Dear editor,

Thank you very much for your comments and suggestions.

Those comments are all valuable andvery helpful for revising and improving our paper,as well as the important guiding significance to our researches.We have studied comments carefully andhave made correction which we hope meet with approval. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the reviewer's comments are as followings.

Responds to the reviewer's comments Reviewer #1:

1.Comment:Keywords: use MeSH keywords.

Response: Changed the keywords in the article using MeSH keywords.

2. Comment: The title of the study is not clear – add the type of study.

Response: Thank you for your valuable suggestion. In the broad sense of basic research, it is a more comprehensive understanding of phenomena and the discovery of new scientific research fields. The research title is designed based on the above definitions.

3.Comment: Make the abstract with sub-titles.

Response: Sub-titles added to abstract.

4.Comment: Mention the study design, study duration and study setting.

Response: This study combines the previous research of our team on the New Zealand white rabbit extension fixation contracture model, clinical extension type knee joint contracture model, and experimental design combined with the knee joint structure of rats. This study lasted for one year and five months from experimental design, fixed device design and production, experimental implementation, indicator testing, and article writing. The feeding and index detection of experimental animals were completed in the laboratory of the Second Affiliated Hospital of Anhui Medical University. The above content is described in the methods.

5.Comment: Mention the character of the rats.

Response: This experiment used male SD rats (8 weeks old, weighing 350g+). The rat has strong adaptability, and the male has a gentler personality than the female, with almost no active aggressive behavior. The above content is described in the methods.

6.Comment: Mention the treatment procedure in short.

Response: This experiment verifies the formation process of knee joint contracture in rats through different fixation times. When there is slight swelling during rat fixation, the tightness of the external fixation device will be adjusted in a timely manner, and no special treatment will be given for the rest.

7.Comment: Mention the statistical tests used for the study.

Response: In Article 2.9. Statistical Analysis, it is mentioned that the statistical test for this study is one-way ANOVA.

8.Comment: Mention the reports with 95% CI with upper and lower limits and its p score.

Response: The content is described in the main text, and statistical results are attached at the end of the response text.

9.Comment: The conclusion should be drawn on the basis of the study reports, not on an assumption.

Response: The revised conclusion is based on the measurement of the range of motion of the rat knee joint, the detection of the relevant fibrin in the knee joint Joint capsule and the knee joint muscle.

10.Comment: Mention in detail about knee extension contracture, its causes, adverse effects in human body.

Response: The first paragraph of the introduction provides a detailed introduction to the causes and adverse effects of knee extension contracture on the human body.

11.Comment: Mention the gaps monitored by the researcher in the previous studies.

Response: It is understood that this study is the first related study in a rat model of knee extension contracture. In previous preliminary experiments, only feasible rat knee joint fixation models were developed using different methods, and their formation mechanisms were not explored. Therefore, no gaps were found in monitoring.

12.Comment: Include the clinical significance of this study over clinicians, patients, and researchers.

Response: After the completion of the key contracture type, even if the model replicates the contracture caused by the patient's fixed joint in clinical practice, researchers can study the cause of joint contracture and establish new treatment methods. This model is a reliable tool for studying the prevention and treatment of knee joint extension contracture in rats, while making it possible to change the

dressing and keep the wound dry during the fixation of traumatic knee joint contracture. The above content is described in the discussion.

13.Comment: Mention the manufacture details of the splint used to immobilize the limb.

Response: After measuring the circumference of the lower limbs of rats, we designed a support as shown in the data in Figure 1A. The support was shaped using a wire cutting process, and a 0.5 inch thick sponge with the same shape as the support was pasted onto the support. Finally, the support was tightly attached to the lower limbs of rats for shaping and fixation. The specific fixation method is shown in Figure 1B. The above content is described in the methods.

14.Comment: Mention the outcome measures measured in the study and its reliability and validity.

Response: The outcome measures measured in the study and its reliability and validity are elaborated in the results.

15.Comment: The mentioned statistical tests are not apt to this study.

Response: In analysis of variance, a certain characteristic of the object to be examined is called an experimental indicator, which becomes a controllable factor affecting the experimental indicator. If only one factor changes in an experiment, it is called a single factor experiment. The factor of change between groups in this experiment is time, therefore single factor analysis of variance was used.

16.Comment: Present the reports with 95%CI with upper and lower limits for all outcome variables. 17. Mention the MCID and effect size of each variable.

Response: The statistical results are attached at the end of the response text.

18.Comment: Mention in detail and its mechanism how immobilization changes the outcome variables in these rats?

Response: The specific content is described in detail during the discussion.

19.Comment: The conclusion should be more concise and self-explanatory and drawn on the basis of study reports.

Response: Conclusion modification is consistent with the 9th comment requirement for modification.

Responds to the reviewer's comments Reviewer #1:

1.The Title should be more informative and its language should be corrected. Extension contracture or extending contracture? Following immobilization or in the conditions of external fixation? The authors did not report the state of extension contracture after the immobilization and they point to this fact in the discussion.

Response: Thank you for your valuable suggestion. The entire text will be standardized as extension contracture. As mentioned in the title, following immobilization is an extension type joint contracture caused by fixation of the lower limbs of rats in an extended position

2.Comment: Aim of the study is expressed incorrectly and is different from the aim in the Introduction. The study does not elucidate therapeutic points but it is stated about therapeutic strategies… But this is not the aim of this experimental model.

Response: According to your suggestion, the purpose of the modification is The study aimed to validate the formation process of knot extension contract.

3.Comment: Myogenic contracture progressed very quickly during the initial 2 weeks of immobilization; after 2 weeks, the contracture gradually changed from myogenic to arthrogenic. It means that the first disappears. Or myogenic alterations remain?

Response: As shown by the range of motion results, the progression of myogenic contracture was not significant after 2 weeks and was not statistically significant.

4.Comment: It is concluded that myogenic contracture is stabilized after 2 weeks of immobilization, while arthrogenic contracture is stabilized after 3 weeks of immobilization. The statement should be in past tense. This was found by this study.

Response: Thank you for your suggestion. The statement has been revised to the past tense.

5.Comment: In the abstract and throughout the text, many sentences that should be divided into several phrases are united though they state quite different notions. It is better to change them and put full stop instead of semicolon or comma, e.g. The study aimed to elucidate the formation process and therapeutic strategies of knee extension contracture, we developed a rat model using an aluminum external fixator.

Response: Thank you for your comment. Relevant Punctuation have been modified

6.Comment: Key words: the first two should be corrected.

Response: Changed the keywords in the article using MeSH keywords.

7.Comment: Line 45 The most common cause of knee contracture is prolonged immobilization, which is clinically used as an acute treatment for musculoskeletal disease to relieve knee pain and reduce inflammation. What about external fixation?

Response: The most common clinical fixation method is plaster or brace external fixation, which is closer to clinical fixation methods compared to other animal models of flexion knee joint external fixation.

8.Comment: Lines 46-53 A lot of repeated words. Rephrase please… Range of activity or range of motion?

Response: The relevant content of the entire text has been uniformly changed to range of motion.

9.Comment: Key words: the first two should be correctedLines 69-71 Two notions are in the same sentence It is critical to study knee extension contracture using appropriate animal models, different fixation methods, the length of the muscle during fixation affects different muscle changes. Further on, sentences should be divided into separate phrases and by full stop.

Response: Change the content to Different fixation methods have different effects on muscles.

10.Comment: Line 76 sounds ridiculous. The knee joint of rats is similar to that of human and is easy to obtain.

Response: Change the content to The structure of the knee joint of rats is similar to that of humans and is easier to obtain compared to other animals.

11.Comment: The aim was formulated too clumsy: In the present study, we aimed to explore the process of knee joint contracture formation during immobilization by creating a rat model of knee extension contracture by externally fixing the knee in a straightened position.

Response: Thank you for your valuable suggestion. We have followed your advice and changed it to We aimed to study the process of knee extension contracture formation during external fixation of the knee in a straightened position in a developed by us rat model.

12.Comment: I would omit the word establishment in point 2.1.

Response: I have deleted the word establishment in point 2.1.

13.Comment: Line 89 The fixed result evaluation ????? Figure 2 A shows a fixed picture????? Better: Results of applied fixation

Response: Thank you for your valuable suggestion. It has been changed to Figure 2 A shows results of applied fixation

14.Comment: Figure 1 (B) shows the fixed schematic??? Or diagram of fixation.

Response: Changed to The fixing device is shown in Figure 1 A and fixing schematic diagram is shown in Figure 1 B..

15.Comment: Line 112 The control group did not do any intervention (active or passive voice?). Was the knee fixed?

Response: The control group did not receive any intervention and did not fix the knee joint of the control group.

16.Comment: Line 120 The skin was separated, and the knee mobility was measured using the measurement device designed for this experiment. But line 124 says Knee mobility was measured after the separation of the muscles. Separated or removed?

Response: Joint contracture is divided into arthrogenic contracture and myogenic contracture. Different fixation durations cause different contractures, as described in line 120. First, separate the skin to measure the total contracture, then separate the muscles to measure arthrogenic contracture, and finally calculate muscle derived contracture according to the formula mentioned in line 145.

17.Comment: Line 131-132 What is cruzi needle?

Response: Expression error, The cruzi need changed to The kirschner wire.The kirschner wire is a commonly used internal fixation material in orthopedics.

18.Comment: Figure 3 is not schematic diagrams but photos.

Response: Corrected in the article.

19.Comment: *2.7. Immunohistochemistry* is written like instructions. Please, change into the indicative mood.

Response: The content mentioned in the article has been changed to the indicative mood.

20.Comment: Figure 4 There are spelling mistakes.

Response: Sorry, the spelling error has been corrected.

21.Comment: What are muscle structure and joint structure? I think the the terms have been misused?It is better to use in the plural form. Joint structure includes everything the joint is composed of. May be it is better to use articular structures as the authors use the term arthrogenic contracture.

Response: Thank you for your valuable comment. It has been changed to use in the plural form.

22.Comment: It was stated that in this model, the ankle joint and the knee joint were inevitably fixed together. Because the lower limb of the rat is shaped like a cone, the ankle joint was plantarflexed at 60° and fixed with the knee joint to prevent slippage of the aluminum splint.Please, mind the knee was not fixed with the ankle but both the knee and ankle had to be fixed in this model.

Response: This experiment attempted to fix only the knee joint of rats. Due to the cone-shaped shape of the lower limbs of the rats, the brace that only fixed the knee joint was prone to slipping. Although the improved brace fixed the ankle joint, the brace rarely experienced slipping.

23.Comment: It is better to state that your study found not suggested.

Response: Following your comment, the conclusion has been changed and the suggested conclusion has been removed.

Muscle cross-sectional area									
Number of families	1								
Number of comparisons per family	45								
Alpha	0.05								
Tukey's multiple comparisons test	Mean Diff.	95.00% CI of diff.	Significant?	Summary	Adjusted P Value				
C vs. 1d	43.93	-55.45 to 143.3	No	ns	0.8999	A-B			
C vs. 2d	86.33	-13.05 to 185.7	No	ns	0.14	A-C			
C vs. 3d	106.9	7.519 to 206.3	Yes	*	0.0258	A-D			
C vs. 1w	280	180.6 to 379.4	Yes	****	<0.0001	A-E			
C vs. 2w	598	498.6 to 697.3	Yes	****	<0.0001	A-F			
C vs. 3w	666.6	567.2 to 765.9	Yes	****	<0.0001	A-G			
C vs. 4w	688.8	589.4 to 788.2	Yes	****	<0.0001	A-H			
C vs. 6w	723.4	624.0 to 822.8	Yes	****	<0.0001	A-I			
C vs. 8w	744	644.6 to 843.4	Yes	****	<0.0001	A-J			
1d vs. 2d	42.4	-56.98 to 141.8	No	ns	0.9176	B-C			
1d vs. 3d	62.97	-36.41 to 162.3	No	ns	0.5379	B-D			
1d vs. 1w	236.1	136.7 to 335.4	Yes	****	<0.0001	B-E			
1d vs. 2w	554	454.6 to 653.4	Yes	****	<0.0001	B-F			
1d vs. 3w	622.6	523.3 to 722.0	Yes	****	<0.0001	B-G			
1d vs. 4w	644.9	545.5 to 744.2	Yes	****	<0.0001	B-H			
1d vs. 6w	679.5	580.1 to 778.8	Yes	****	<0.0001	B-I			
1d vs. 8w	700.1	600.7 to 799.5	Yes	****	<0.0001	B-J			
2d vs. 3d	20.57	-78.81 to 119.9	No	ns	0.9995	C-D			
2d vs. 1w	193.6	94.27 to 293.0	Yes	****	<0.0001	C-E			
2d vs. 2w	511.6	412.2 to 611.0	Yes	****	<0.0001	C-F			
2d vs. 3w	580.2	480.9 to 679.6	Yes	****	<0.0001	C-G			
2d vs. 4w	602.5	503.1 to 701.8	Yes	****	<0.0001	C-H			
2d vs. 6w	637.1	537.7 to 736.4	Yes	****	<0.0001	C-I			
2d vs. 8w	657.7	558.3 to 757.1	Yes	****	<0.0001	C-J			
3d vs. 1w	173.1	73.70 to 272.5	Yes	****	<0.0001	D-E			
3d vs. 2w	491.1	391.7 to 590.4	Yes	****	<0.0001	D-F			
3d vs. 3w	559.7	460.3 to 659.0	Yes	****	<0.0001	D-G			
3d vs. 4w	581.9	482.5 to 681.3	Yes	****	<0.0001	D-H			
3d vs. 6w	616.5	517.1 to 715.9	Yes	****	<0.0001	D-I			
3d vs. 8w	637.1	537.7 to 736.5	Yes	****	<0.0001	D-J			
1w vs. 2w	318	218.6 to 417.3	Yes	****	<0.0001	E-F			
1w vs. 3w	386.6	287.2 to 486.0	Yes	****	<0.0001	E-G			
1w vs. 4w	408.8	309.4 to 508.2	Yes	****	<0.0001	E-H			
1w vs. 6w	443.4	344.0 to 542.8	Yes	****	<0.0001	E-I			
1w vs. 8w	464	364.7 to 563.4	Yes	****	<0.0001	E-J			
2w vs. 3w	68.62	-30.76 to 168.0	No	ns	0.4159	F-G			
2w vs. 4w	90.85	-8.531 to 190.2	No	ns	0.0999	F-H			
2w vs. 6w	125.5	26.07 to 224.8	Yes	**	0.0042	F-I			
2w vs. 8w	146.1	46.69 to 245.4	Yes	***	0.0005	F-J			
3w vs. 4w	22.23	-77.15 to 121.6	No	ns	0.9991	G-H			
3w vs. 6w	56.83	-42.55 to 156.2	No	ns	0.6735	G-I			
3w vs. 8w	77.45	-21.93 to 176.8	No	ns	0.2541	G-J			
4w vs. 6w	34.6	-64.78 to 134.0	No	ns	0.9761	H-I			
4w vs. 8w	55.22	-44.16 to 154.6	No	ns	0.7078	H-J			
6w vs. 8w	20.62	-78.76 to 120.0	No	ns	0.9995	I-J			
Test details	Mean 1	Mean 2	Mean Diff.	SE of diff.	n1	n2	q	DF	
C vs. 1d	4208	4164	43.93	30.02	6	6	2.07	50	
C vs. 2d	4208	4122	86.33	30.02	6	6	4.067	50	
C vs. 3d	4208	4101	106.9	30.02	6	6	5.036	50	
C vs. 1w	4208	3928	280	30.02	6	6	13.19	50	
C vs. 2w	4208	3610	598	30.02	6	6	28.17	50	
C vs. 3w	4208	3541	666.6	30.02	6	6	31.4	50	
C vs. 4w	4208	3519	688.8	30.02	6	6	32.45	50	
C vs. 6w	4208	3485	723.4	30.02	6	6	34.08	50	
C vs. 8w	4208	3464	744	30.02	6	6	35.05	50	
1d vs. 2d	4164	4122	42.4	30.02	6	6	1.997	50	
1d vs. 3d	4164	4101	62.97	30.02	6	6	2.966	50	
1d vs. 1w	4164	3928	236.1	30.02	6	6	11.12	50	
1d vs. 2w	4164	3610	554	30.02	6	6	26.1	50	
1d vs. 3w	4164	3541	622.6	30.02	6	6	29.33	50	
1d vs. 4w	4164	3519	644.9	30.02	6	6	30.38	50	
1d vs. 6w	4164	3485	679.5	30.02	6	6	32.01	50	
1d vs. 8w	4164	3464	700.1	30.02	6	6	32.98	50	
2d vs. 3d	4122	4101	20.57	30.02	6	6	0.9688	50	
2d vs. 1w	4122	3928	193.6	30.02	6	6	9.122	50	
2d vs. 2w	4122	3610	511.6	30.02	6	6	24.1	50	
2d vs. 3w	4122	3541	580.2	30.02	6	6	27.33	50	
2d vs. 4w	4122	3519	602.5	30.02	6	6	28.38	50	
2d vs. 6w	4122	3485	637.1	30.02	6	6	30.01	50	
2d vs. 8w	4122	3464	657.7	30.02	6	6	30.98	50	
3d vs. 1w	4101	3928	173.1	30.02	6	6	8.153	50	
3d vs. 2w	4101	3610	491.1	30.02	6	6	23.13	50	
3d vs. 3w	4101	3541	559.7	30.02	6	6	26.36	50	
3d vs. 4w	4101	3519	581.9	30.02	6	6	27.41	50	
3d vs. 6w	4101	3485	616.5	30.02	6	6	29.04	50	
3d vs. 8w	4101	3464	637.1	30.02	6	6	30.01	50	
1w vs. 2w	3928	3610	318	30.02	6	6	14.98	50	
1w vs. 3w	3928	3541	386.6	30.02	6	6	18.21	50	
1w vs. 4w	3928	3519	408.8	30.02	6	6	19.26	50	
1w vs. 6w	3928	3485	443.4	30.02	6	6	20.89	50	
1w vs. 8w	3928	3464	464	30.02	6	6	21.86	50	
2w vs. 3w	3610	3541	68.62	30.02	6	6	3.232	50	
2w vs. 4w	3610	3519	90.85	30.02	6	6	4.28	50	
2w vs. 6w	3610	3485	125.5	30.02	6	6	5.909	50	
2w vs. 8w	3610	3464	146.1	30.02	6	6	6.881	50	
3w vs. 4w	3541	3519	22.23	30.02	6	6	1.047	50	
3w vs. 6w	3541	3485	56.83	30.02	6	6	2.677	50	
3w vs. 8w	3541	3464	77.45	30.02	6	6	3.648	50	
4w vs. 6w	3519	3485	34.6	30.02	6	6	1.63	50	
4w vs. 8w	3519	3464	55.22	30.02	6	6	2.601	50	
6w vs. 8w	3485	3464	20.62	30.02	6	6	0.9712	50	
Muscle collagen content									
Number of families	1								
Number of comparisons per family	45								
Alpha	0.05								
Tukey's multiple comparisons test	Mean Diff.	95.00% CI of diff.	Significant?	Summary	Adjusted P Value				
C vs. 1d	-0.035	-0.6778 to 0.6078	No	ns	>0.9999	A-B			
C vs. 2d	-0.2583	-0.9911 to 0.3844	No	ns	0.9415	A-C			
C vs. 3d	-0.4583	-1.101 to 0.1844	No	ns	0.3707	A-D			
C vs. 1w	-2.087	-2.729 to -1.444	Yes	****	<0.0001	A-E			
C vs. 2w	-3.663	-4.306 to -3.021	Yes	****	<0.0001	A-F			
C vs. 3w	-4.203	-4.846 to -3.561	Yes	****	<0.0001	A-G			
C vs. 4w	-4.23	-4.873 to -3.587	Yes	****	<0.0001	A-H			
C vs. 6w	-3.215	-3.858 to -2.572	Yes	****	<0.0001	A-I			
C vs. 8w	-2.91	-3.553 to -2.267	Yes	****	<0.0001	A-J			
1d vs. 2d	-0.2233	-0.8661 to 0.4194	No	ns	0.9764	B-C			
1d vs. 3d	-0.4233	-1.066 to 0.2194	No	ns	0.4831	B-D			
1d vs. 1w	-2.052	-2.694 to -1.409	Yes	****	<0.0001	B-E			
1d vs. 2w	-3.628	-4.271 to -2.986	Yes	****	<0.0001	B-F			
1d vs. 3w	-4.168	-4.811 to -3.526	Yes	****	<0.0001	B-G			
1d vs. 4w	-4.195	-4.838 to -3.552	Yes	****	<0.0001	B-H			
1d vs. 6w	-3.18	-3.823 to -2.537	Yes	****	<0.0001	B-I			
1d vs. 8w	-2.875	-3.518 to -2.232	Yes	****	<0.0001	B-J			
2d vs. 3d	-0.2	-0.8428 to 0.4428	No	ns	0.9889	C-D			
2d vs. 1w	-1.828	-2.471 to -1.186	Yes	****	<0.0001	C-E			
2d vs. 2w	-3.405	-4.048 to -2.762	Yes	****	<0.0001	C-F			
2d vs. 3w	-3.945	-4.588 to -3.302	Yes	****	<0.0001	C-G			
2d vs. 4w	-3.972	-4.614 to -3.329	Yes	****	<0.0001	C-H			
2d vs. 6w	-2.957	-3.599 to -2.314	Yes	****	<0.0001	C-I			
2d vs. 8w	-2.652	-3.294 to -2.009	Yes	****	<0.0001	C-J			
3d vs. 1w	-1.628	-2.271 to -0.9856	Yes	****	<0.0001	D-E			
3d vs. 2w	-3.205	-3.848 to -2.562	Yes	****	<0.0001	D-F			
3d vs. 3w	-3.745	-4.388 to -3.102	Yes	****	<0.0001	D-G			
3d vs. 4w	-3.772	-4.414 to -3.129	Yes	****	<0.0001	D-H			
3d vs. 6w	-2.757	-3.399 to -2.114	Yes	****	<0.0001	D-I			
3d vs. 8w	-2.452	-3.094 to -1.809	Yes	****	<0.0001	D-J			
1w vs. 2w	-1.577	-2.219 to -0.9339	Yes	****	<0.0001	E-F			
1w vs. 3w	-2.117	-2.759 to -1.474	Yes	****	<0.0001	E-G			
1w vs. 4w	-2.143	-2.786 to -1.501	Yes	****	<0.0001	E-H			
1w vs. 6w	-1.128	-1.771 to -0.4856	Yes	****	<0.0001	E-I			
1w vs. 8w	-0.8233	-1.466 to -0.1806	Yes	**	0.0035	E-J			
2w vs. 3w	-0.54	-1.183 to 0.1028	No	ns	0.1711	F-G			
2w vs. 4w	-0.5667	-1.209 to 0.07610	No	ns	0.1275	F-H			
2w vs. 6w	0.4483	-0.1944 to 1.091	No	ns	0.4015	F-I			
2w vs. 8w	0.7533	0.1106 to 1.396	Yes	*	0.0104	F-J			
3w vs. 4w	-0.02667	-0.6694 to 0.6161	No	ns	>0.9999	G-H			
3w vs. 6w	0.9883	0.3456 to 1.631	Yes	***	0.0002	G-I			
3w vs. 8w	1.293	0.6506 to 1.936	Yes	****	<0.0001	G-J			
4w vs. 6w	1.015	0.3722 to 1.658	Yes	***	0.0001	H-I			
4w vs. 8w	1.32	0.6772 to 1.963	Yes	****	<0.0001	H-J			
6w vs. 8w	0.305	-0.3378 to 0.9478	No	ns	0.8555	I-J			
Test details	Mean 1	Mean 2	Mean Diff.	SE of diff.	n1	n2	q	DF	
C vs. 1d	2.342	2.377	-0.035	0.1942	6	6	0.2549	50	
C vs. 2d	2.342	2.6	-0.2583	0.1942	6	6	1.882	50	
C vs. 3d	2.342	2.8	-0.4583	0.1942	6	6	3.338	50	
C vs. 1w	2.342	4.428	-2.087	0.1942	6	6	15.2	50	
C vs. 2w	2.342	6.005	-3.663	0.1942	6	6	26.68	50	
C vs. 3w	2.342	6.545	-4.203	0.1942	6	6	30.61	50	
C vs. 4w	2.342	6.572	-4.23	0.1942	6	6	30.81	50	
C vs. 6w	2.342	5.557	-3.215	0.1942	6	6	23.42	50	
C vs. 8w	2.342	5.252	-2.91	0.1942	6	6	21.19	50	
1d vs. 2d	2.377	2.6	-0.2233	0.1942	6	6	1.627	50	
1d vs. 3d	2.377	2.8	-0.4233	0.1942	6	6	3.083	50	
1d vs. 1w	2.377	4.428	-2.052	0.1942	6	6	14.94	50	
1d vs. 2w	2.377	6.005	-3.628	0.1942	6	6	26.43	50	
1d vs. 3w	2.377	6.545	-4.168	0.1942	6	6	30.36	50	
1d vs. 4w	2.377	6.572	-4.195	0.1942	6	6	30.55	50	
1d vs. 6w	2.377	5.557	-3.18	0.1942	6	6	23.16	50	
1d vs. 8w	2.377	5.252	-2.875	0.1942	6	6	20.94	50	
2d vs. 3d	2.6	2.8	-0.2	0.1942	6	6	1.457	50	
2d vs. 1w	2.6	4.428	-1.828	0.1942	6	6	13.32	50	
2d vs. 2w	2.6	6.005	-3.405	0.1942	6	6	24.8	50	
2d vs. 3w	2.6	6.545	-3.945	0.1942	6	6	28.73	50	
2d vs. 4w	2.6	6.572	-3.972	0.1942	6	6	28.93	50	
2d vs. 6w	2.6	5.557	-2.957	0.1942	6	6	21.53	50	
2d vs. 8w	2.6	5.252	-2.652	0.1942	6	6	19.31	50	
3d vs. 1w	2.8	4.428	-1.628	0.1942	6	6	11.86	50	
3d vs. 2w	2.8	6.005	-3.205	0.1942	6	6	23.34	50	
3d vs. 3w	2.8	6.545	-3.745	0.1942	6	6	27.28	50	
3d vs. 4w	2.8	6.572	-3.772	0.1942	6	6	27.47	50	
3d vs. 6w	2.8	5.557	-2.757	0.1942	6	6	20.08	50	
3d vs. 8w	2.8	5.252	-2.452	0.1942	6	6	17.86	50	
1w vs. 2w	4.428	6.005	-1.577	0.1942	6	6	11.48	50	
1w vs. 3w	4.428	6.545	-2.117	0.1942	6	6	15.42	50	
1w vs. 4w	4.428	6.572	-2.143	0.1942	6	6	15.61	50	
1w vs. 6w	4.428	5.557	-1.128	0.1942	6	6	8.218	50	
1w vs. 8w	4.428	5.252	-0.8233	0.1942	6	6	5.997	50	
2w vs. 3w	6.005	6.545	-0.54	0.1942	6	6	3.933	50	
2w vs. 4w	6.005	6.572	-0.5667	0.1942	6	6	4.127	50	
2w vs. 6w	6.005	5.557	0.4483	0.1942	6	6	3.265	50	
2w vs. 8w	6.005	5.252	0.7533	0.1942	6	6	5.487	50	
3w vs. 4w	6.545	6.572	-0.02667	0.1942	6	6	0.1942	50	
3w vs. 6w	6.545	5.557	0.9883	0.1942	6	6	7.198	50	
3w vs. 8w	6.545	5.252	1.293	0.1942	6	6	9.42	50	
4w vs. 6w	6.572	5.557	1.015	0.1942	6	6	7.392	50	
4w vs. 8w	6.572	5.252	1.32	0.1942	6	6	9.614	50	
6w vs. 8w	5.557	5.252	0.305	0.1942	6	6	2.221	50	
Thickness of anterior Joint capsule									
Number of families	1								
Number of comparisons per family	45								
Alpha	0.05								
Tukey's multiple comparisons test	Mean Diff.	95.00% CI of diff.	Significant?	Summary	Adjusted P Value				
C vs. 1d	-0.08667	-0.3597 to 0.1864	No	ns	0.9872	A-B			
C vs. 2d	-0.4233	-0.6964 to -0.1503	Yes	***	0.0002	A-C			
C vs. 3d	-0.6183	-0.8914 to -0.3453	Yes	****	<0.0001	A-D			
C vs. 1w	-1.008	-1.281 to -0.7353	Yes	****	<0.0001	A-E			
C vs. 2w	-1.465	-1.738 to -1.192	Yes	****	<0.0001	A-F			
C vs. 3w	-1.758	-2.031 to -1.485	Yes	****	<0.0001	A-G			
C vs. 4w	-1.803	-2.076 to -1.530	Yes	****	<0.0001	A-H			
C vs. 6w	-1.925	-2.198 to -1.652	Yes	****	<0.0001	A-I			
C vs. 8w	-1.993	-2.266 to -1.720	Yes	****	<0.0001	A-J			
1d vs. 2d	-0.3367	-0.6097 to -0.06362	Yes	**	0.0057	B-C			
1d vs. 3d	-0.5317	-0.8047 to -0.2586	Yes	****	<0.0001	B-D			
1d vs. 1w	-0.9217	-1.195 to -0.6486	Yes	****	<0.0001	B-E			
1d vs. 2w	-1.378	-1.651 to -1.105	Yes	****	<0.0001	B-F			
1d vs. 3w	-1.672	-1.945 to -1.399	Yes	****	<0.0001	B-G			
1d vs. 4w	-1.717	-1.990 to -1.444	Yes	****	<0.0001	B-H			
1d vs. 6w	-1.838	-2.111 to -1.565	Yes	****	<0.0001	B-I			
1d vs. 8w	-1.907	-2.180 to -1.634	Yes	****	<0.0001	B-J			
2d vs. 3d	-0.195	-0.4680 to 0.07805	No	ns	0.3685	C-D			
2d vs. 1w	-0.585	-0.8580 to -0.3120	Yes	****	<0.0001	C-E			
2d vs. 2w	-1.042	-1.315 to -0.7686	Yes	****	<0.0001	C-F			
2d vs. 3w	-1.335	-1.608 to -1.062	Yes	****	<0.0001	C-G			
2d vs. 4w	-1.38	-1.653 to -1.107	Yes	****	<0.0001	C-H			
2d vs. 6w	-1.502	-1.775 to -1.229	Yes	****	<0.0001	C-I			
2d vs. 8w	-1.57	-1.843 to -1.297	Yes	****	<0.0001	C-J			
3d vs. 1w	-0.39	-0.6630 to -0.1170	Yes	***	0.0007	D-E			
3d vs. 2w	-0.8467	-1.120 to -0.5736	Yes	****	<0.0001	D-F			
3d vs. 3w	-1.14	-1.413 to -0.8670	Yes	****	<0.0001	D-G			
3d vs. 4w	-1.185	-1.458 to -0.9120	Yes	****	<0.0001	D-H			
3d vs. 6w	-1.307	-1.580 to -1.034	Yes	****	<0.0001	D-I			
3d vs. 8w	-1.375	-1.648 to -1.102	Yes	****	<0.0001	D-J			
1w vs. 2w	-0.4567	-0.7297 to -0.1836	Yes	****	<0.0001	E-F			
1w vs. 3w	-0.75	-1.023 to -0.4770	Yes	****	<0.0001	E-G			
1w vs. 4w	-0.795	-1.068 to -0.5220	Yes	****	<0.0001	E-H			
1w vs. 6w	-0.9167	-1.190 to -0.6436	Yes	****	<0.0001	E-I			
1w vs. 8w	-0.985	-1.258 to -0.7120	Yes	****	<0.0001	E-J			
2w vs. 3w	-0.2933	-0.5664 to -0.02029	Yes	*	0.0261	F-G			
2w vs. 4w	-0.3383	-0.6114 to -0.06529	Yes	**	0.0054	F-H			
2w vs. 6w	-0.46	-0.7330 to -0.1870	Yes	****	<0.0001	F-I			
2w vs. 8w	-0.5283	-0.8014 to -0.2553	Yes	****	<0.0001	F-J			
3w vs. 4w	-0.045	-0.3180 to 0.2280	No	ns	>0.9999	G-H			
3w vs. 6w	-0.1667	-0.4397 to 0.1064	No	ns	0.5893	G-I			
3w vs. 8w	-0.235	-0.5080 to 0.03805	No	ns	0.1483	G-J			
4w vs. 6w	-0.1217	-0.3947 to 0.1514	No	ns	0.8955	H-I			
4w vs. 8w	-0.19	-0.4630 to 0.08305	No	ns	0.4049	H-J			
6w vs. 8w	-0.06833	-0.3414 to 0.2047	No	ns	0.9977	I-J			
Test details	Mean 1	Mean 2	Mean Diff.	SE of diff.	n1	n2	q	DF	
C vs. 1d	0.8283	0.915	-0.08667	0.08248	6	6	1.486	50	
C vs. 2d	0.8283	1.252	-0.4233	0.08248	6	6	7.258	50	
C vs. 3d	0.8283	1.447	-0.6183	0.08248	6	6	10.6	50	
C vs. 1w	0.8283	1.837	-1.008	0.08248	6	6	17.29	50	
C vs. 2w	0.8283	2.293	-1.465	0.08248	6	6	25.12	50	

Dear editor, Thank you very much for your comments and suggestions. Those comments are all valuable andvery helpful for revising and improving our paper,as well as the important guiding significance to our researches.We have studied comments carefully andhave made correction which we hope meet with approval. The responds to the reviewer's comments are as followings. Responds to the reviewer's comments Reviewer: 1.Comment: The manuscript was much improved but still I see the inconsistences. Abstract and Introduction present the aim of the study. But conclusions are different in the Abstract and Main text. The results in this study suggested that myogenic contracture was stabilized after 2 wk, while arthrogenic contracture was stabilized after 3 wk. I would not write wk instead of weeks. The conclusion should express what was found not suggested. Discussion At the end of discussion the following abstract sound clumsy.

Response: Thank you for your valuable suggestion. The conclusion of the abstract in the article has been modified and the suggestive conclusion has been removed. Simultaneously revised the unreasonable content proposed by the experts.

2. The article did not further discuss that after the formation of contracture, the external fixation was removed, the rats were allowed to move freely, and the self improvement of the degree of contracture was observed,which will be studied in the next experiment. May be better to express the point like this: The state of the extension contracture after the removal of the external fixator was also studied and will be reported. Or omit it.

3. Response: According to your suggestion, modify to The state of the extension contracture after the removal of the external fixator was also studied and will be reported. 3.FIGURE 5. (A) Morphological changes of the anterior joint capsule. (B) Forward joint capsule thickness value, *P < 0.05, **P < 0.01, ***P < 0.001, ****P < 0.0001vs, control group. What is forward???? Response: Sorry, this is my expression error and has been changed to the anterior joint capsule.

4.Key words: I would put extension contracture as a key word to specify what kind of contracture was studied. Response: Thank you for your suggestion. I have modified the keywords contracture to extension contracture.