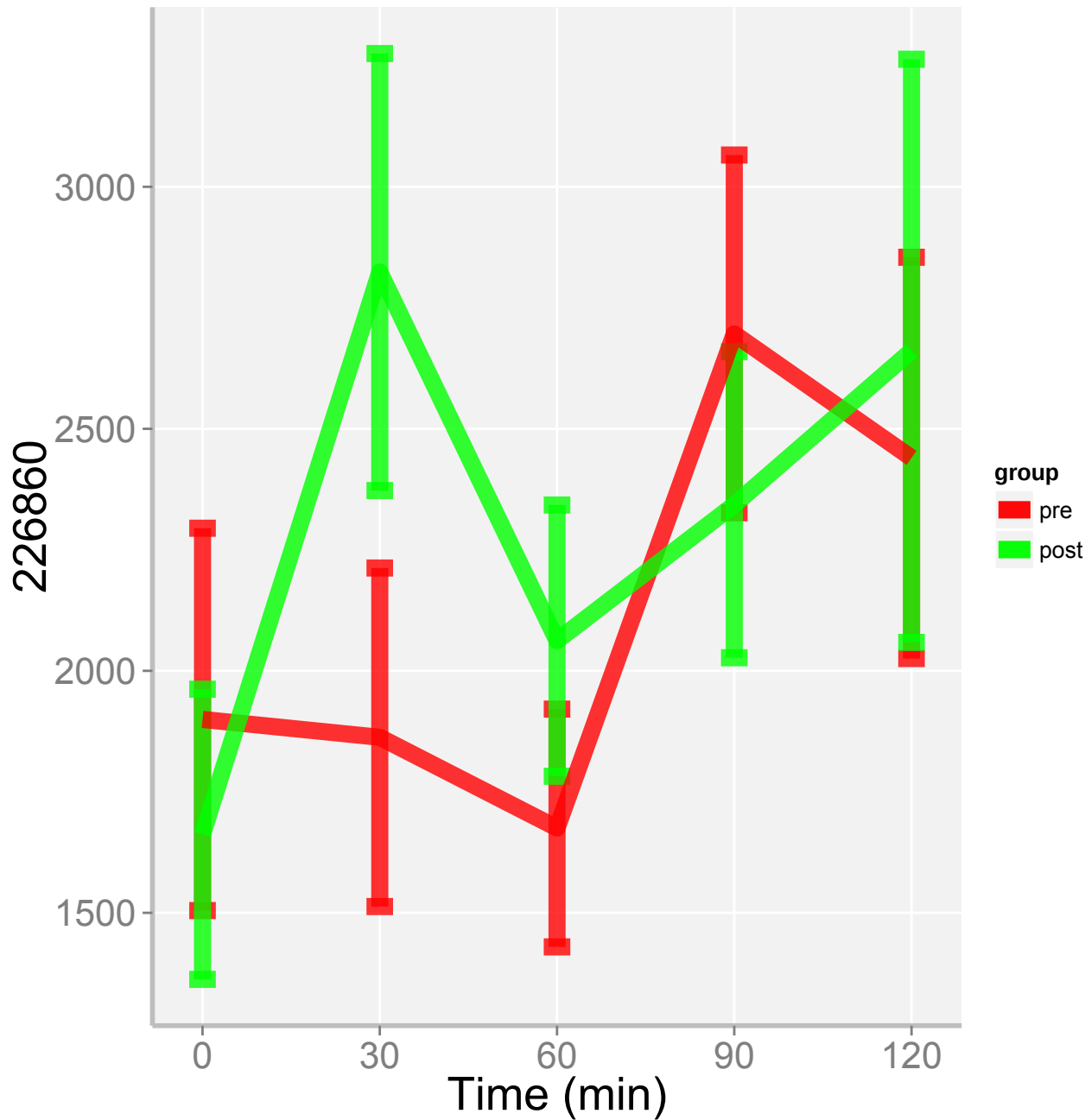


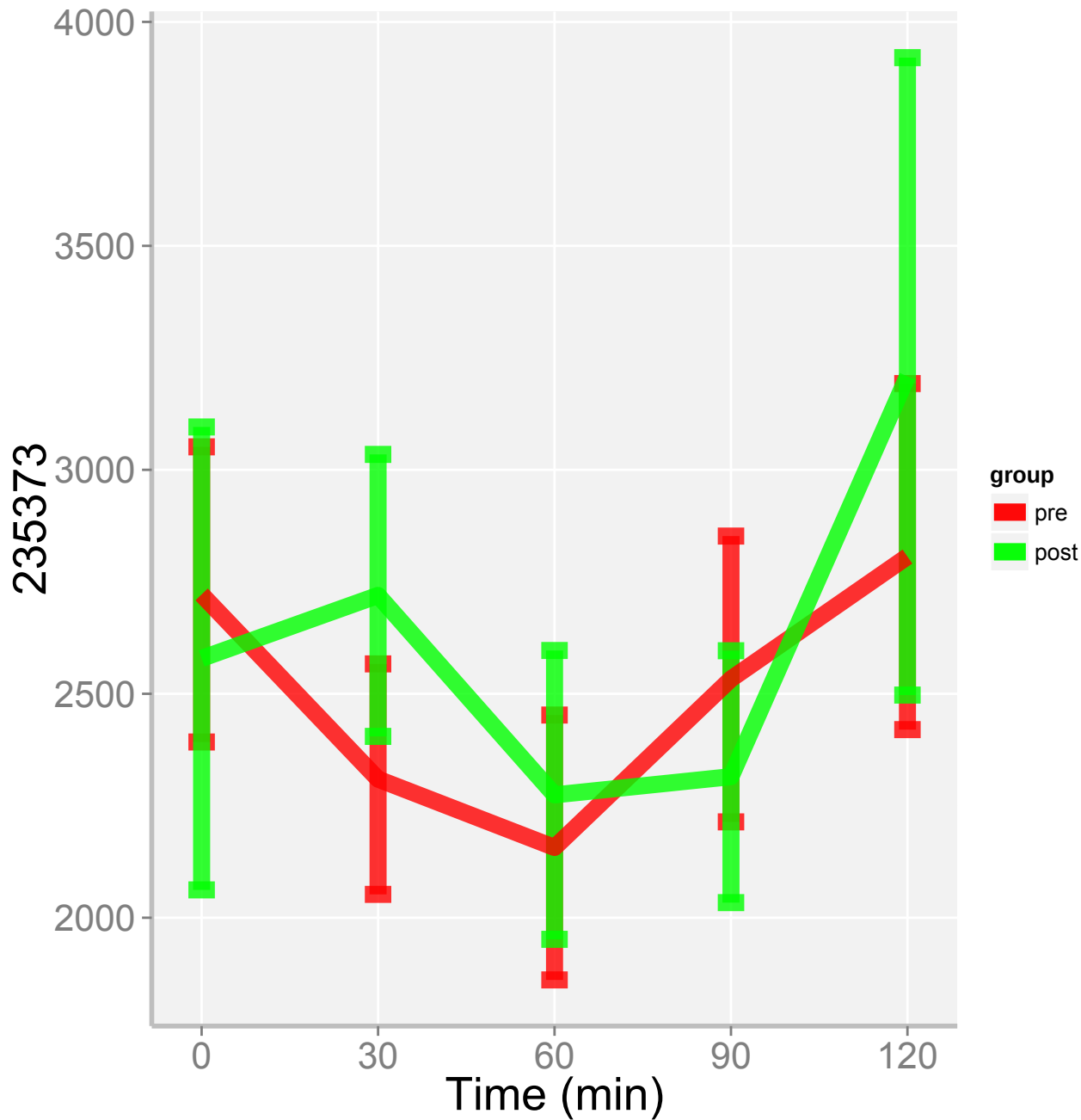


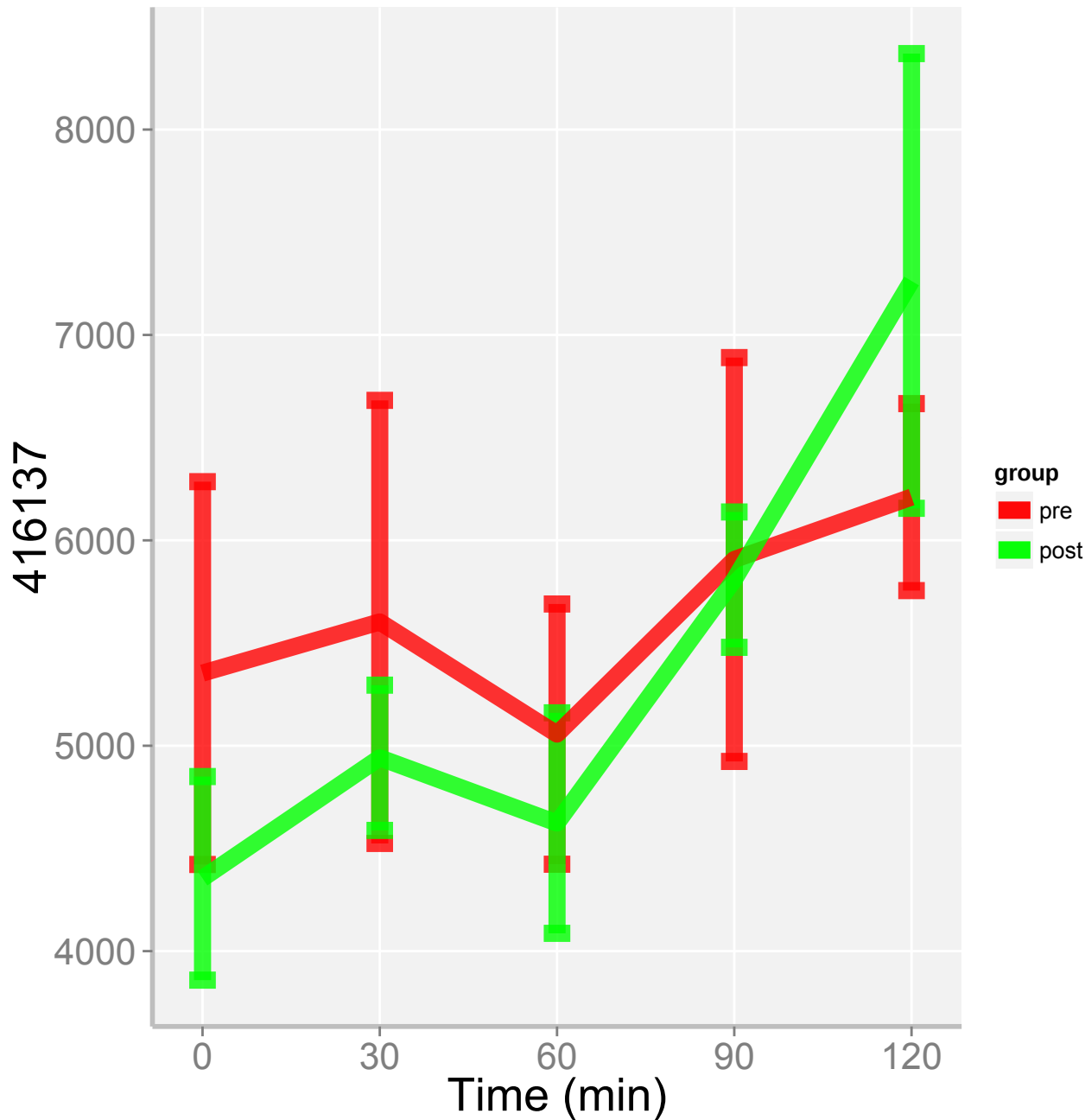


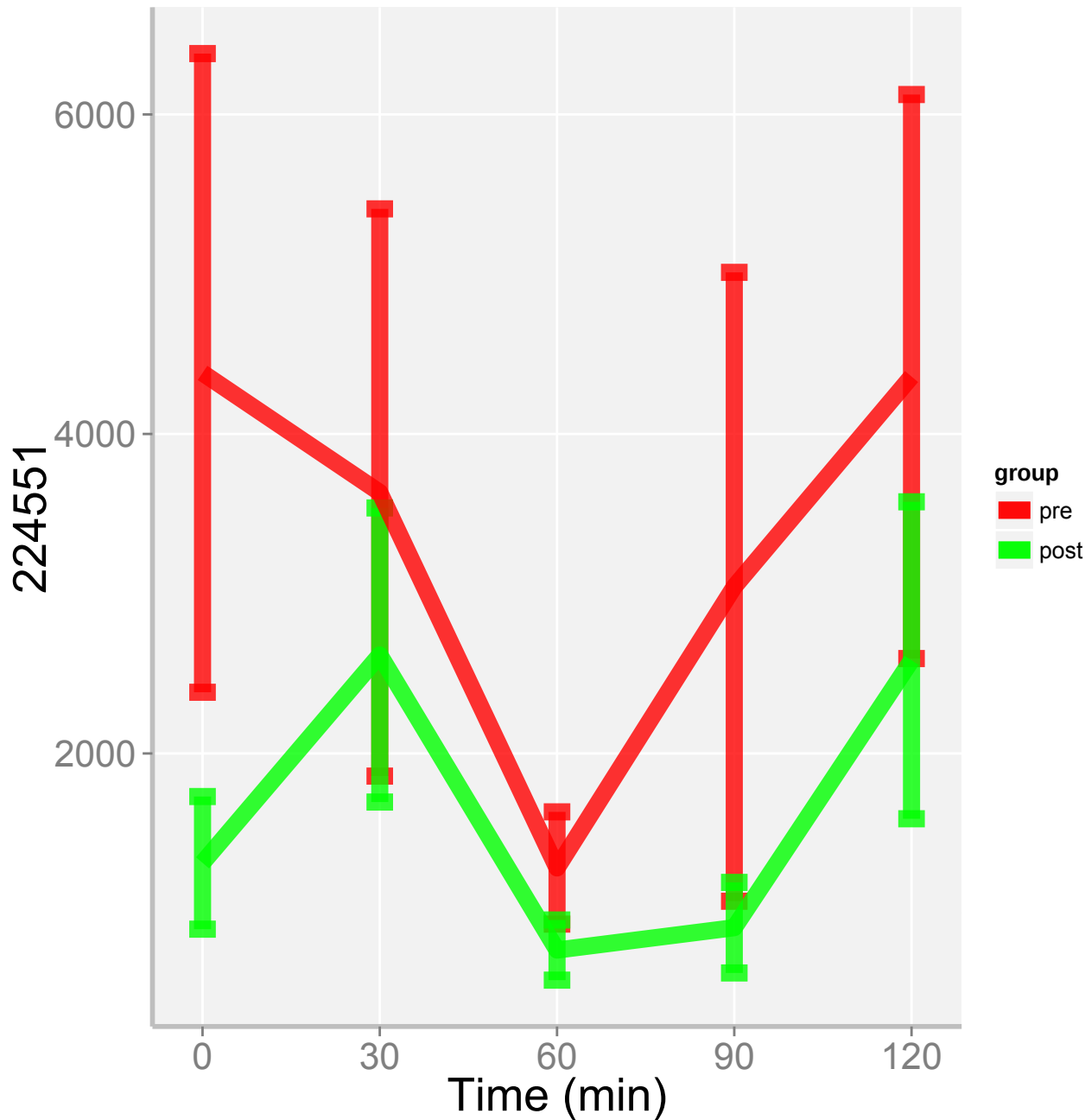


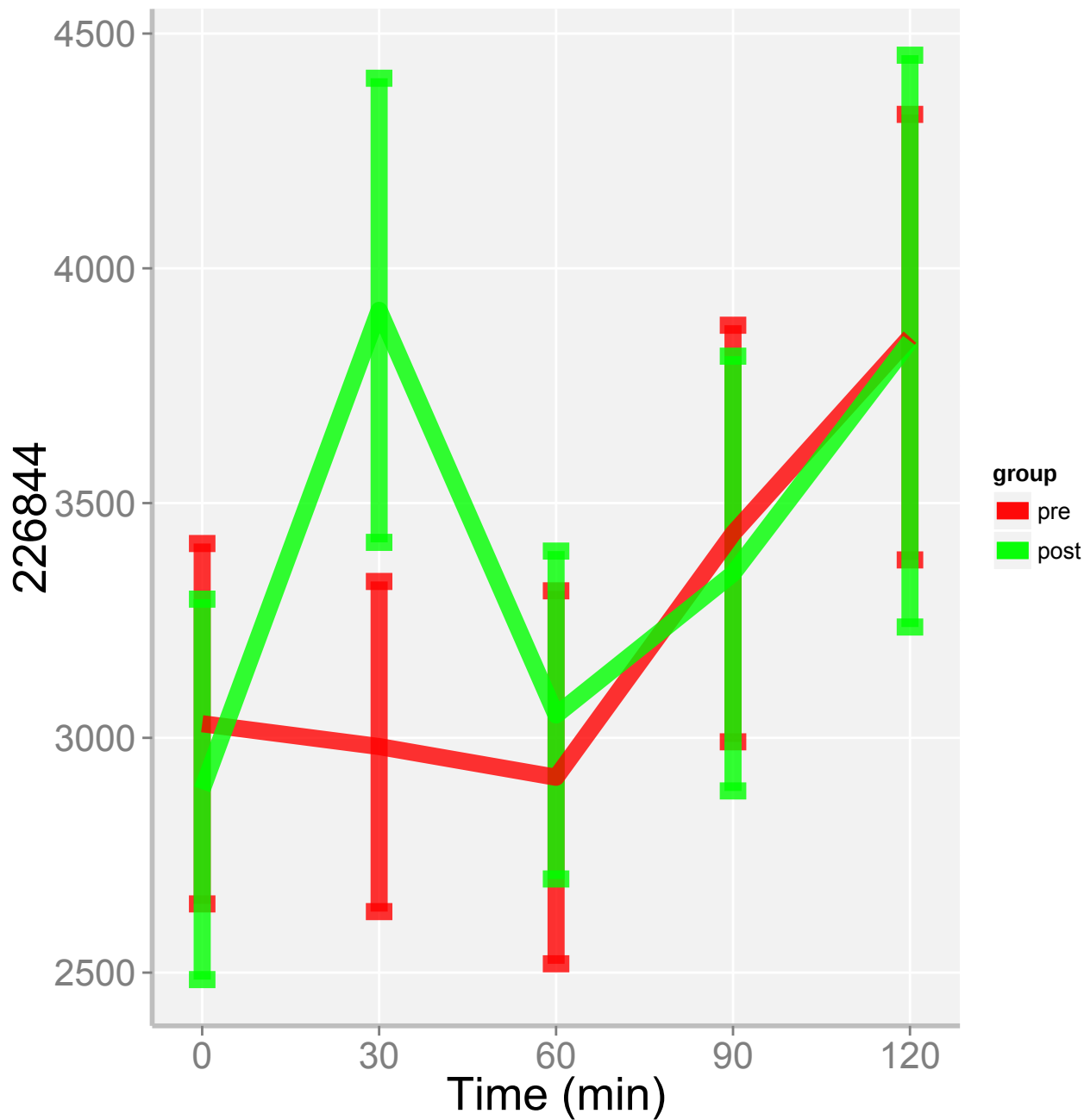


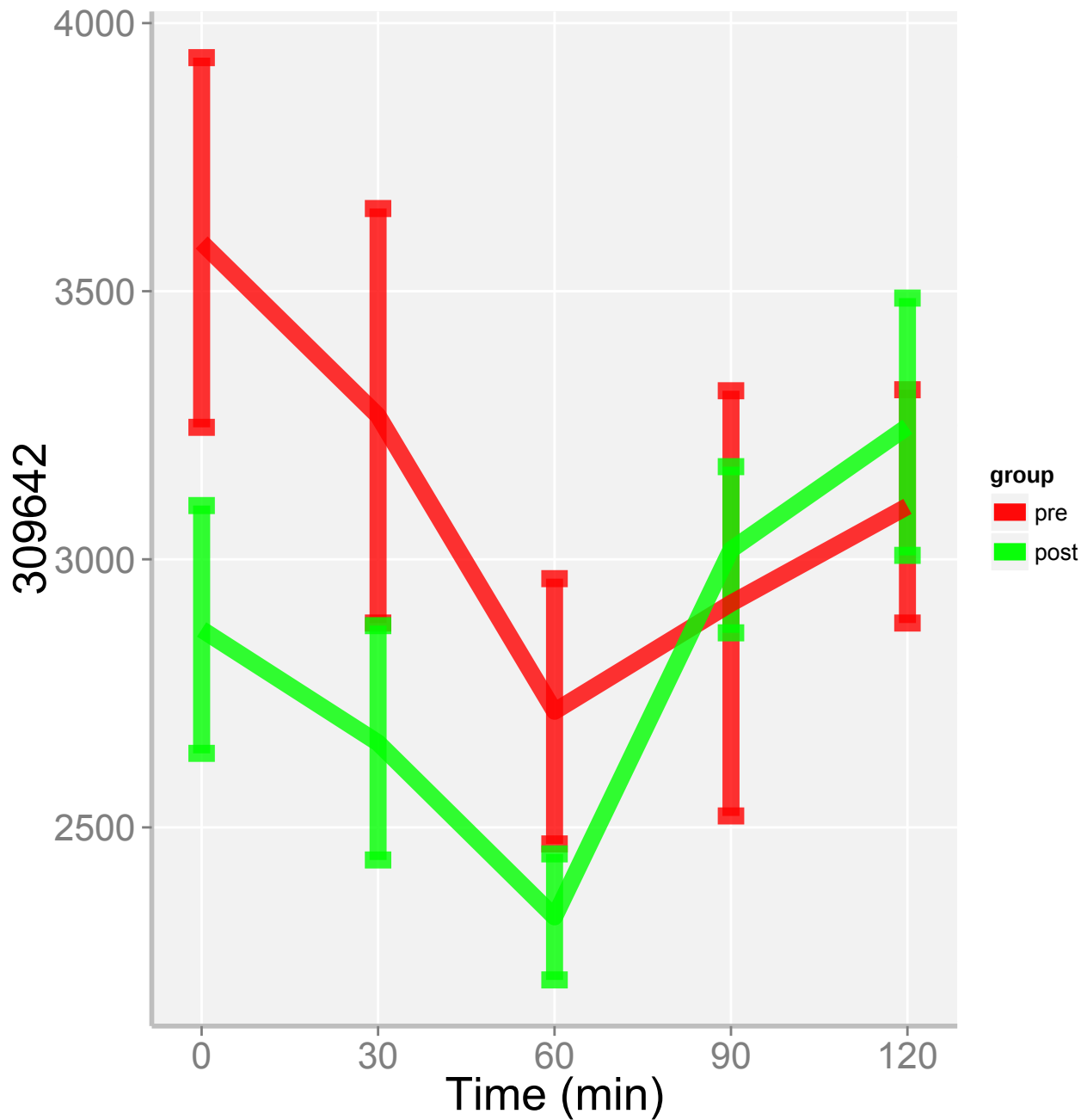


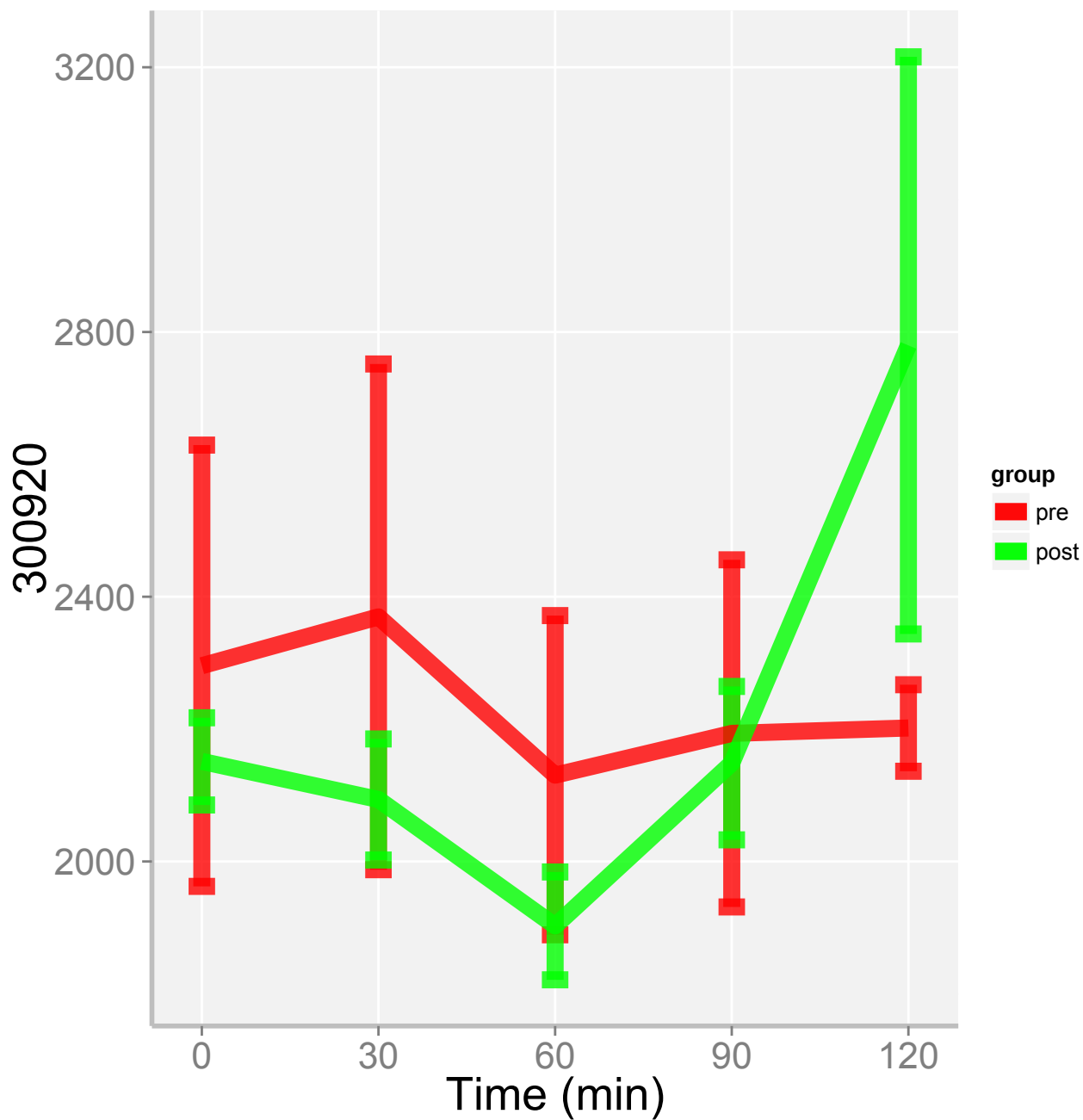


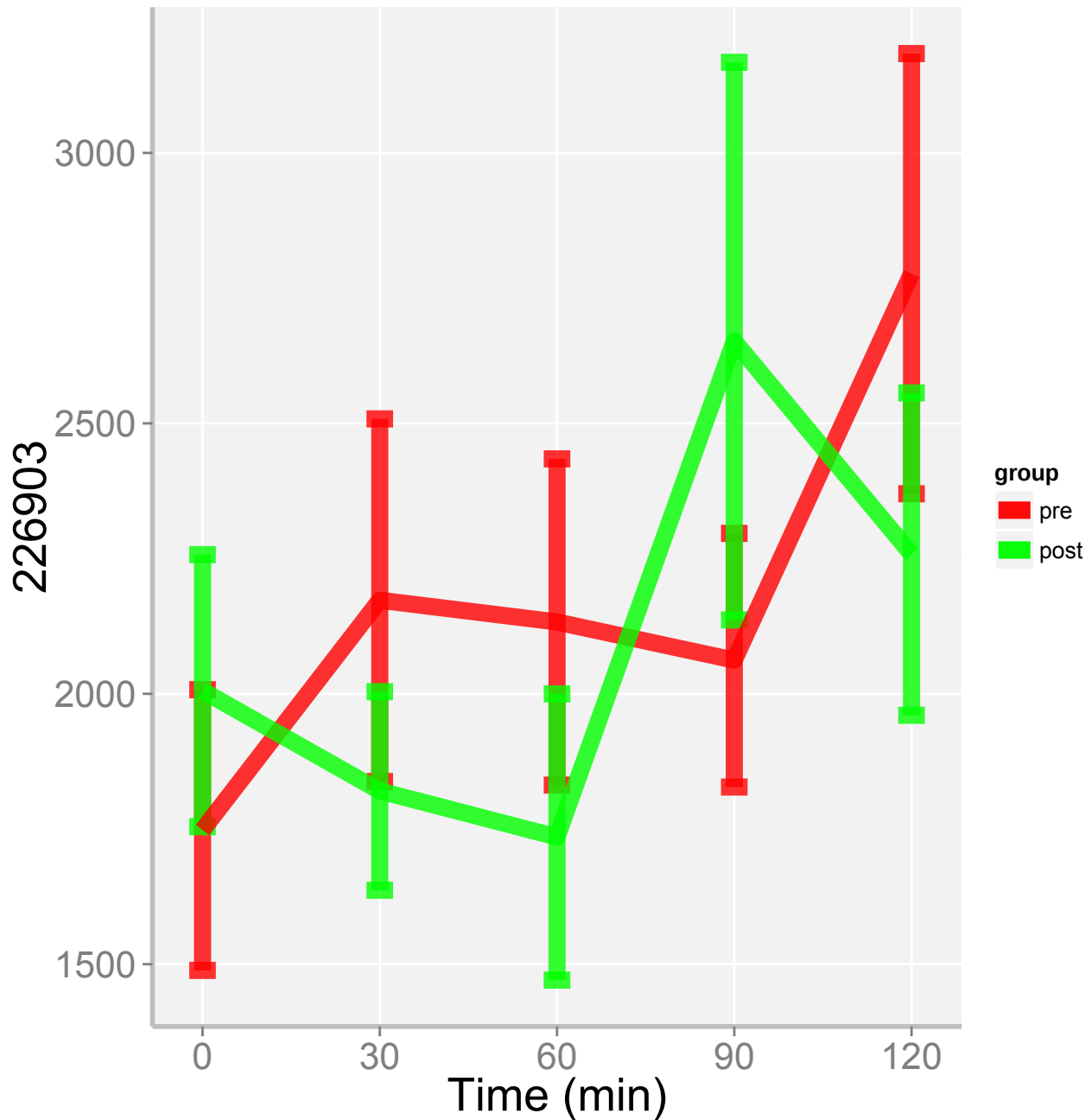


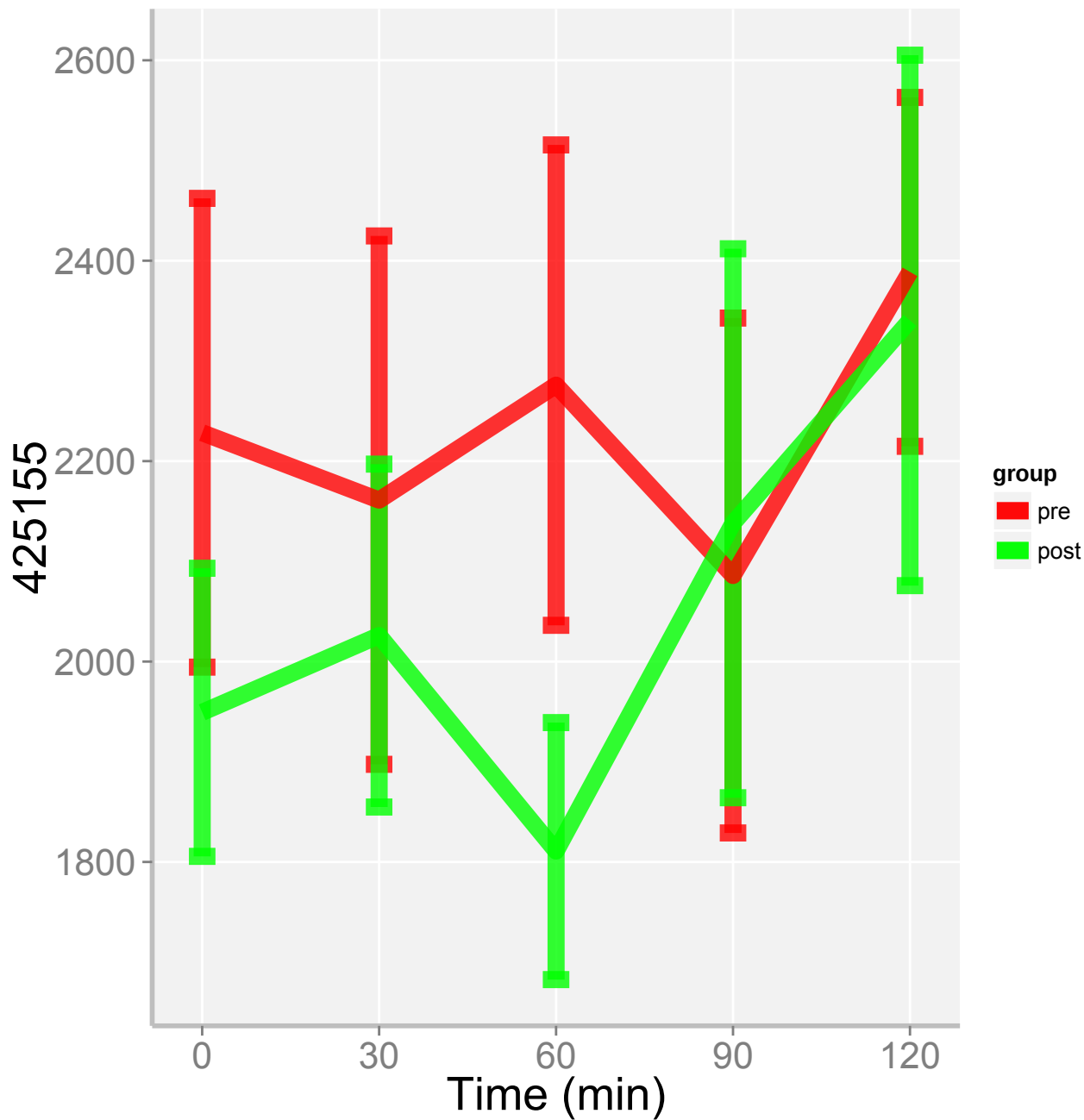


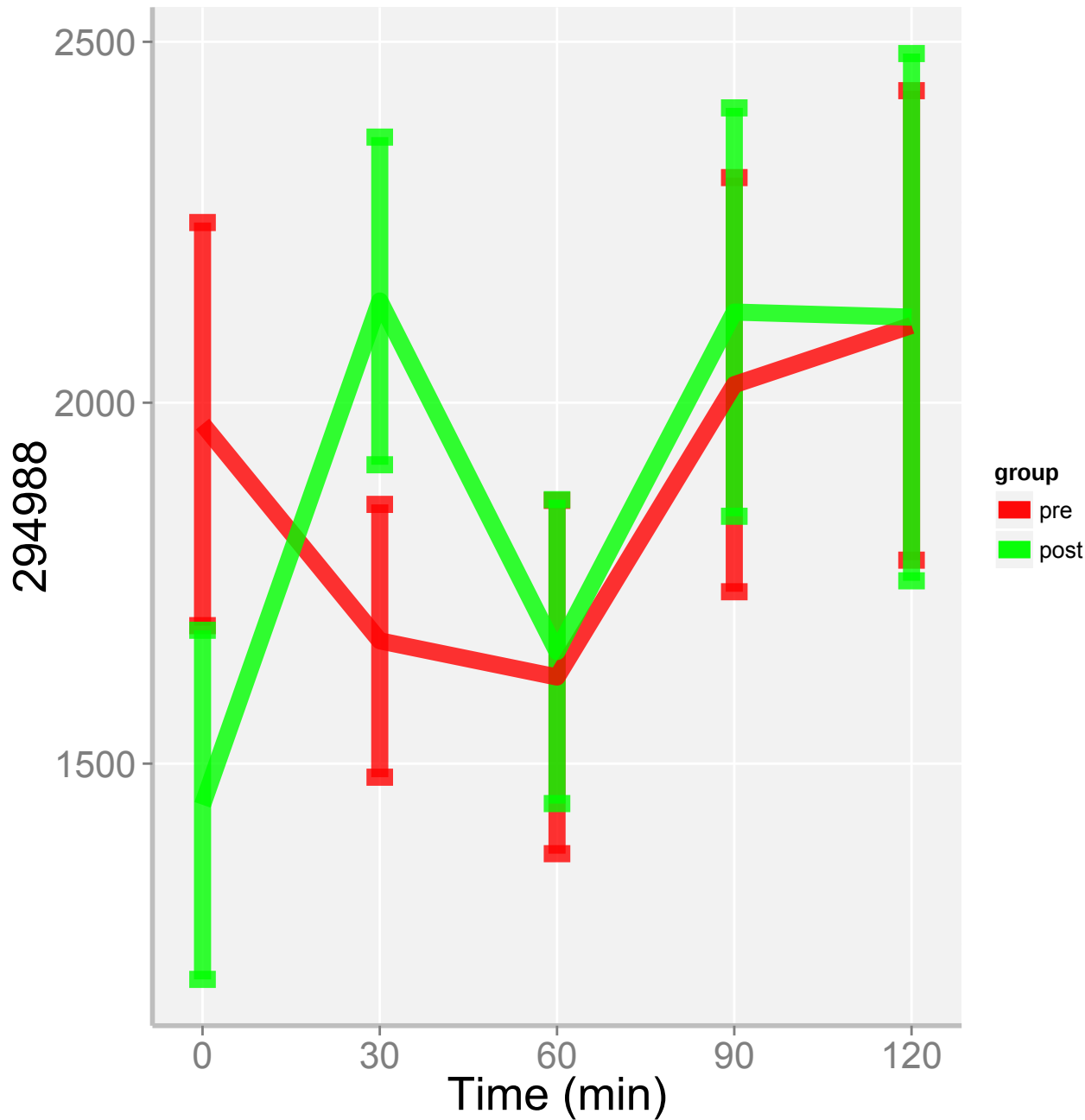


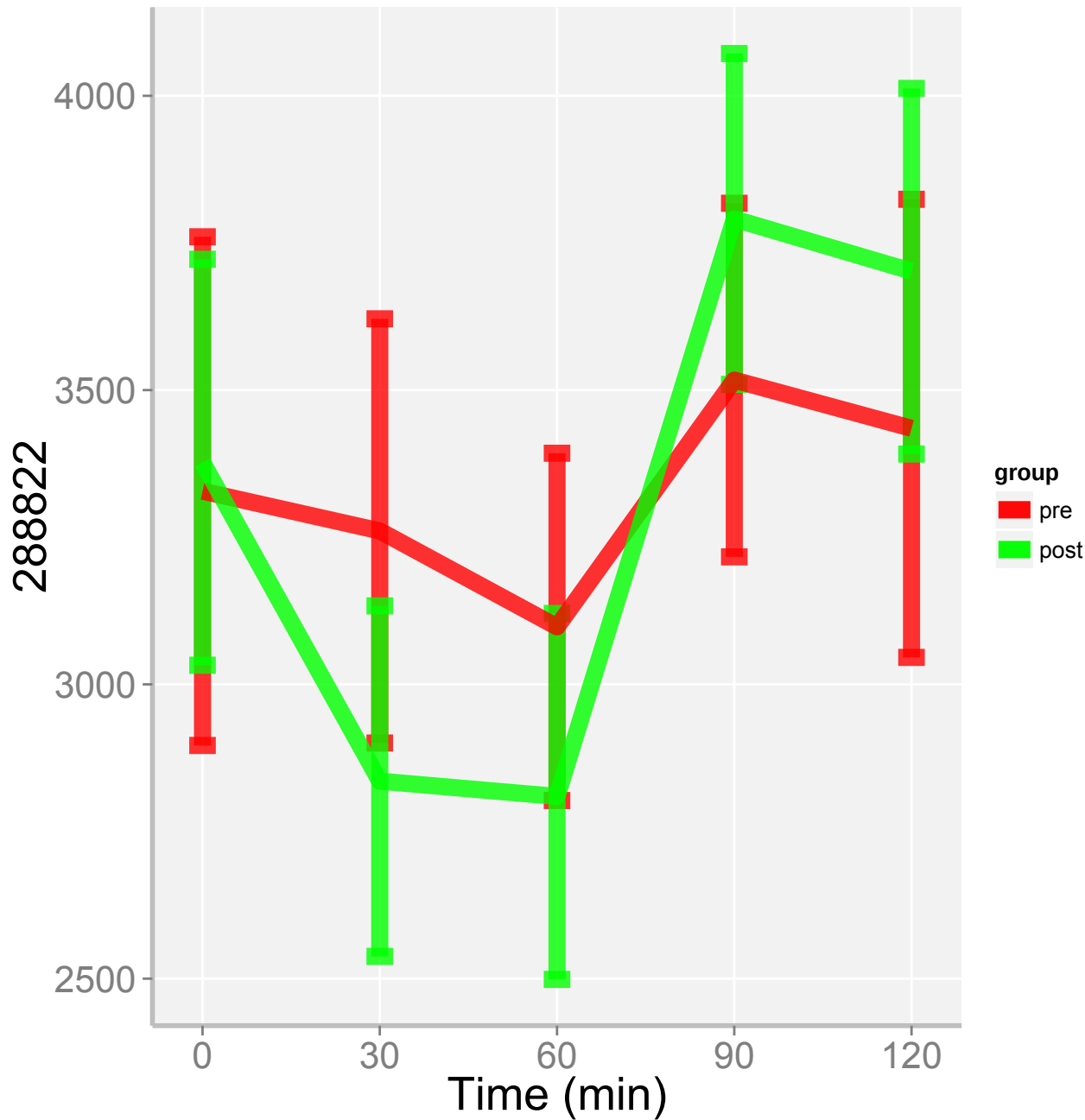


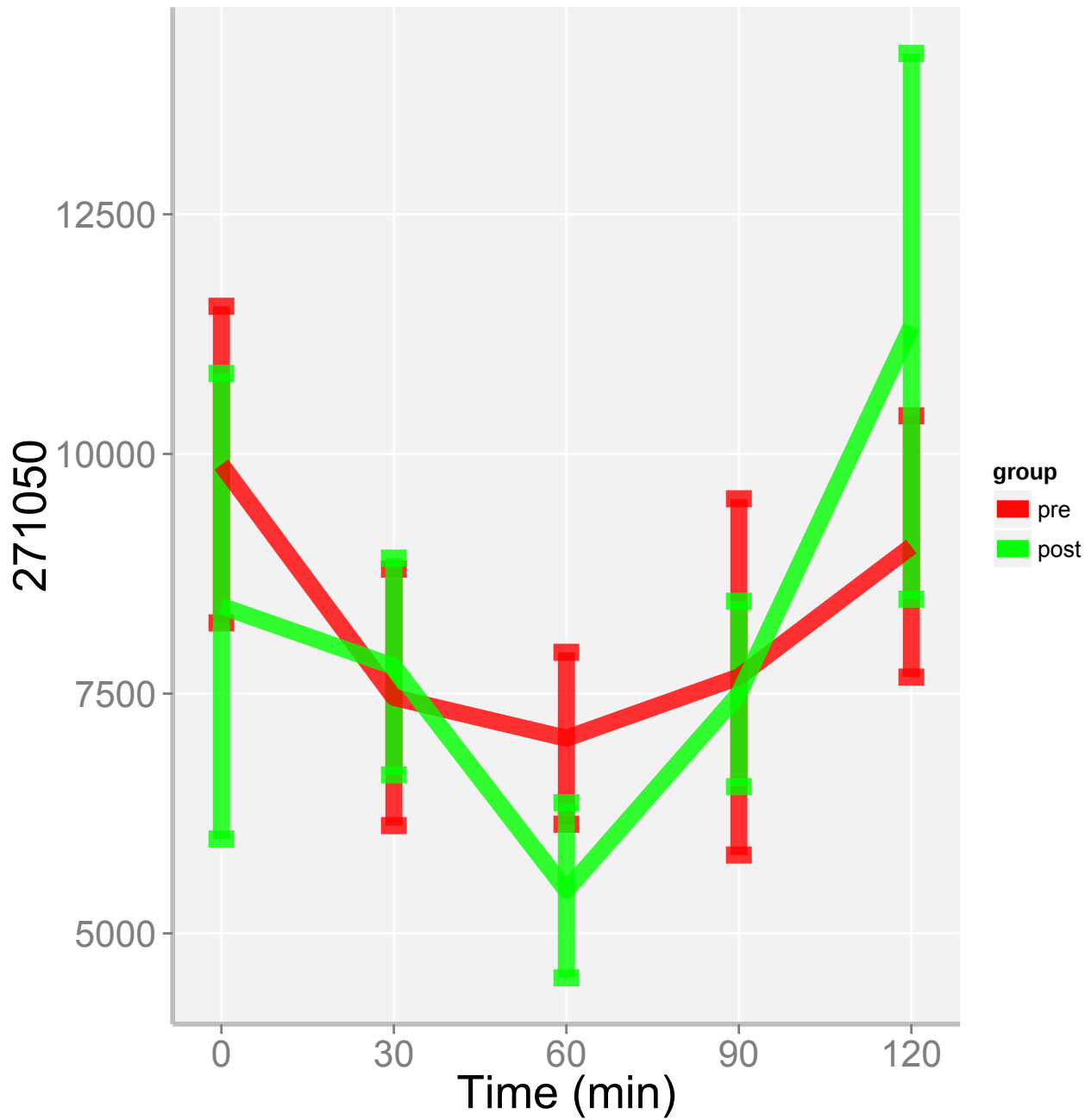


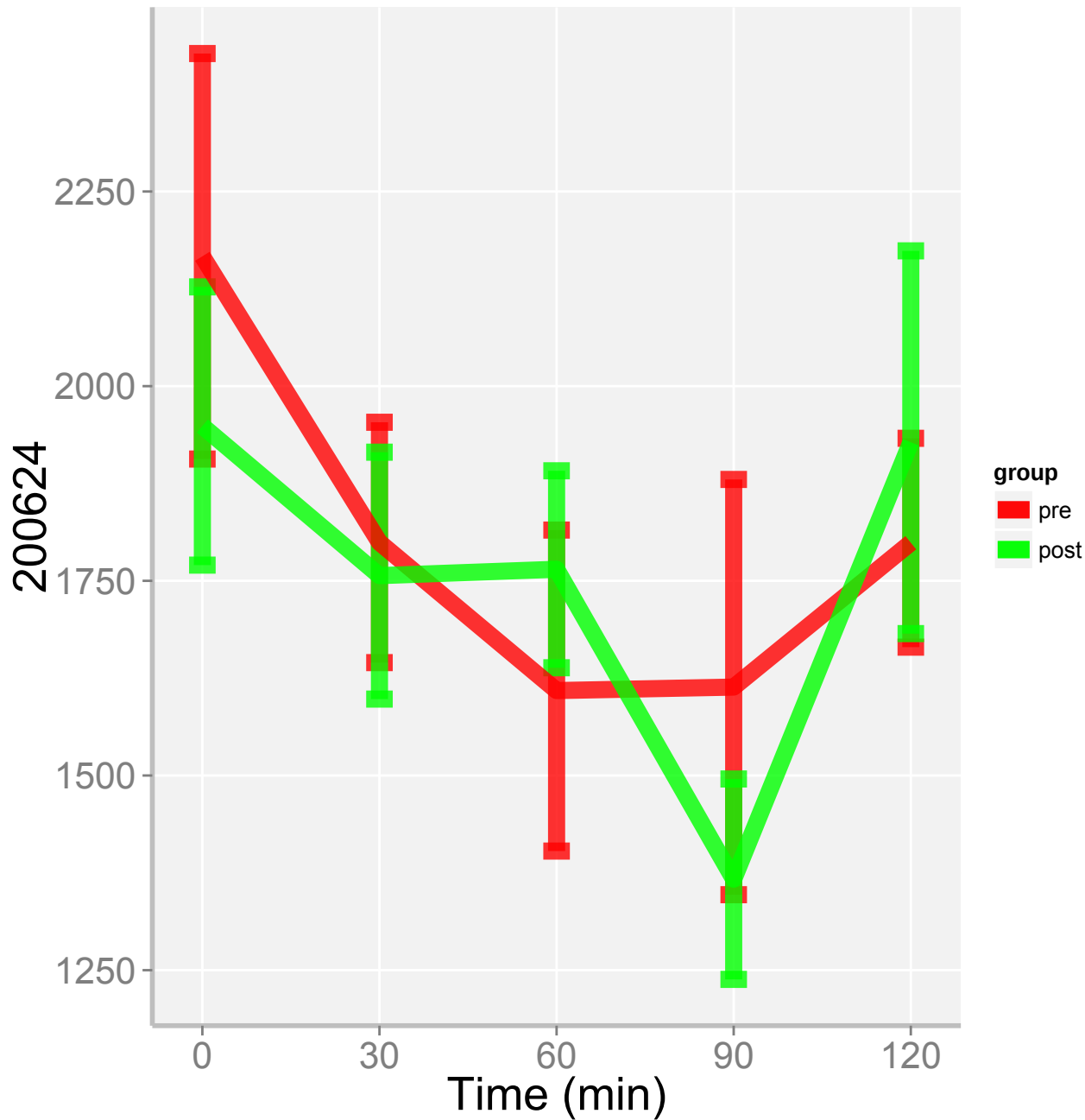


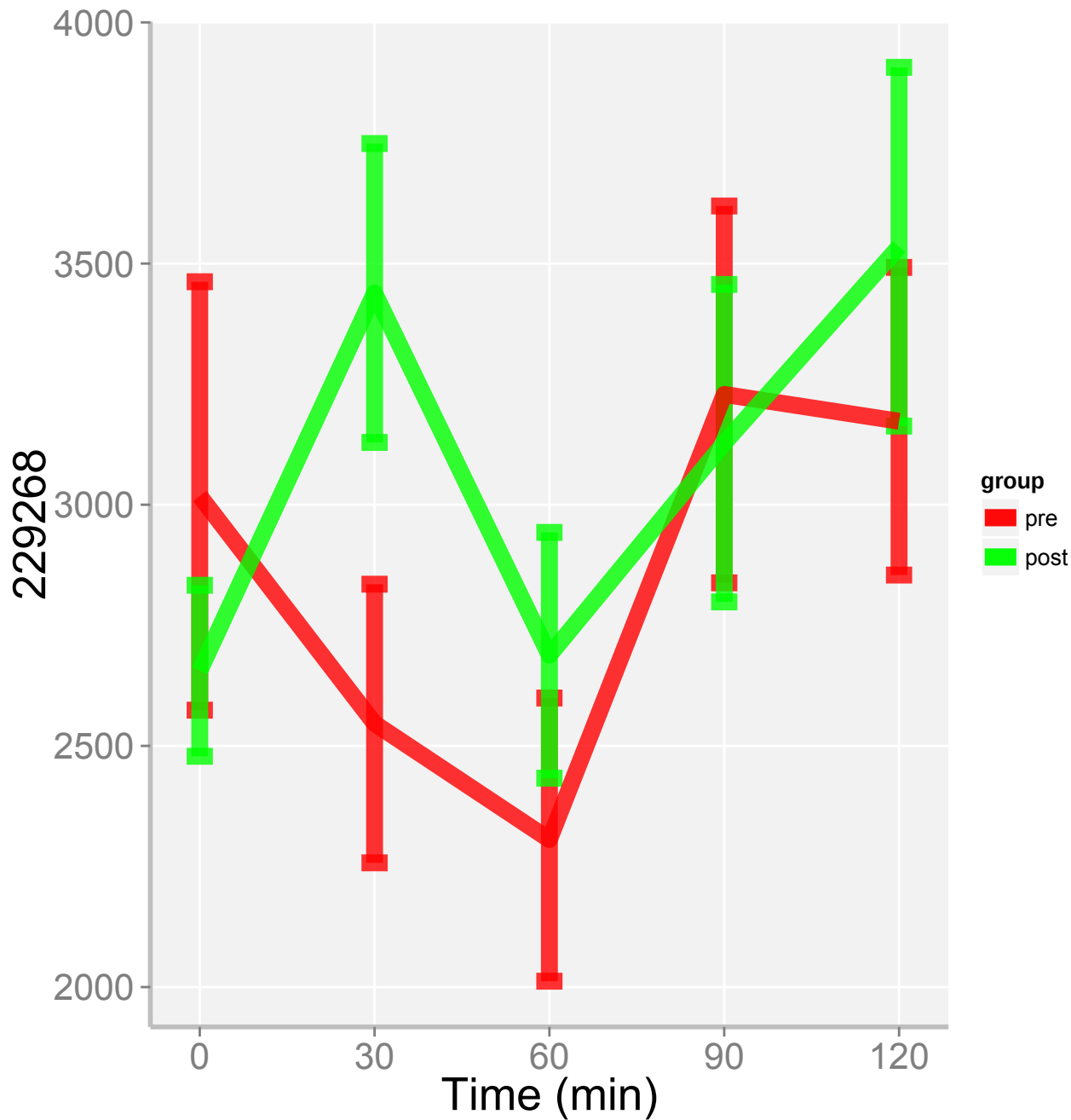


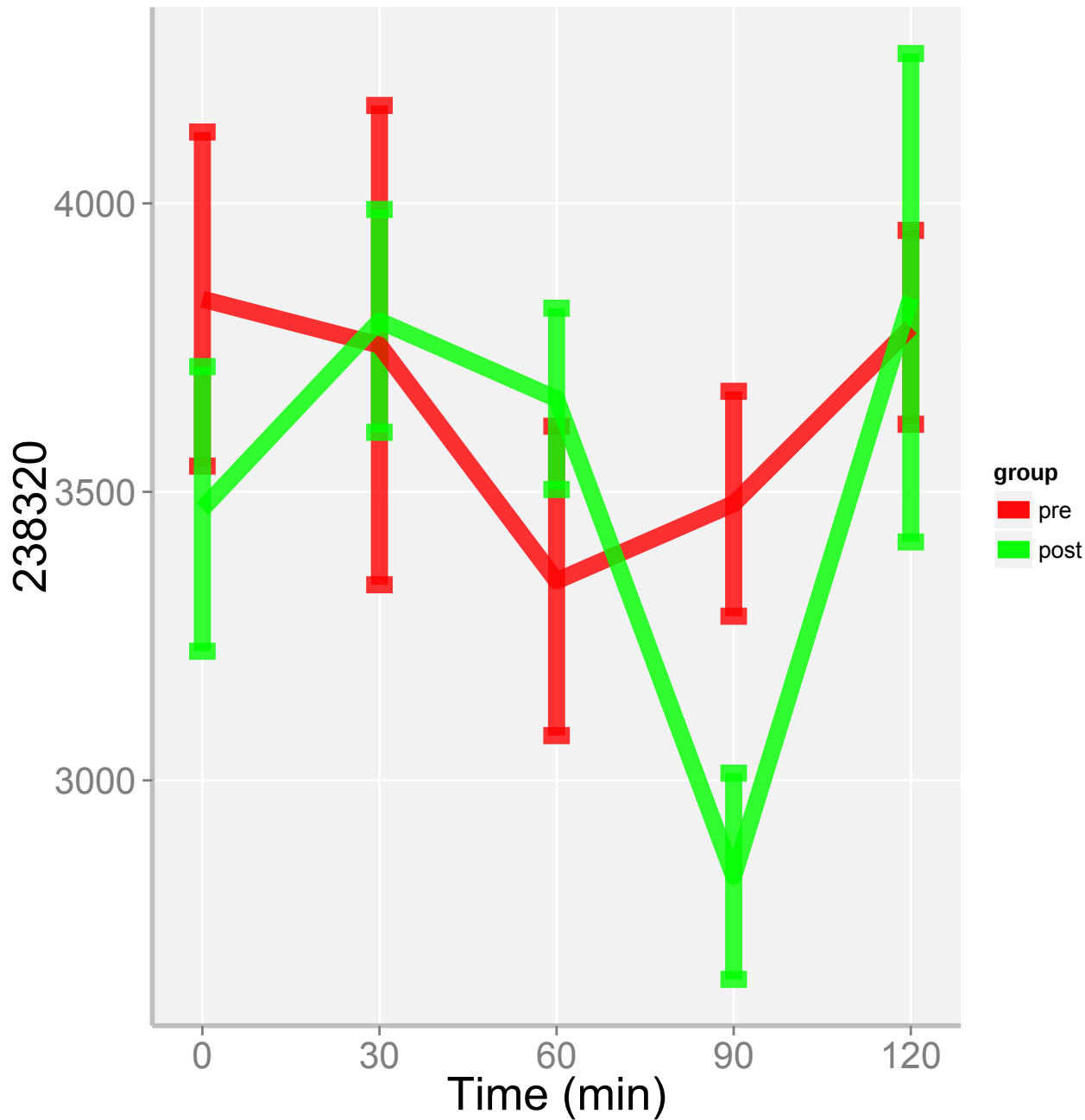


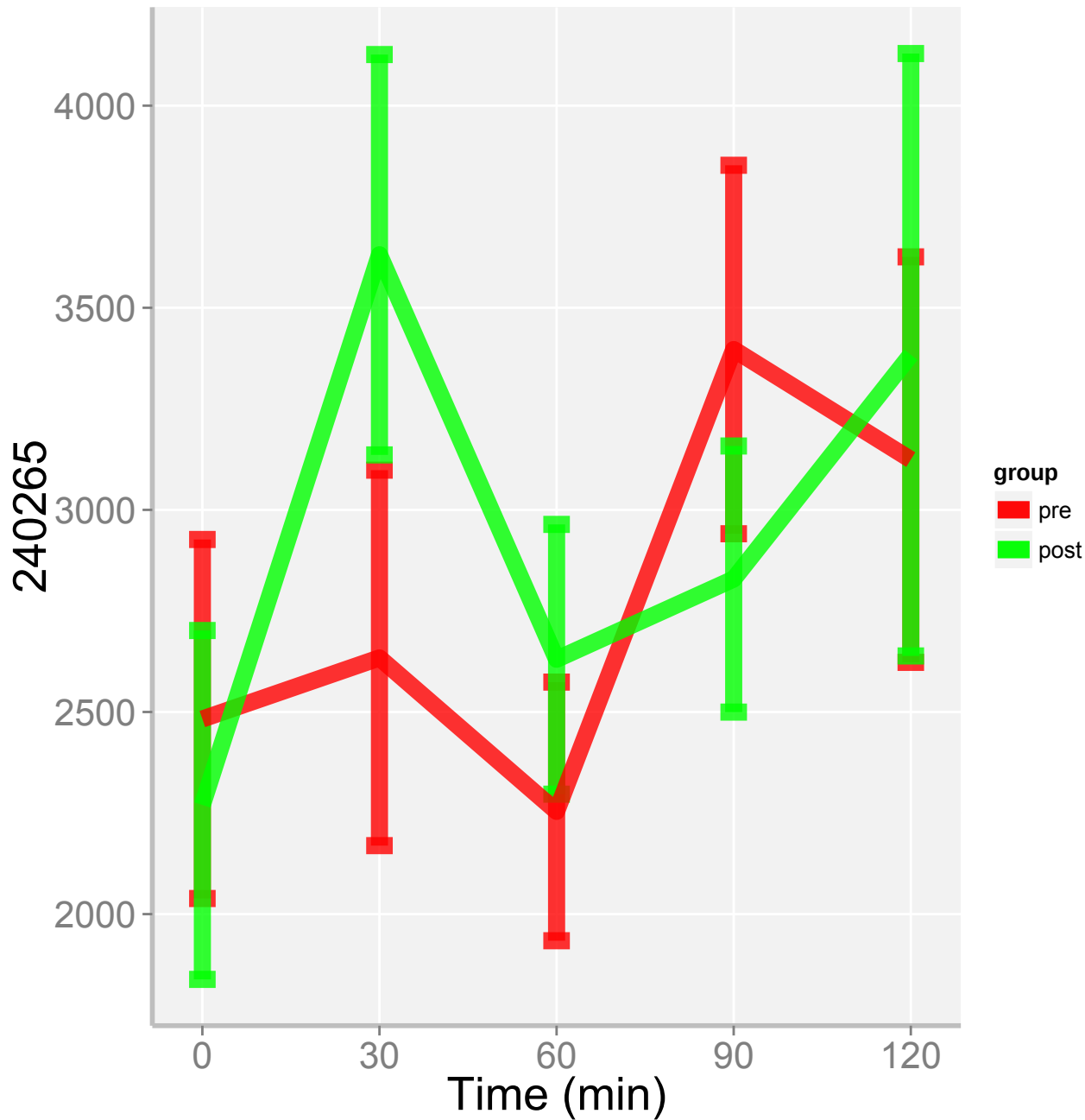


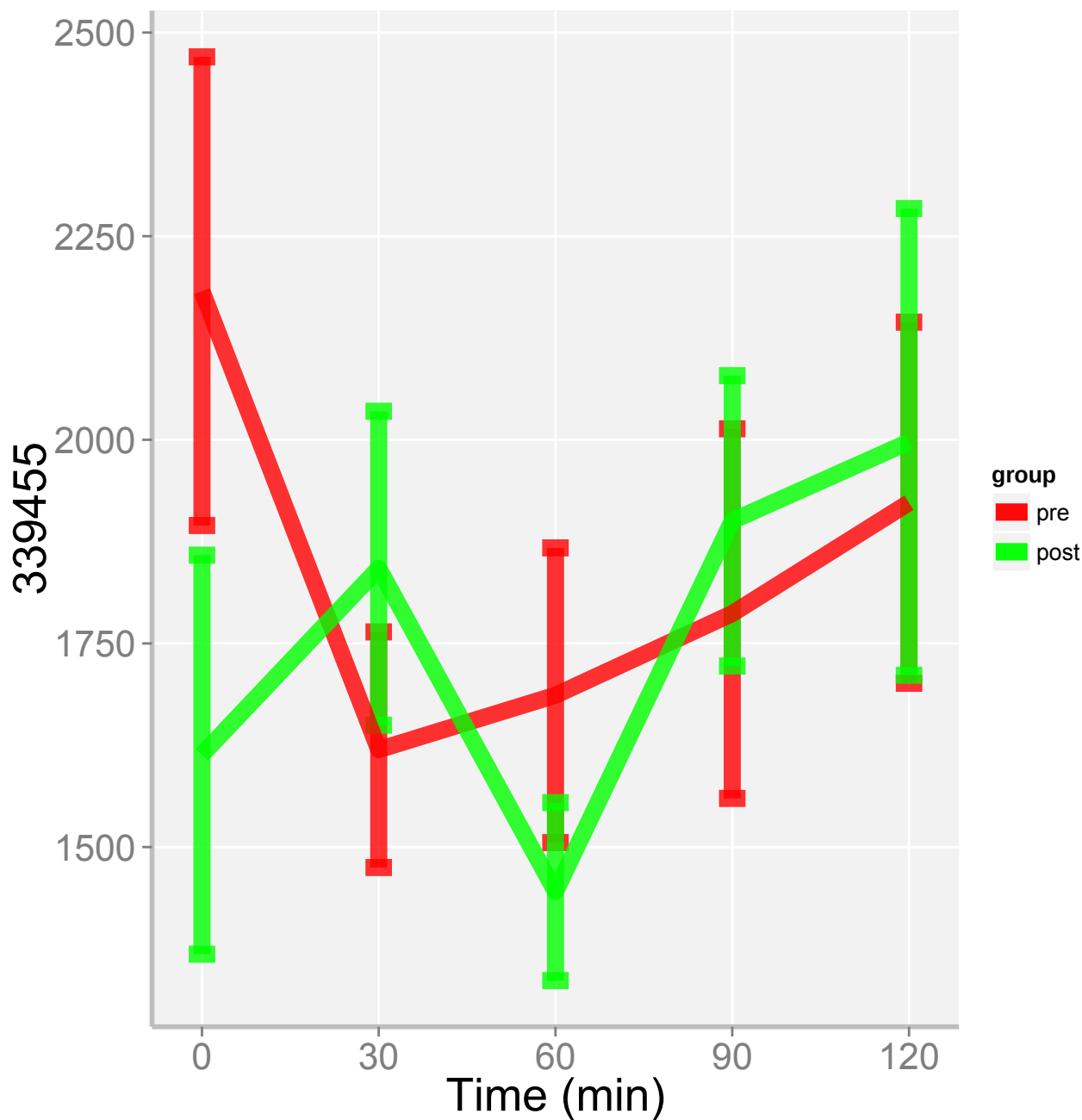


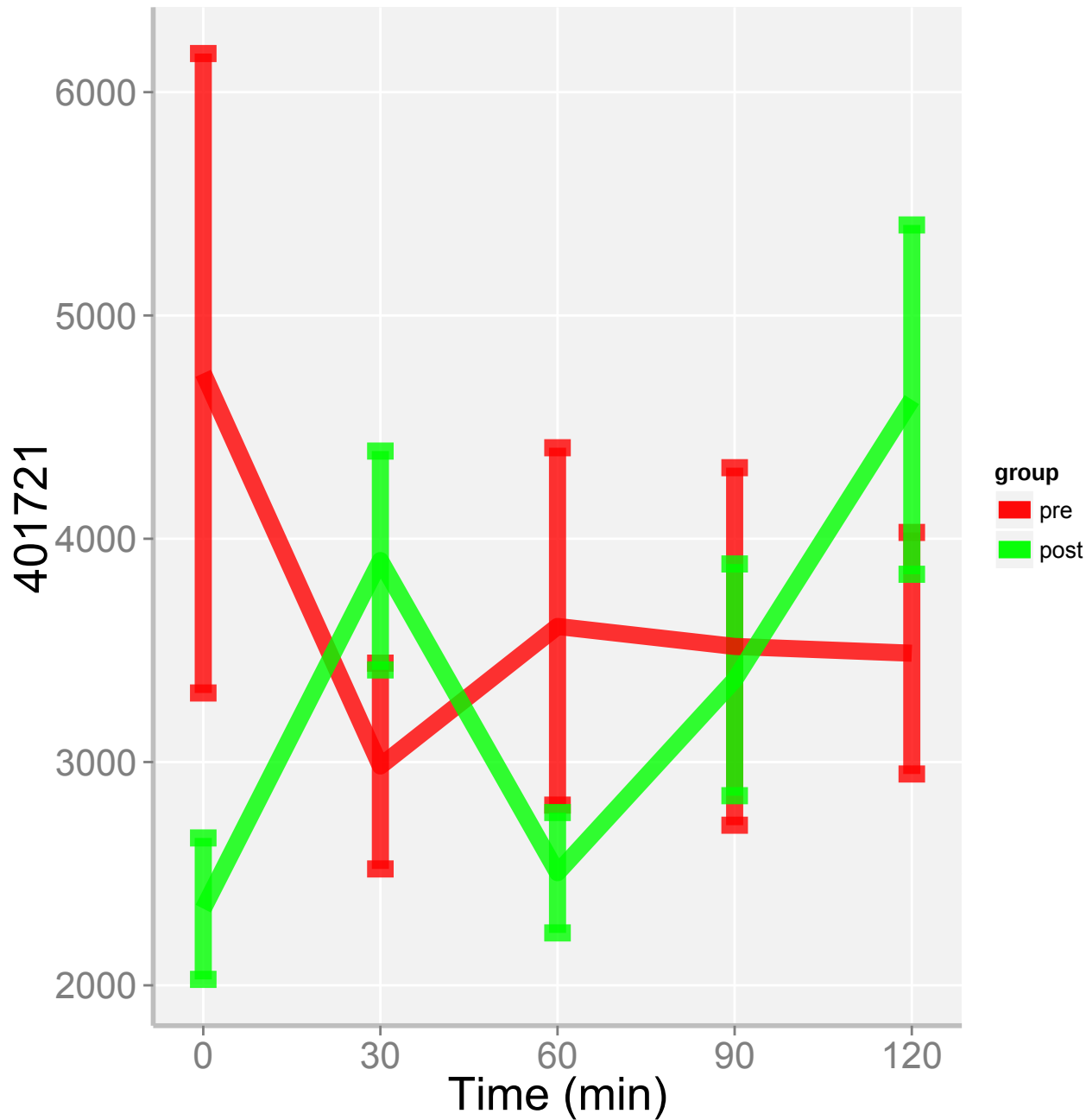


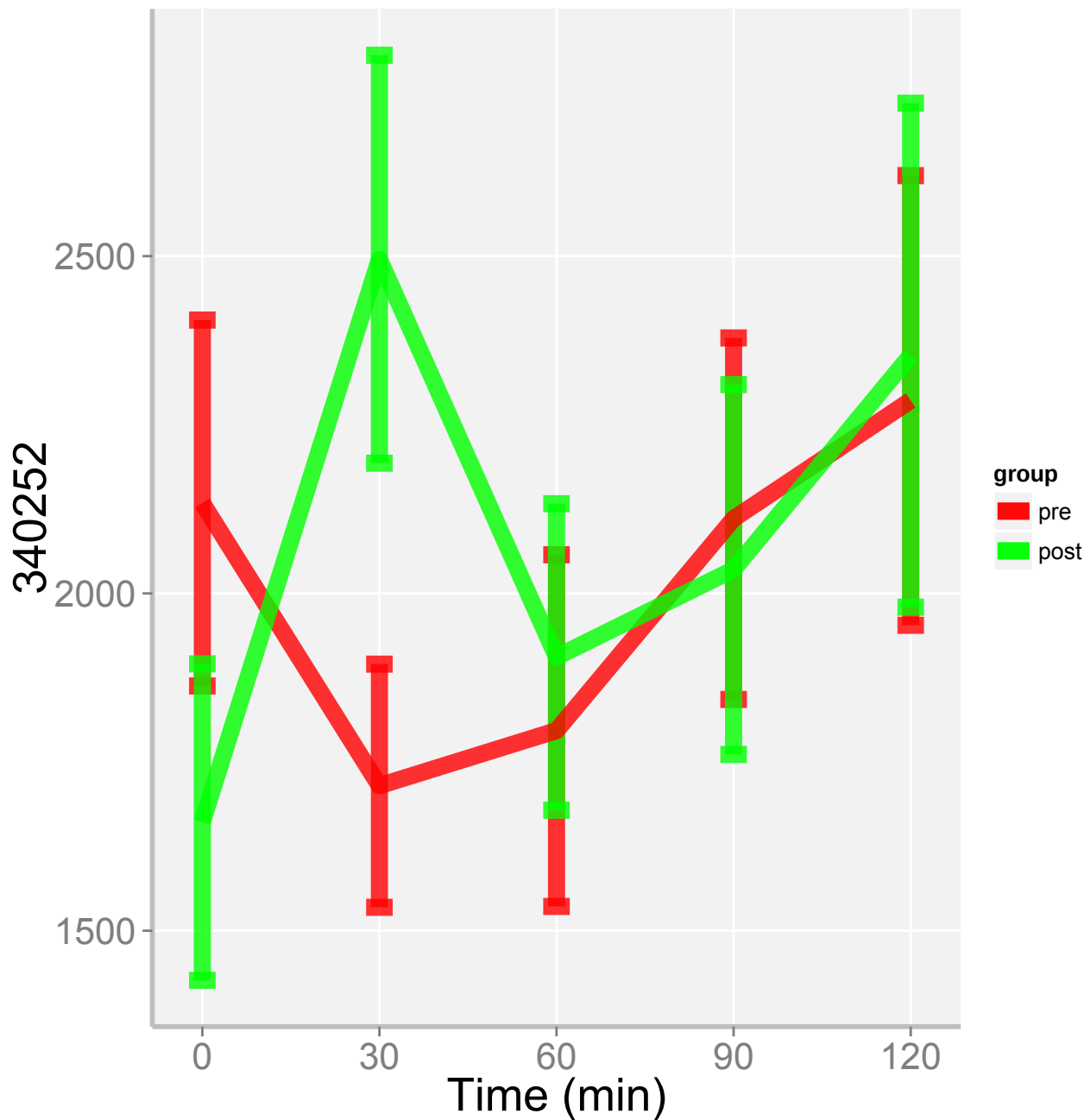


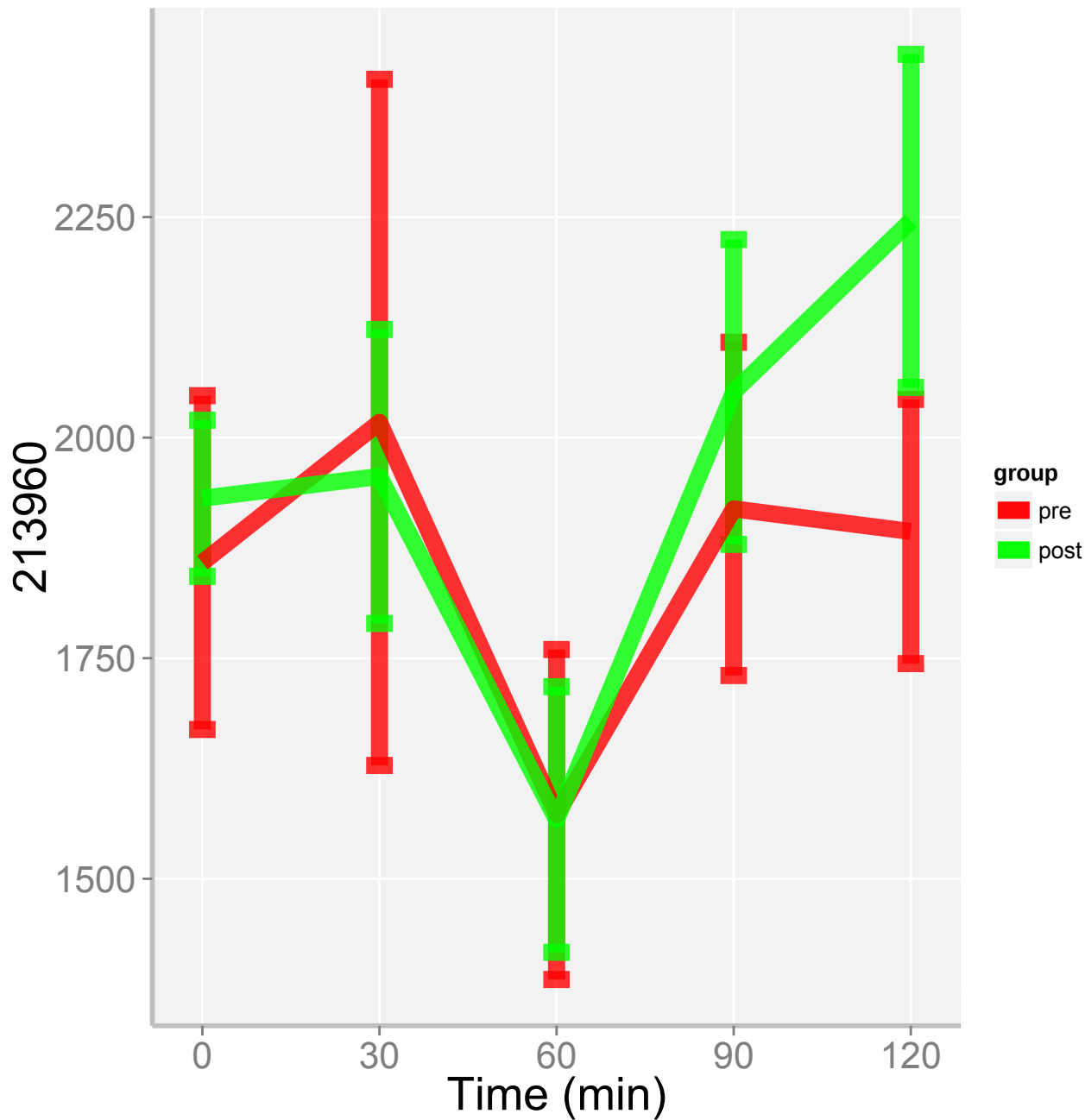


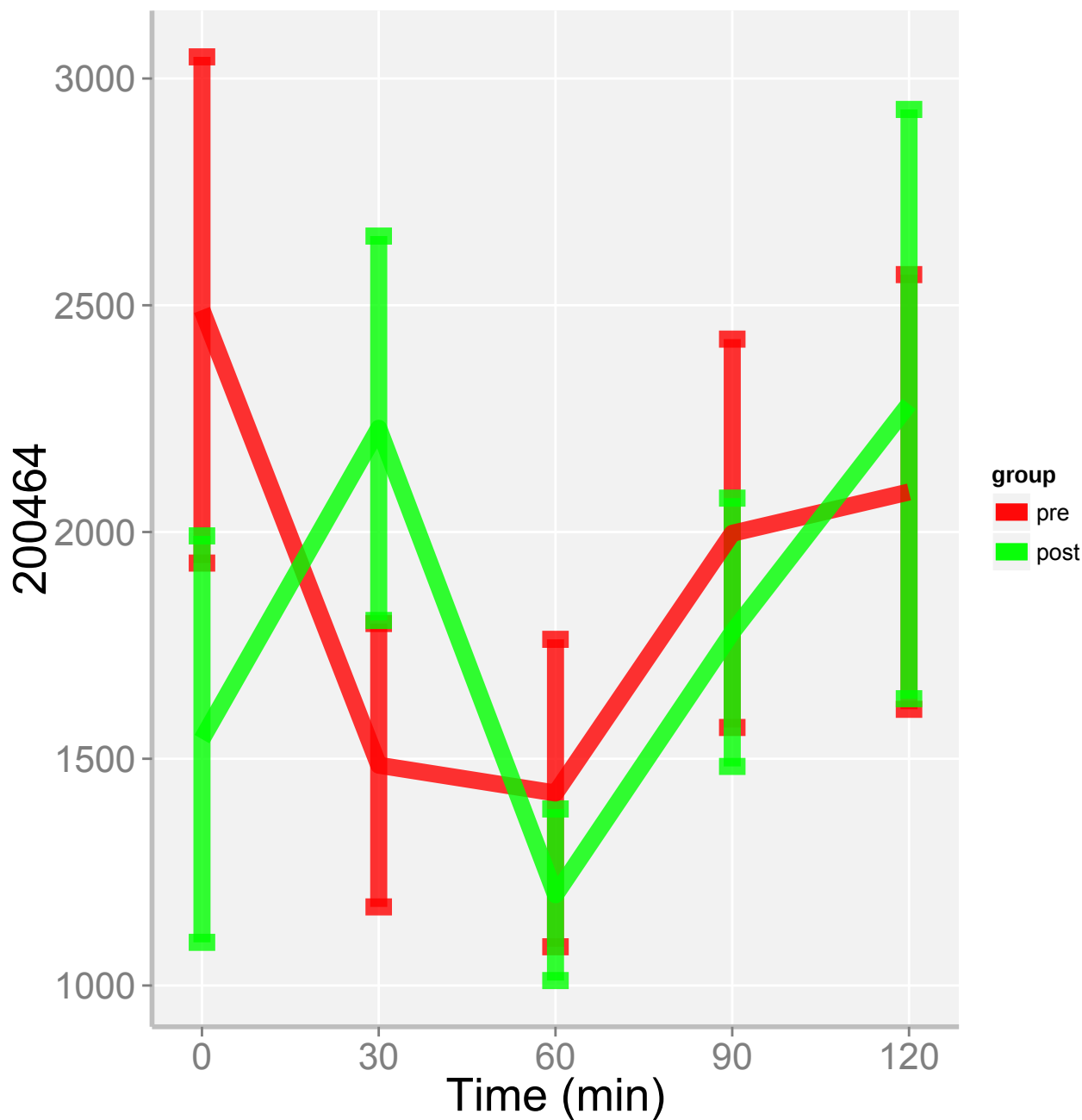


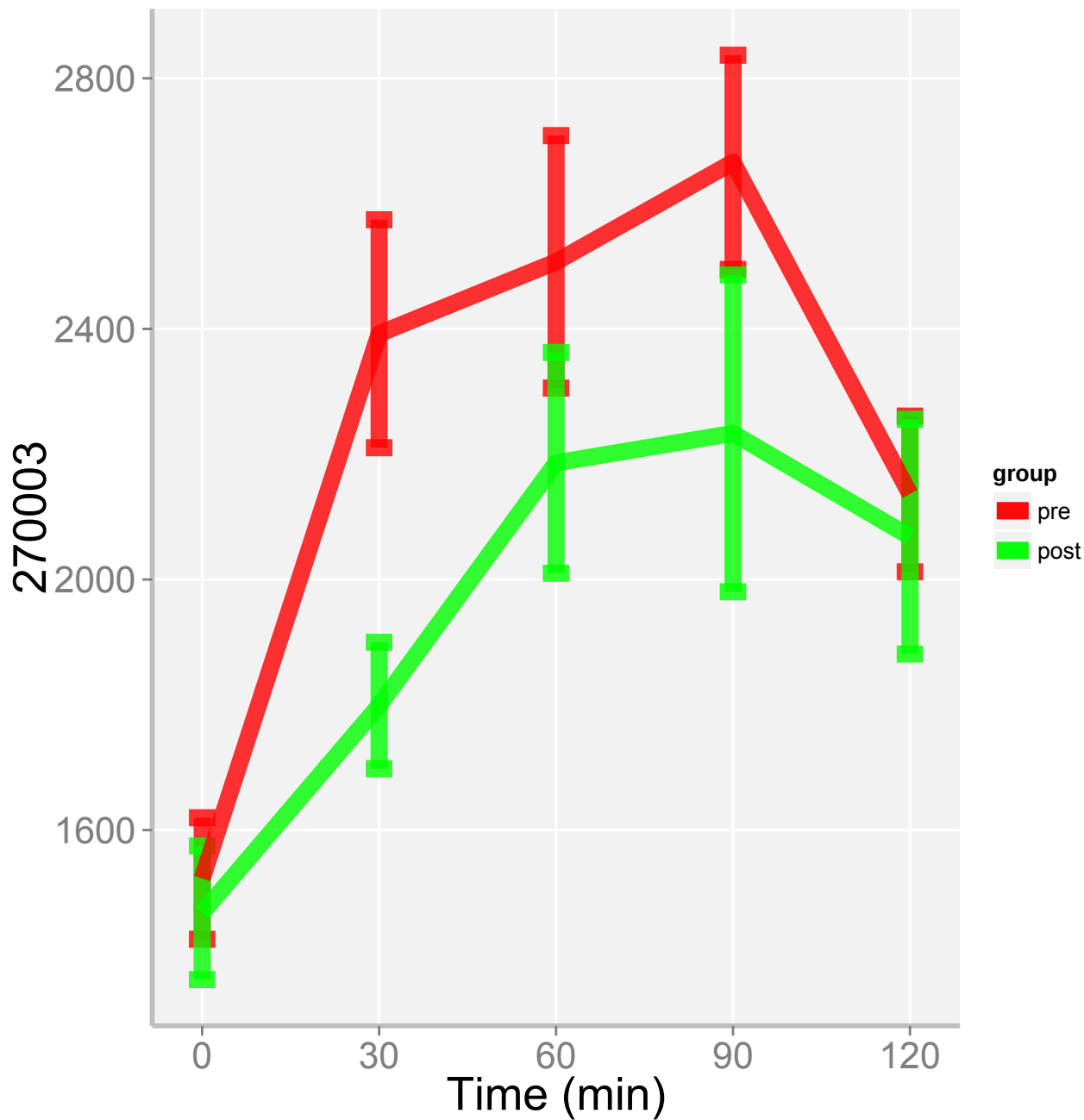


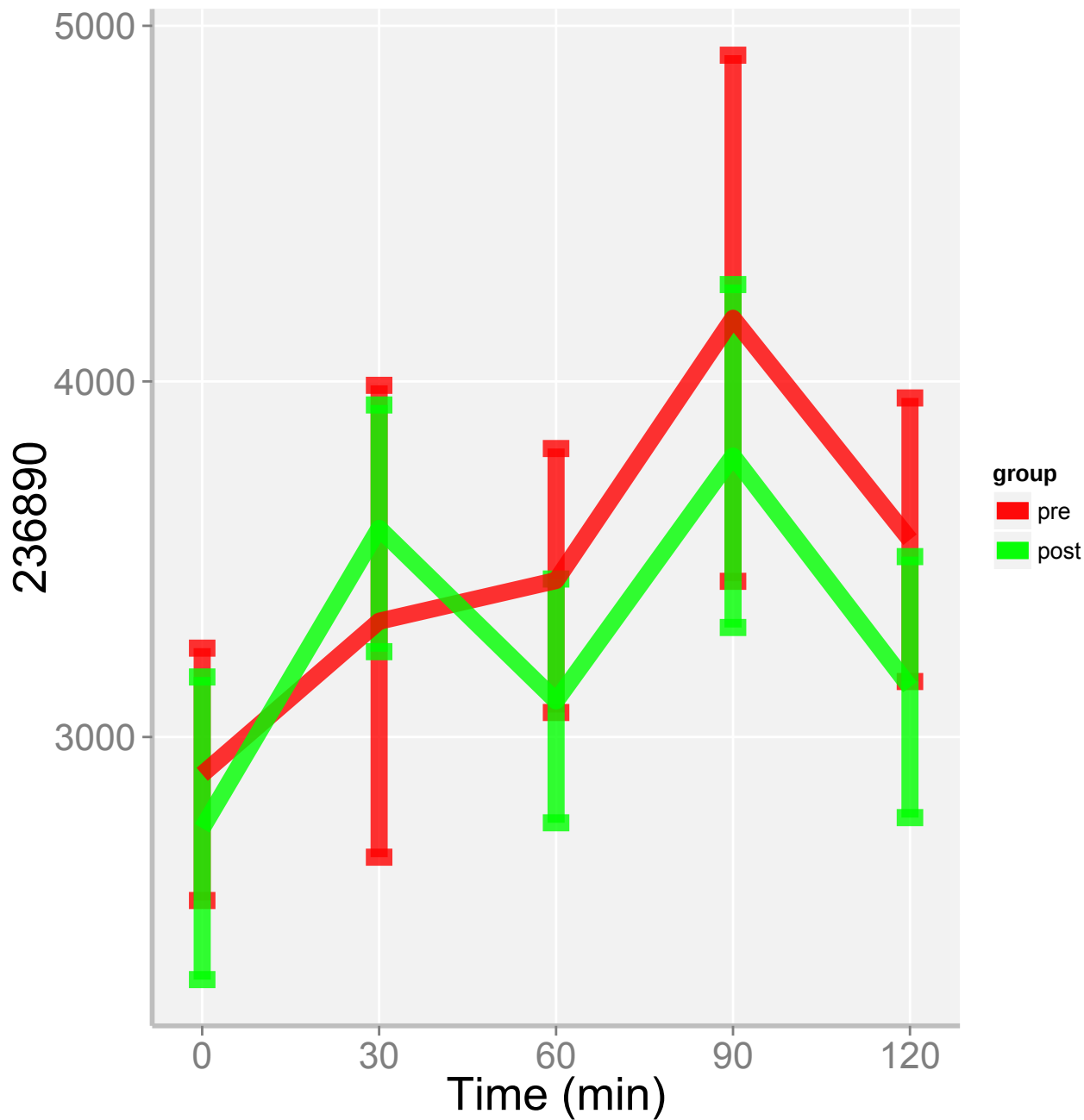


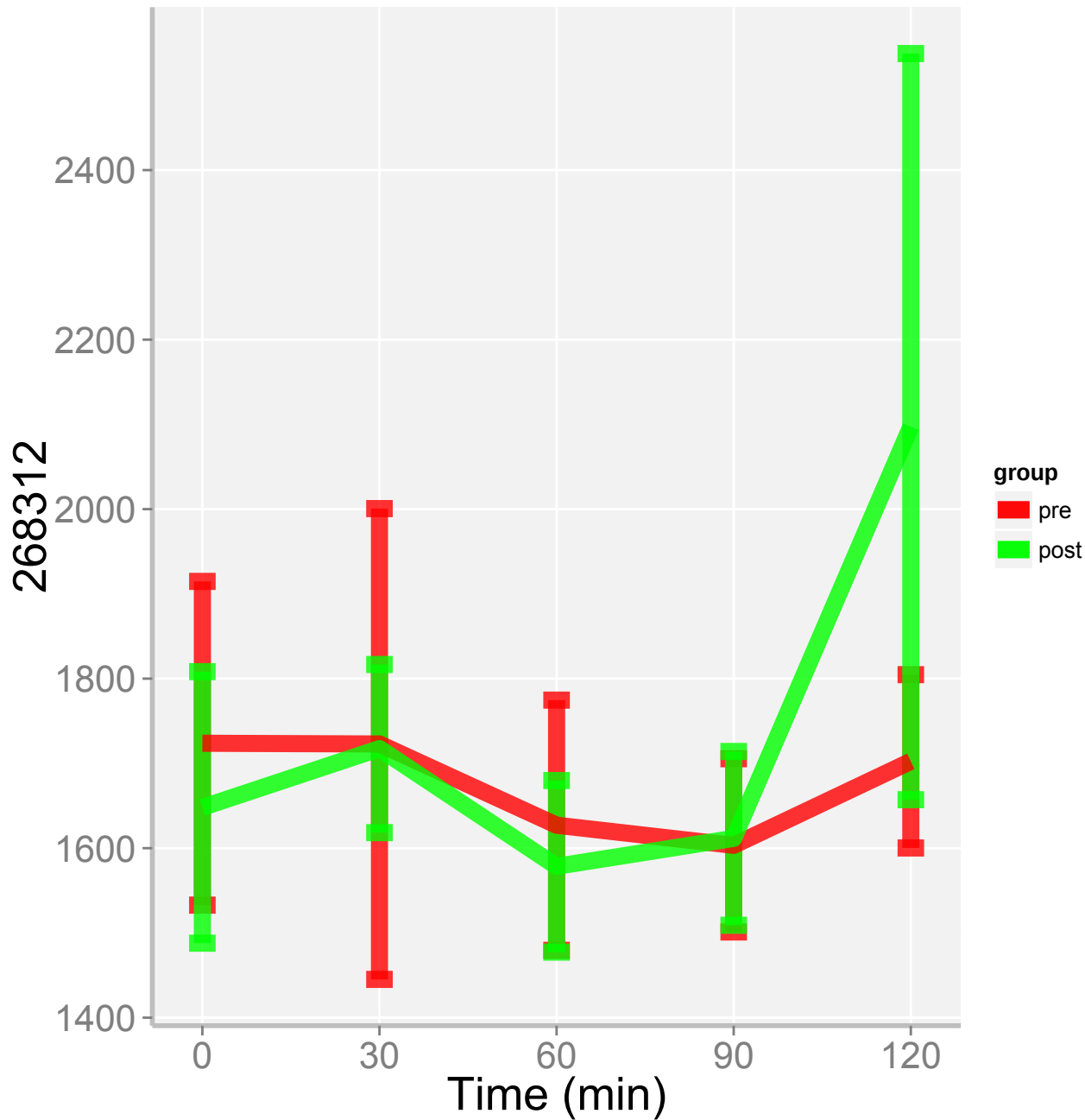


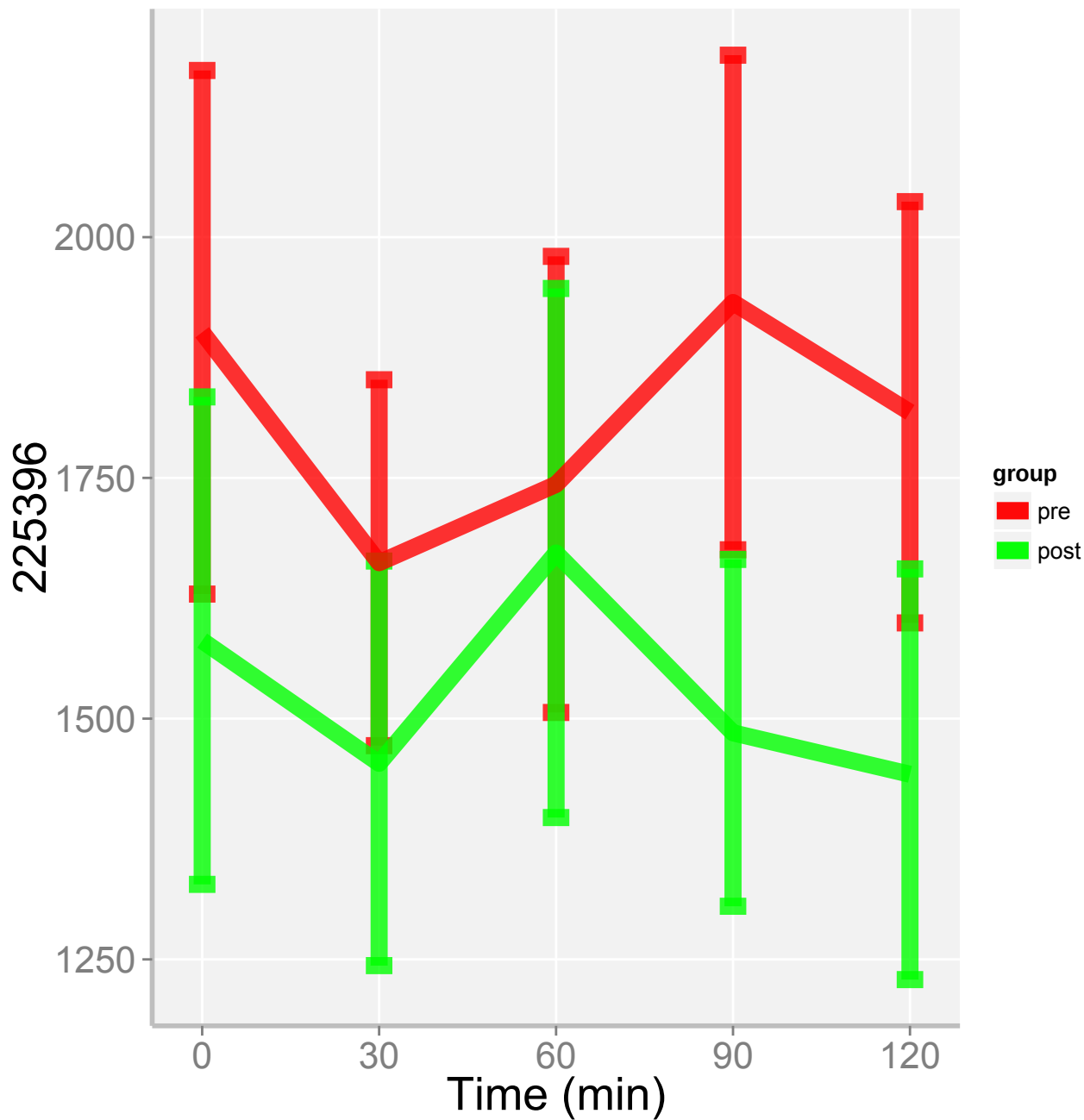


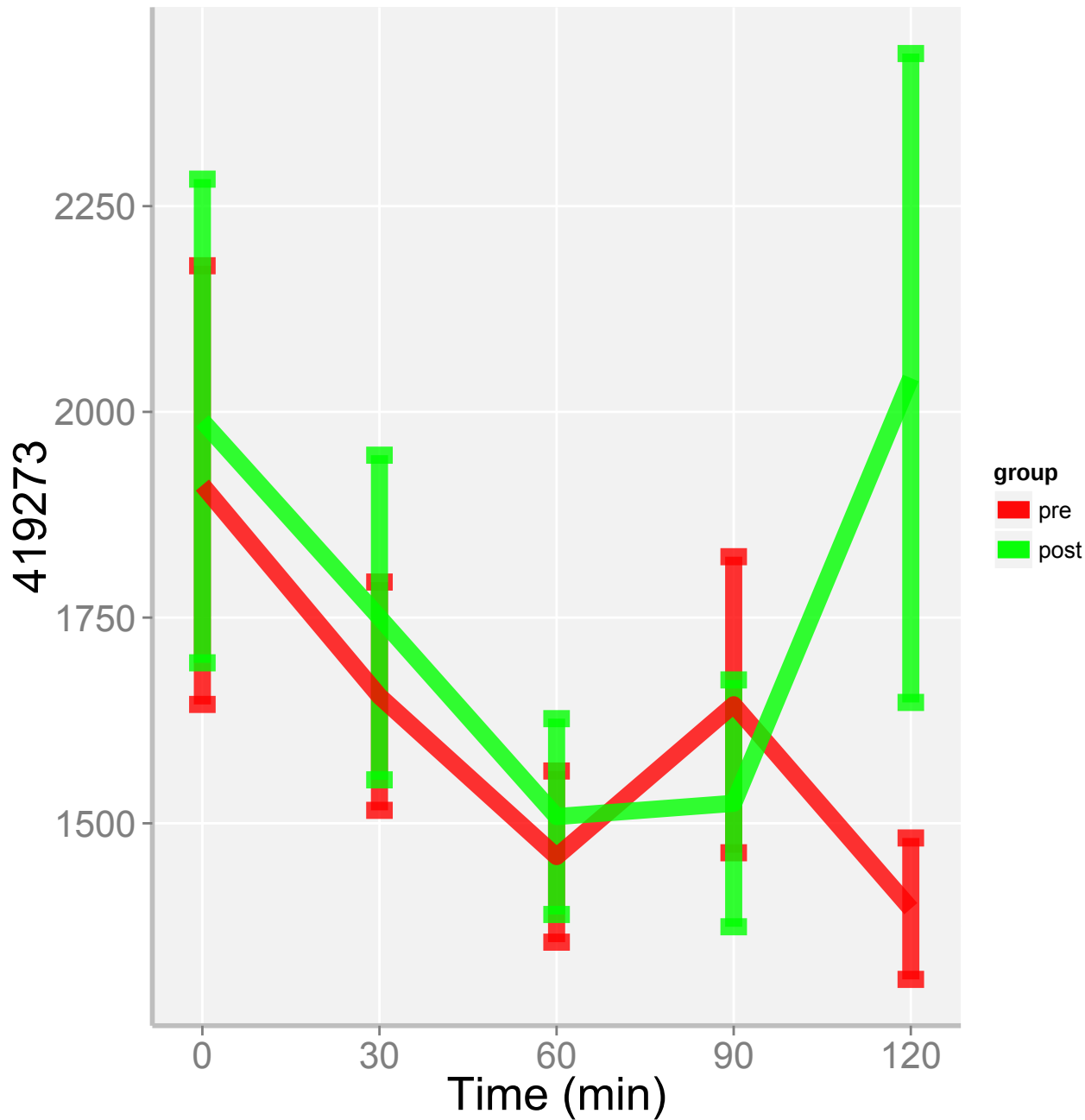


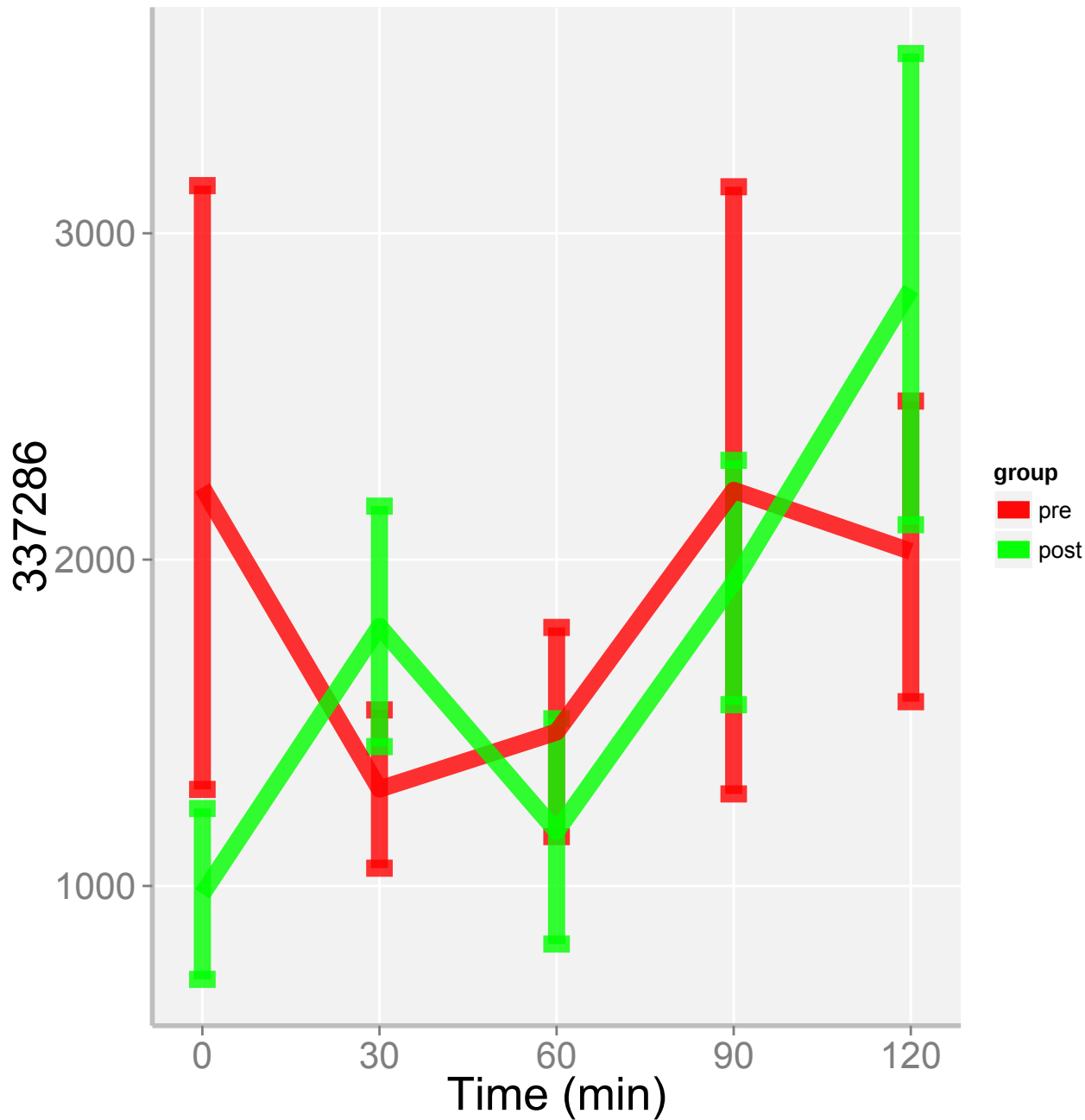


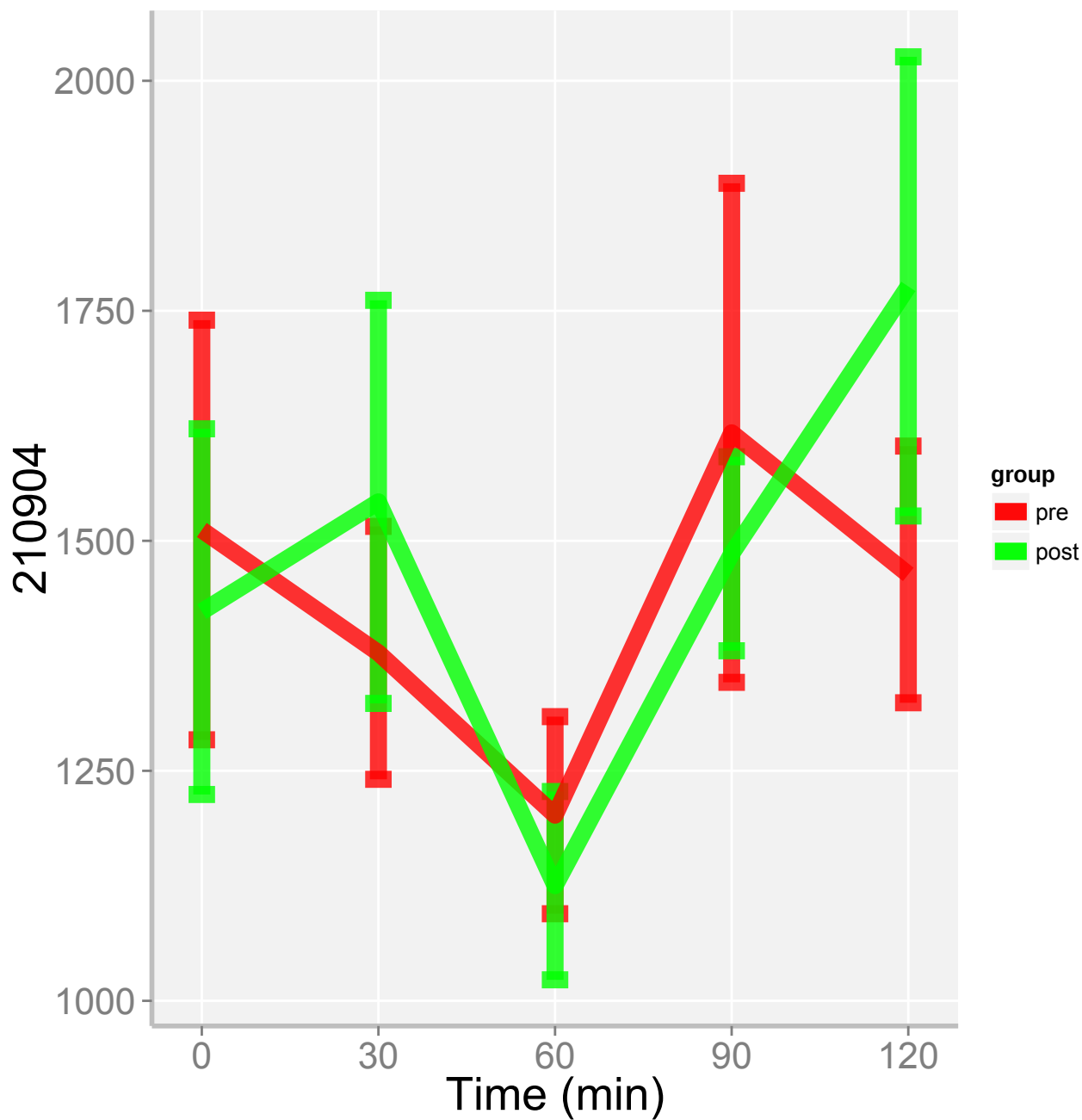












199177

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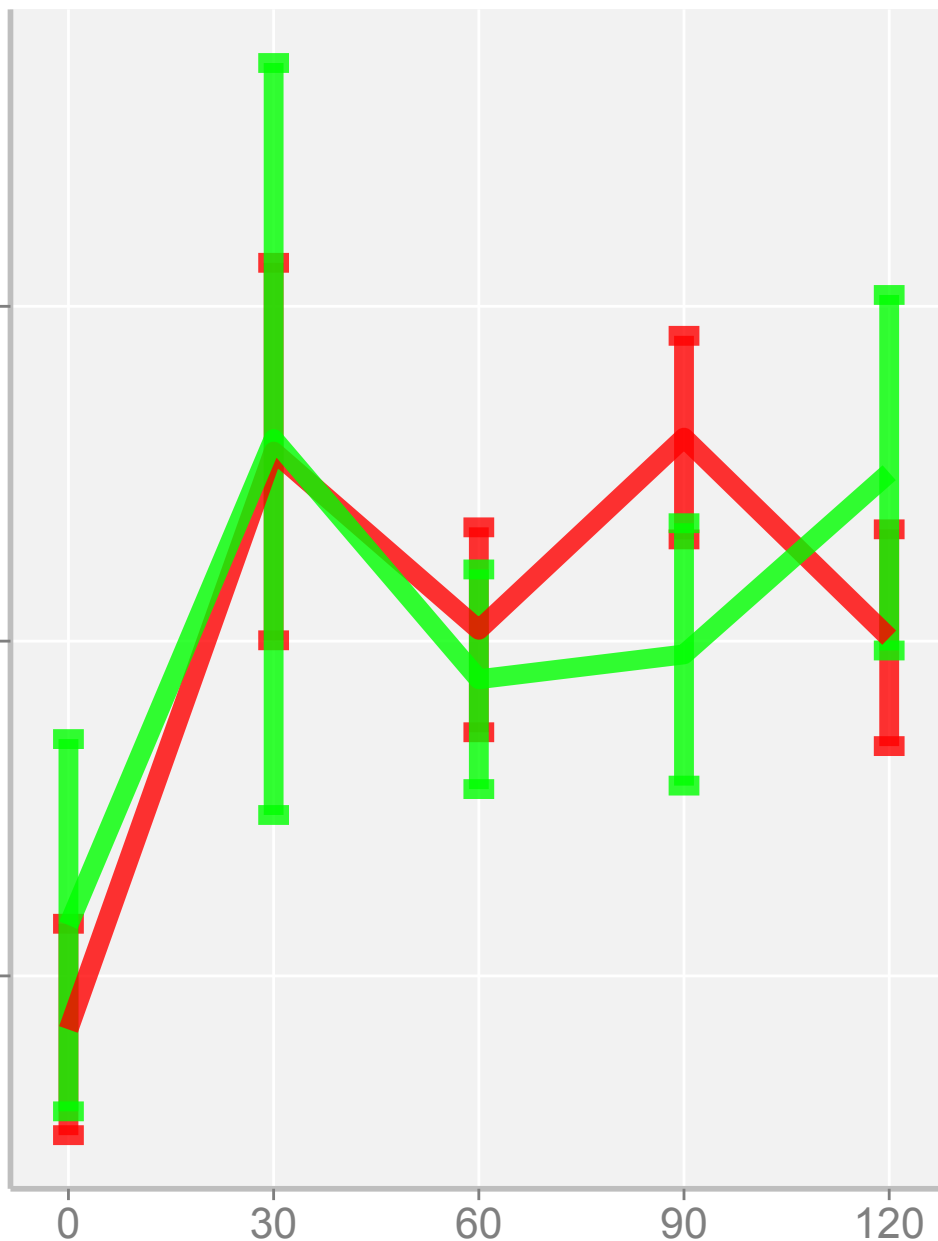
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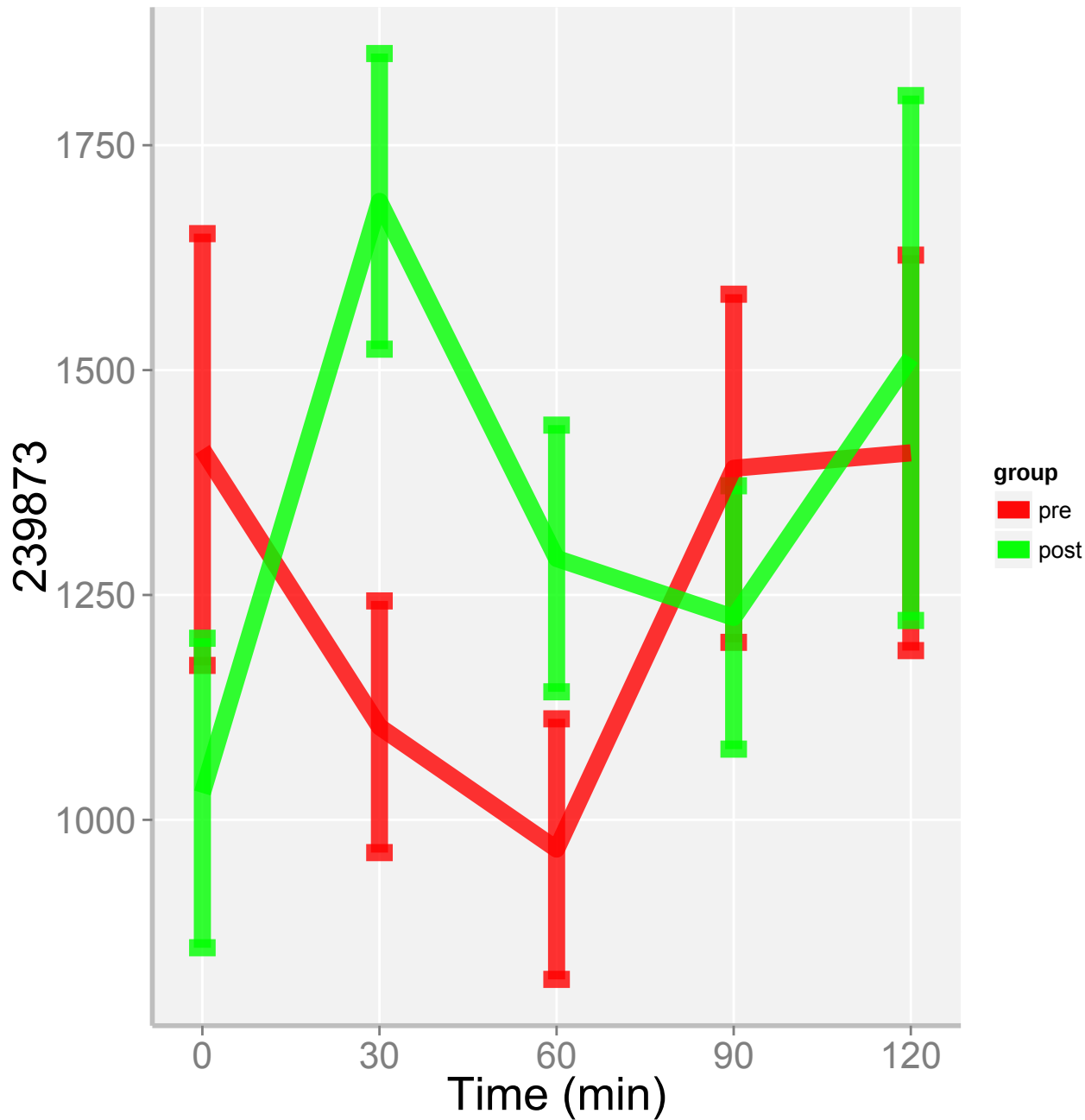
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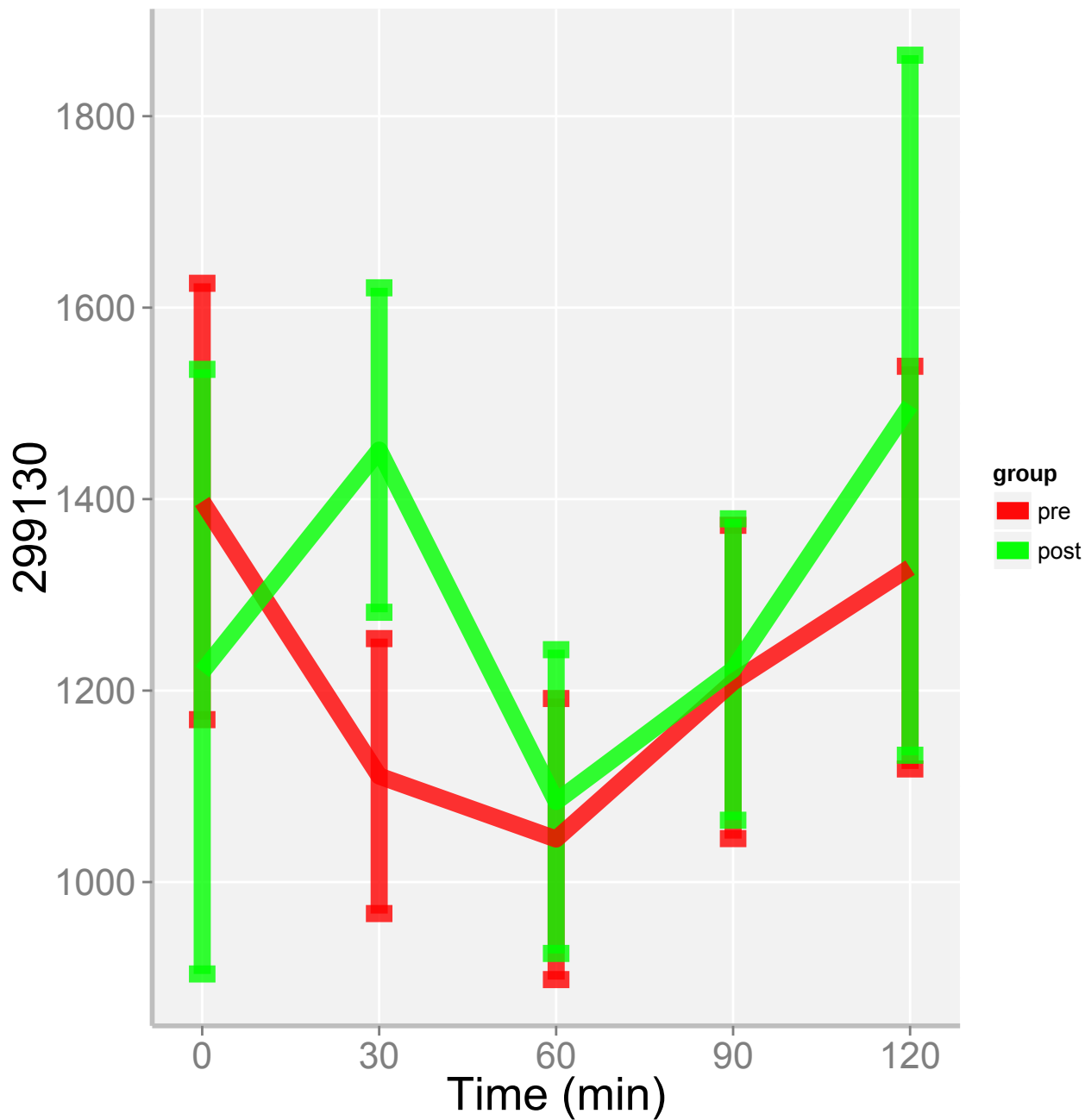
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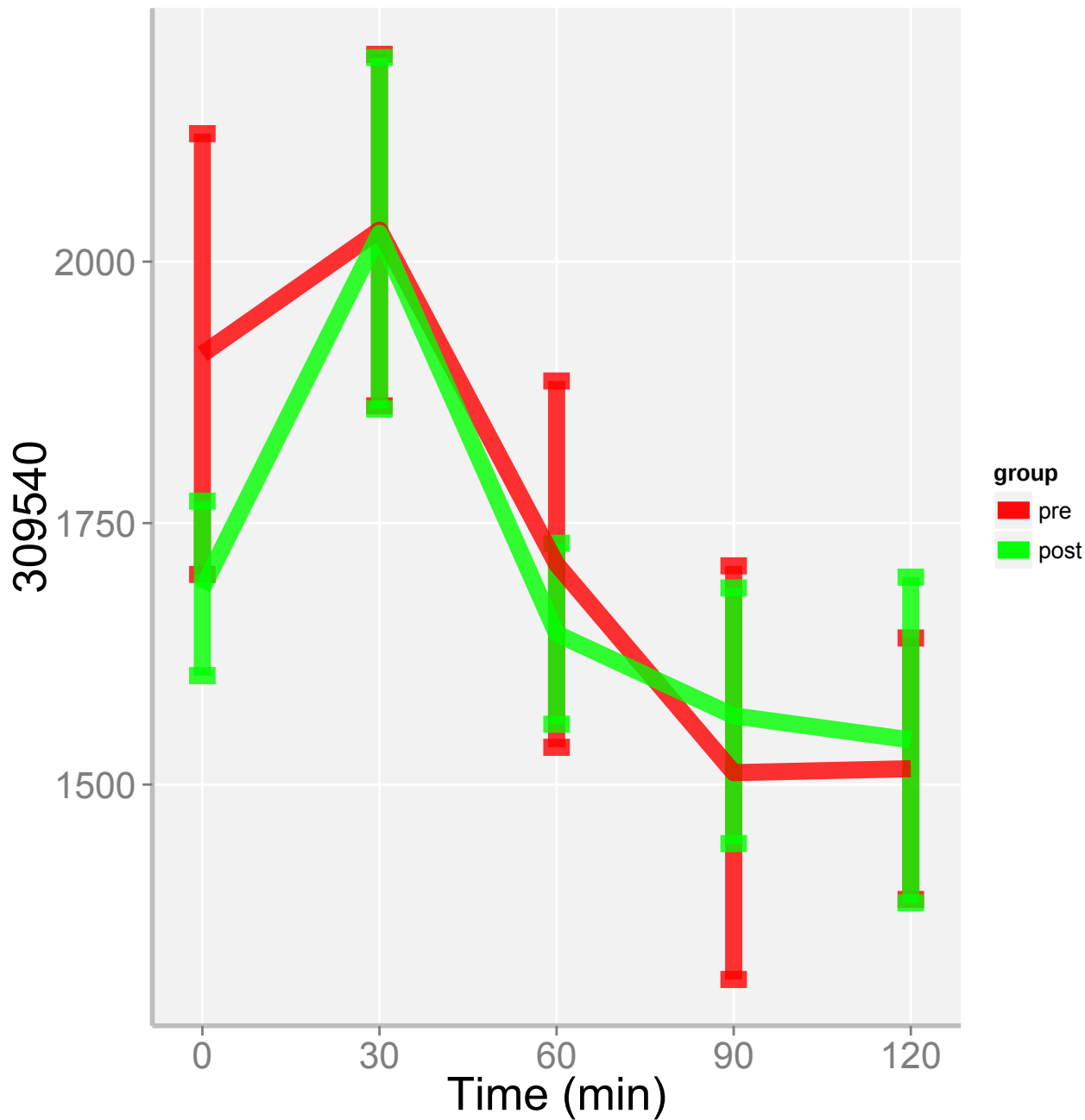
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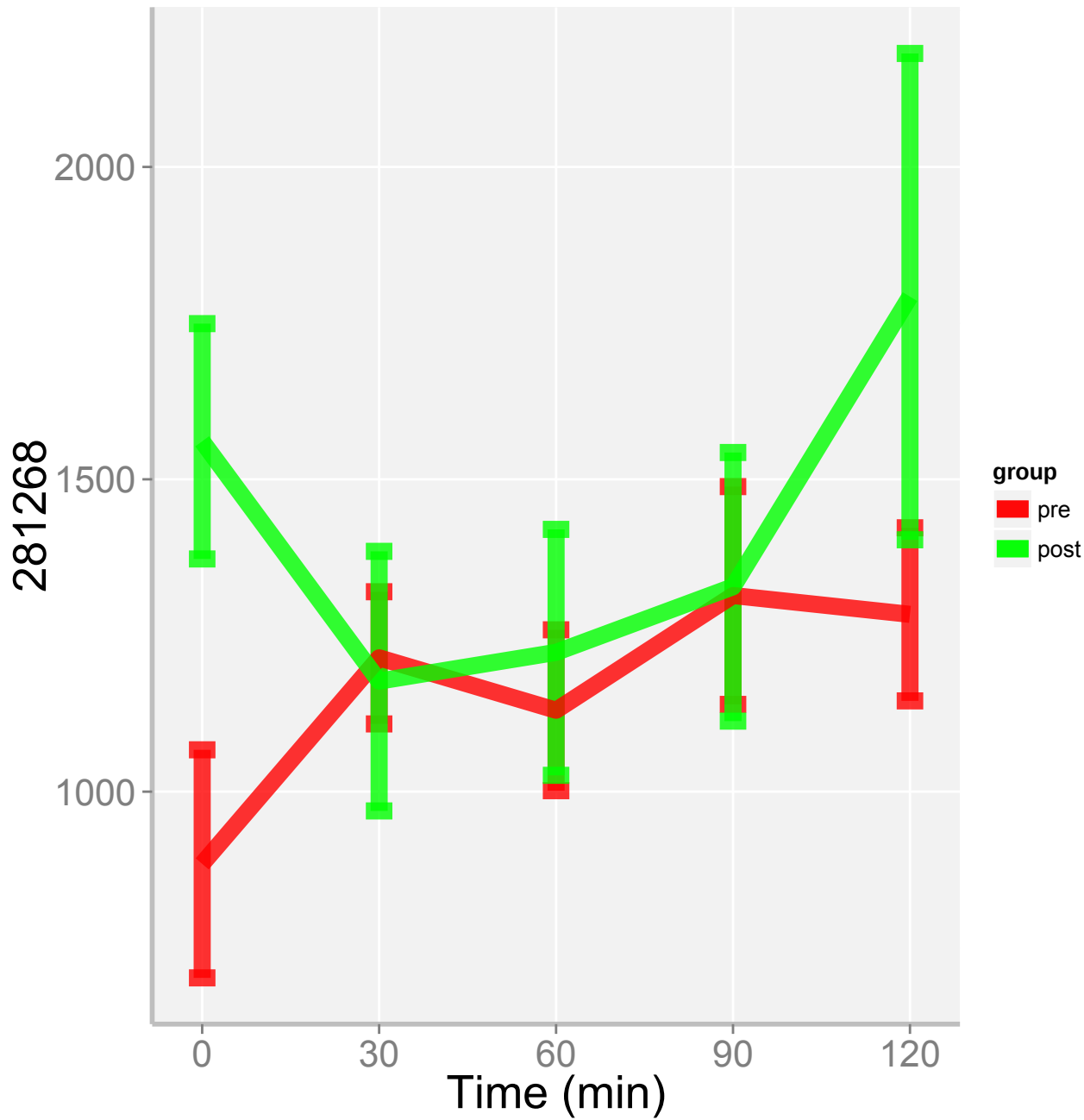
group
pre
post

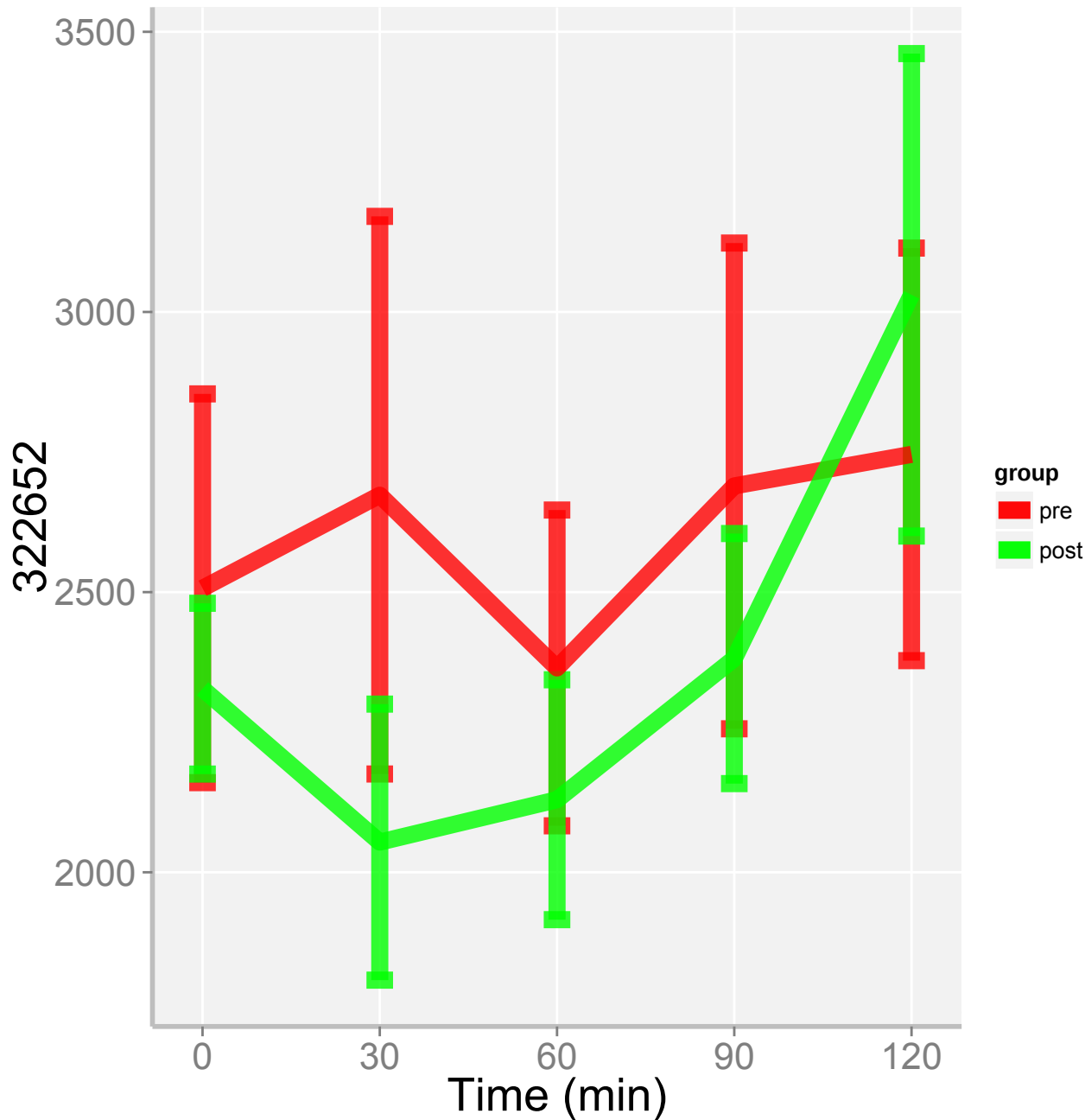


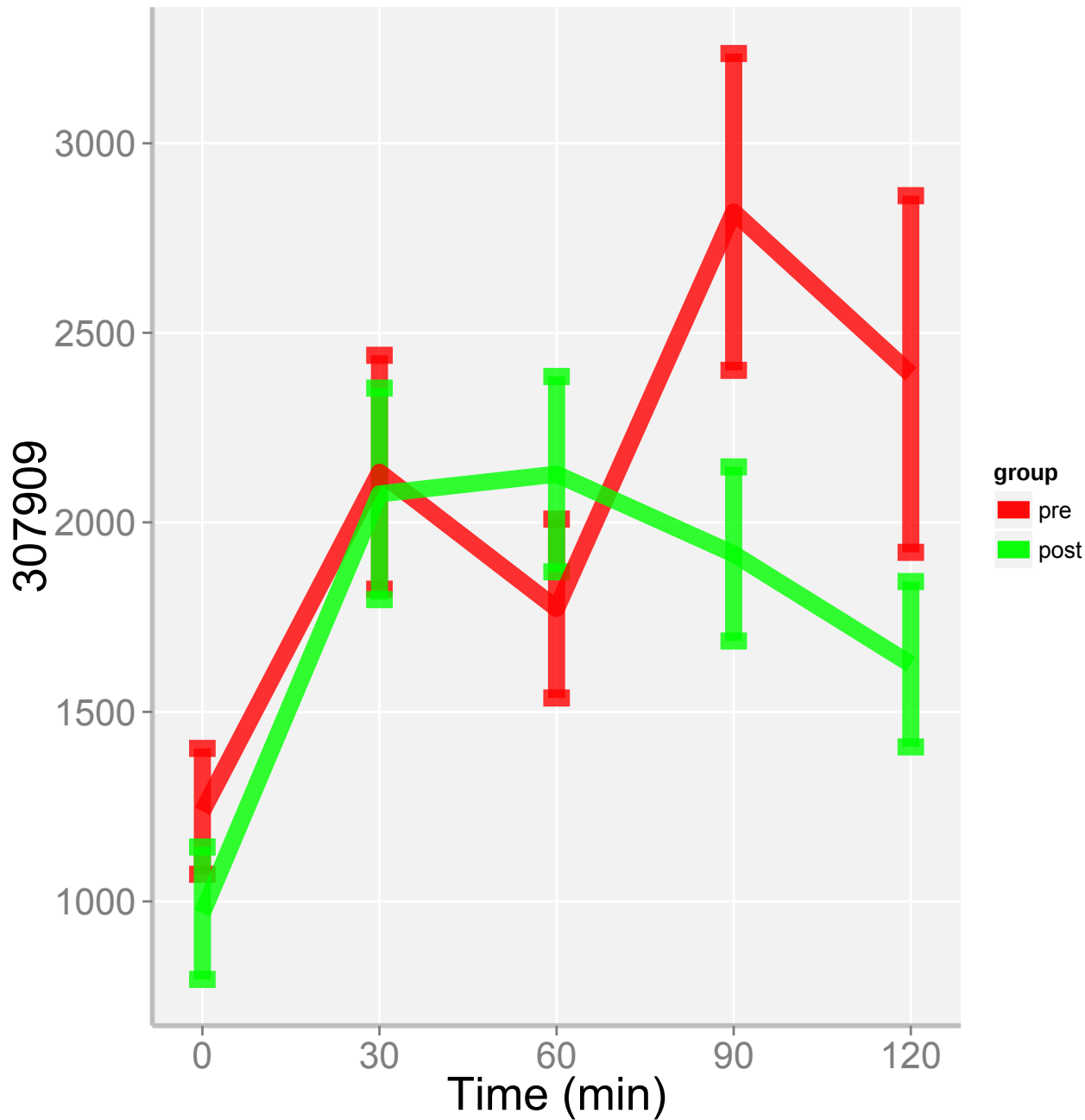


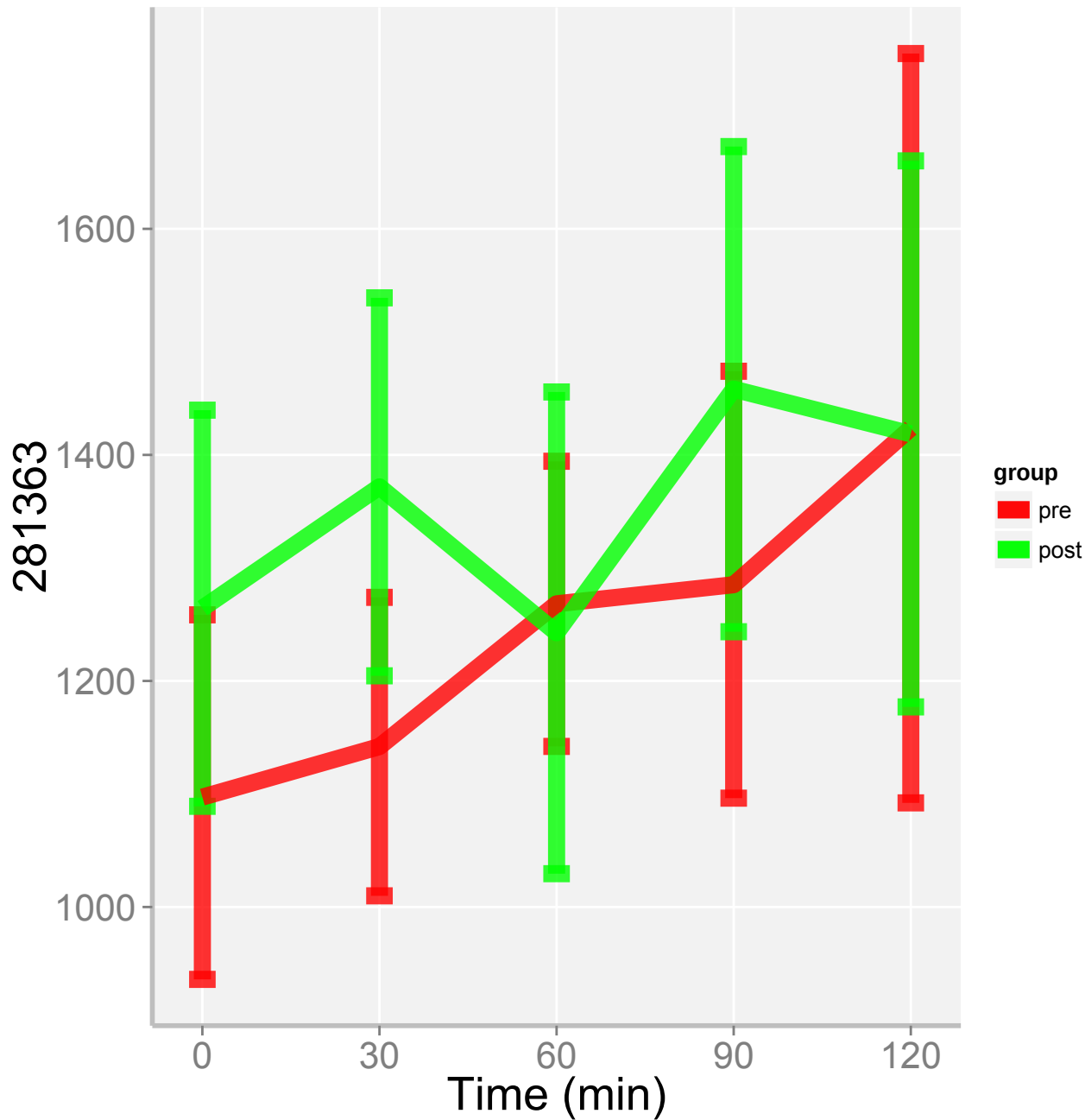




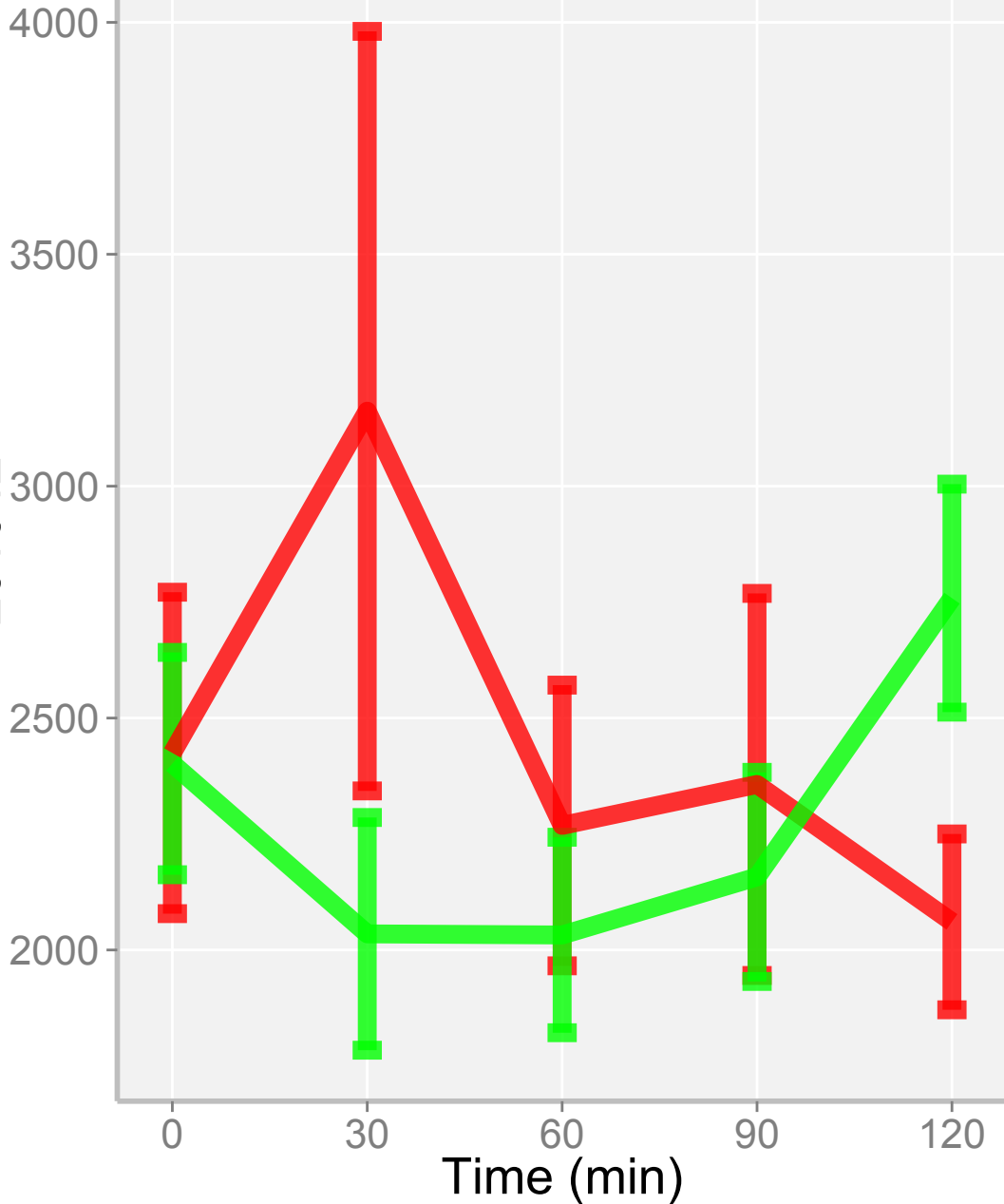


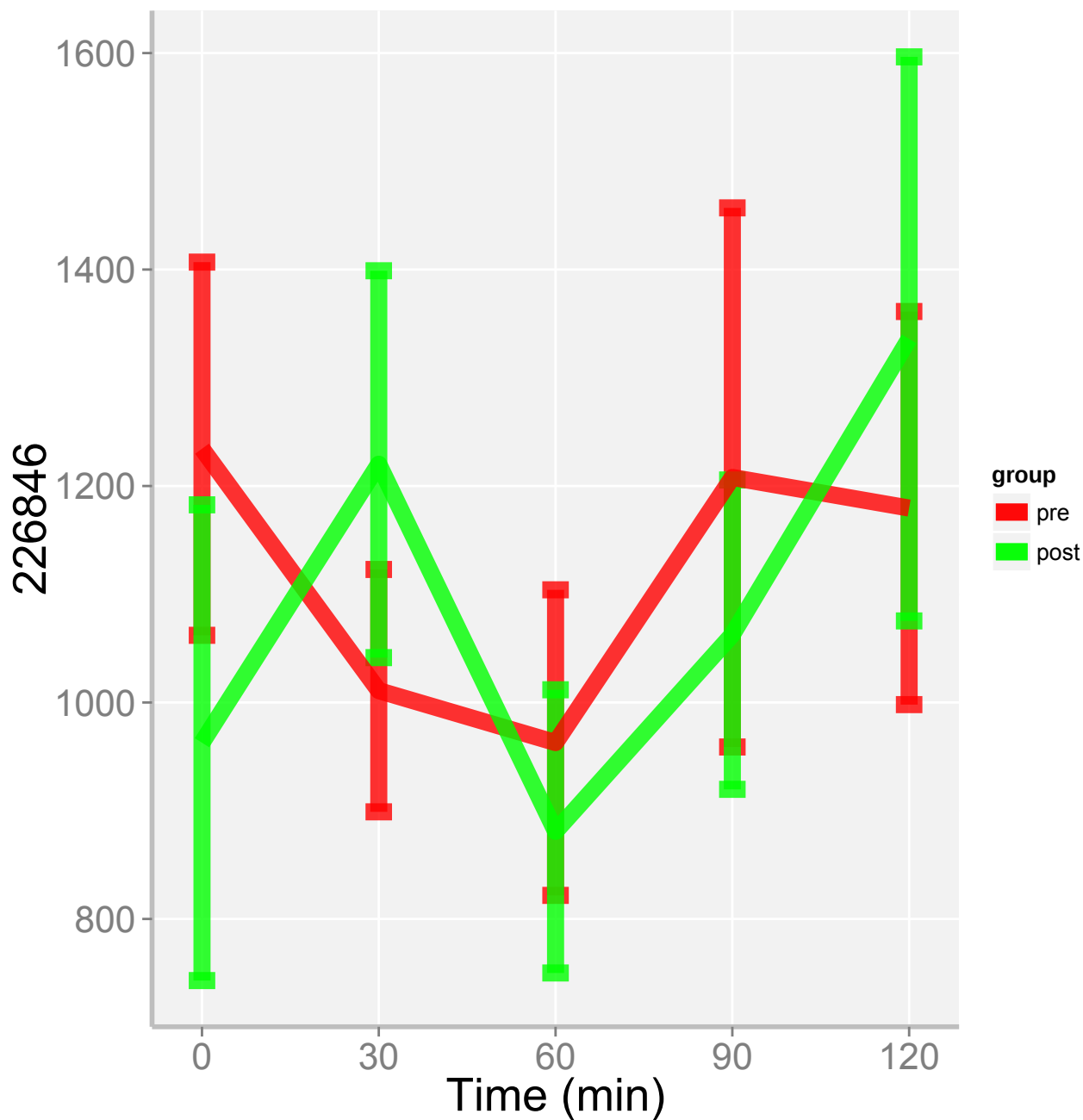






201042





223973

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1000

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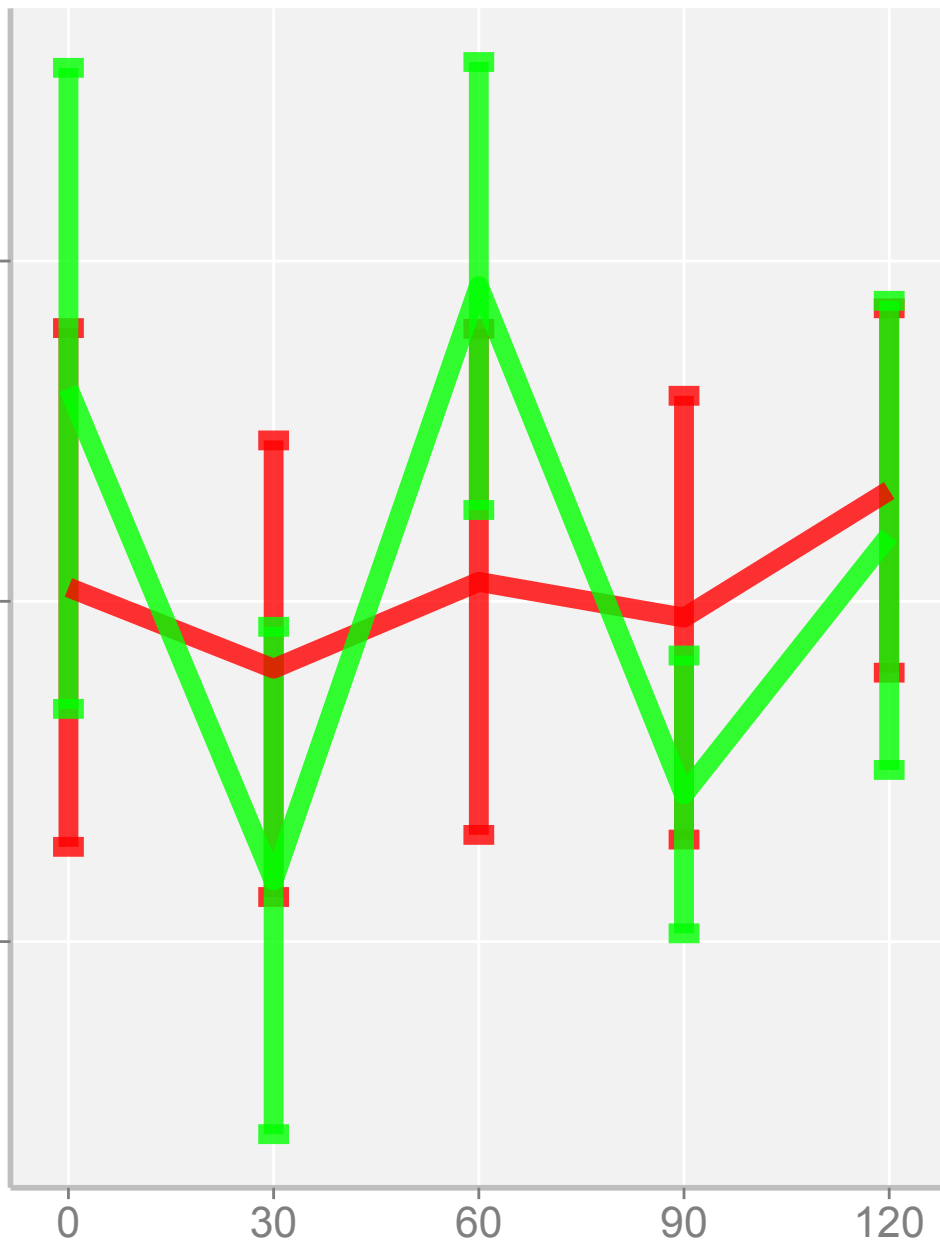
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90

120

Time (min)

group
pre
post



281112

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2000
1500

0

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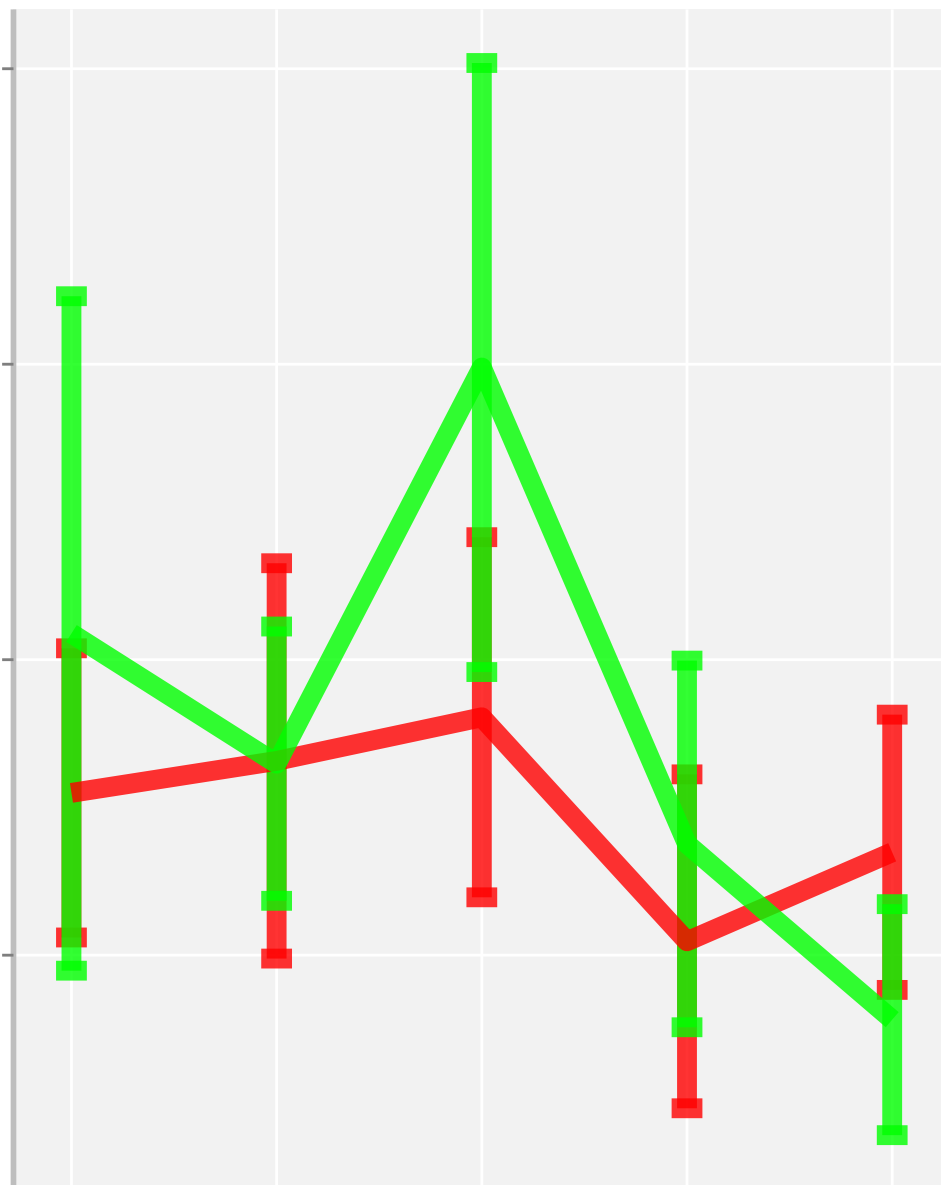
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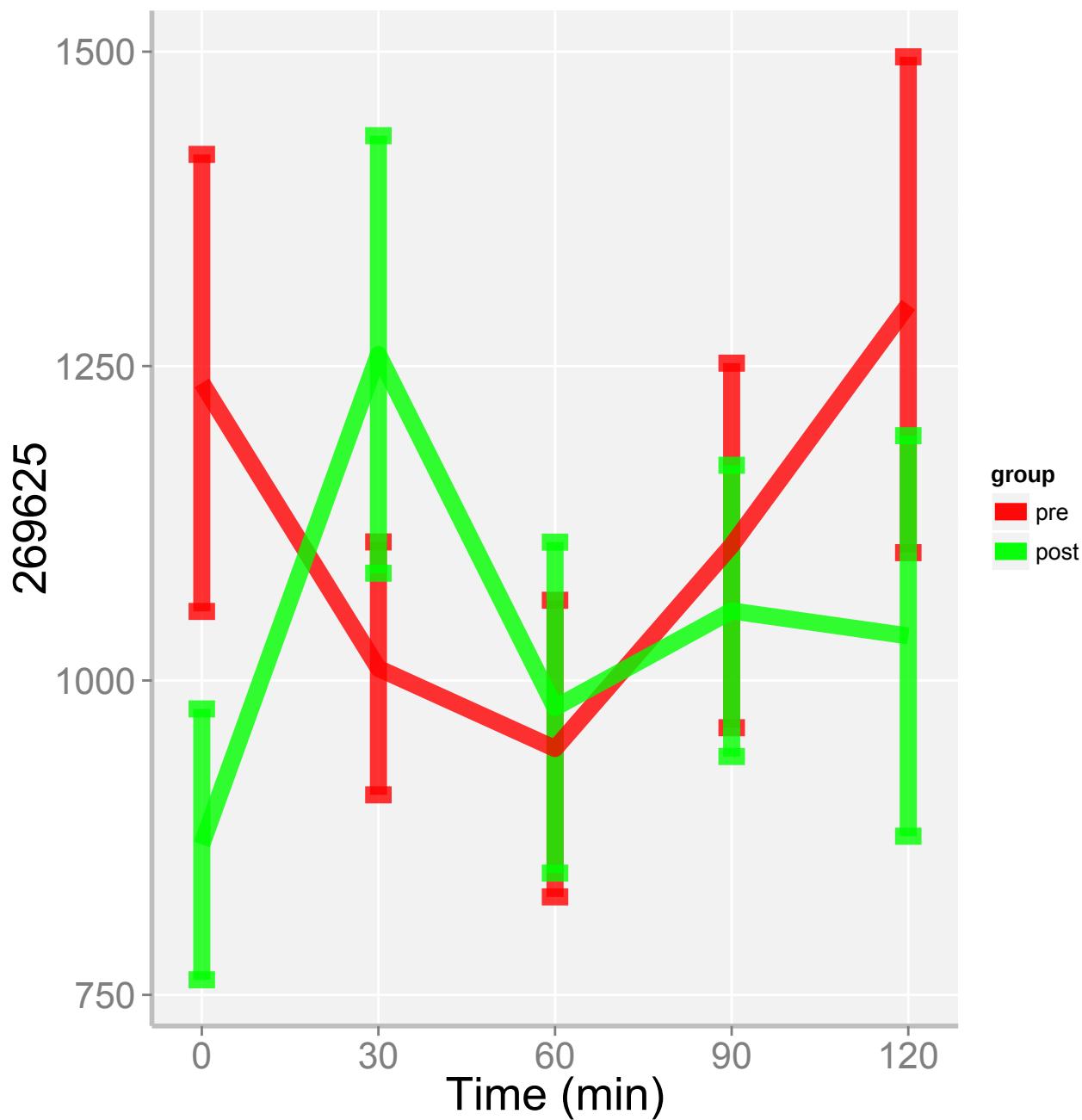
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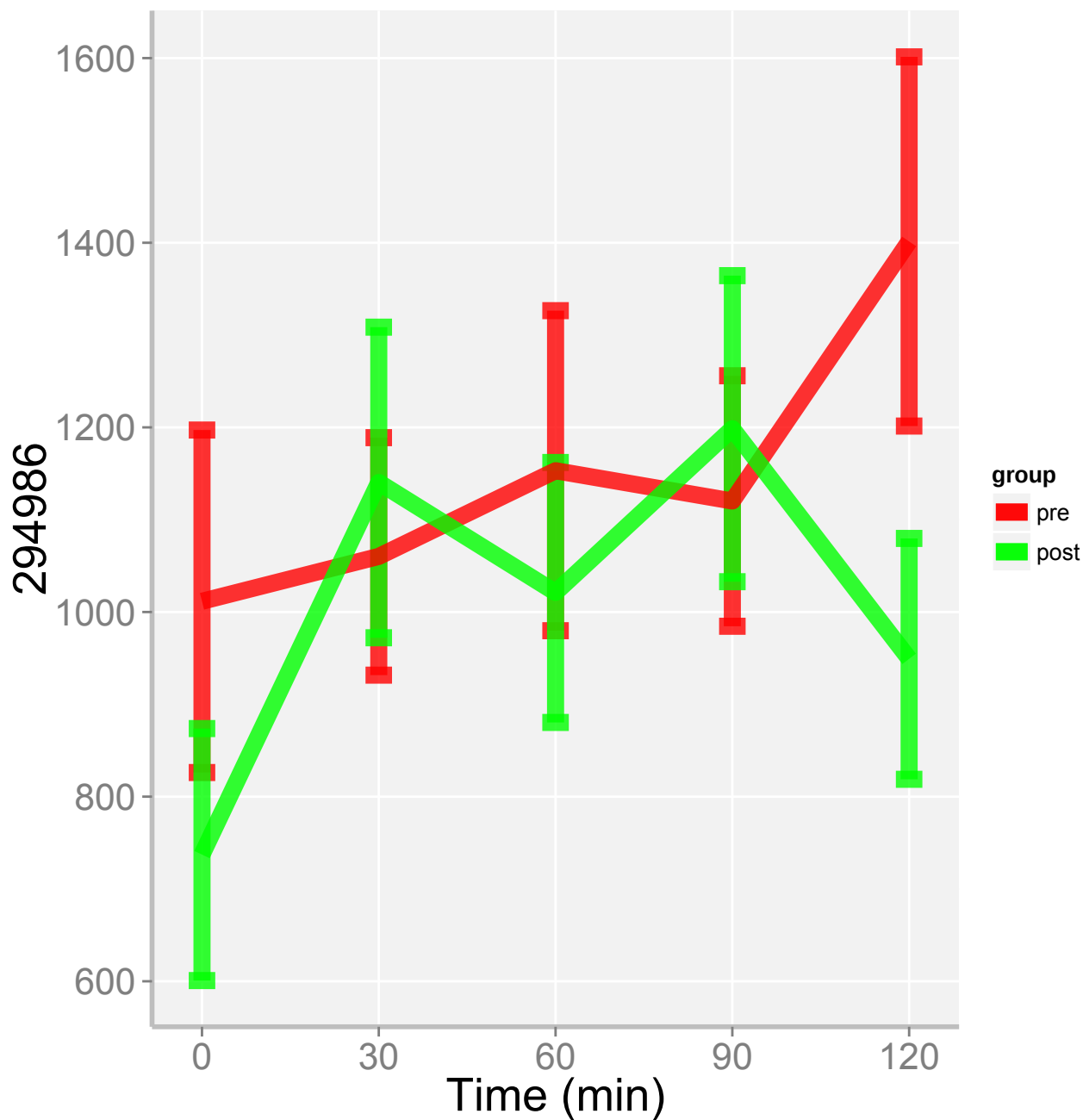
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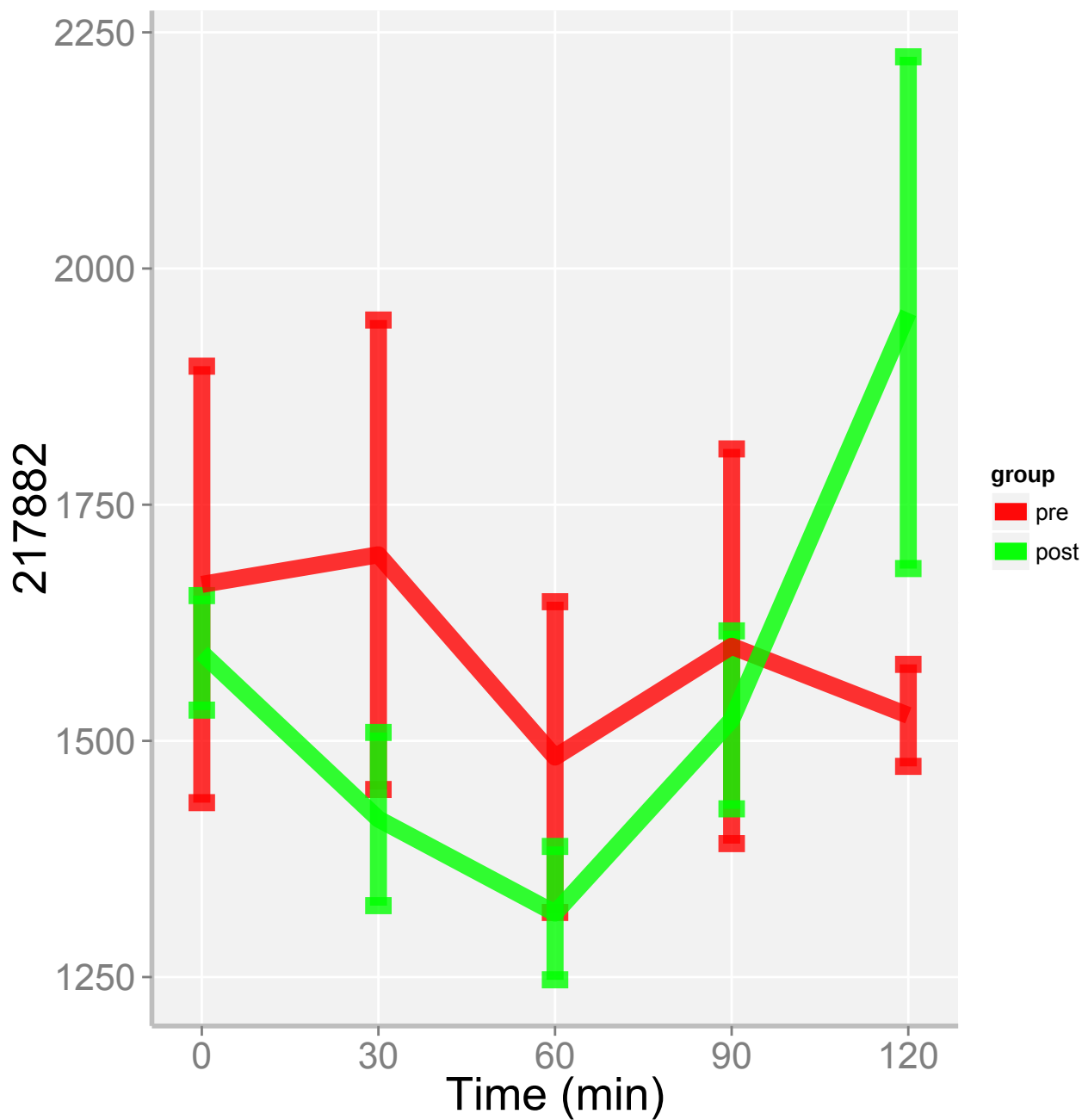
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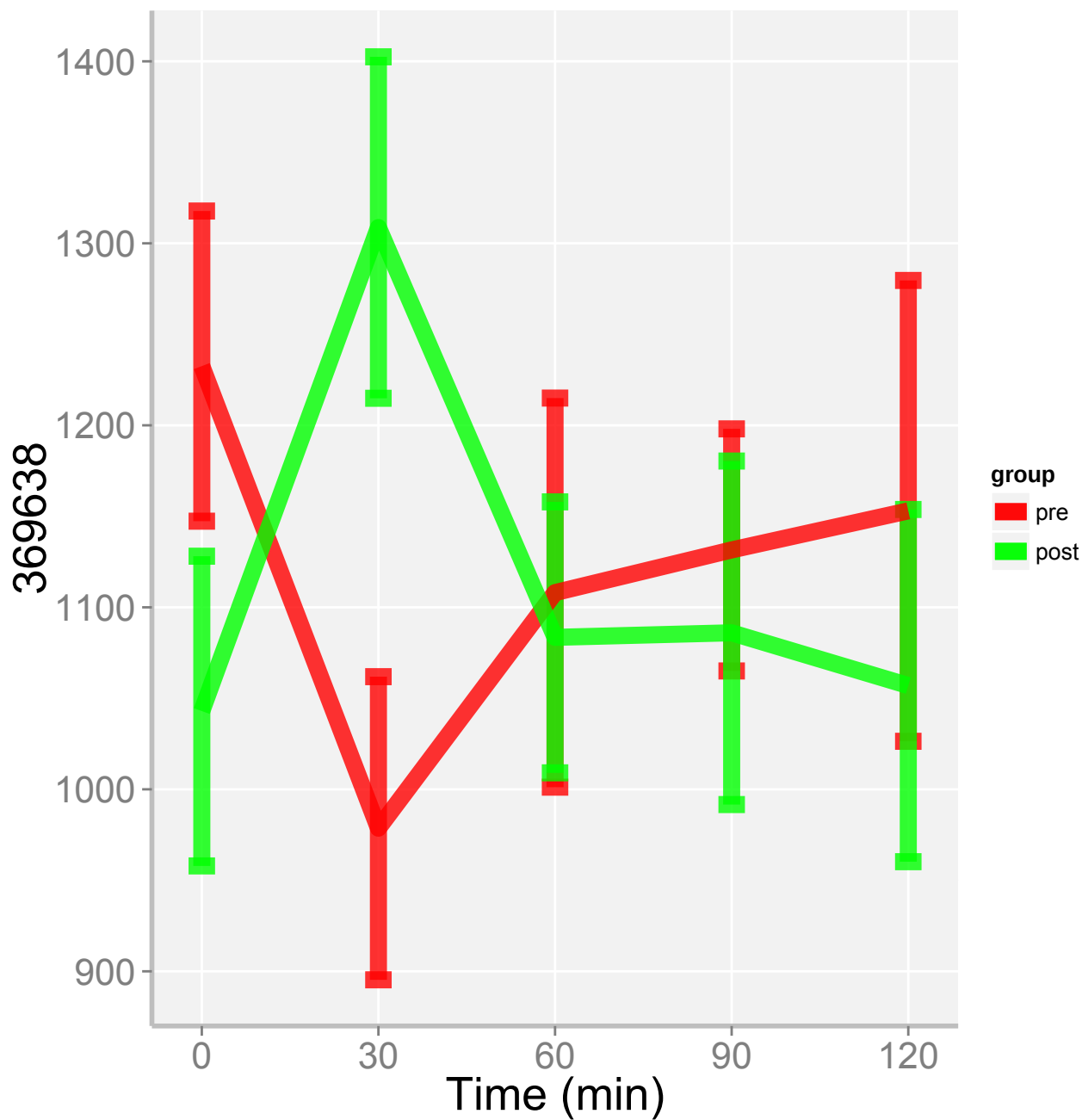
group
pre
post

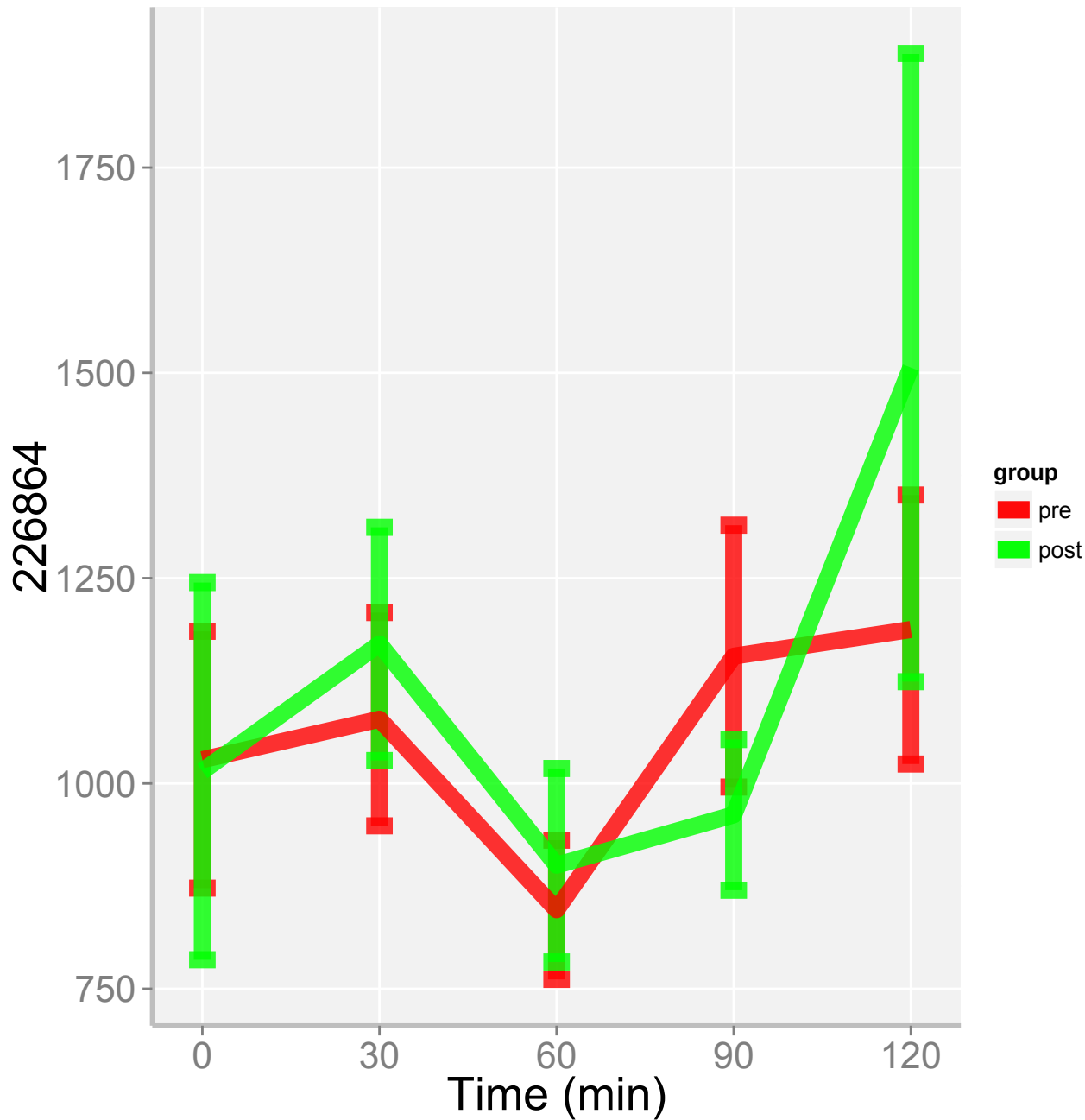


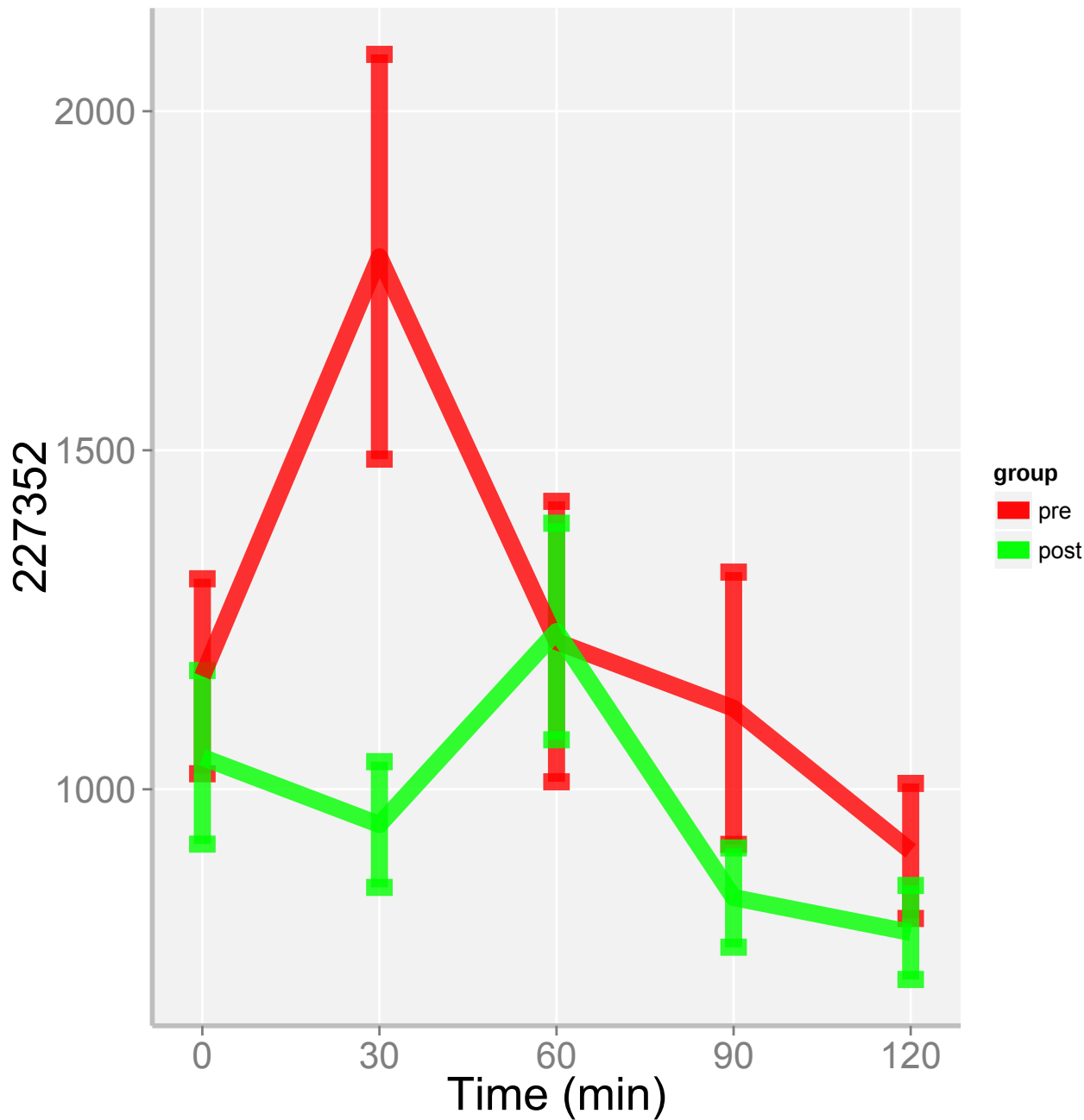


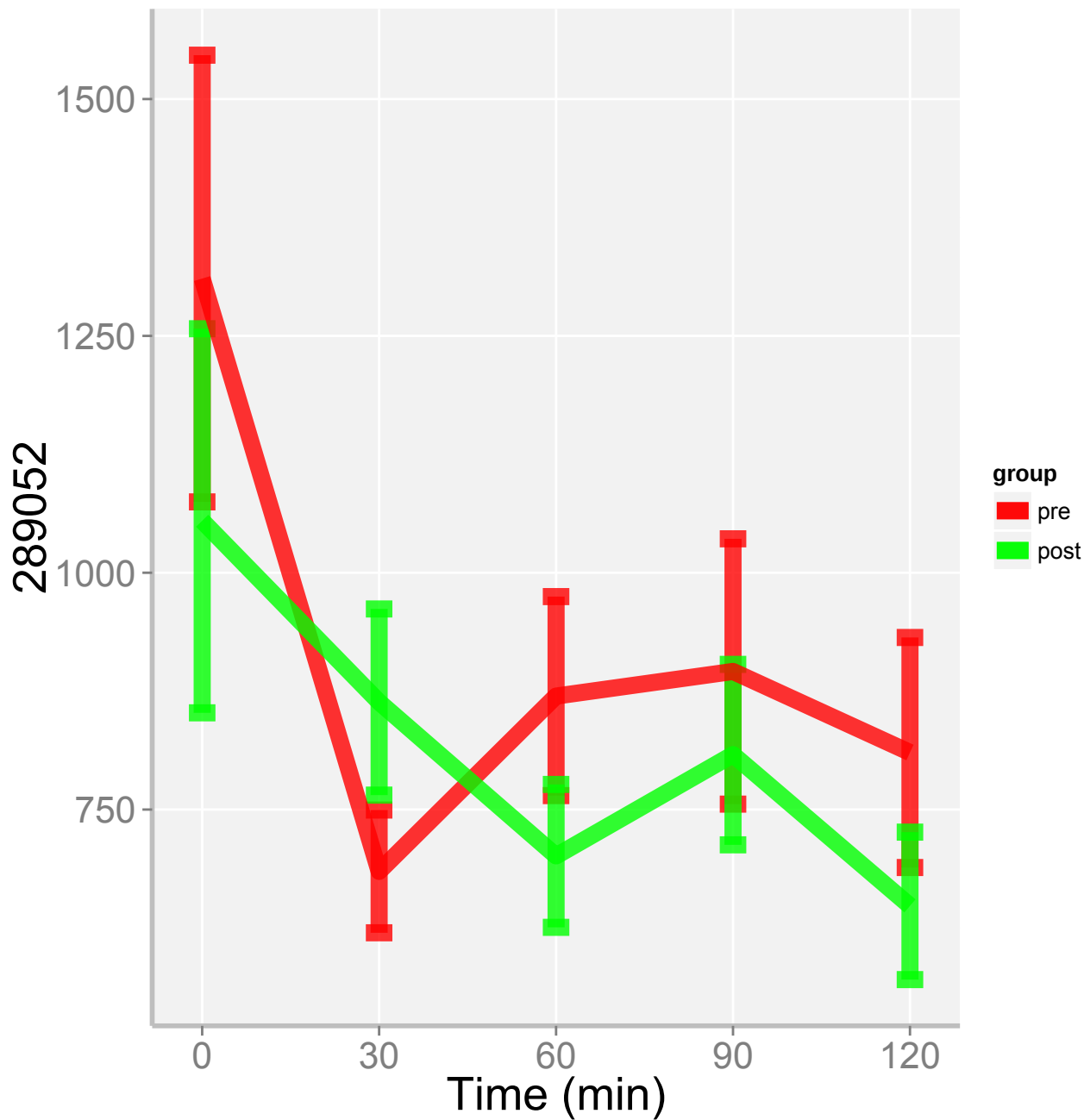












228147

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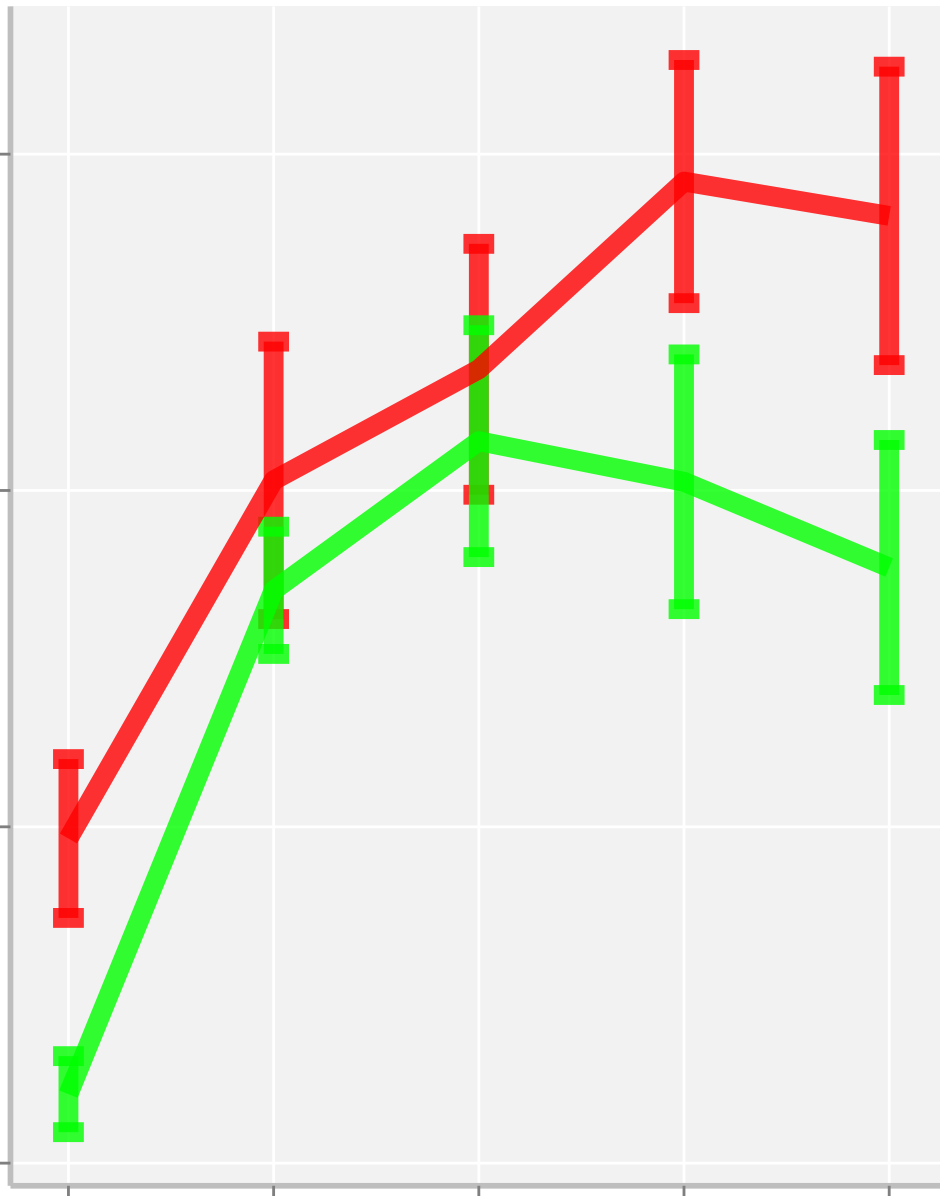
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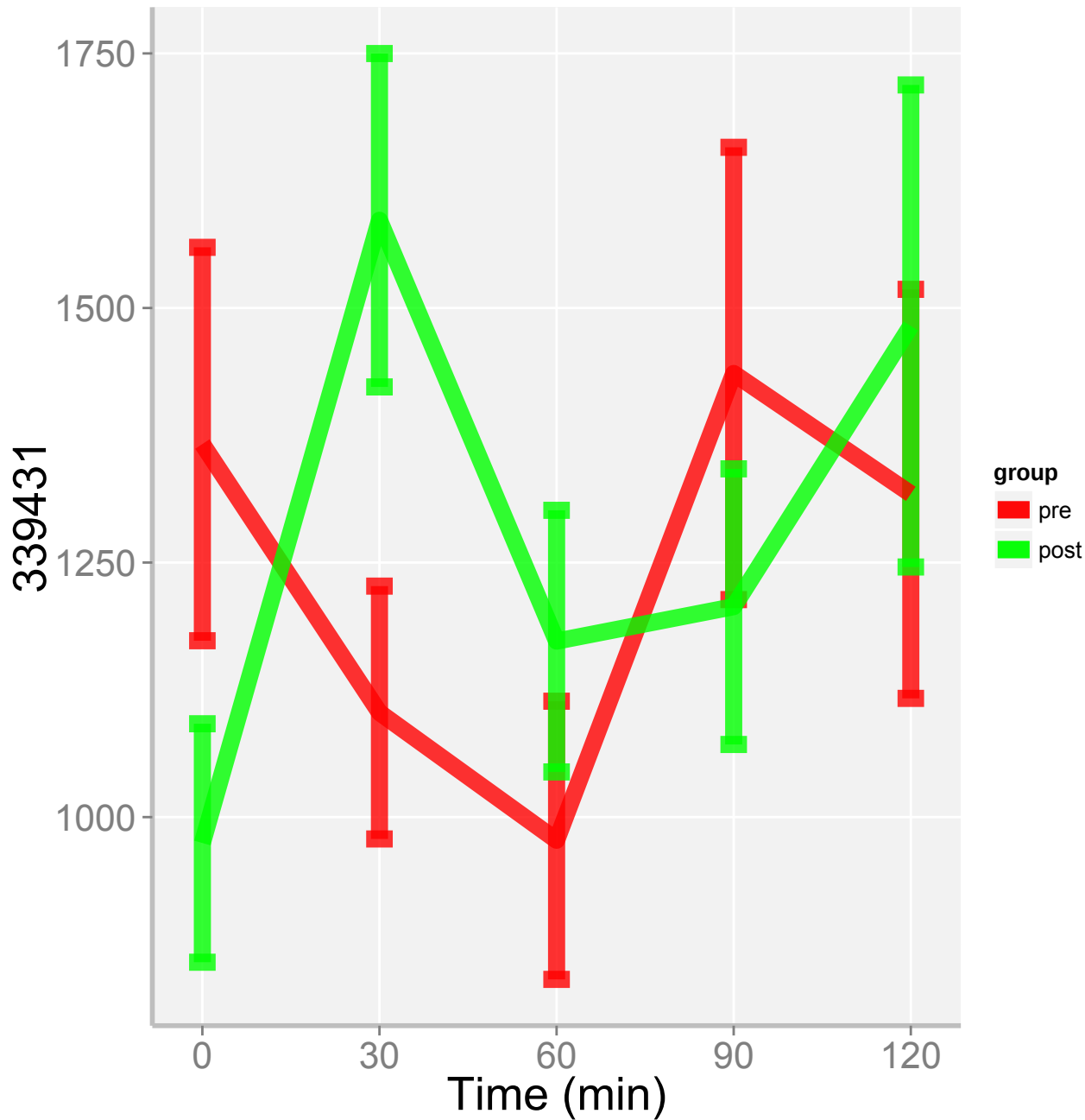
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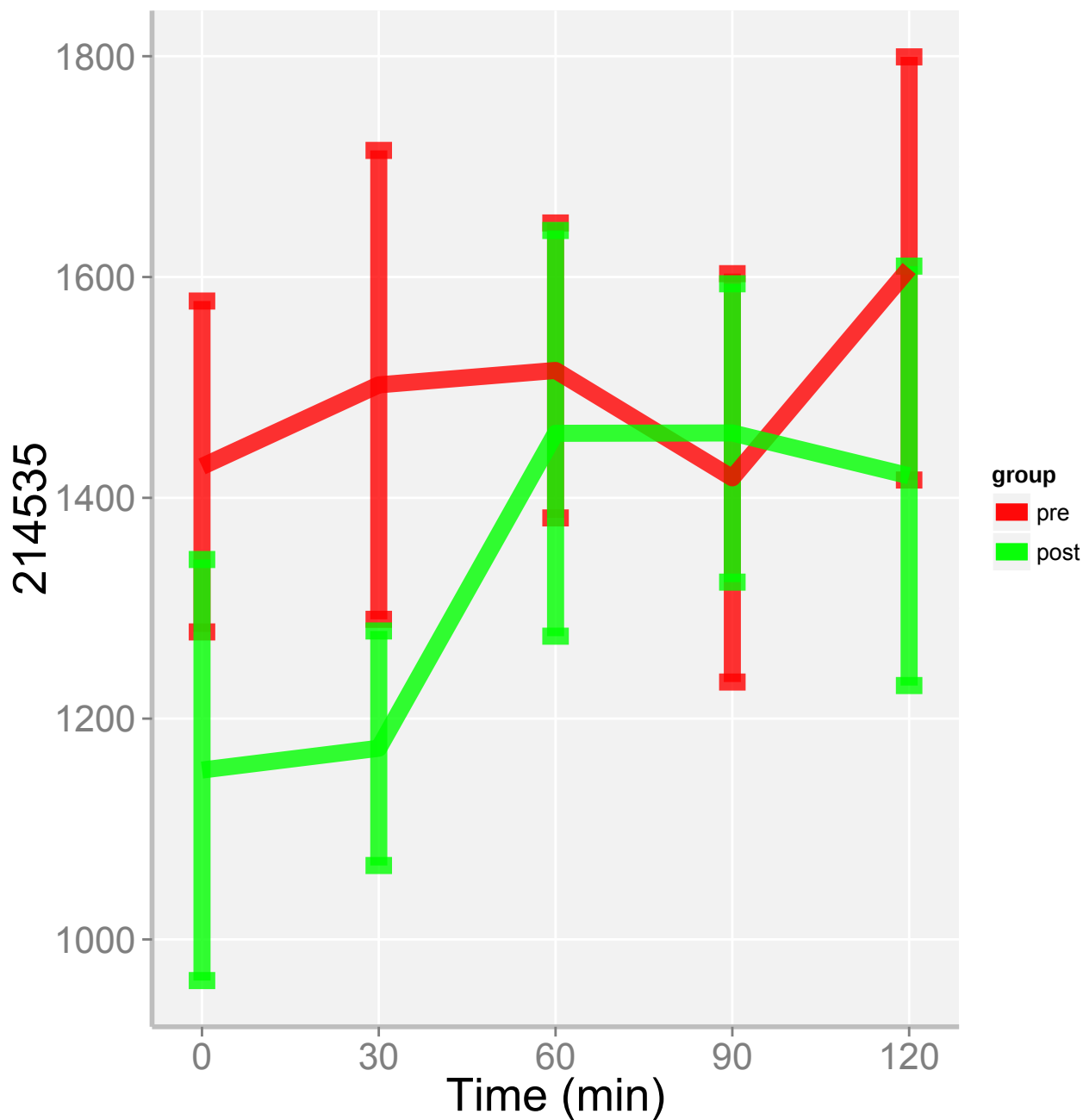
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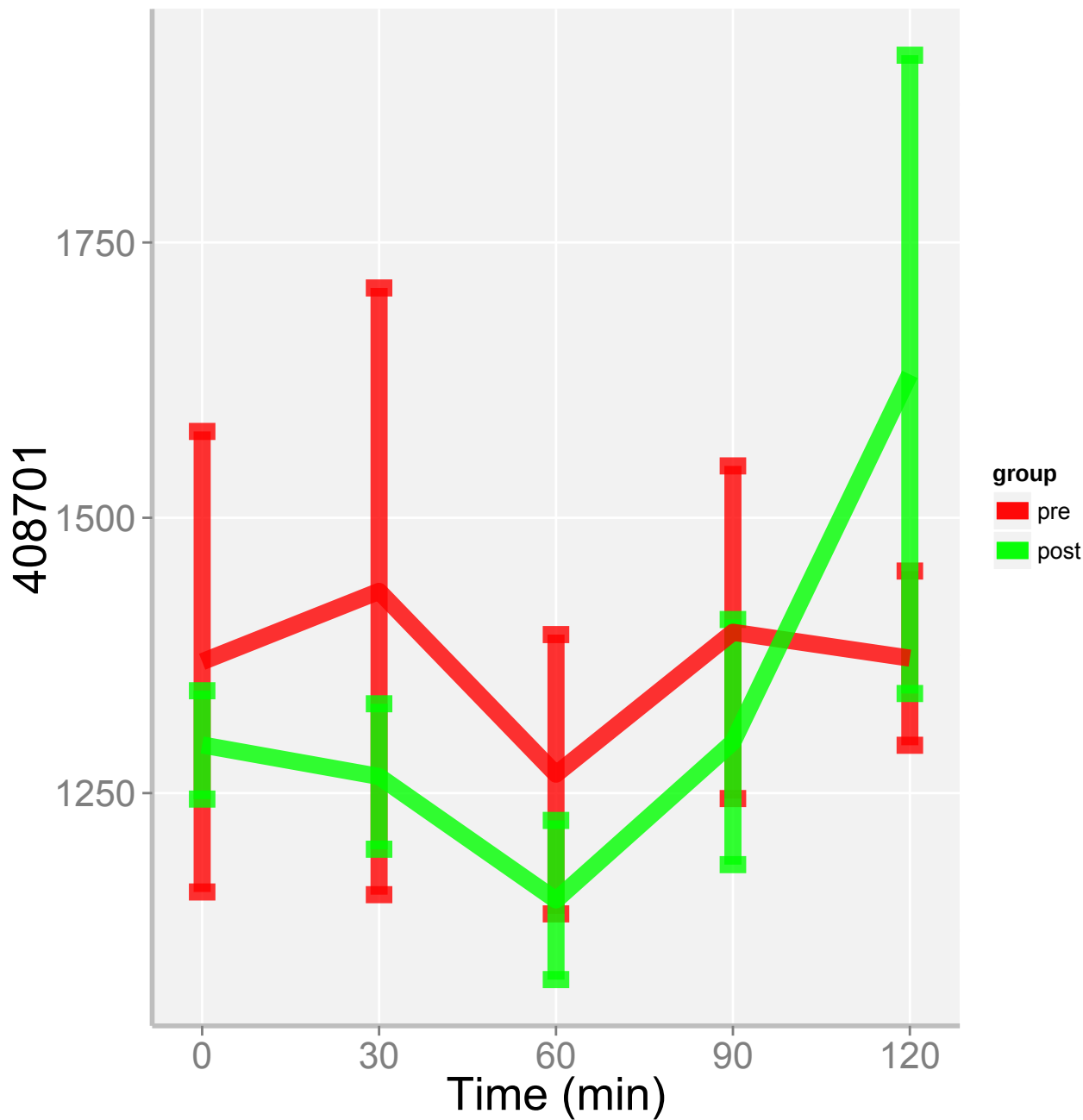
Time (min)

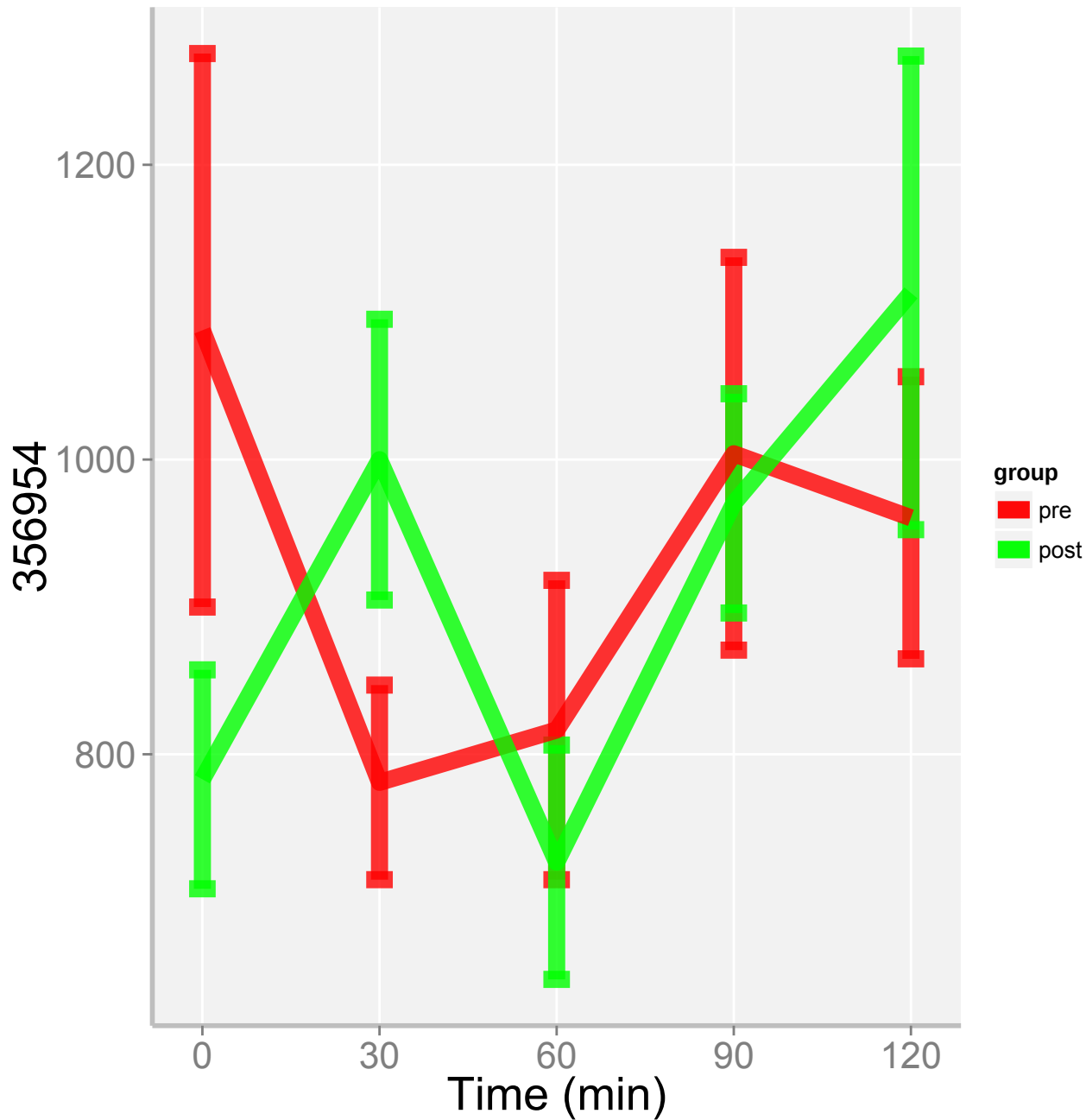
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post

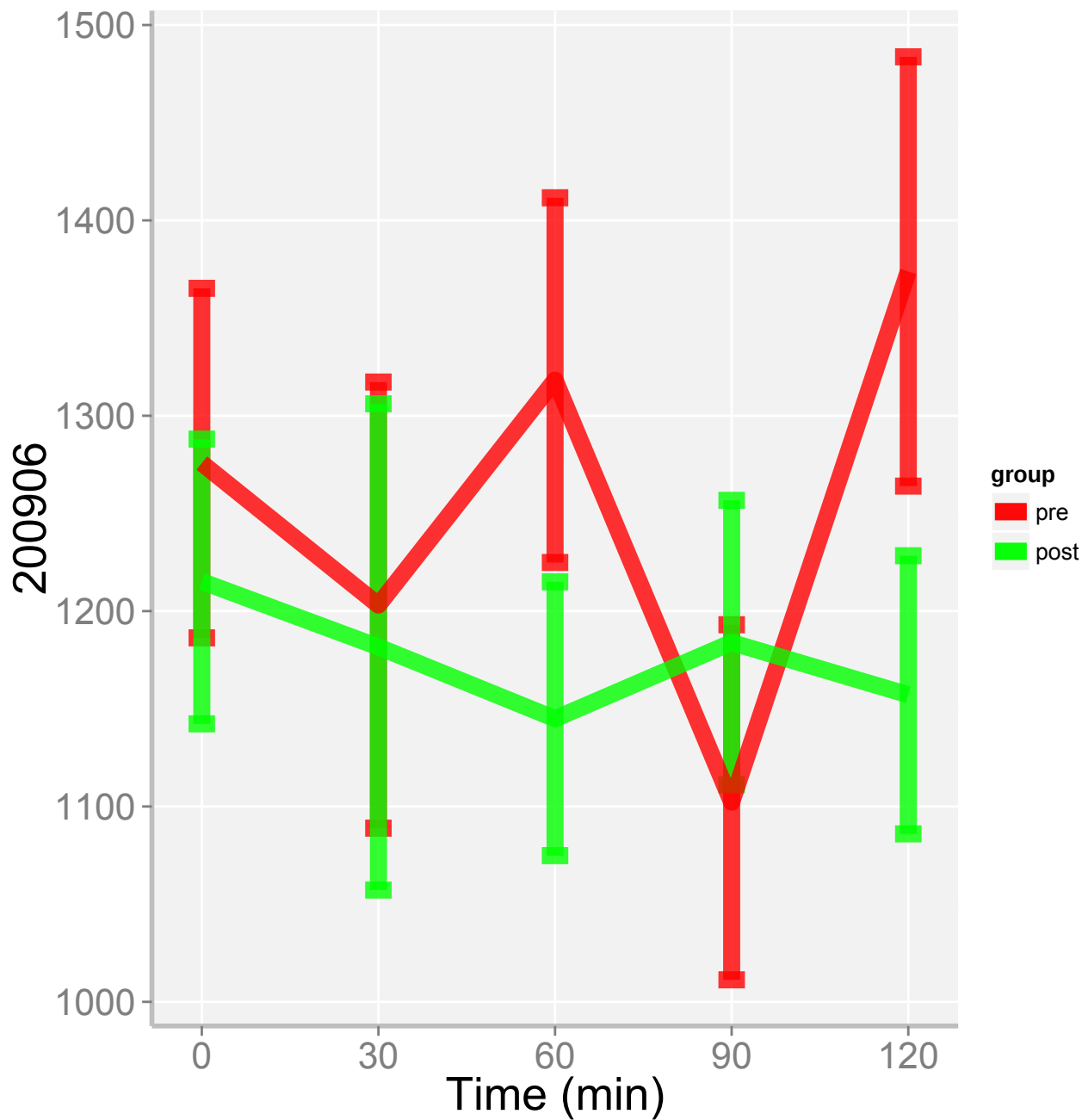


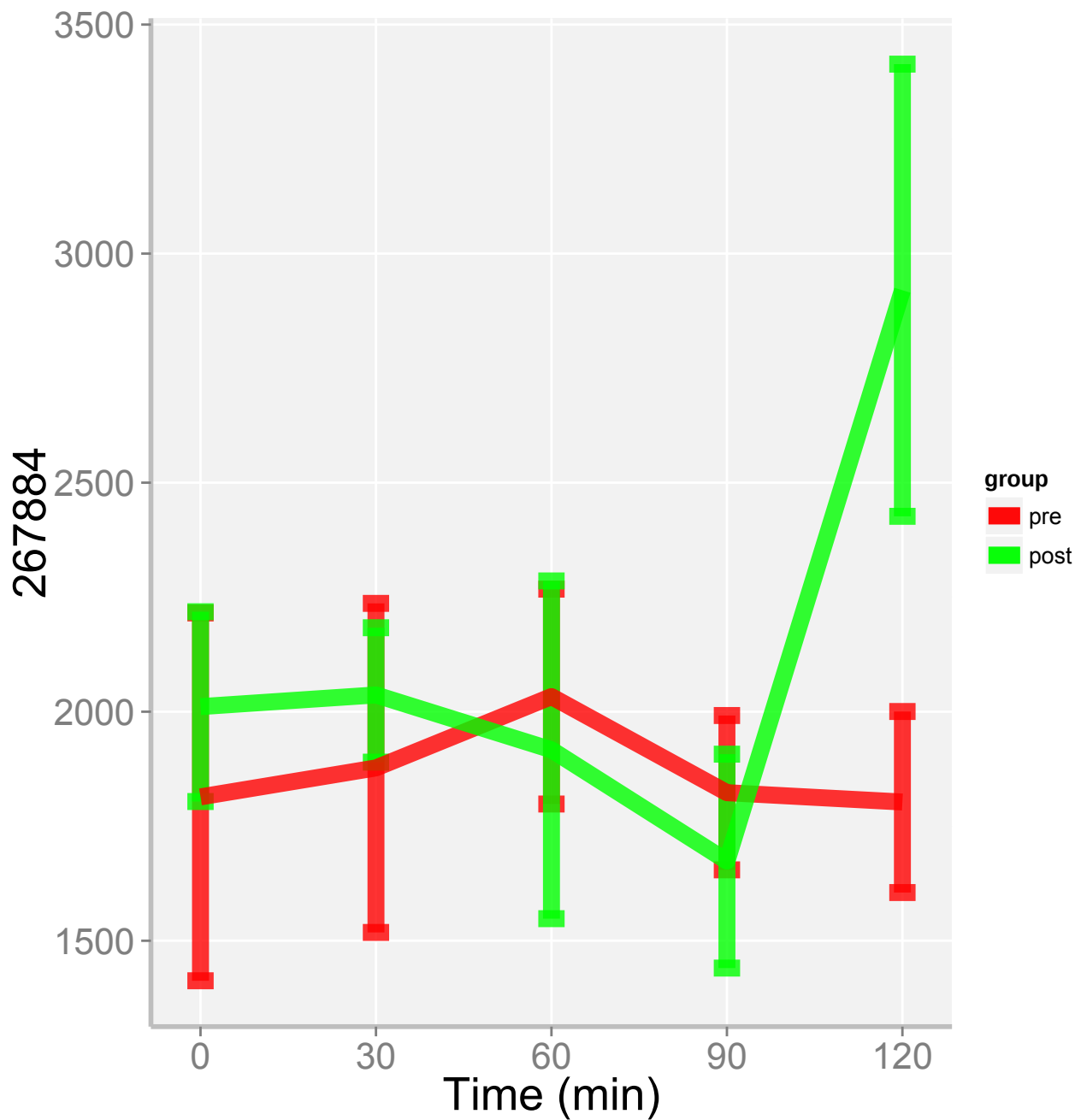












281216

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1500

1000

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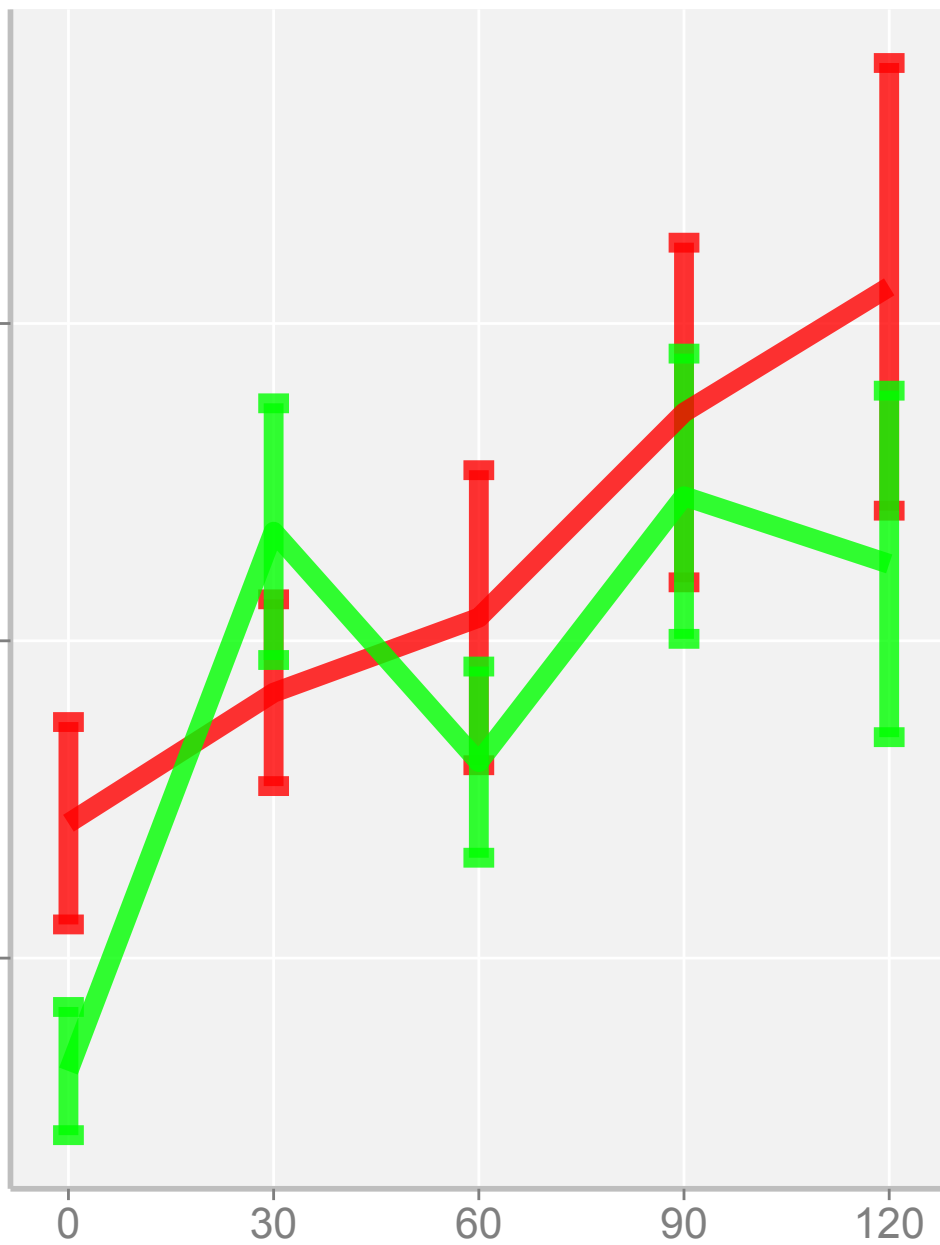
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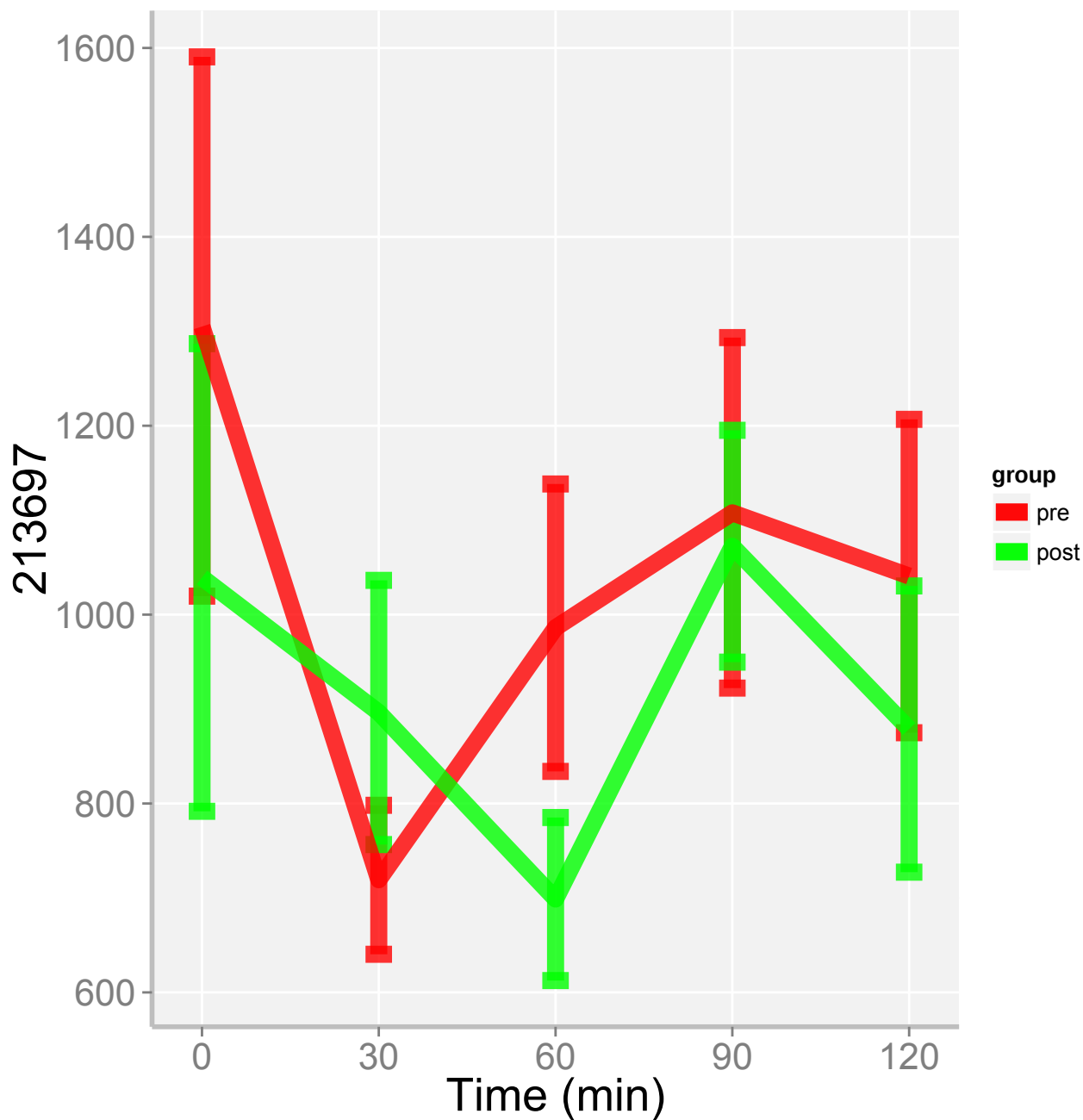
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120

Time (min)

group
pre
post





372993

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1250
1000
750

0

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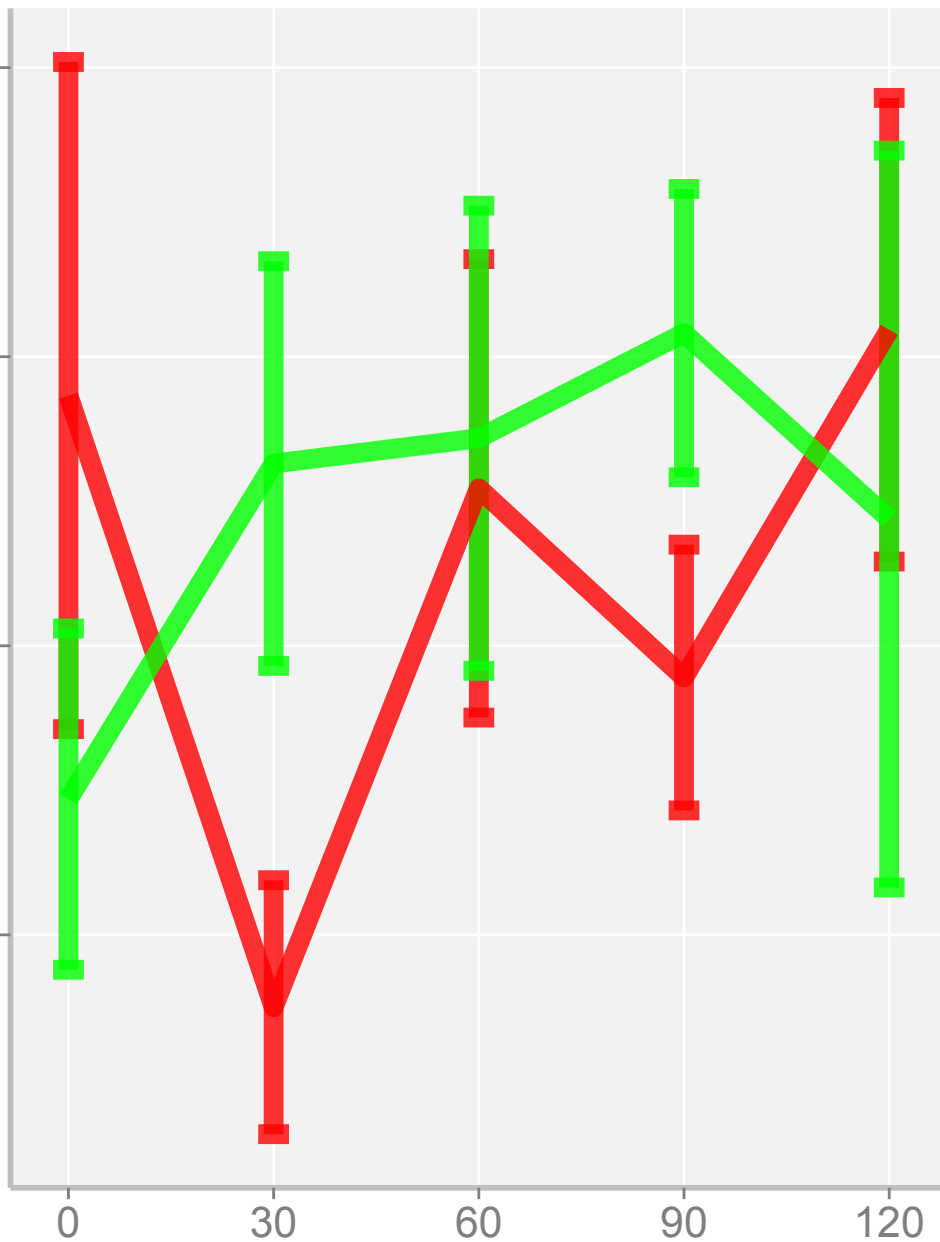
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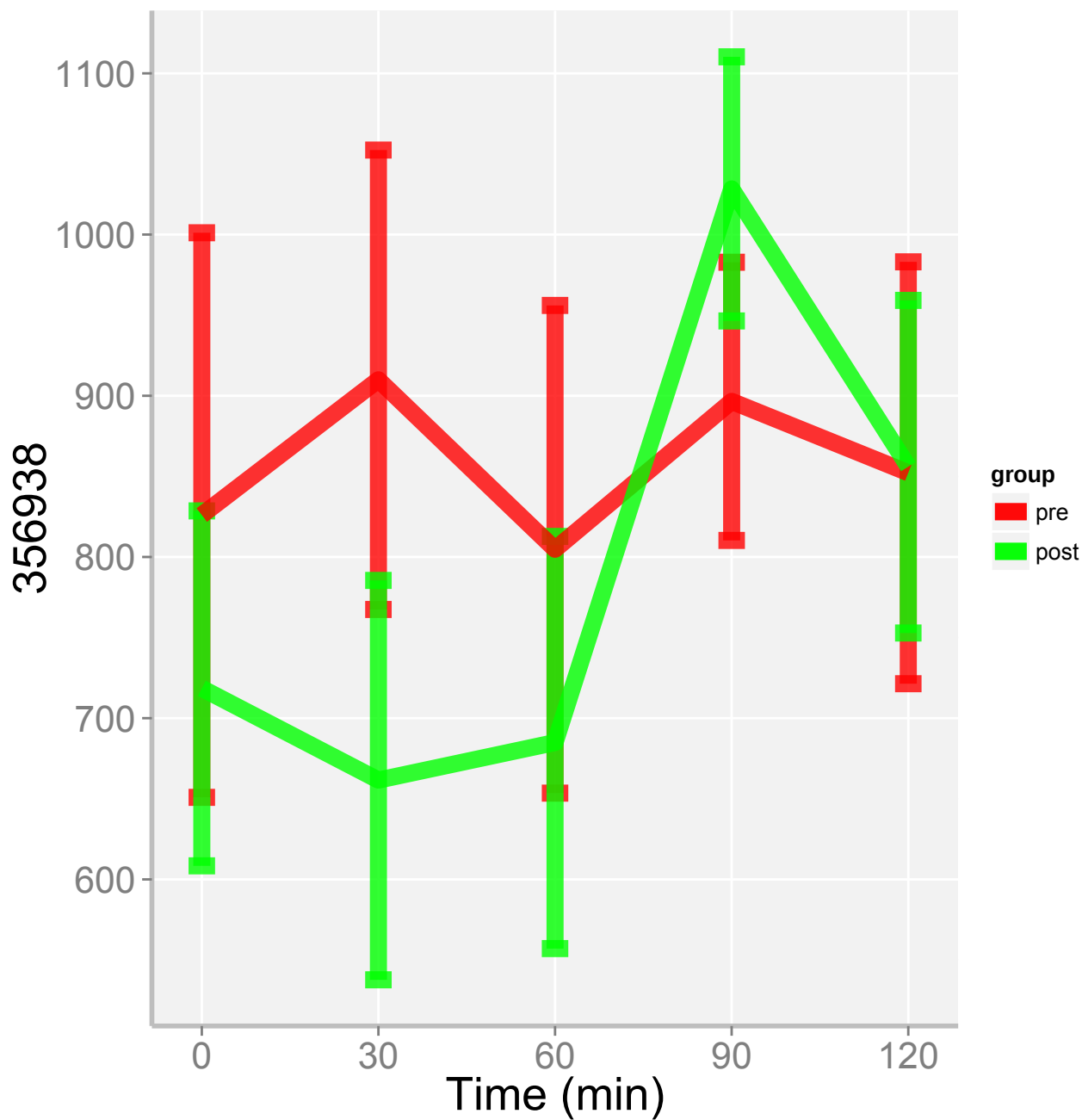
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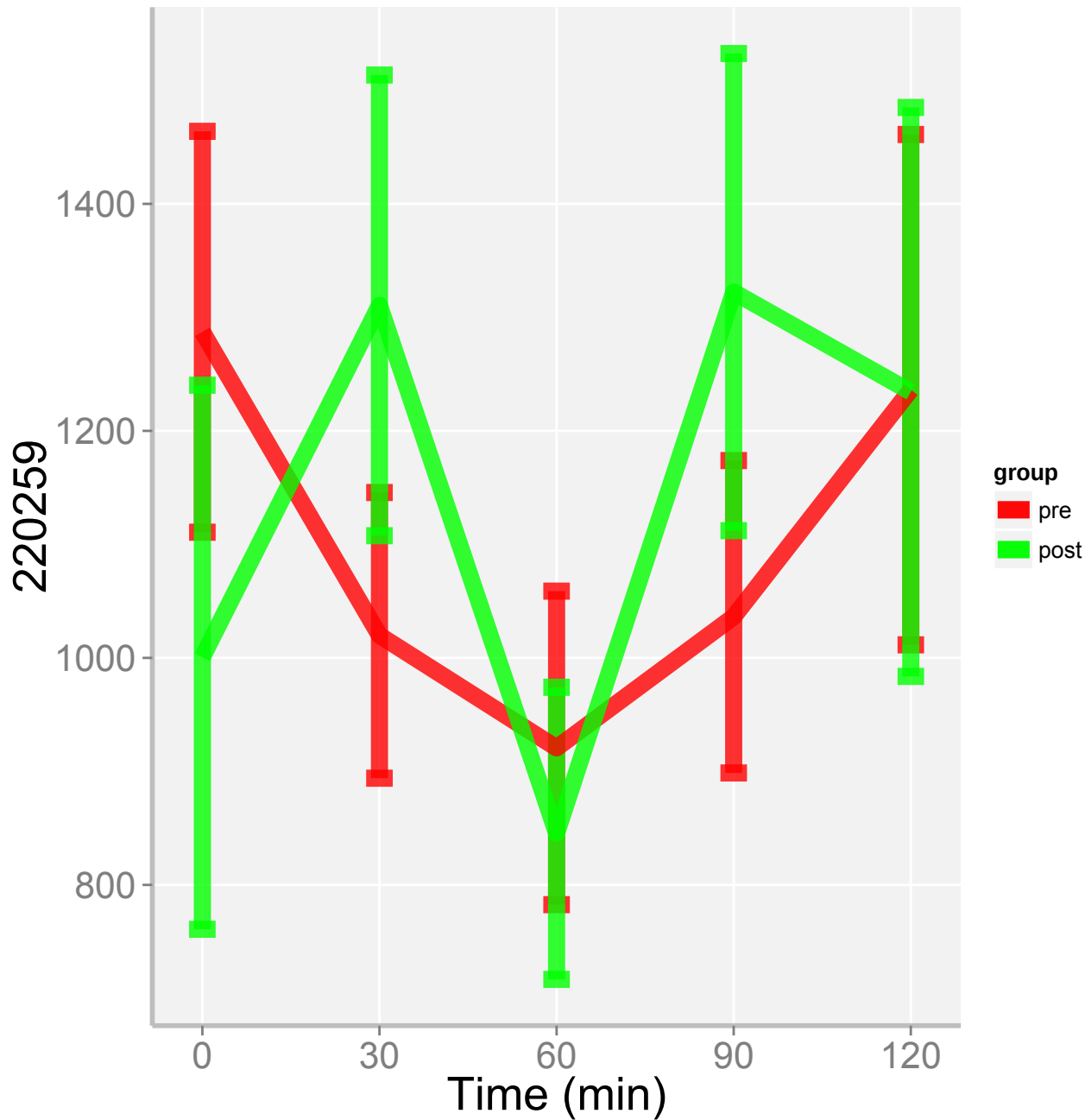
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Time (min)

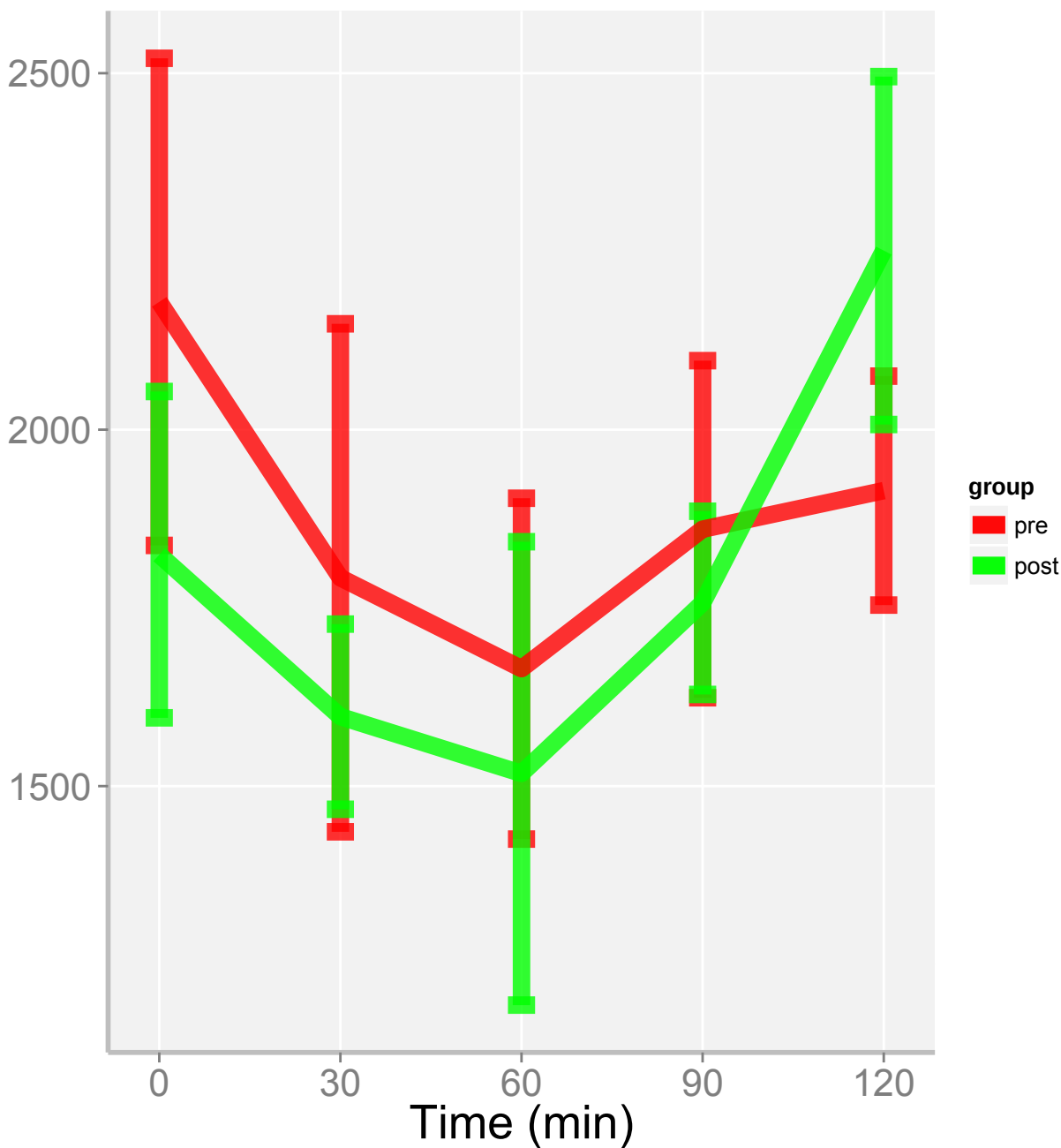
group
pre
post







218787



226927

1000

750

0

30

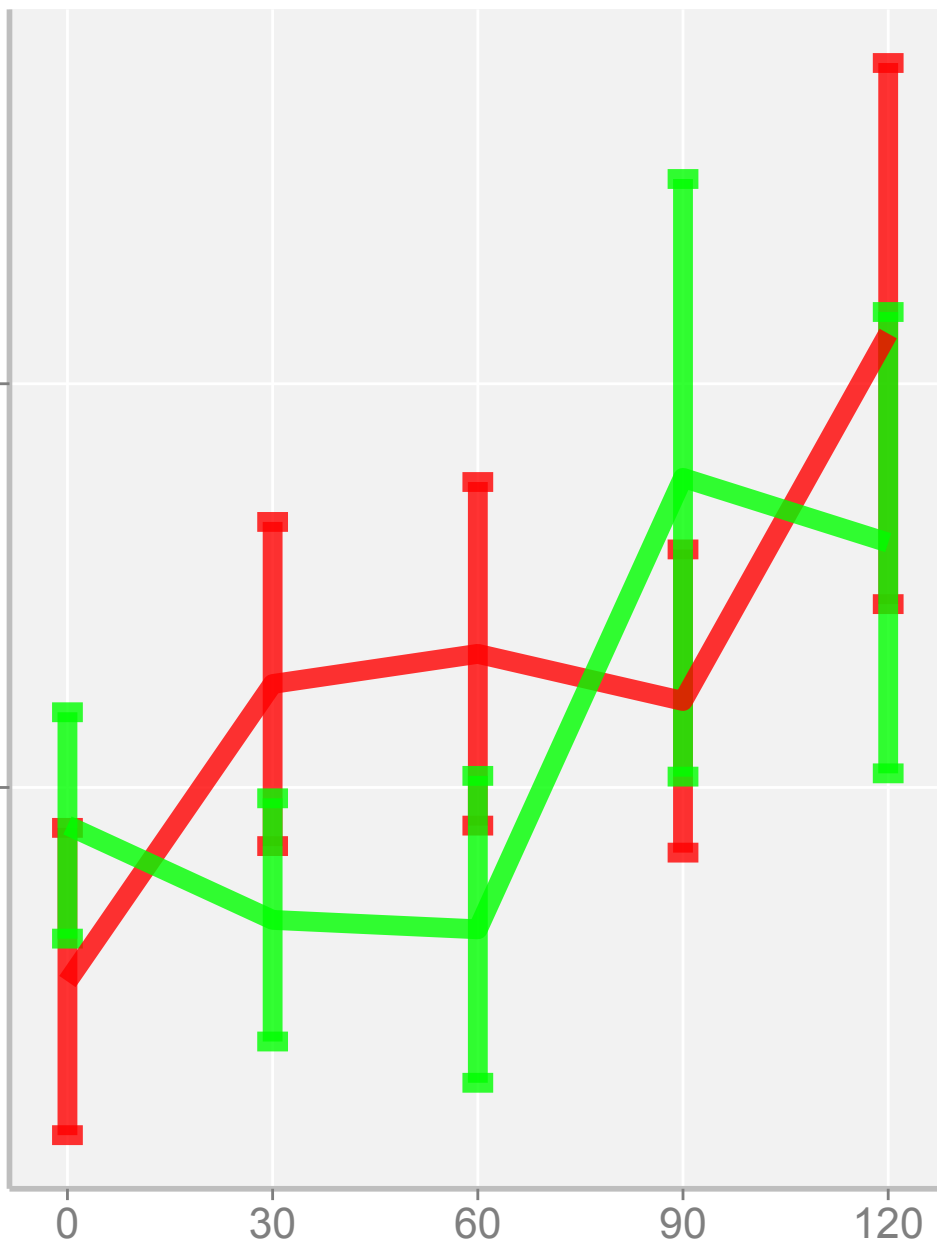
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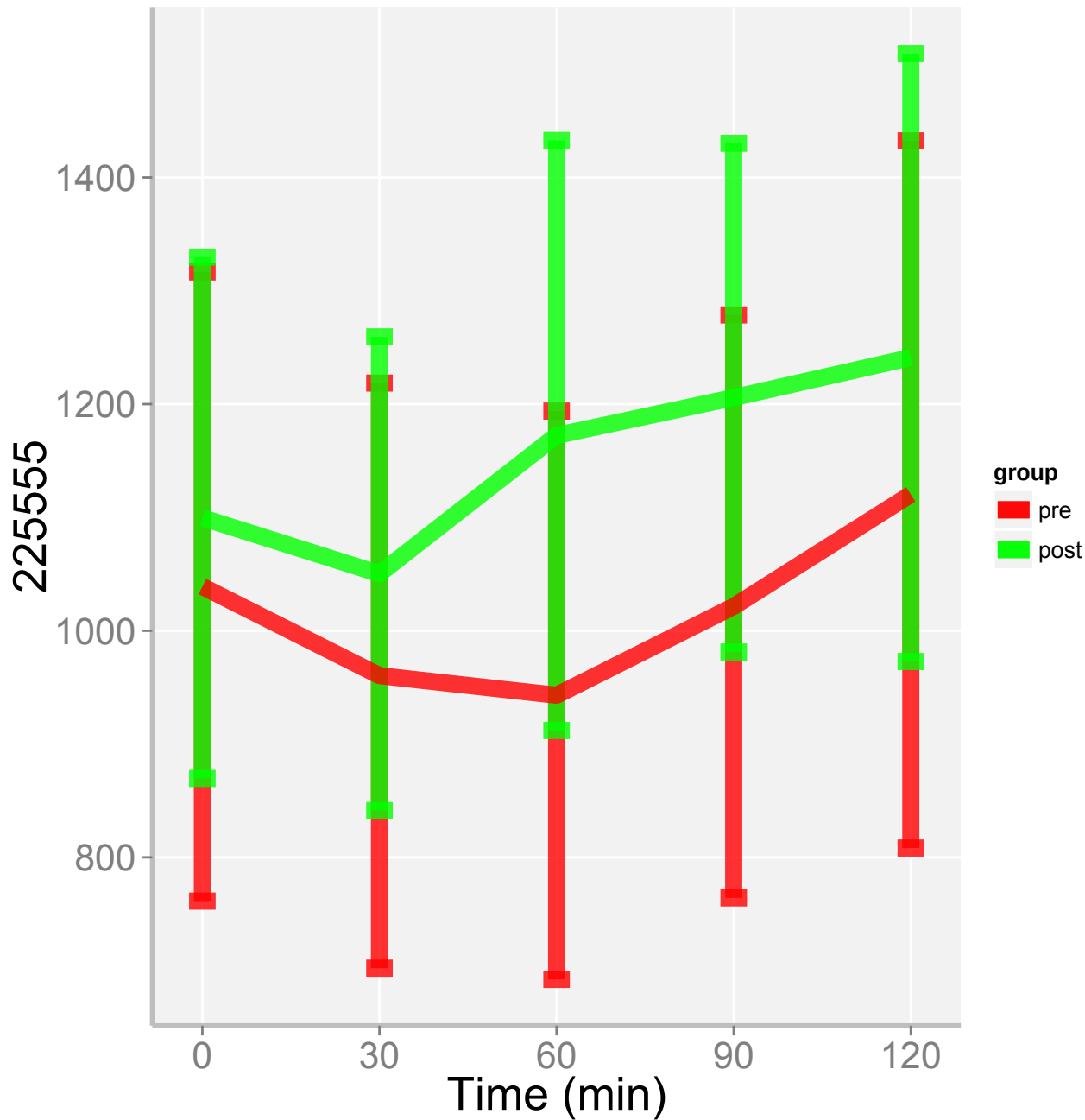
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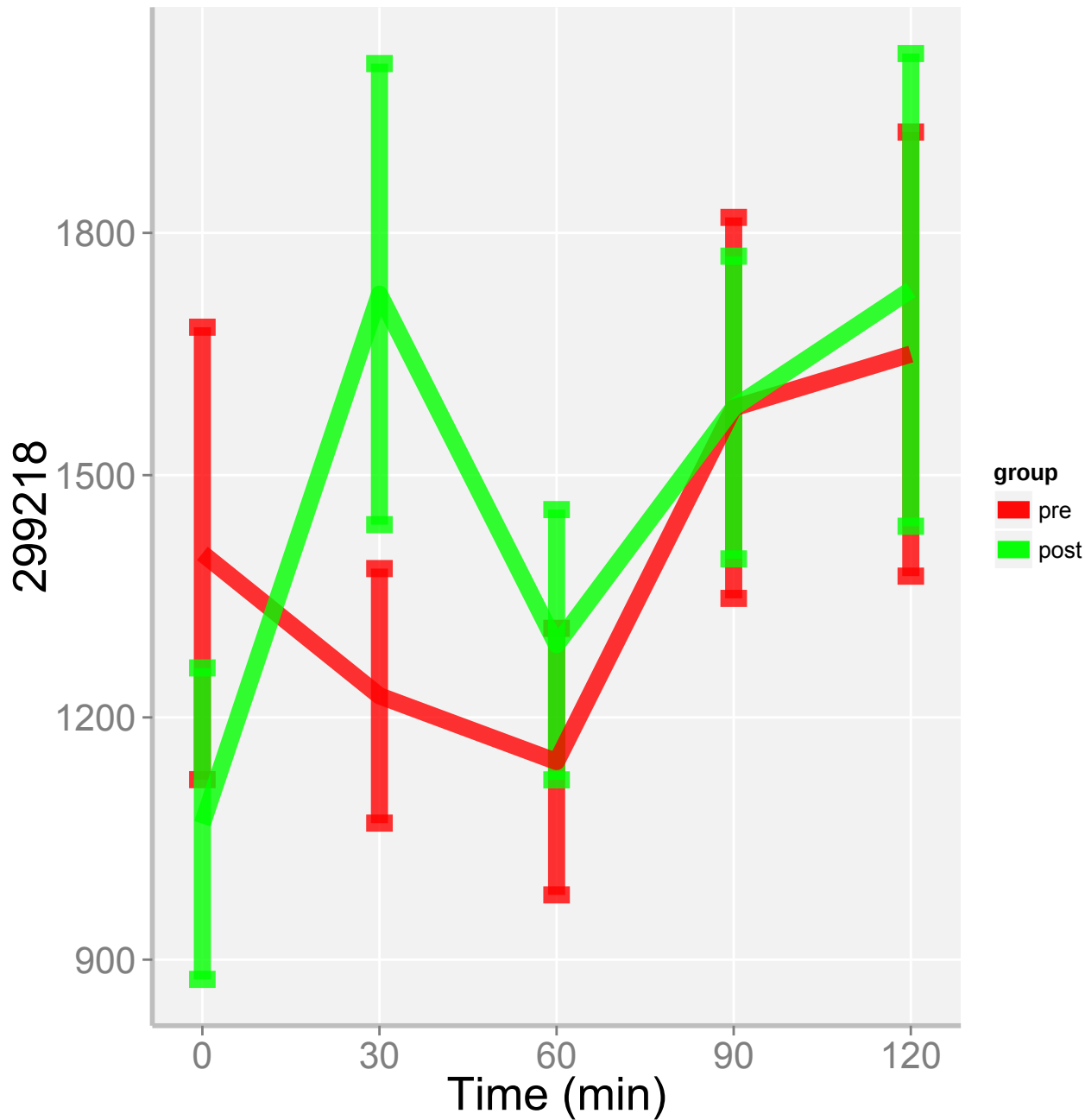
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Time (min)

group
pre
post







203761

1000

800

600

0

30

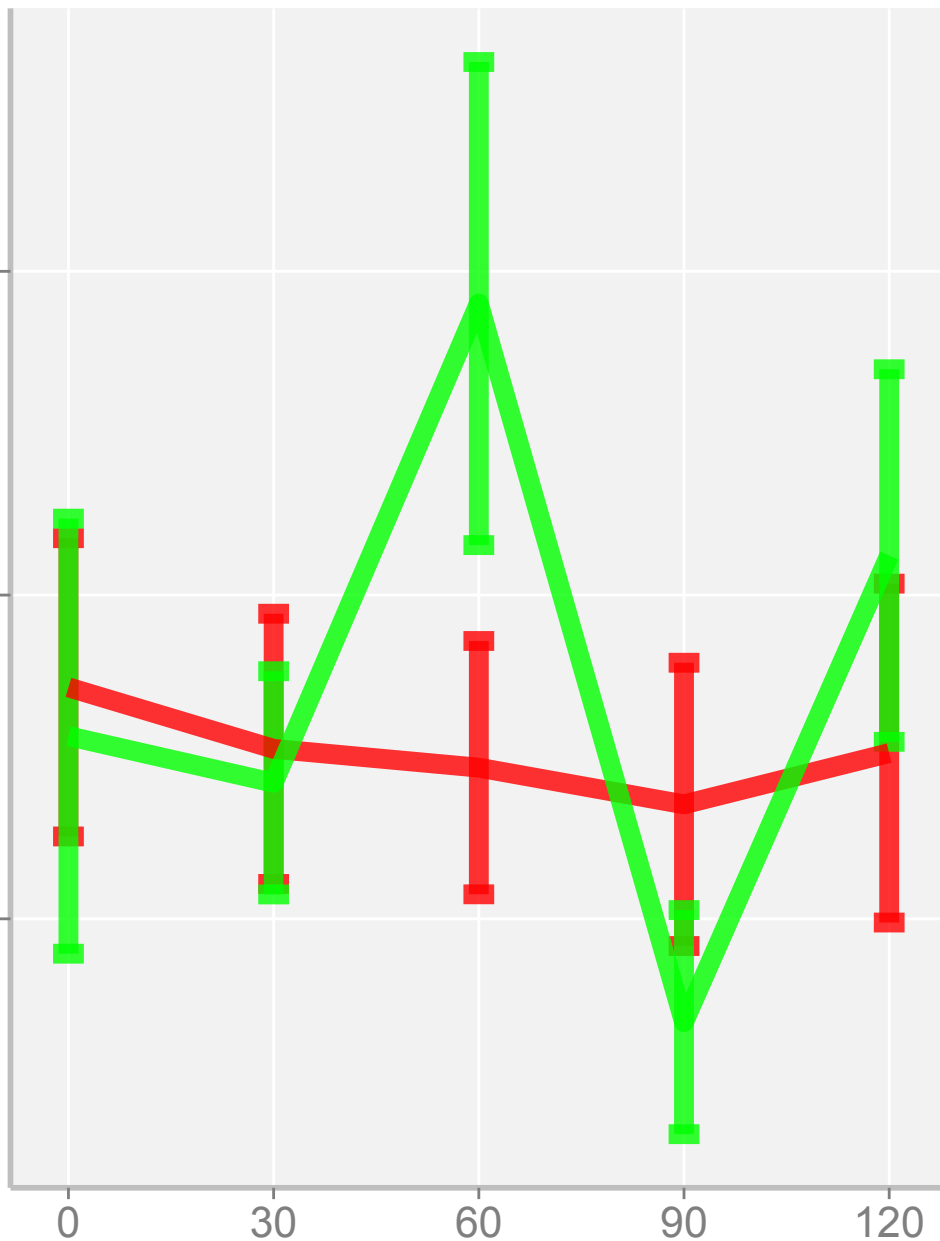
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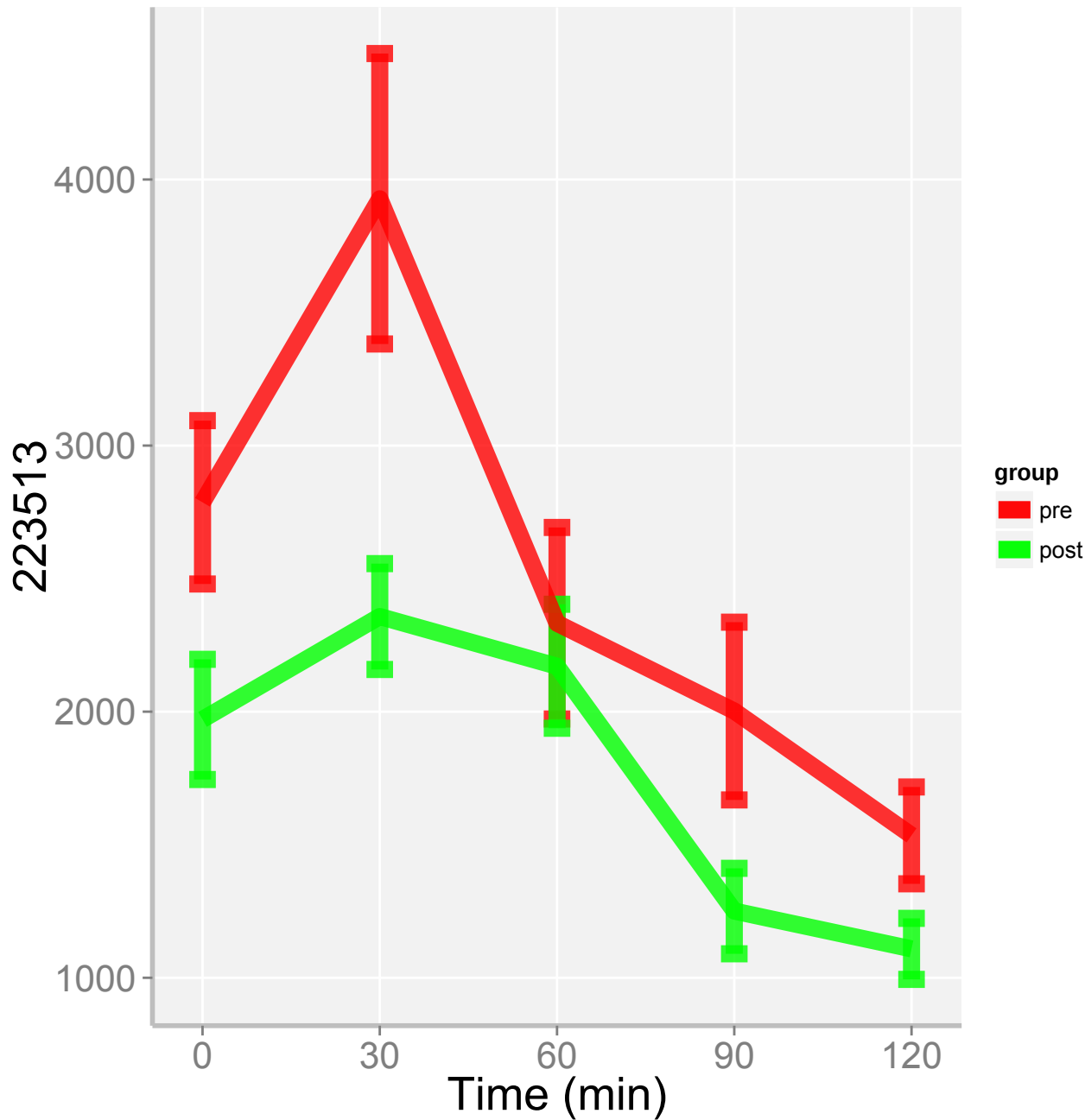
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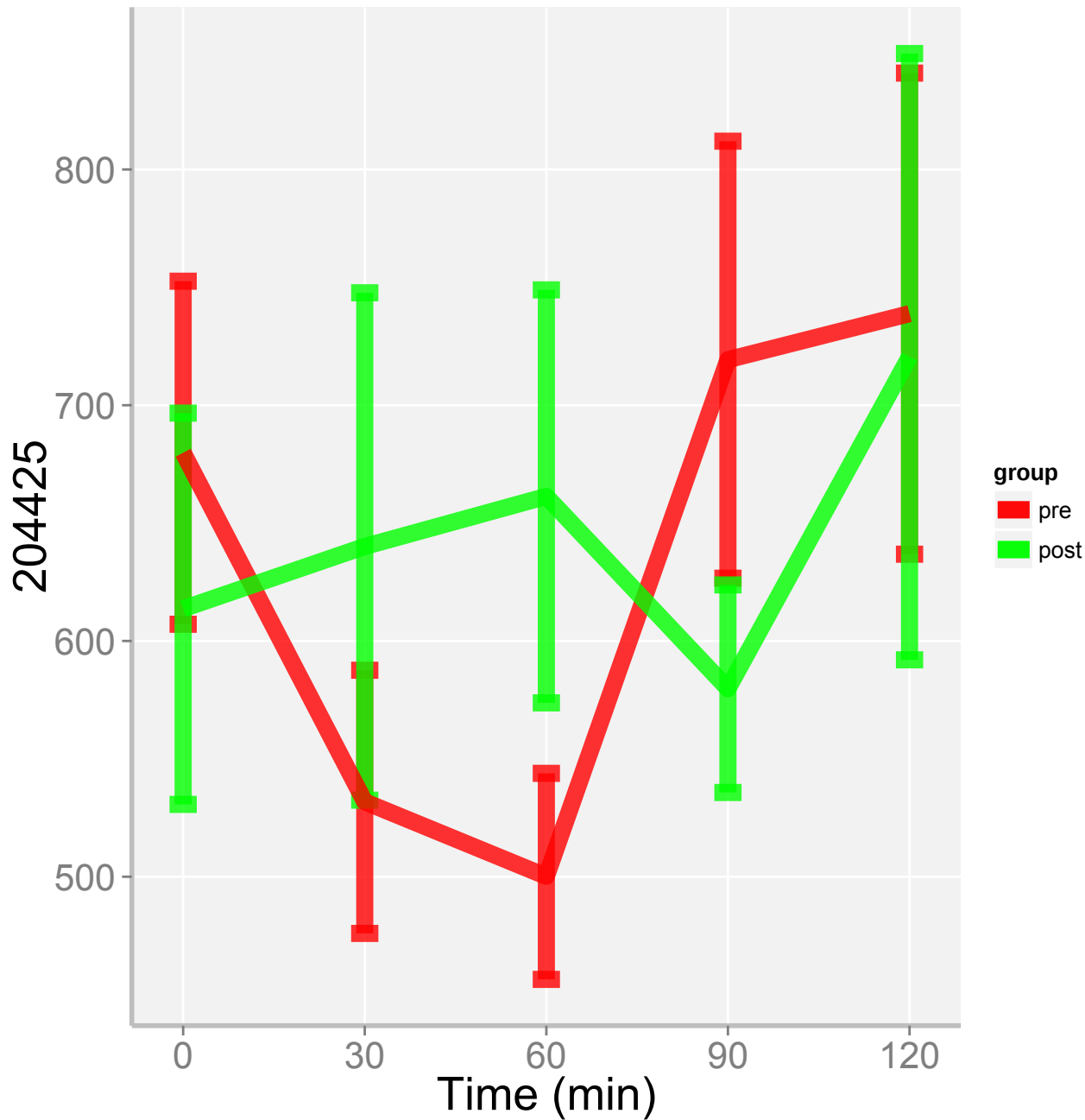
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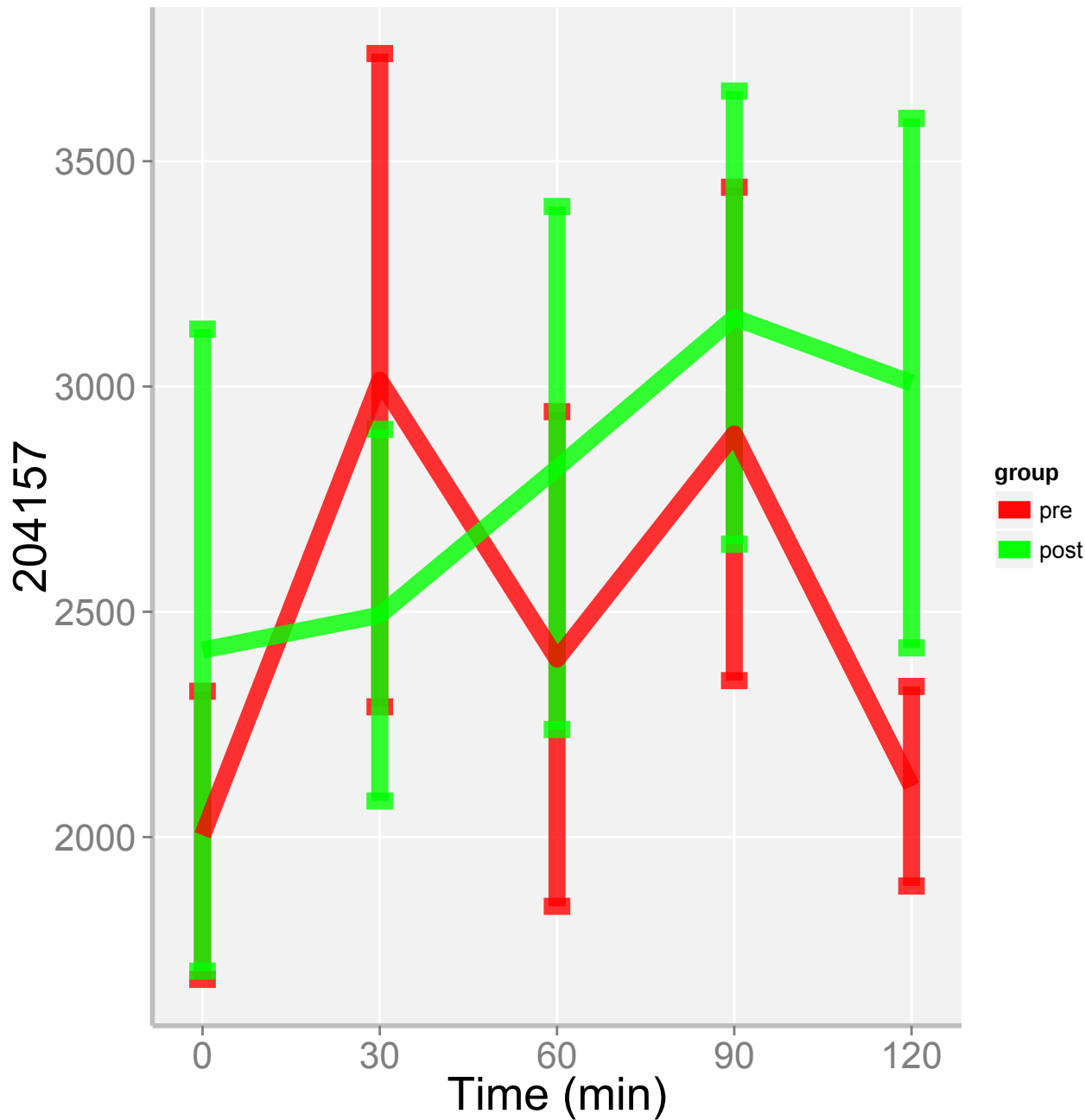
Time (min)

group
pre
post

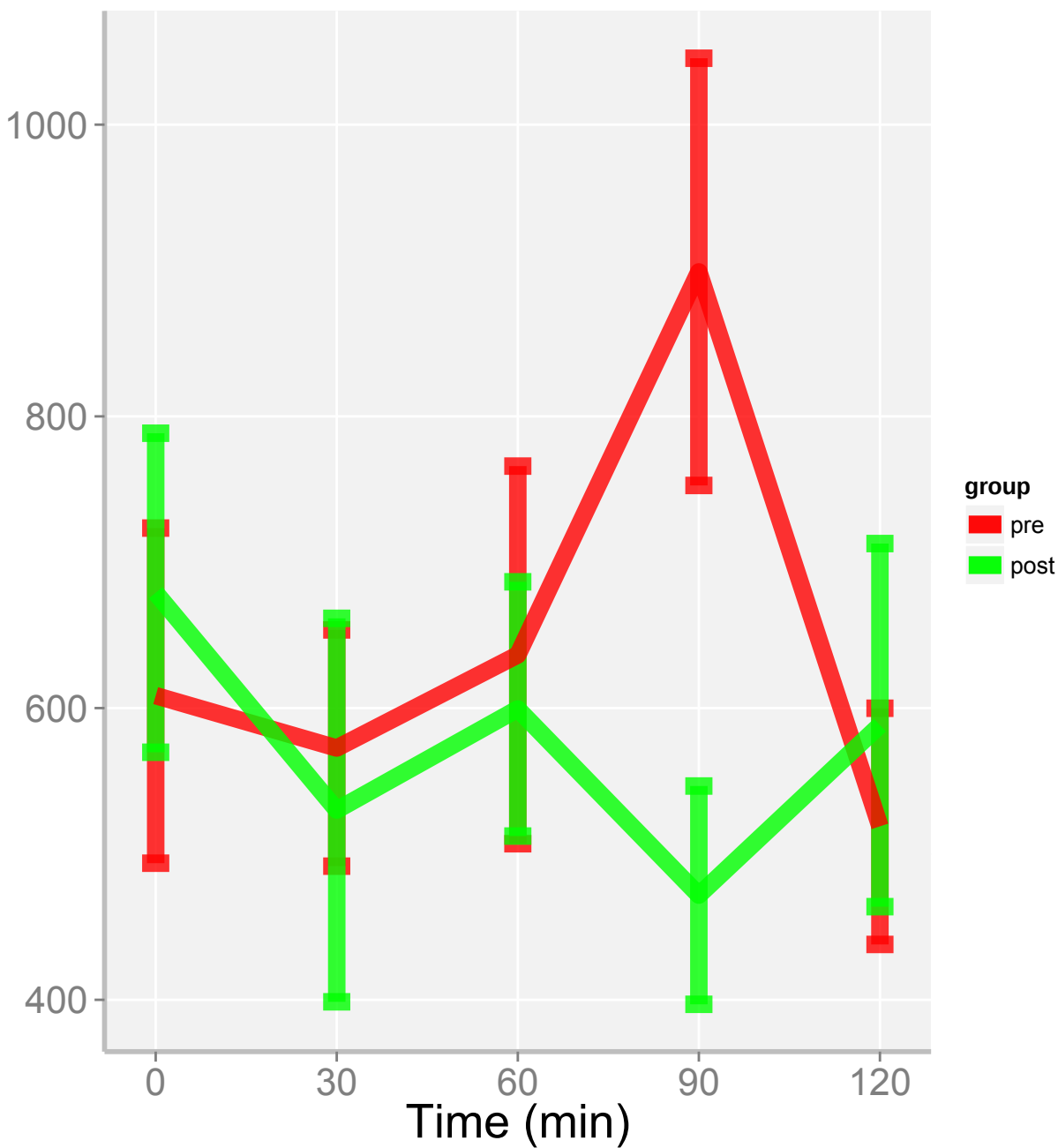


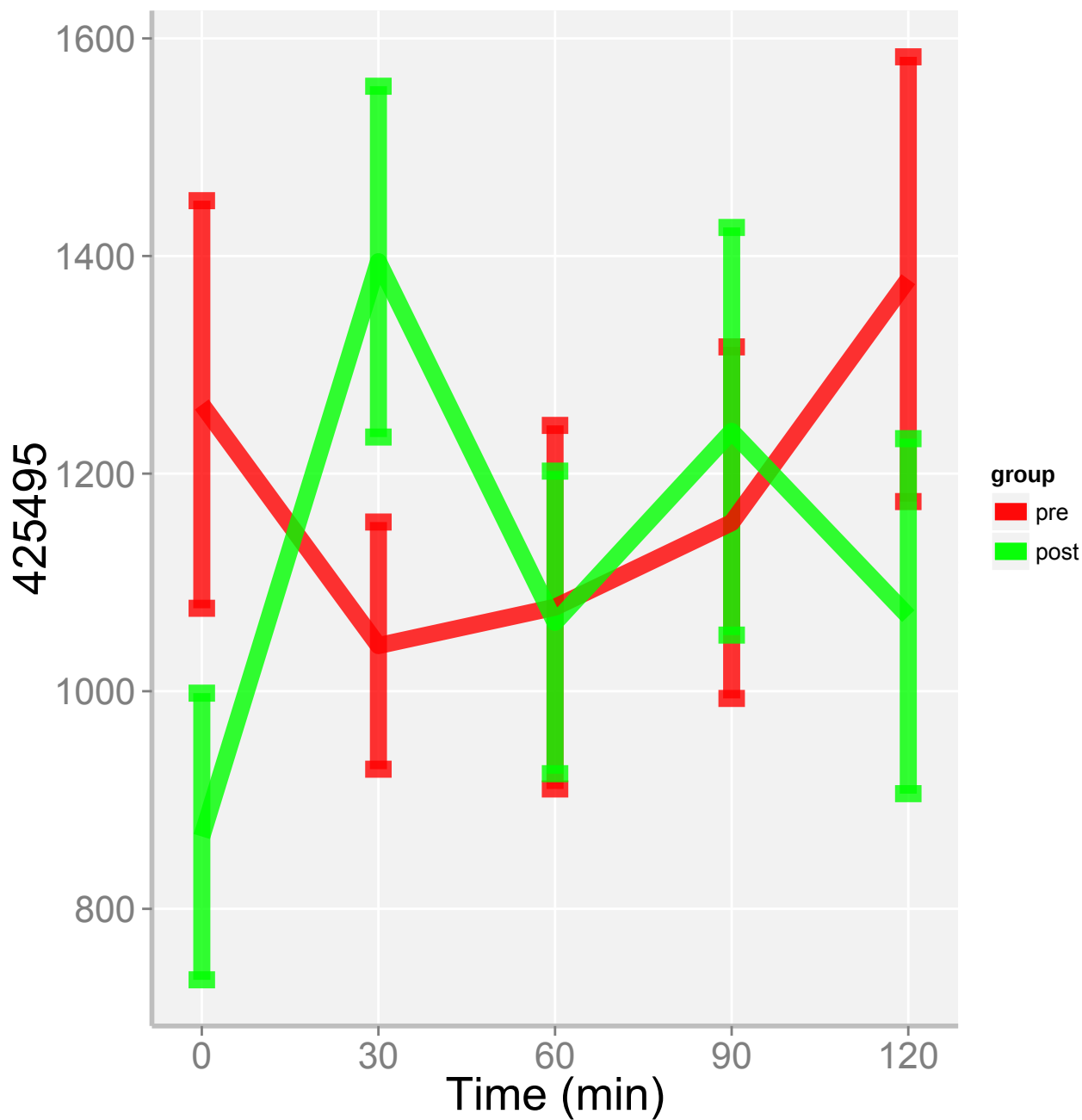


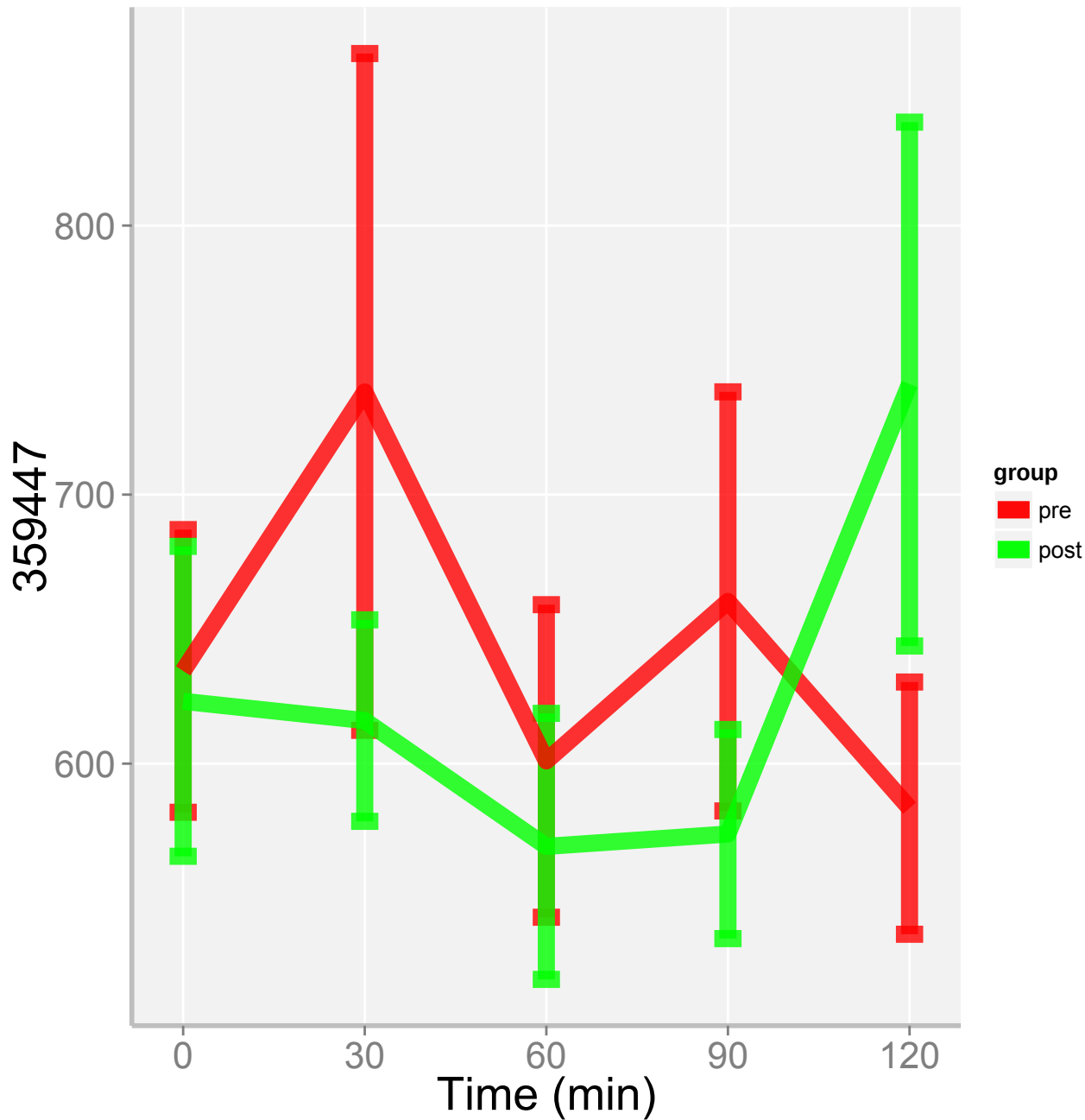


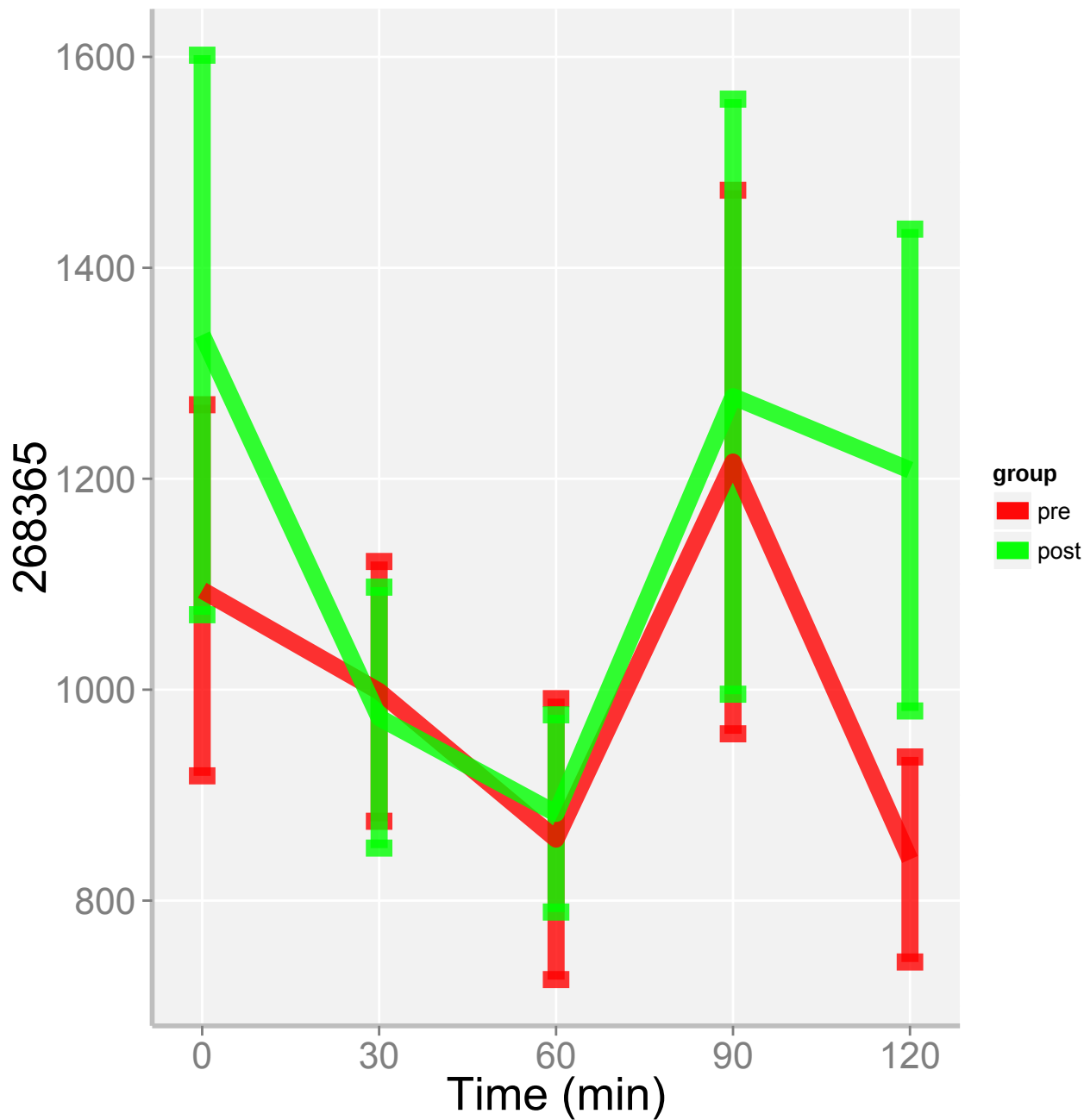


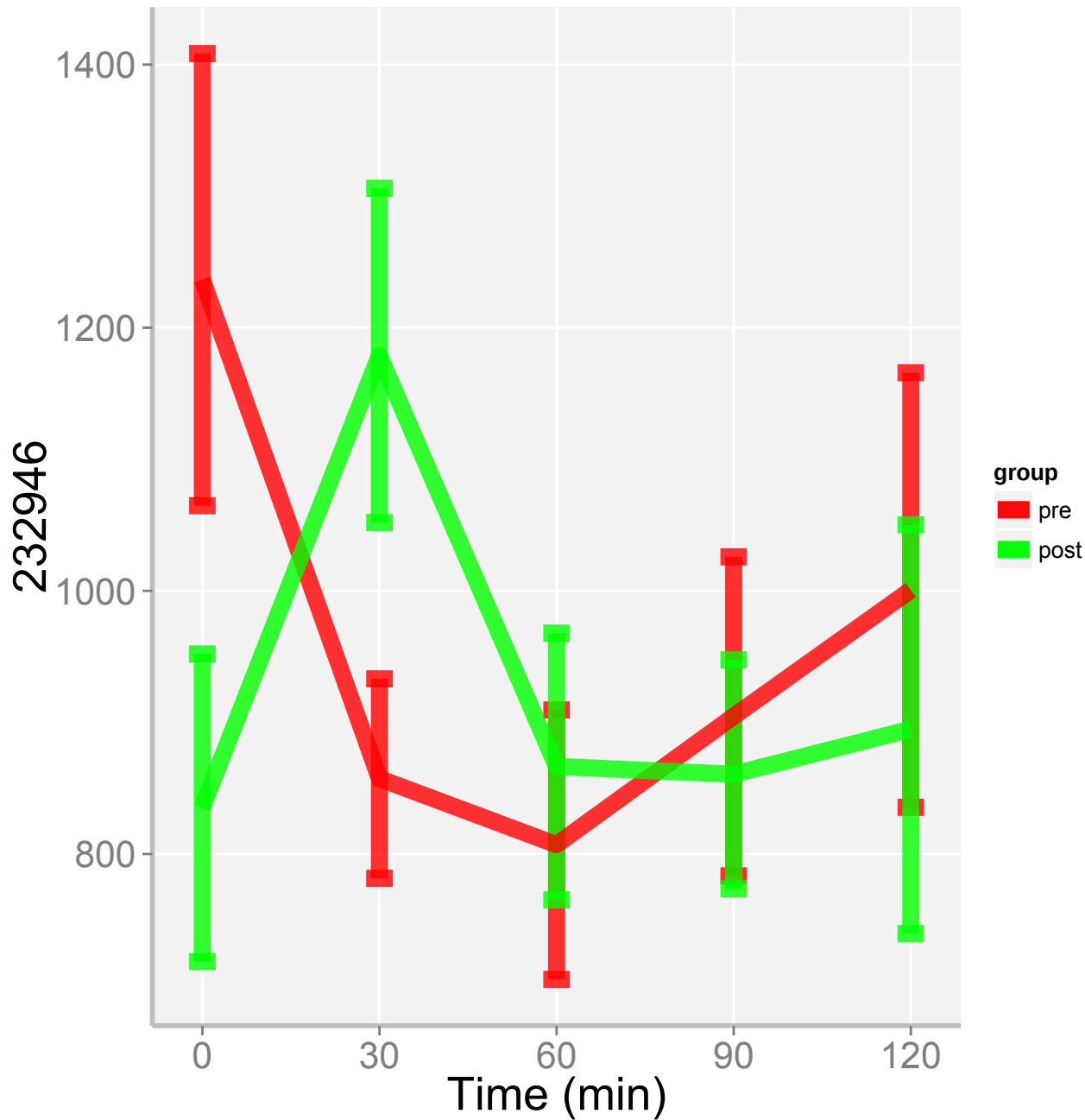
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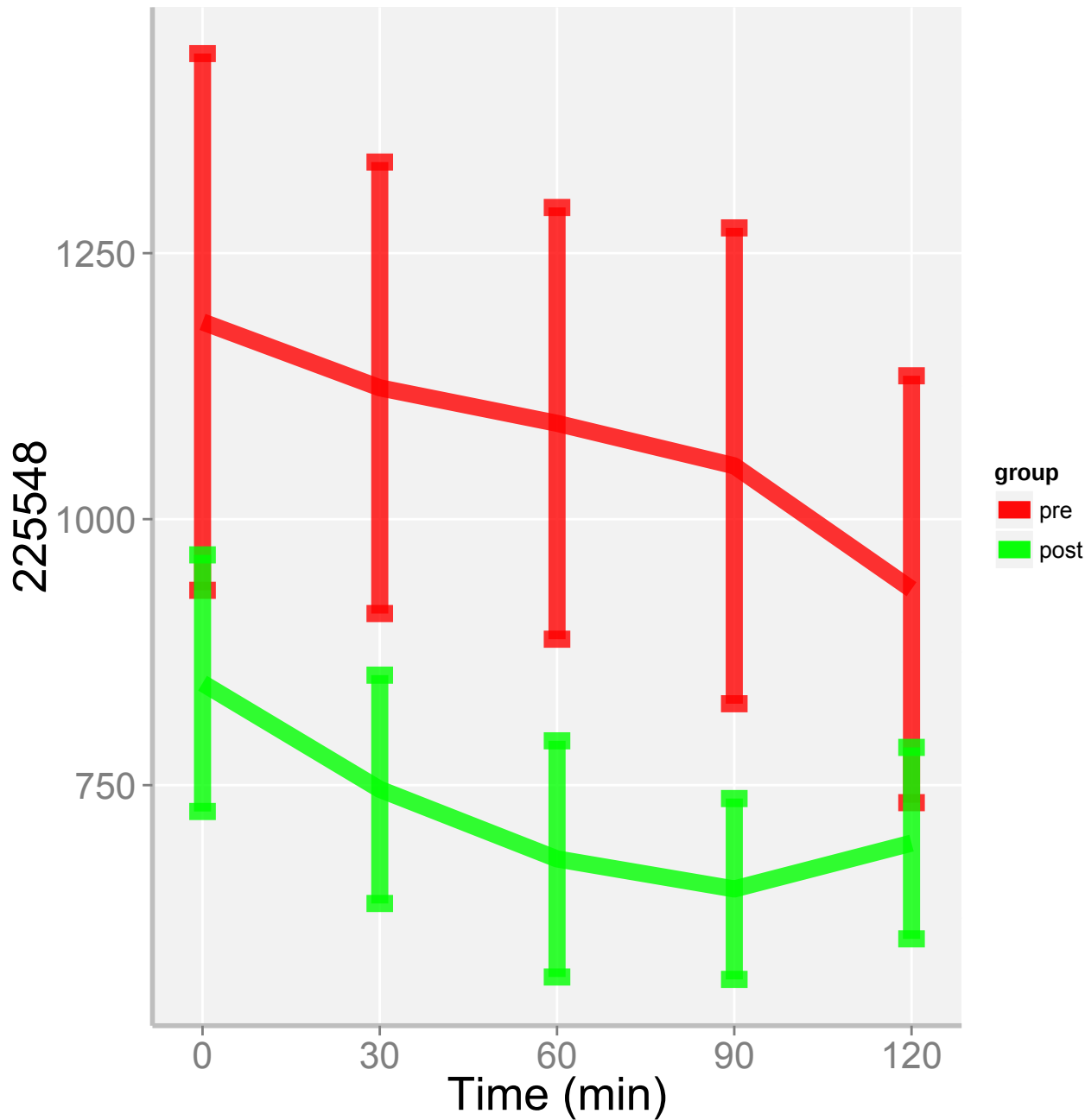


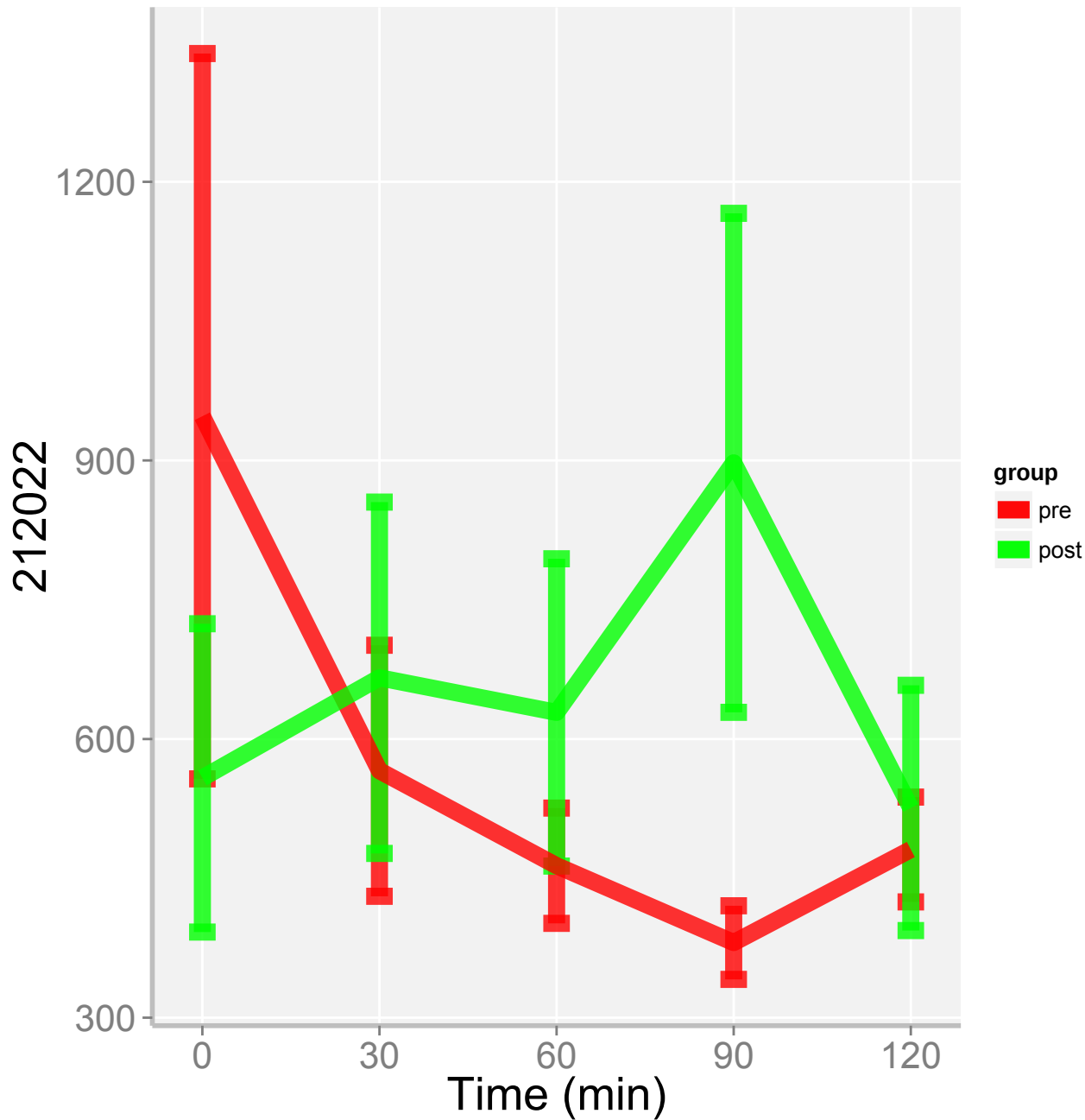


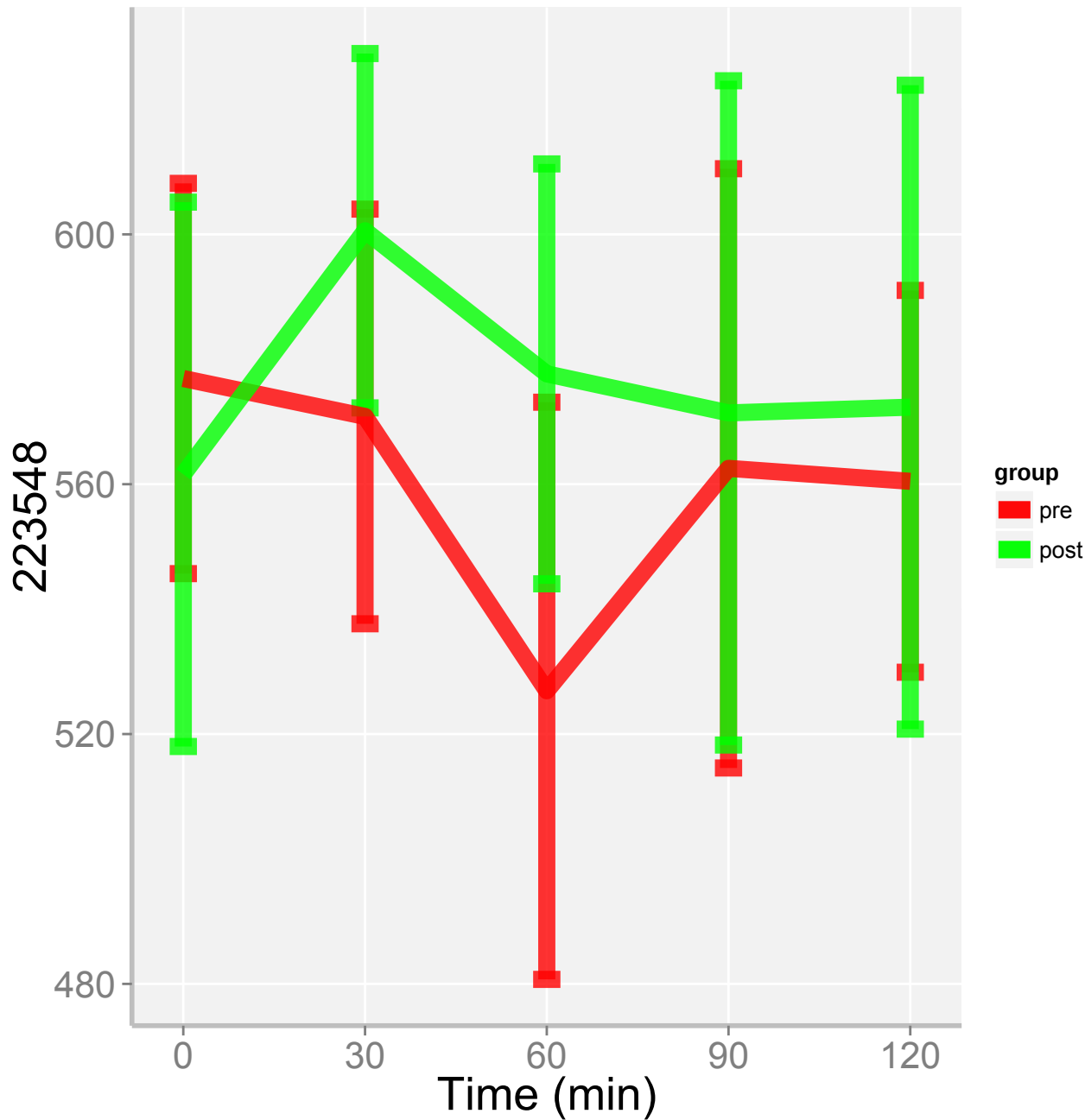


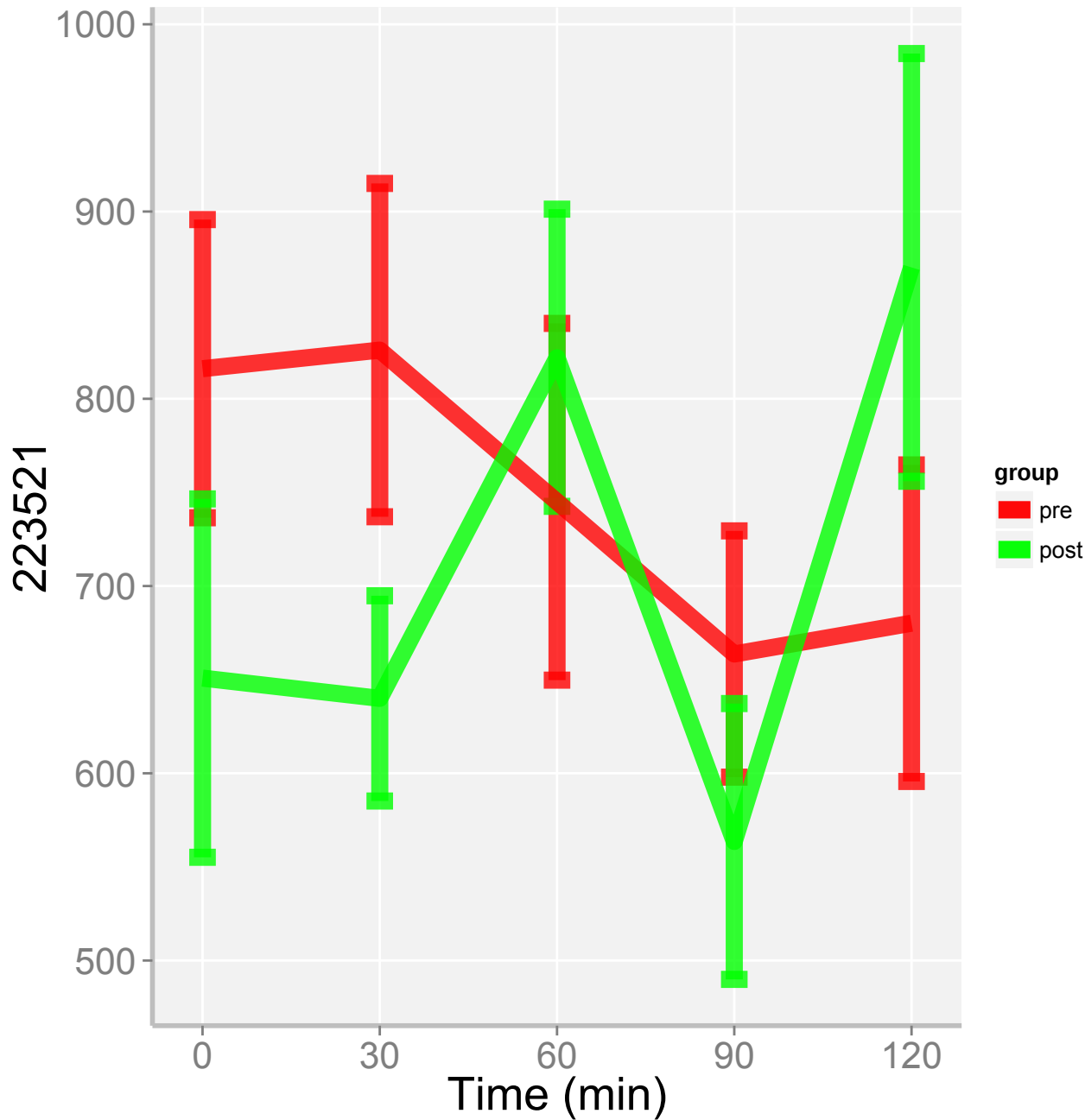




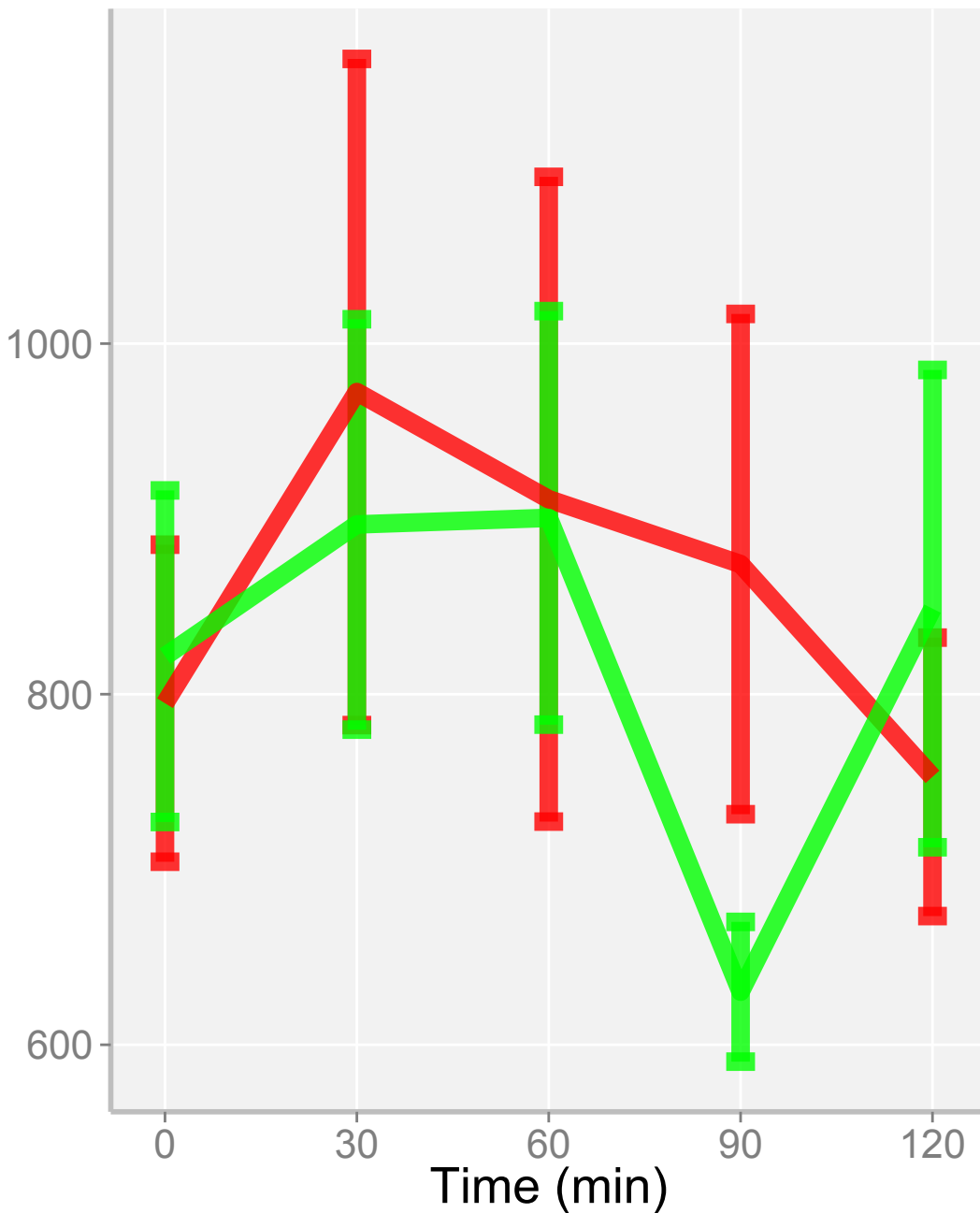




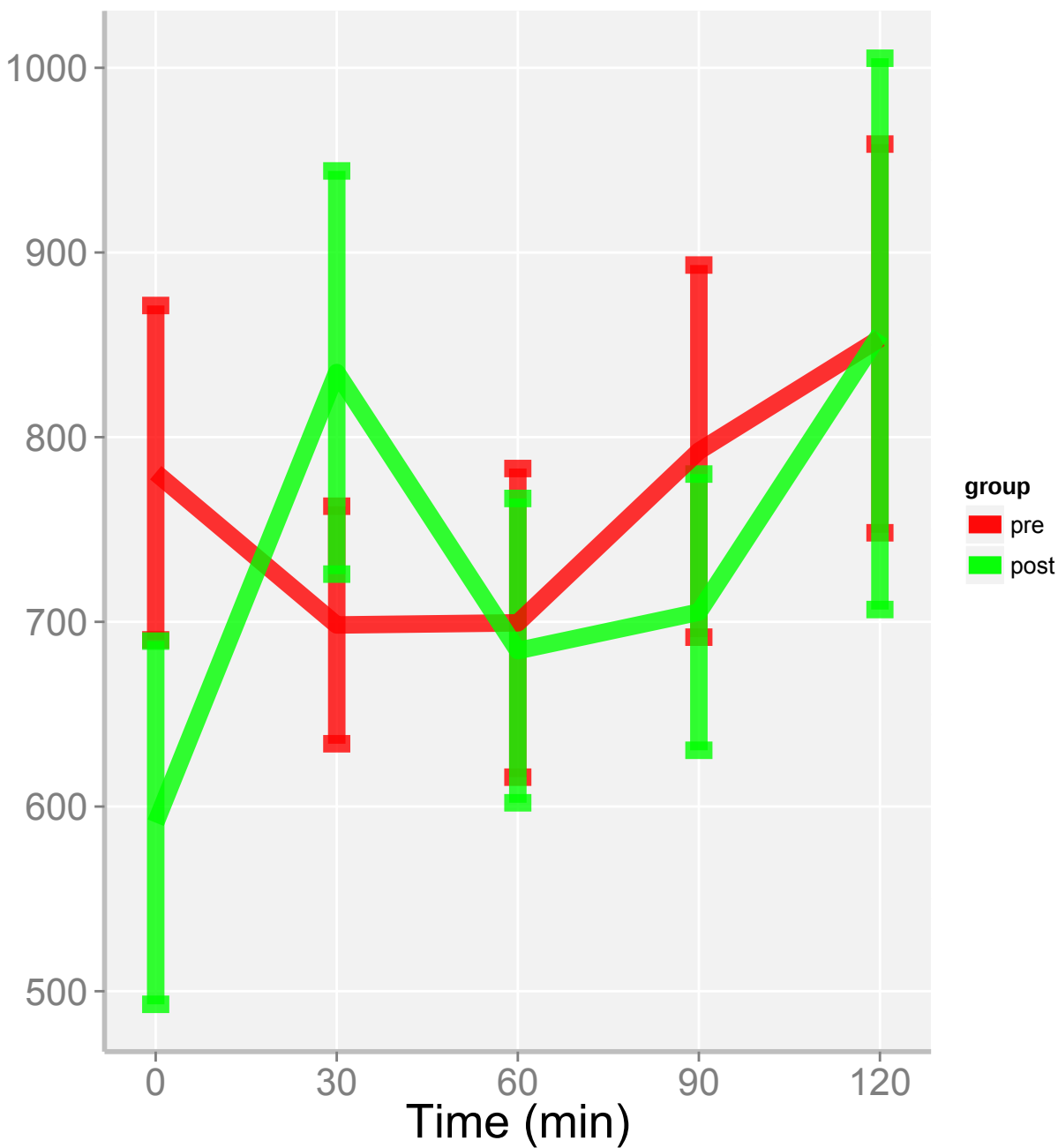


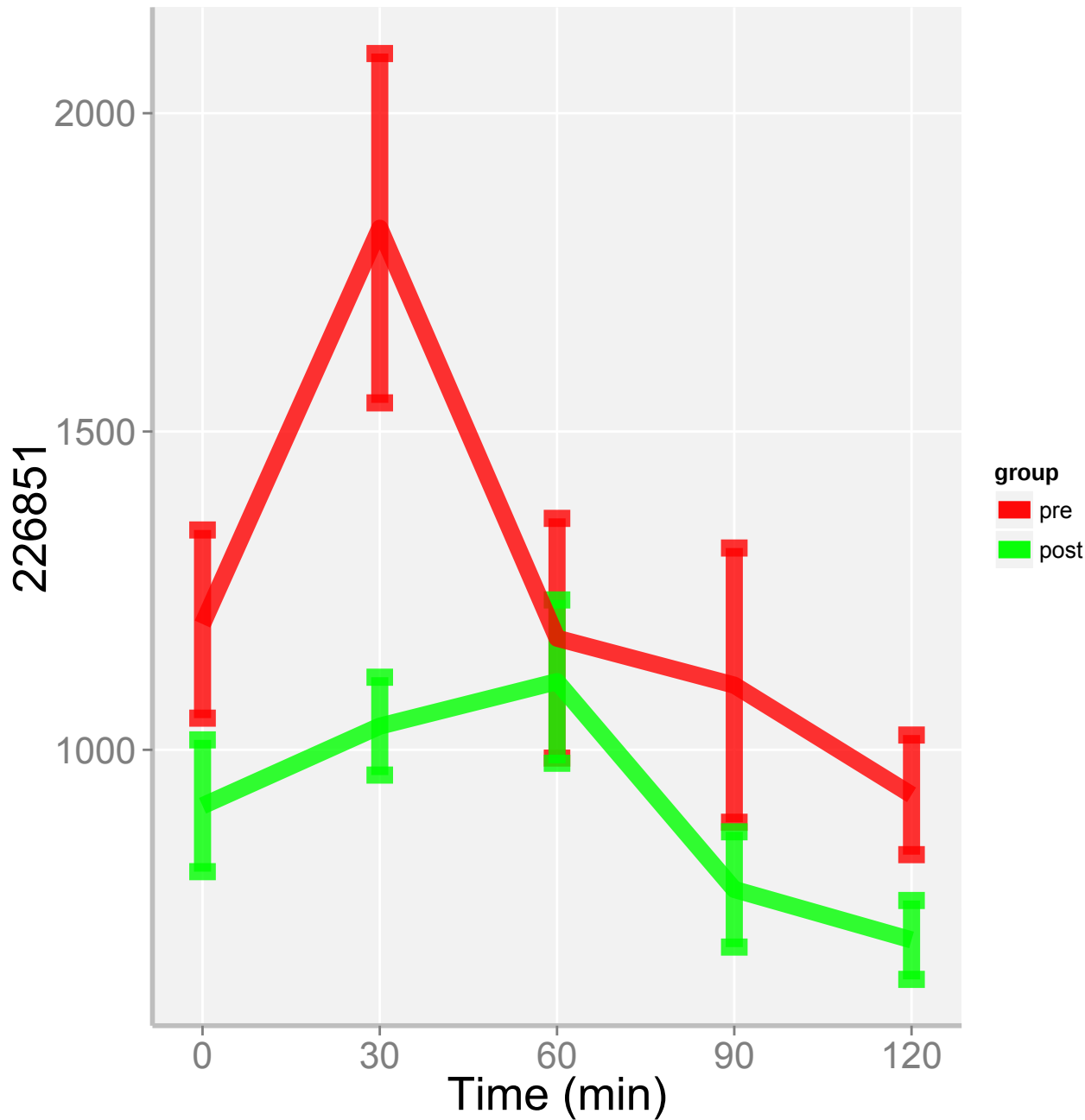


271416



226907





235972

1200

900

600

0

30

60

90

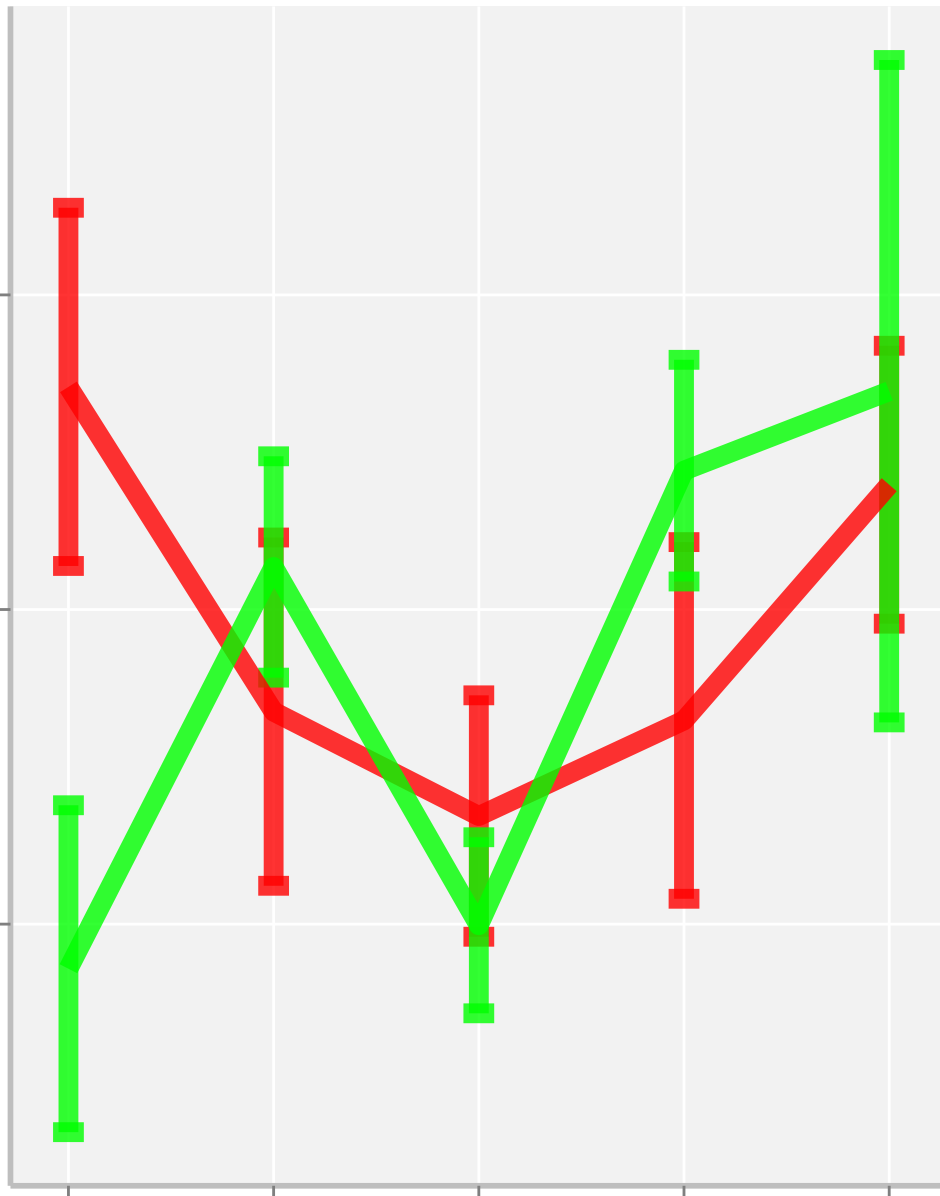
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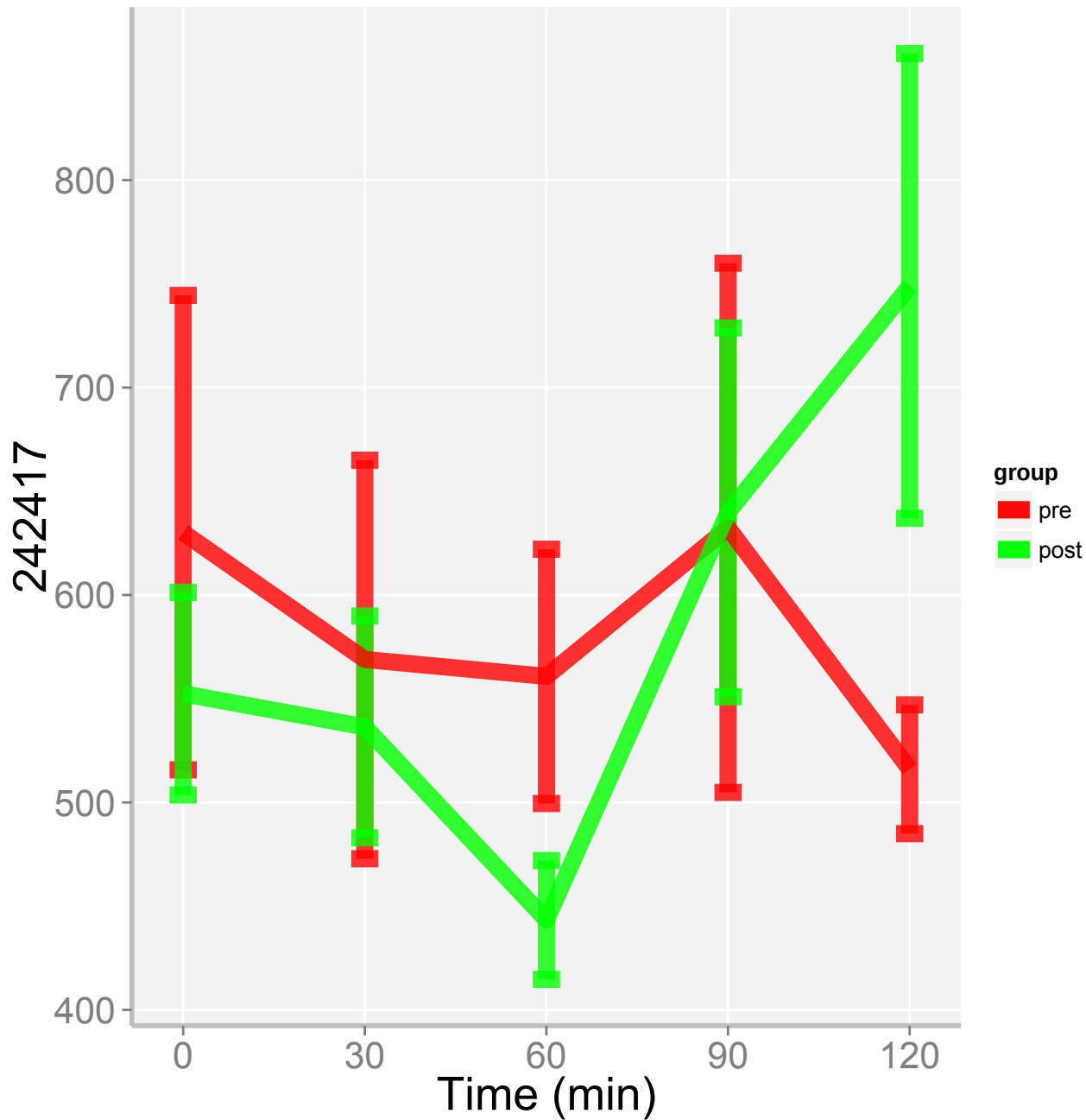
Time (min)

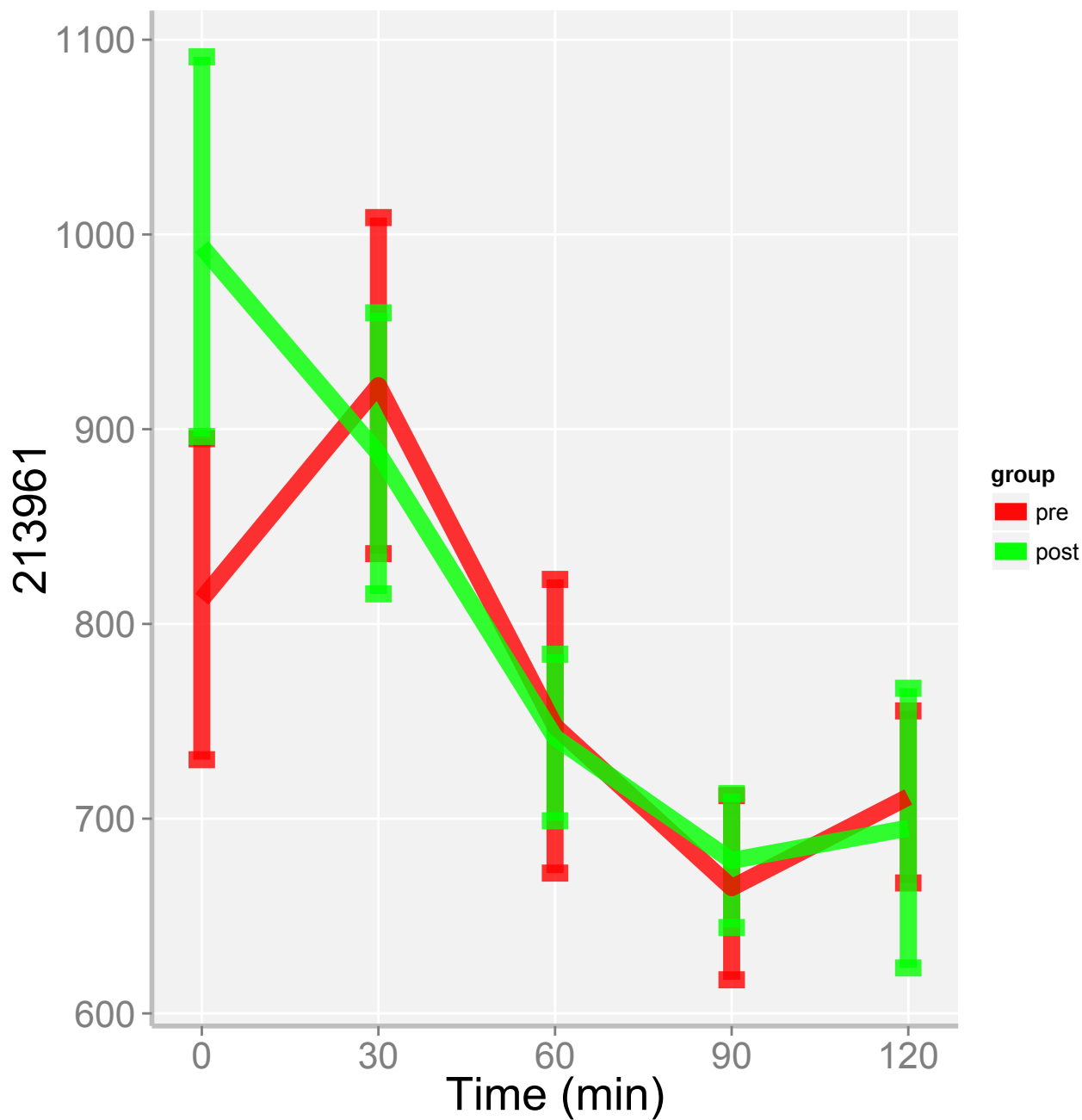
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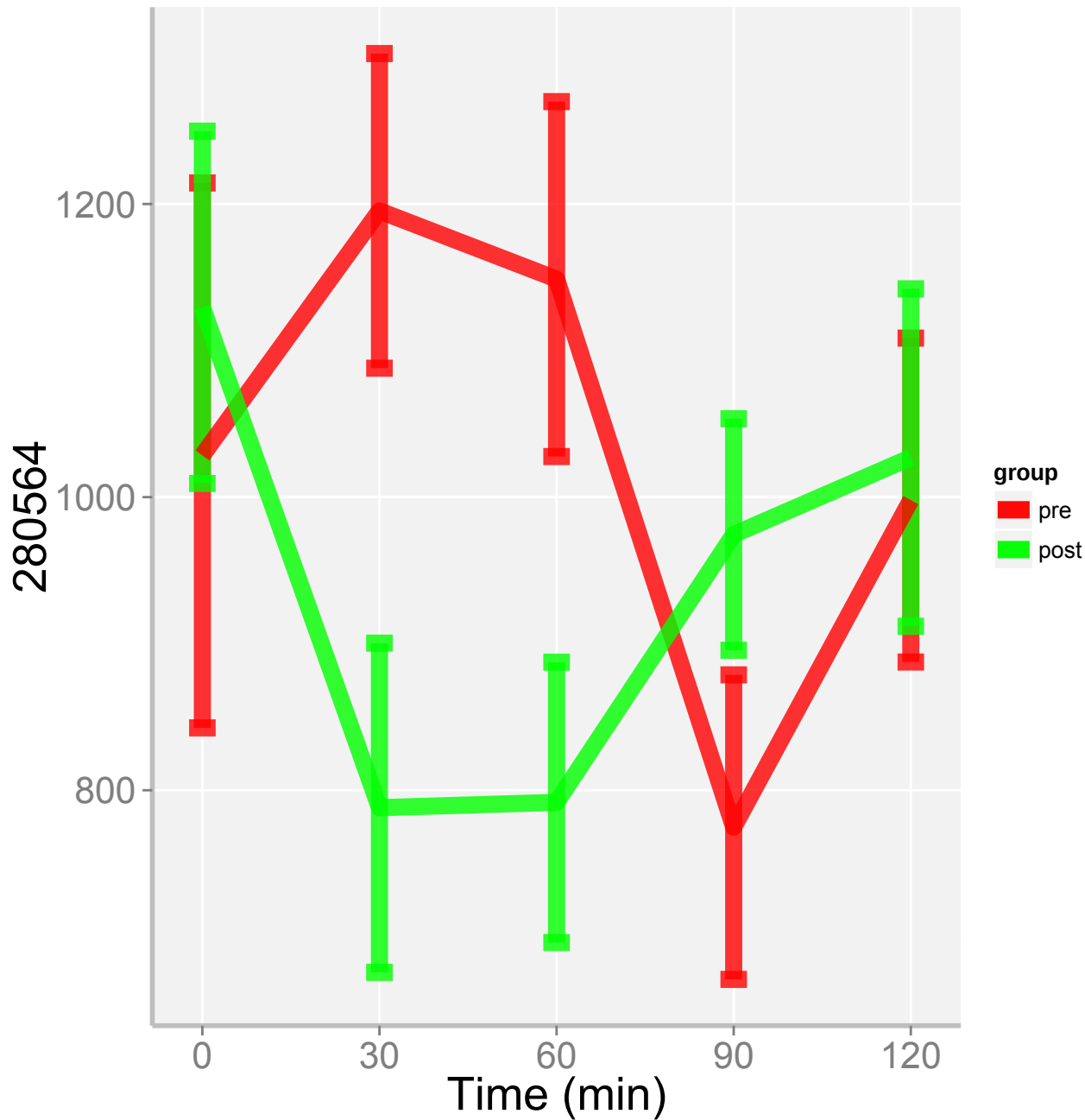
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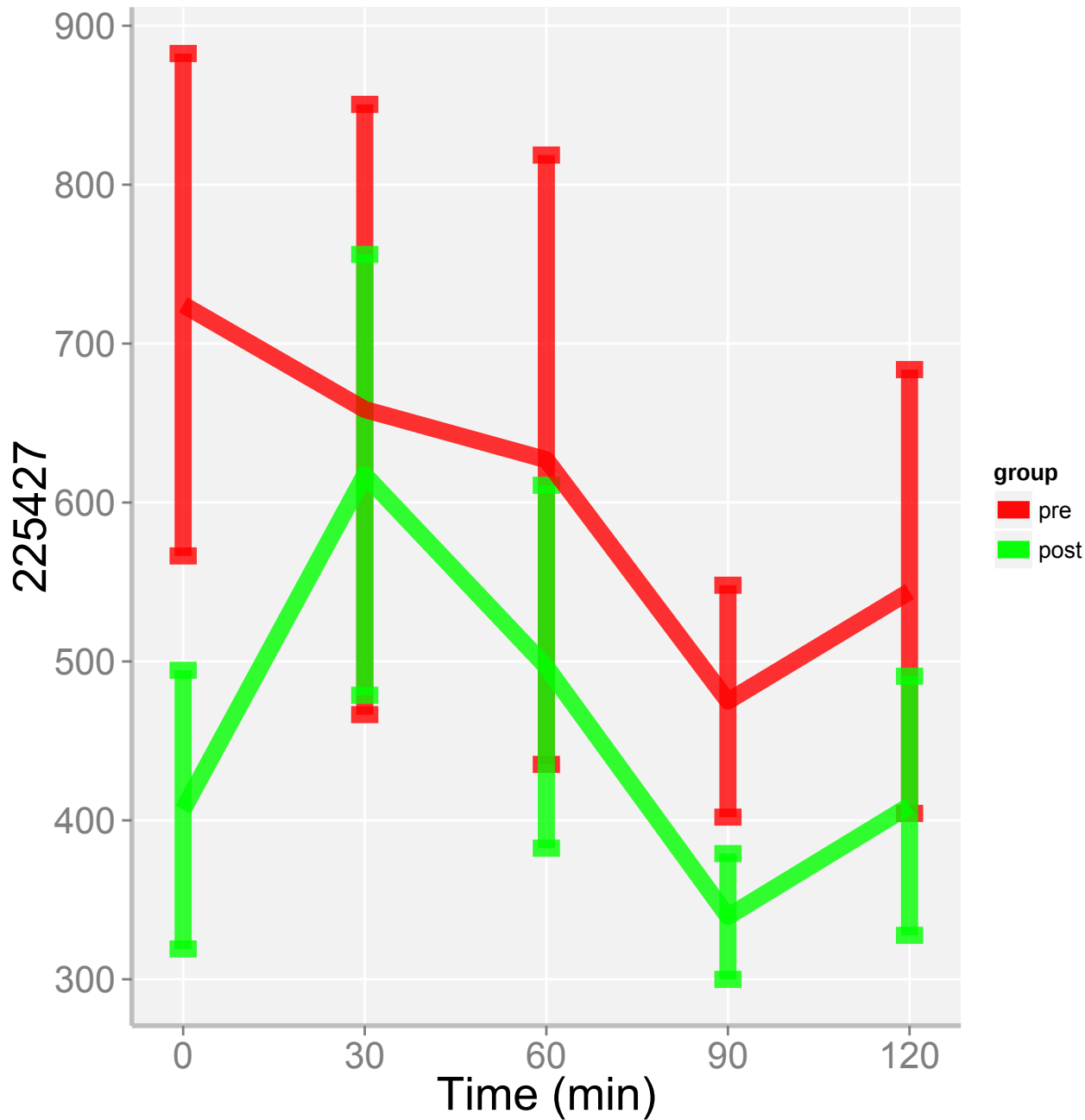
post











228528

1500
1200
900
600
300

0

30

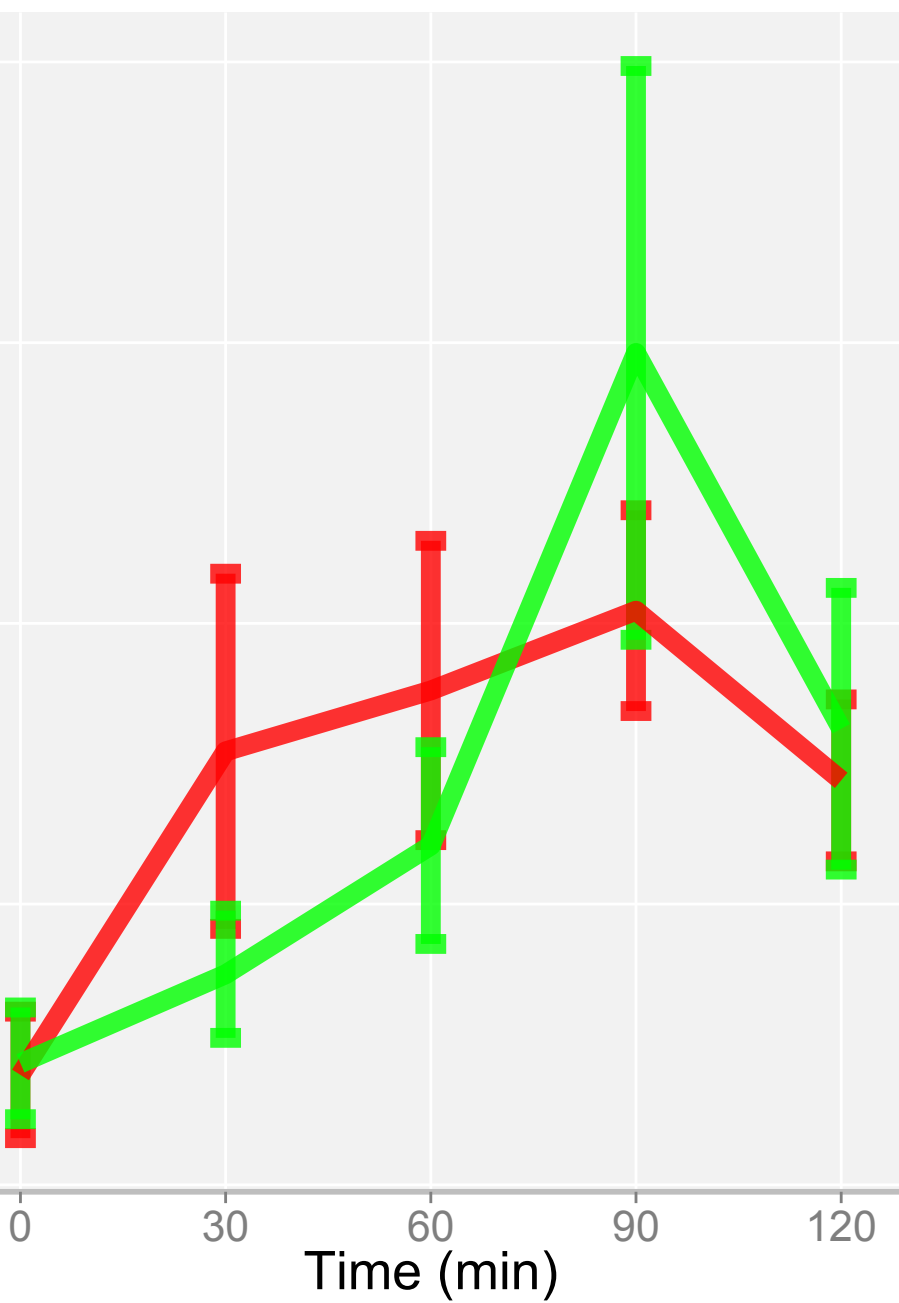
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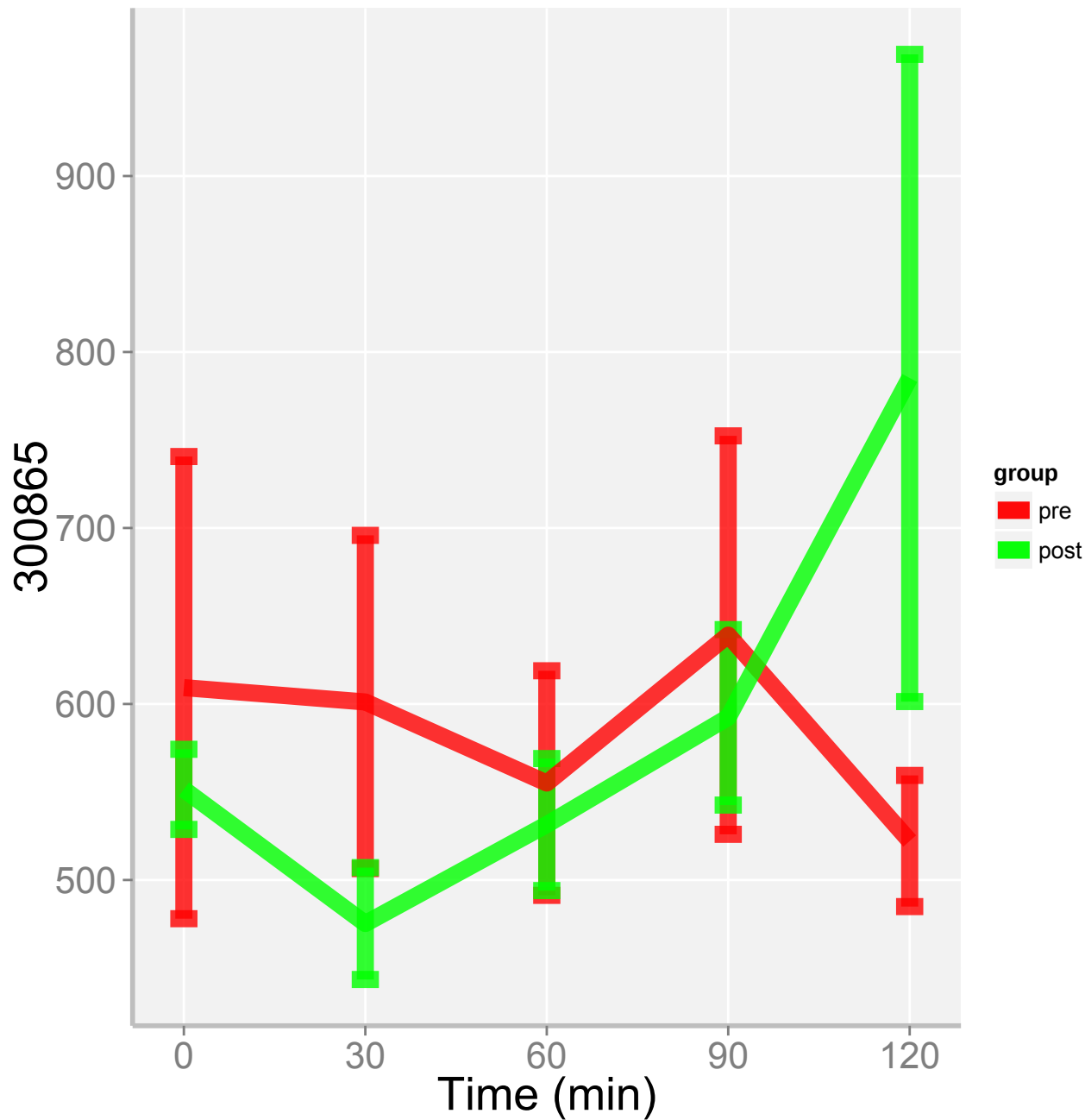
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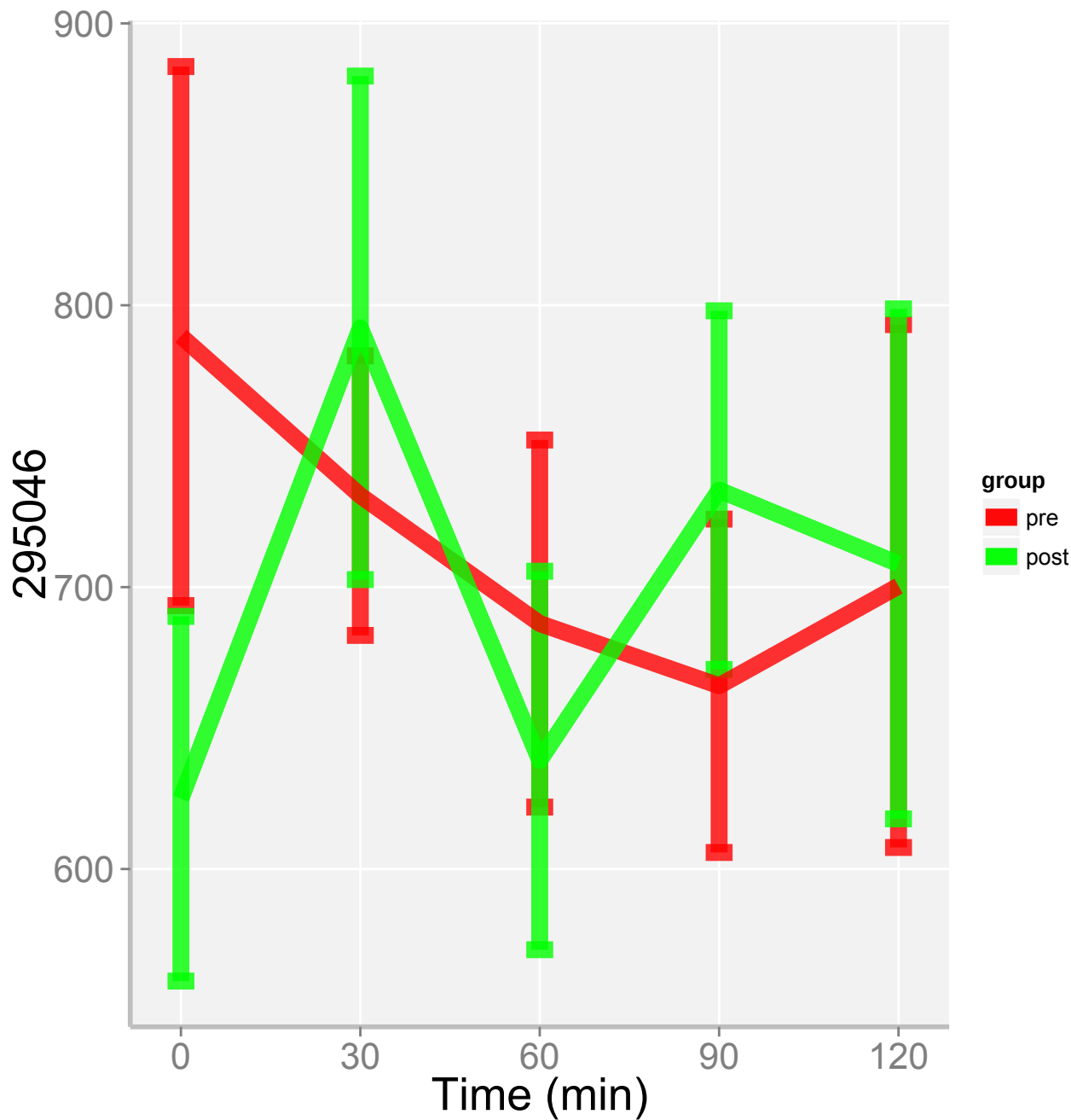
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Time (min)

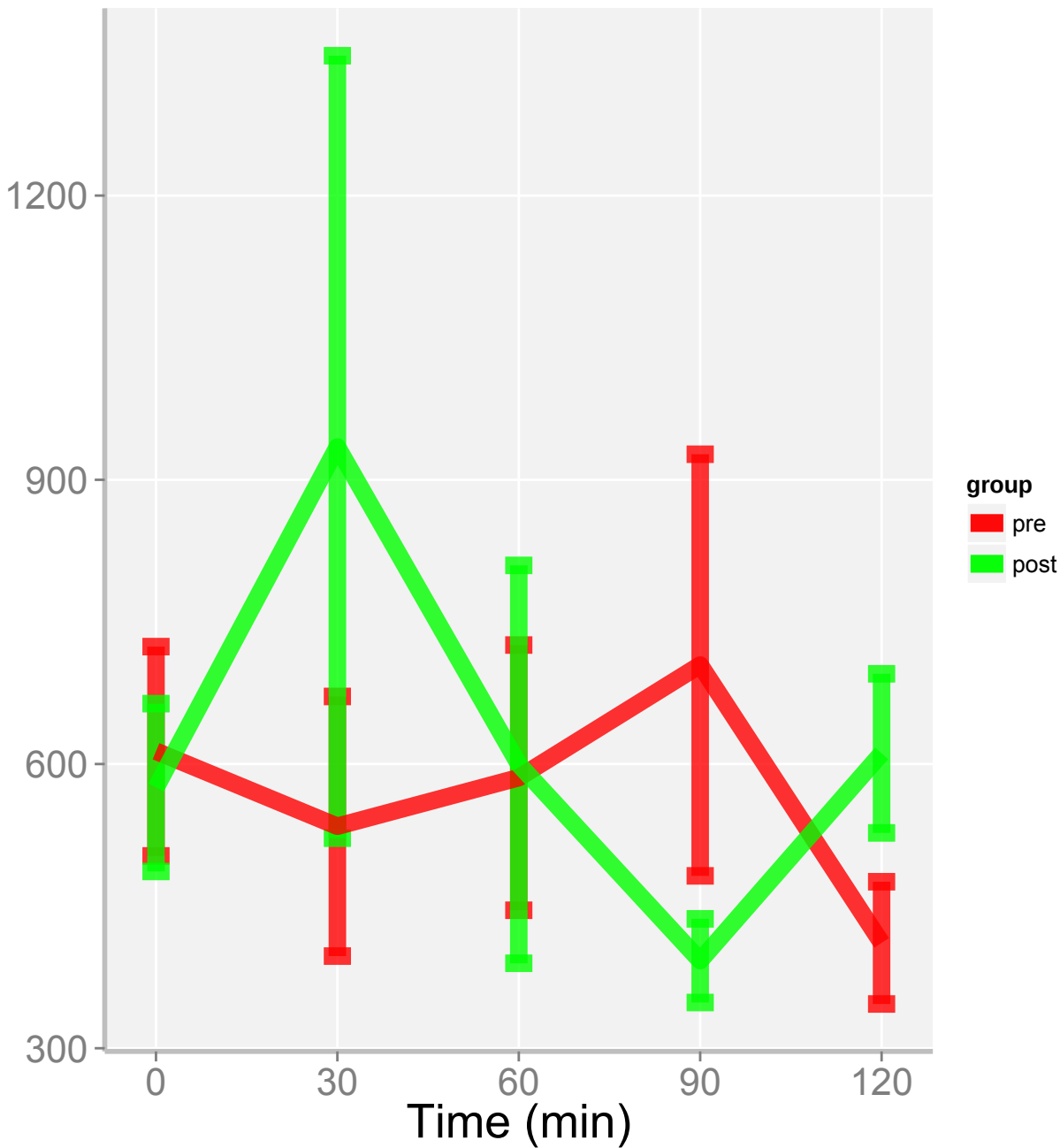
group
pre
post



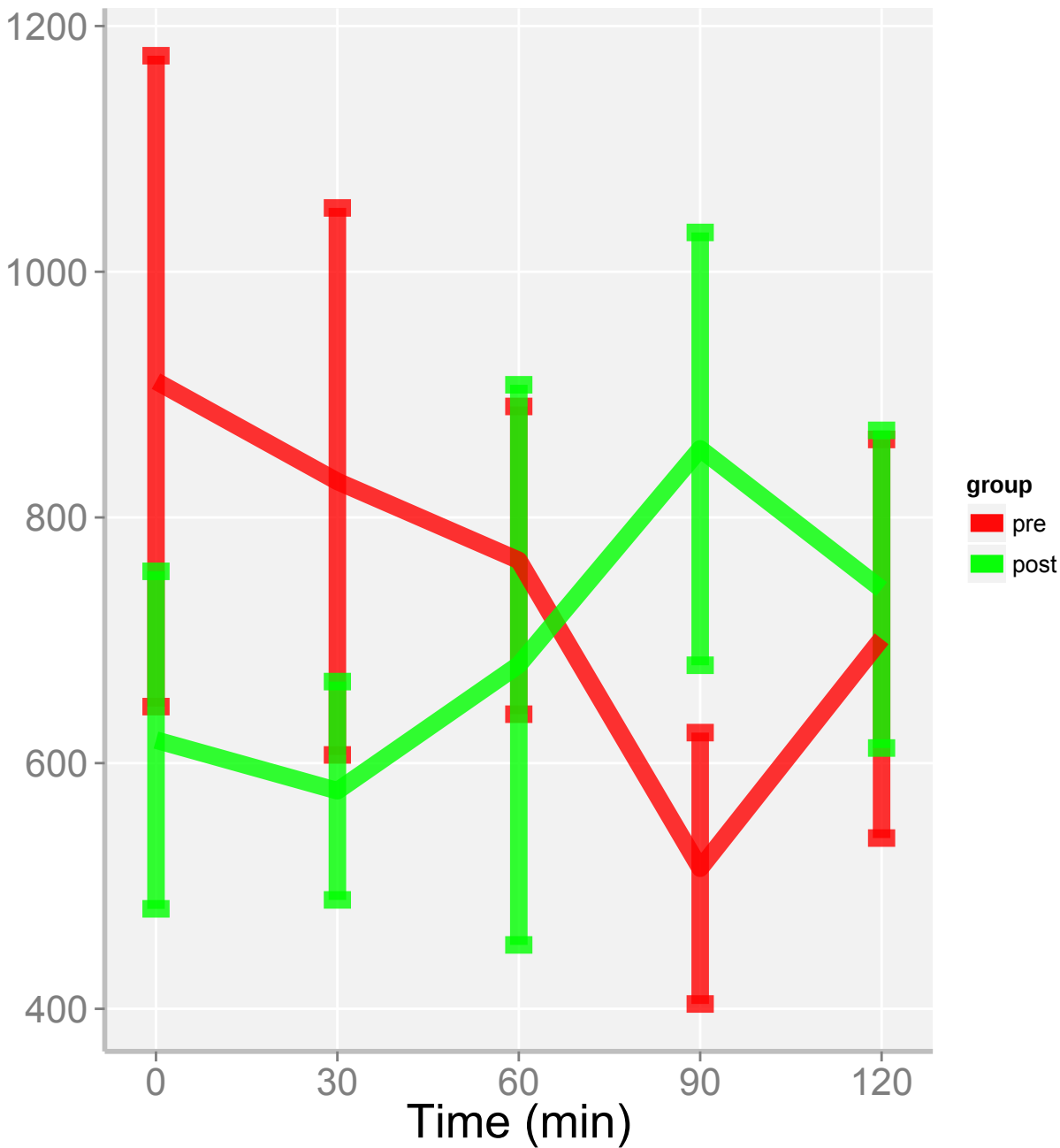


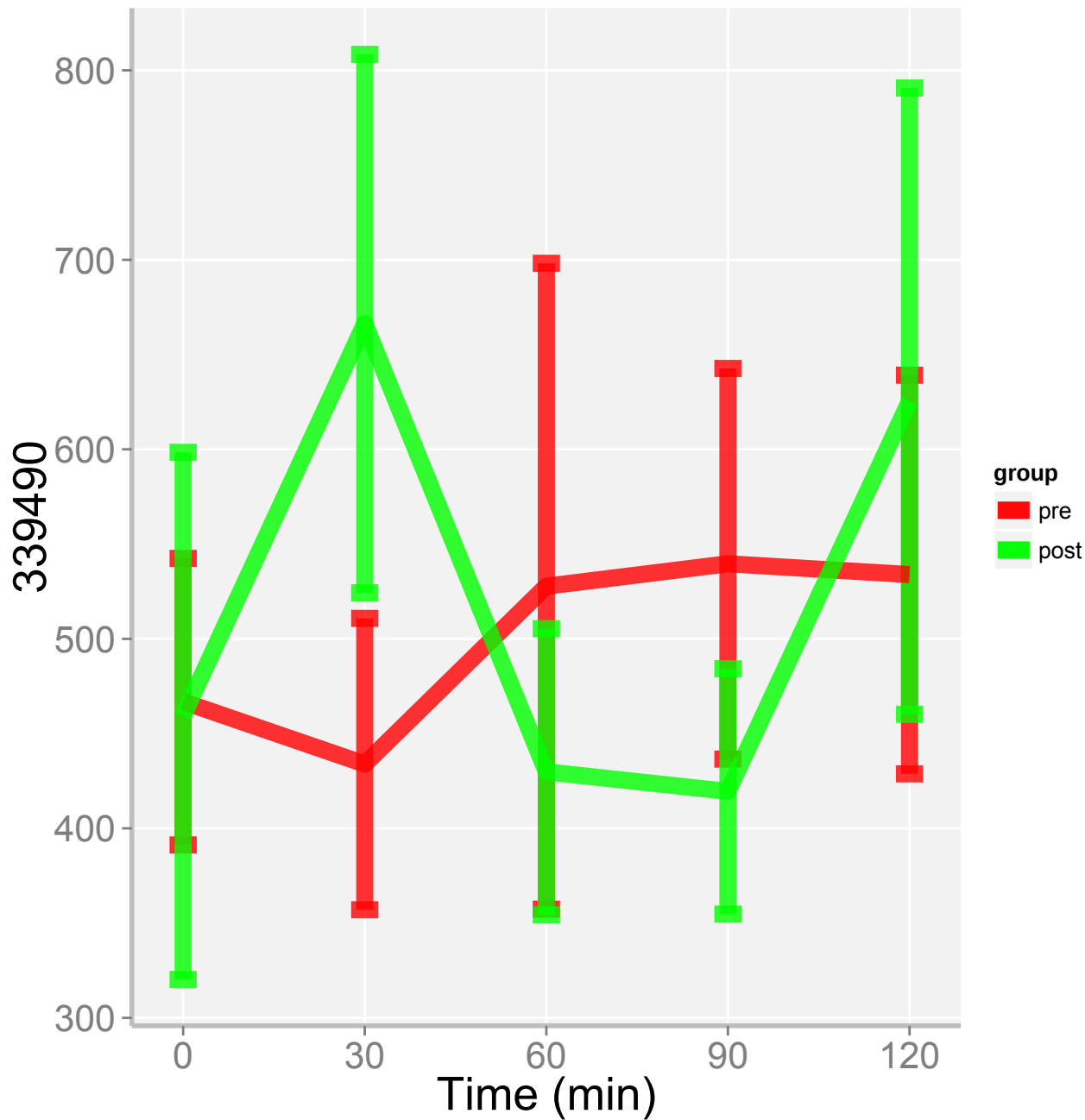


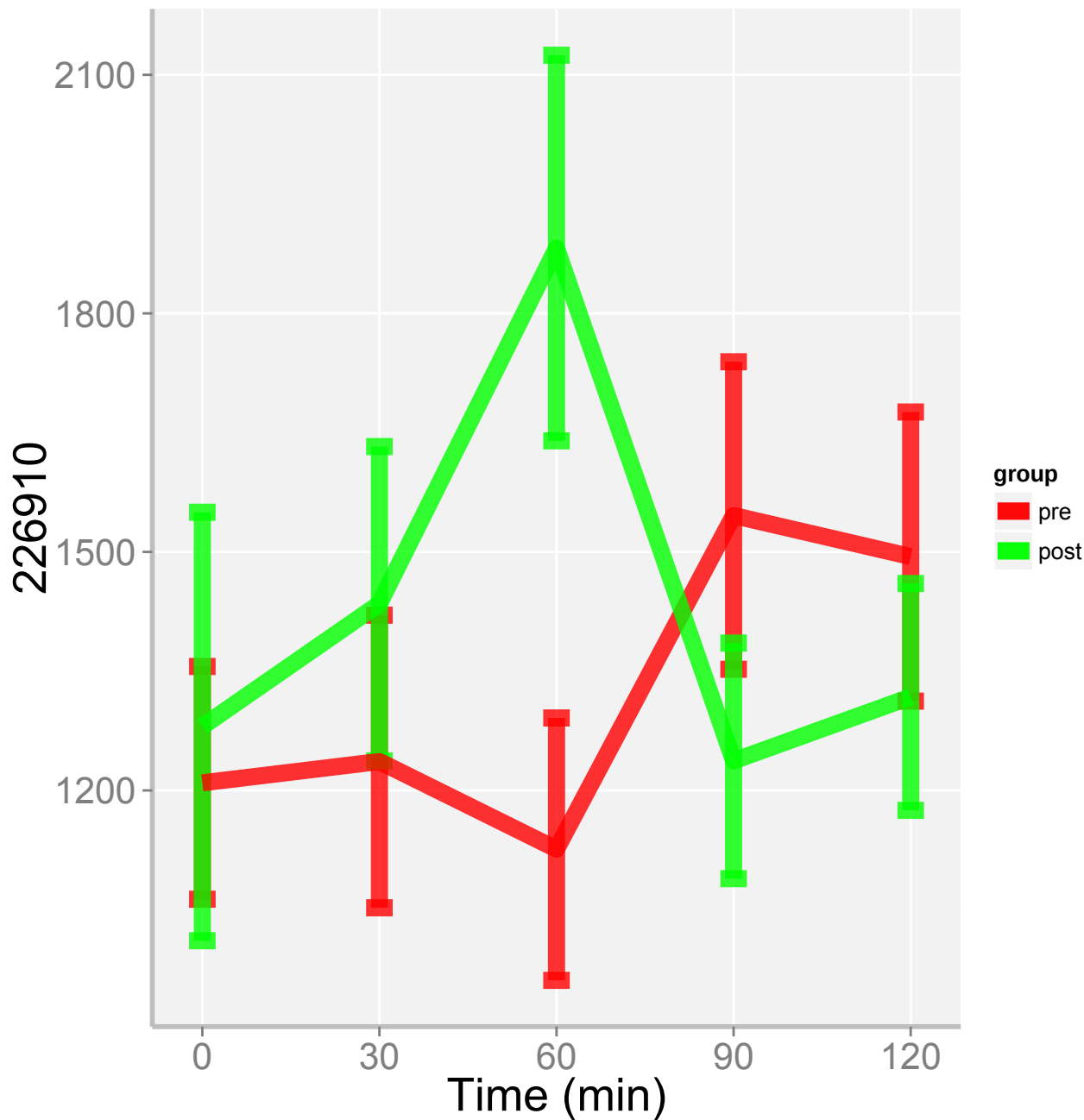
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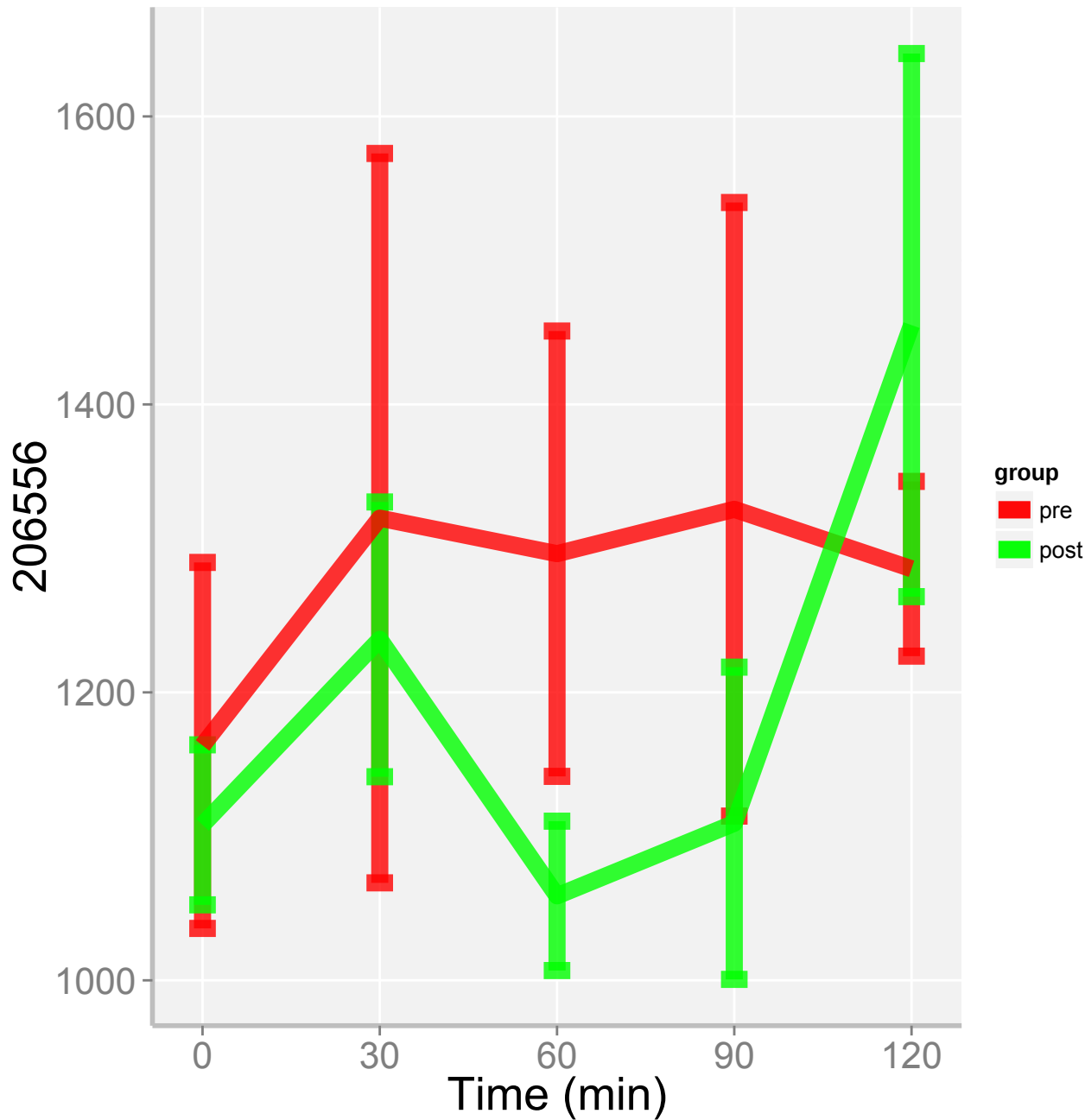


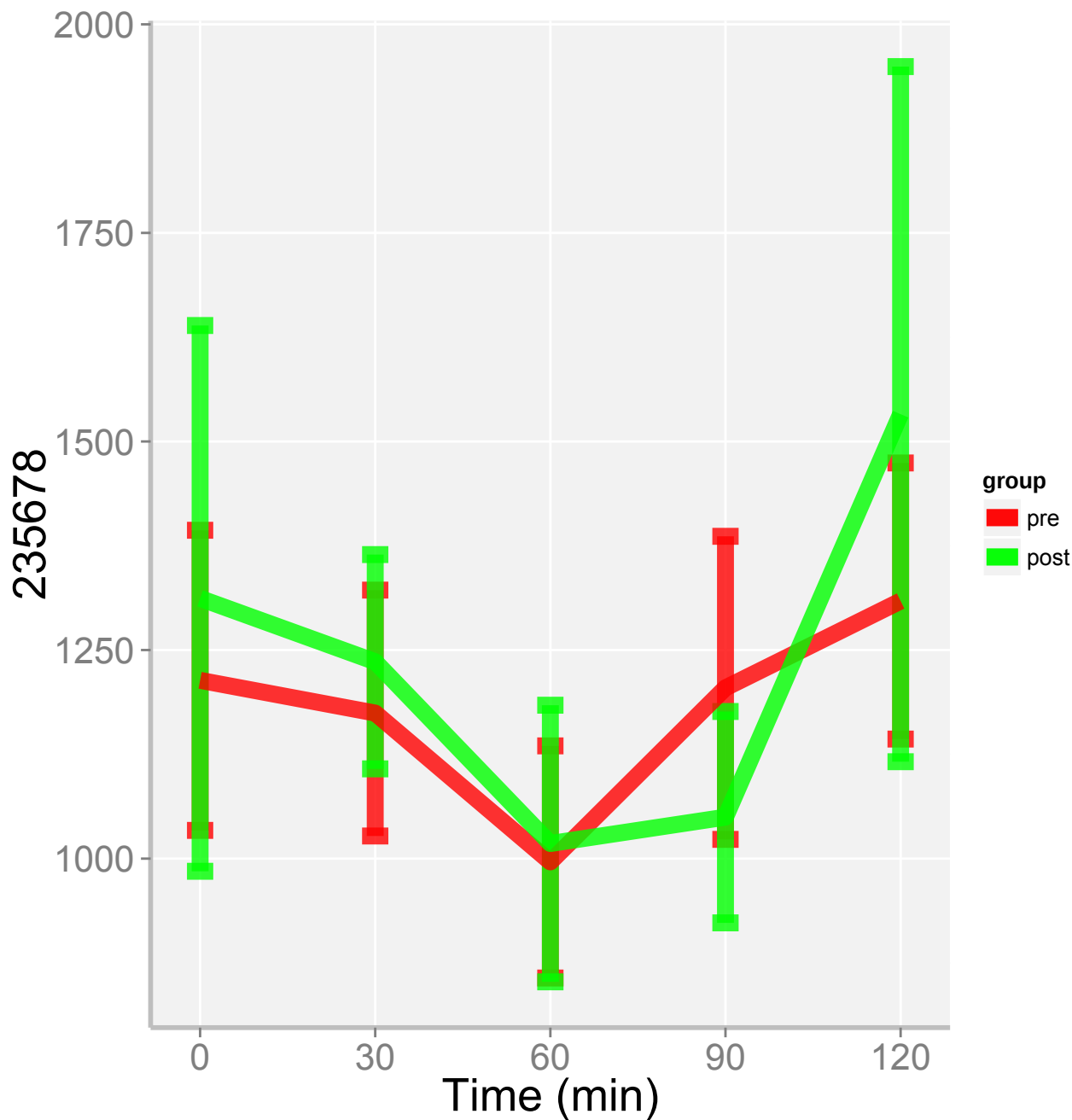
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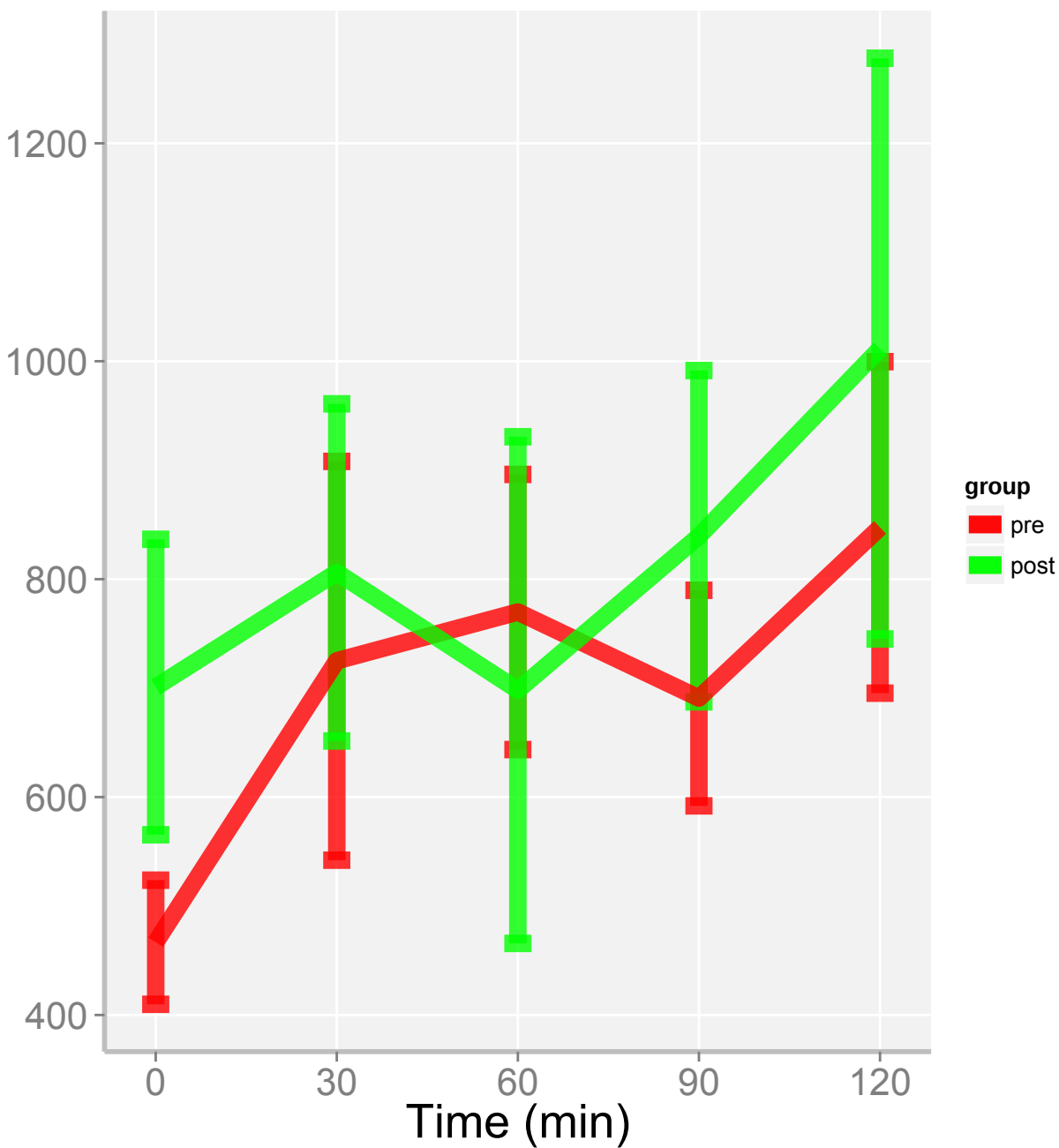


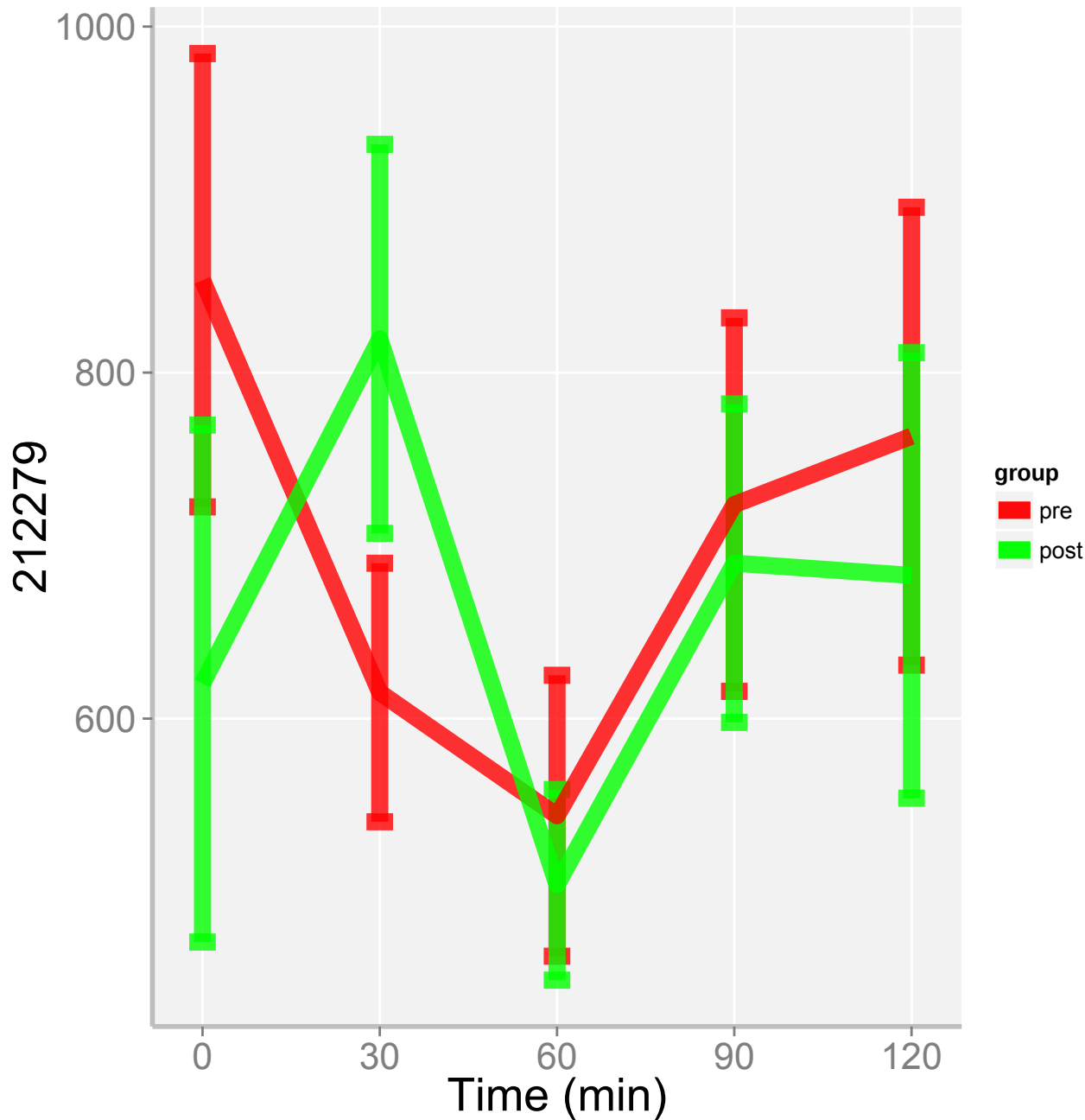


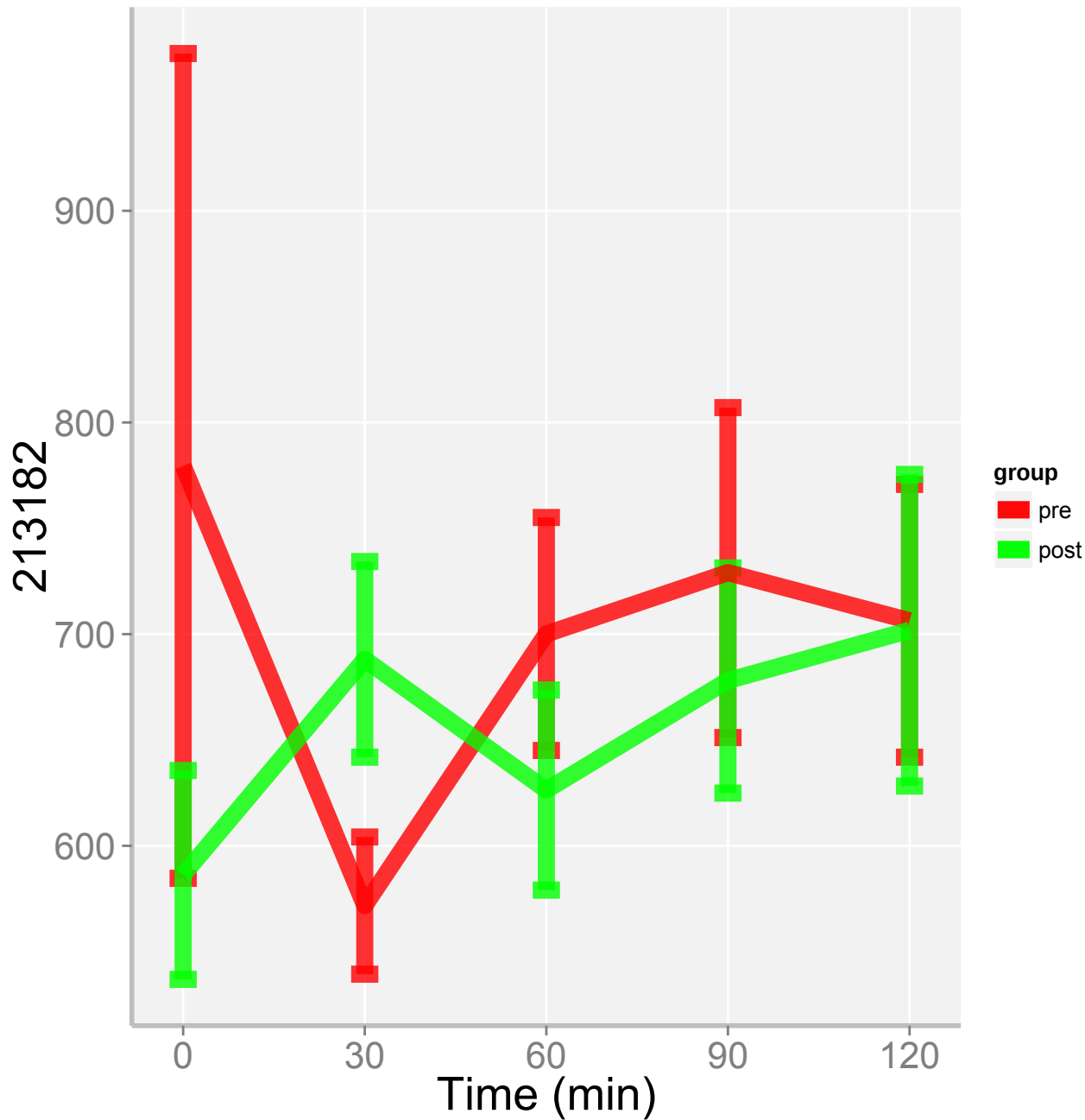


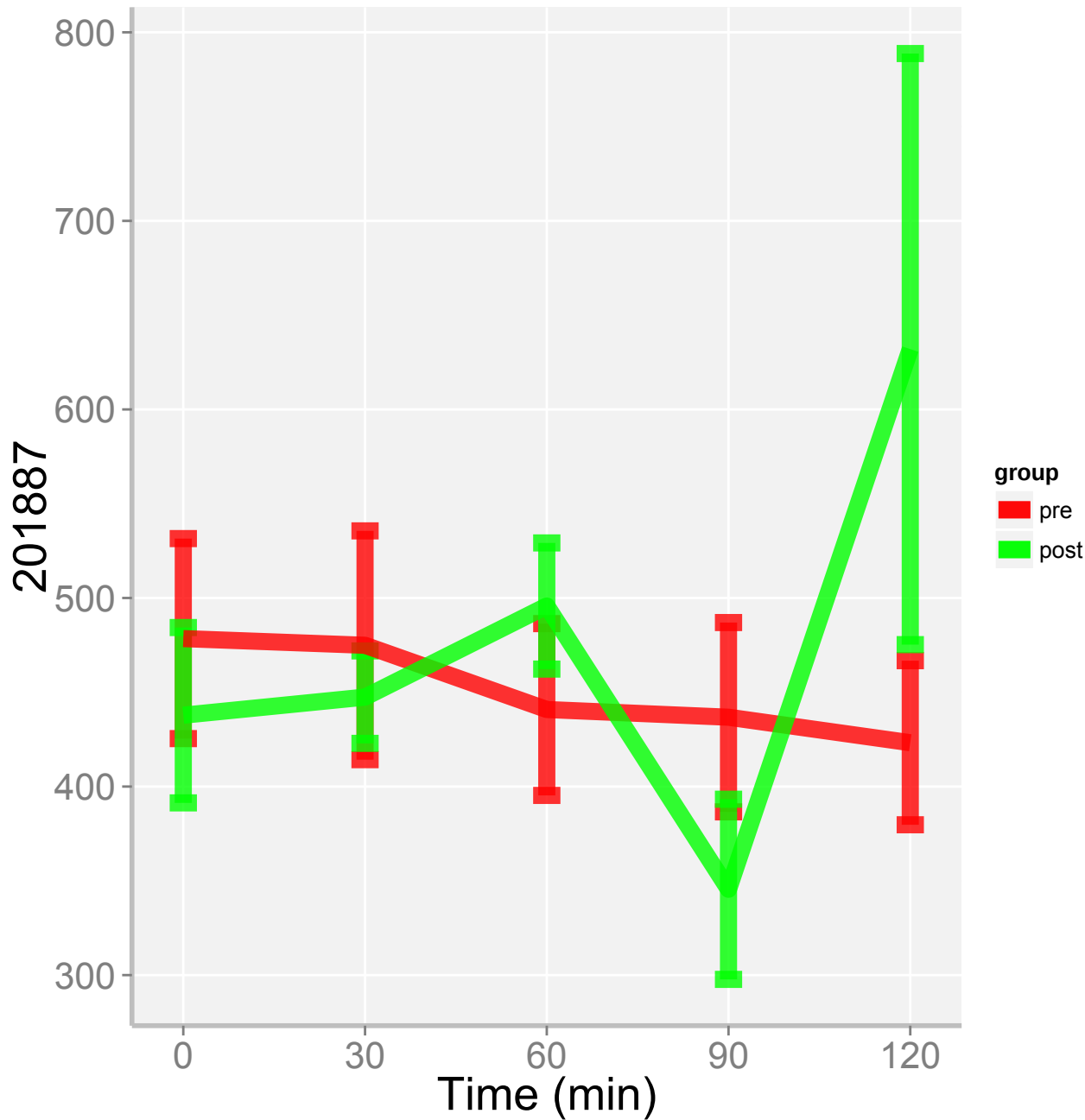


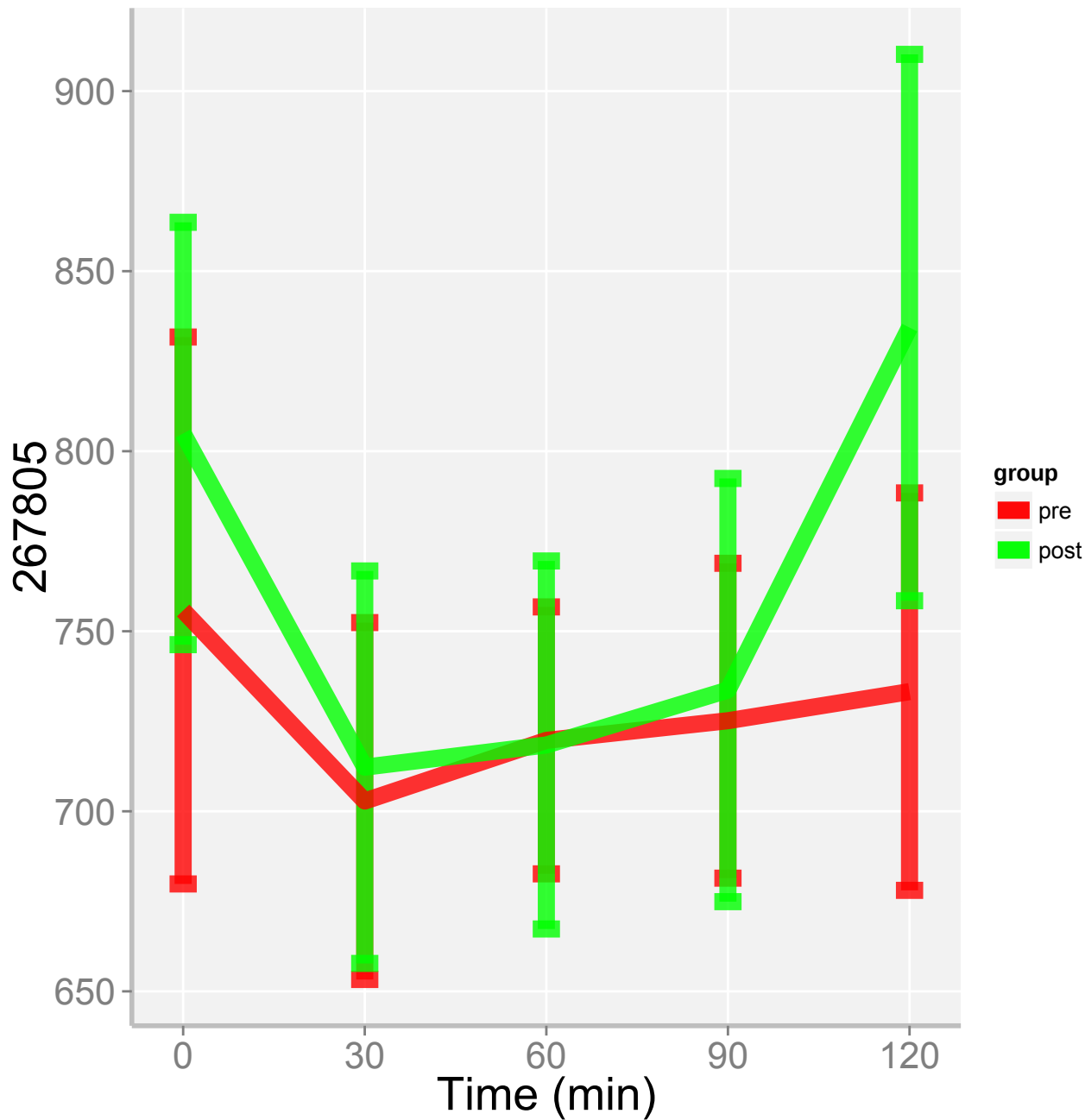
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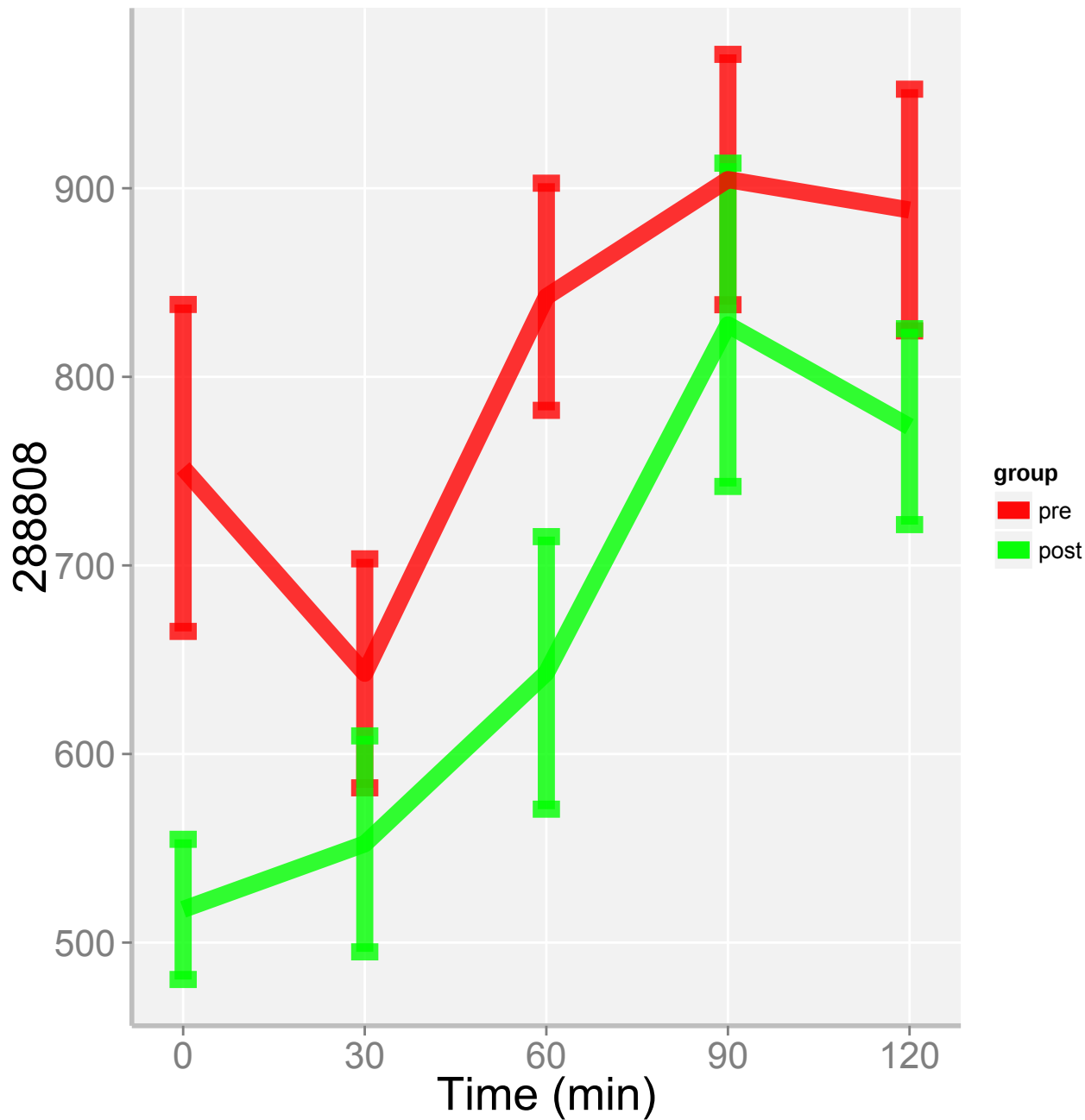


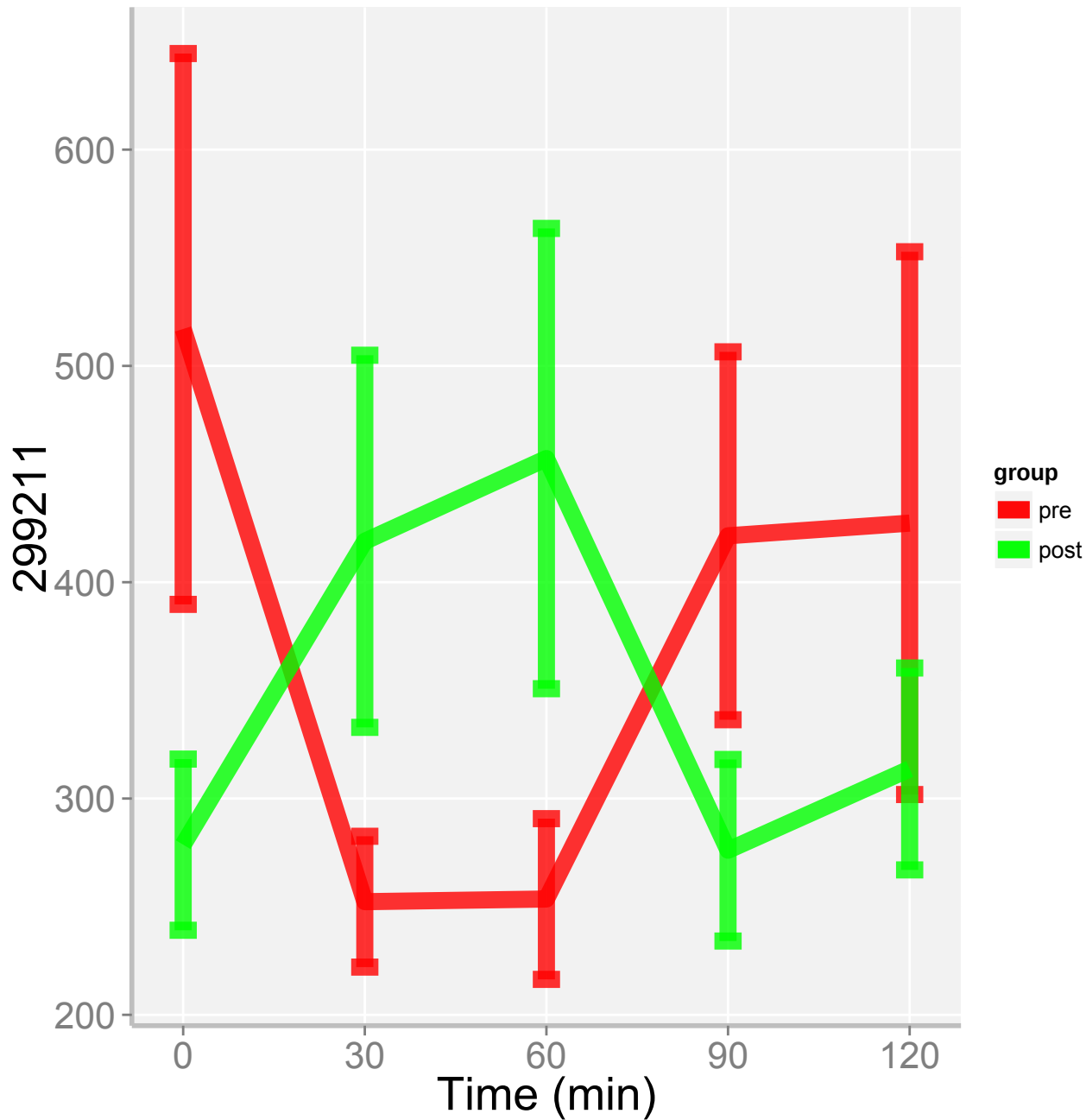


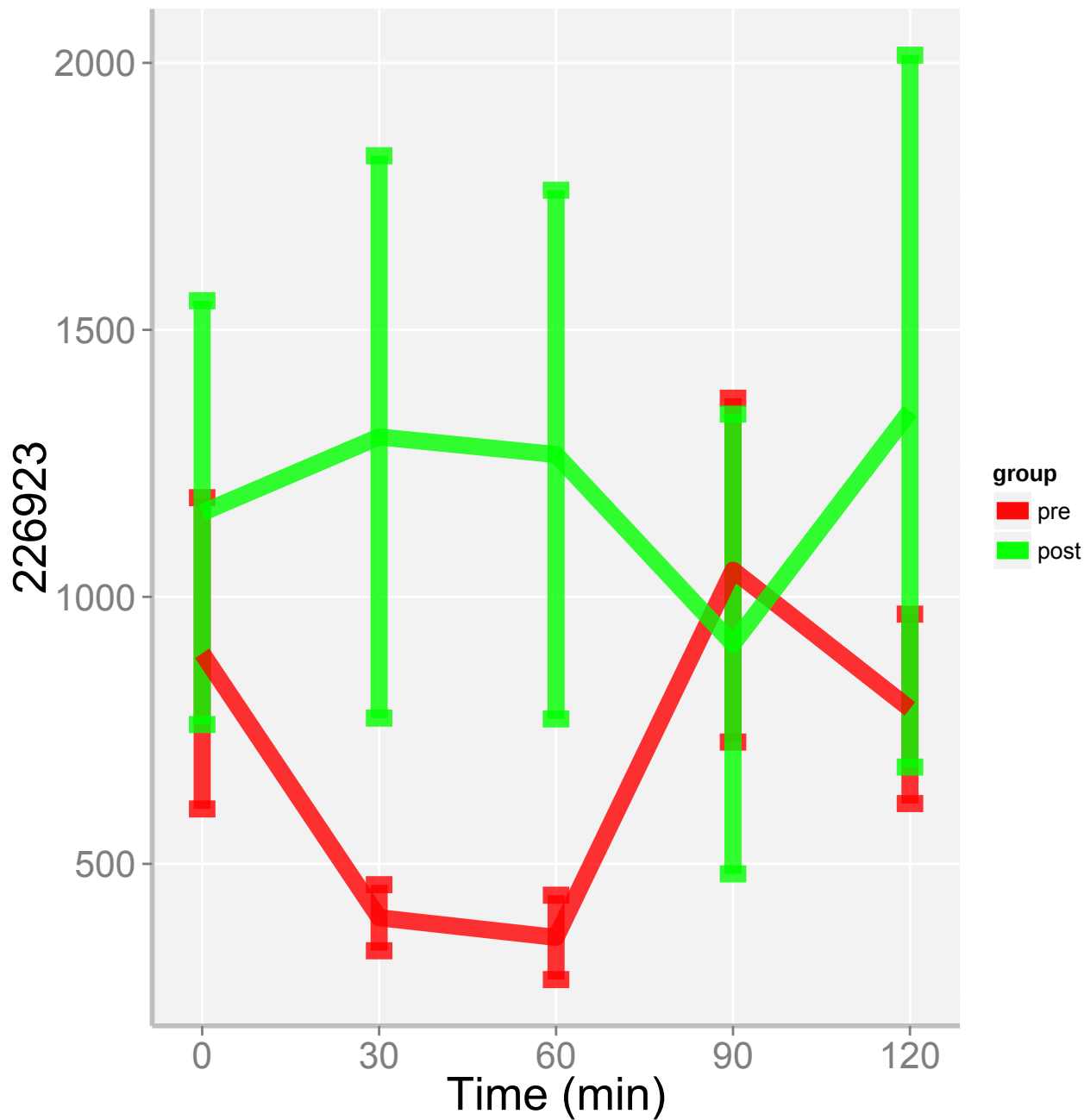












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