Peer Review

Angra, Raghav. 2025. “Effect of Plucking Dynamics and Tonewood on Electric Guitar Tone.” *Journal of High School Science* 9 (4): 30–46. https://doi.org/10.64336/001c.146009

General Comments

The manuscript presents a novel attempt to quantify guitar tone and its dependence on plucking force, fretboard stiffness, and plucking method using a combination of empirical and simulated data. While the research addresses a musically relevant problem, the study suffers from several methodological, statistical, and interpretive shortcomings that prevent it from reaching publishable standards at this time. The tone analysis lacks perceptual validation, the experimental framework is underdefined, and numerous confounding variables are unaccounted for.

Major Concerns

1. Lack of Control for Confounding Variables

The manuscript does not account for temperature, humidity, string wear, or player variability—factors known to affect tone. These should either be controlled, measured, or statistically adjusted for. The influence of string age, in particular, can alter harmonic content substantially.

2. Variable Correlation and Redundancy

Several independent variables appear correlated (e.g., plucking force and method; fretboard stiffness and plucking location). A multicollinearity analysis is recommended.

3. Force Measurement Precision

The manuscript lacks details on the accuracy and resolution of the force measurement system. Report the sensitivity, error bars, and calibration protocol. Current force values (e.g., in Table 3 and Figure 1) seem unrealistically high. Typical finger or pick forces rarely exceed 2 N.

4. Lack of Statistical Rigor

No statistical significance tests, error margins, or reproducibility assessments are reported. Include:

◦ Error bars for Q(k) values

◦ Significance testing (e.g., ANOVA, regression)

◦ Repetition count for experiments

5. Absence of Listening Tests

The subjective perception of “better tone” is central to this study. No listener validation is provided. A small blind A/B test with musicians or listeners would improve confidence in the method’s perceptual relevance.

6. Generalizability

Only one guitar type and pickup configuration were used. To support general claims, validation with at least one additional setup (e.g., different tonewood or pickup type) is necessary.

7. Subjectivity and Perception

Tone preference is subjective and genre/culture-specific. The manuscript should acknowledge this more explicitly and provide discussion of how tone metrics relate to perception.

8. Lack of sufficient references

Specific Comments and Suggestions

• Equation 1: Ensure plucking force is explicitly integrated, possibly via a Force-Frequency Gain (FFG) model.

• Table Corrections: Revise Table 2 and validate values in Table 3. Current plucking force values appear too high.

• Terminology: Define technical terms such as “plucking width” and clarify what is meant by “good” and “bad” recordings and “low”, “medium”, and “high” force.

• Q(k) Metric: The consonance metric is interesting, but perceptual validity is unclear. Compare with existing literature or include listener evaluation.

• Complexity and Dissonance: The claim that complexity causes instability should be tempered. Complexity can enhance musical depth, much like flavor layers in food.

• Frequency Ratios (i, j): These must be clearly defined as frequency ratios within the manuscript.
• Experimental Repeatability: Clarify how many times each experiment was repeated. Are results reproducible?
• Recording Conditions: Describe room acoustics, microphone placement, ambient noise control, and digital audio interface specs.
• Listener Mood and Preference: These human elements should be acknowledged as influential in perceived tone quality.
• External Examples: Include references to artists, recordings, or studies that corroborate the paper's claims.

Additional Recommendations

• Expand Methodology: Include detail on how plucking force was measured (sensor type, sampling rate, setup).
• Explore Genre Dependence: Tone preferences may differ drastically across genres; this should be discussed.
• Tonewood Impact: Acknowledge or control for the dominant influence of tonewood and guitar construction.
• Simulation Extension: Consider integrating a virtual reality or spatial audio environment to simulate tone in different acoustic spaces.
• Broader Applicability: Investigate whether the proposed method applies to other instruments or tonal contexts.

Conclusion

The manuscript addresses a musically valuable topic but falls short of publication standards in its current form due to significant gaps in methodology, statistical analysis, and perceptual validation. A major revision is necessary to address the issues listed above, including experimental rigor, force calibration, perceptual testing, and broader applicability.

Definitions and Clarifications

- Added a line stating Force-Frequency Gain (FFG) usage.
- Added a definition for pluck width for clarity
- Defined the terms "good" and "bad" in relation to tuning.

Results & Discussion Enhancements

- Added a paragraph discussing the contextual usage of consonant harmonic ratios in guitar tone, noting the intentional usage of dissonance in certain genres.
- Added a paragraph analysing the applicability of this model to different genres.

Citations Added

- Bain, R. (2003). *The Harmonic Series*.
- Burton, C. J. L. (2015). *An Ideal Guitar Tuner: Optimizing Consonance by Minimizing Beating*. Bachelor of Science Thesis, Department of Physics and Astronomy, Brigham Young University. Retrieved from https://physics.byu.edu/docs/thesis/696
- Caroline, J., & Traube, C. (2000). "Estimating the Plucking Point on a Guitar String," *Proceedings of the COST G-6 Conference on Digital Audio Effects (DAFX-00)*, Verona, Italy, pp. 45–48. *(used in Results section)*
- Wiciak, J., Małecki, P., & Tokarczyk, D. (2020). "Impact of a Guitar String Pluck on the Instrument's Tone," *Applied Acoustics*, Vol. 164, 107280. *(used in Results and Discussion sections)*
- Sutar, P., Naradowsky, J., & Miyao, Y. (2024). "Does it Chug? Towards a Data-Driven Understanding of Guitar Tone Description." *arXiv:2412.11769. (used in Discussion section)*
- Eerola, T., & Lahdelma, I. (2022). "Consonance and Dissonance Perception: A Critical Review of the Literature." *Journal of New Music Research*, 51(3), 243–265. *(used in Discussion section)*

Verification & Experiments

- Conducted a listening test for verification of tone perception, including the method of conducting the survey and results (27 participants split equally into professional guitarist, amateur musicians and Non-musicians).
- Repeated the physical verification tests four times with a fresh pair of strings, measuring confounding variables such as temperature and relative humidity. This was done to remove confounding variables
- Repeated the above tests by switching guitar neck(Switched to Maplewood)(Rosewood was original).
- Revised Table 2 accordingly and created a new Table 3 with updated results.
- Explicitly defined force strengths on the basis of testing of professional guitarists:

Low ≈ 0.7 N
Medium ≈ 1.8 N
High ≈ 3.5 N

- Revised Table 5 (previously Table 3) to use the updated 1.8 N value.
- New figure 3(originally figure 1) was created ranging from 0-4N instead of the original 0-25N in relation to practical force applied
- Updated all other figures (now called figures 3 to 7) using the new values from Table 5.

Statistical Analyses

- Conducted multicollinearity analysis for force, plucking method, and all simulation variable pairs. (table 6)
- Performed ANOVA analysis for all results. (table 4 for ANOVA of experimental setup)
- Added error bar graphs for both physical experiment sets. (figure 1 and figure 2)

Measurement System Details

- Added a section describing the accuracy and resolution of the force measurement system.
- Explicitly integrated plucking force via a Force-Frequency Gain (FFG) model.
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Additional Discussion

- Added 3 paragraphs in discussion discussing the limitations and contextual interpretation of results in relation to musical genres and tonal preferences with citations.
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As communicated to you, please list the reviewer's question verbatim, then followed by your response including where and how you addressed that question in the manuscript. Do this for all the reiewer's comments in one document. Your response currently does not list verbatim the reviewer's comment/question.

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Major Concerns

1. Lack of Control for Confounding Variables

The manuscript does not account for temperature, humidity, string wear, or player variability—factors known to affect tone. These should either be controlled, measured, or statistically adjusted for. The influence of string age, in particular, can alter harmonic content substantially.

2. Variable Correlation and Redundancy

Several independent variables appear correlated (e.g., plucking force and method; fretboard stiffness and plucking location). A multicollinearity analysis is recommended.

3. Force Measurement Precision

The manuscript lacks details on the accuracy and resolution of the force measurement system. Report the sensitivity, error bars, and calibration protocol. Current force values (e.g., in Table 3 and Figure 1) seem unrealistically high. Typical finger or pick forces rarely exceed 2 N.

4. Lack of Statistical Rigor
No statistical significance tests, error margins, or reproducibility assessments are reported. Include:
◦ Error bars for Q(k) values
◦ Significance testing (e.g., ANOVA, regression)
◦ Repetition count for experiments
5. Absence of Listening Tests
The subjective perception of "better tone" is central to this study. No listener validation is provided. A small blind A/B test with musicians or listeners would improve confidence in the method's perceptual relevance.
6. Generalizability
Only one guitar type and pickup configuration were used. To support general claims, validation with at least one additional setup (e.g., different tonewood or pickup type) is necessary.
7. Subjectivity and Perception
Tone preference is subjective and genre/culture-specific. The manuscript should acknowledge this more explicitly and provide discussion of how tone metrics relate to perception.
8. Lack of sufficient references

Specific Comments and Suggestions
• Equation 1: Ensure plucking force is explicitly integrated, possibly via a Force-Frequency Gain (FFG) model.
• Table Corrections: Revise Table 2 and validate values in Table 3. Current plucking force values appear too high.
• Terminology: Define technical terms such as "plucking width" and clarify what is meant by "good" and "bad" recordings and "low", "medium", and "high" force.
• Q(k) Metric: The consonance metric is interesting, but perceptual validity is unclear. Compare with existing literature or include listener evaluation.
• Complexity and Dissonance: The claim that complexity causes instability should be tempered. Complexity can enhance musical depth, much like flavor layers in food.
• Frequency Ratios (i, j): These must be clearly defined as frequency ratios within the manuscript.
• Experimental Repeatability: Clarify how many times each experiment was repeated. Are results reproducible?
• Recording Conditions: Describe room acoustics, microphone placement, ambient noise control, and digital audio interface specs.
• Listener Mood and Preference: These human elements should be acknowledged as influential in perceived tone quality.
• External Examples: Include references to artists, recordings, or studies that corroborate the paper's claims.

Additional Recommendations
• Expand Methodology: Include detail on how plucking force was measured (sensor type, sampling rate, setup).
• Explore Genre Dependence: Tone preferences may differ drastically across genres; this should be discussed.
• Tonewood Impact: Acknowledge or control for the dominant influence of tonewood and guitar construction.
• Simulation Extension: Consider integrating a virtual reality or spatial audio environment to simulate tone in different acoustic spaces.
• Broader Applicability: Investigate whether the proposed method applies to other instruments or tonal contexts.

Changes

Major Concerns

1. Repeated the physical verification tests four times with a fresh pair of strings, measuring confounding variables such as temperature and relative humidity. This was done to remove confounding variables. Guitar was placed on a stable stand and the performer maintained consistent posture and plucking technique which was confirmed by measurement of angle for all different plucking methods through camera. Changes were added To the Physical Measurements Method section.

2. Conducted multicollinearity analysis for force, plucking method, and all simulation variable pairs. Changes were added in new Multicollinearity section before results

3. Revised Table 5 (previously Table 3) to use updated 1.8 N value.
Added a section describing the accuracy and resolution of the force measurement system right after the methods section in physical measurement
Explicitly defined force strengths based on testing by professional guitarists: Low ≈ 0.7 N Medium ≈ 1.8N and High ≈ 3.5 N.

New figure 3(originally figure 1) was created ranging from 0-4N instead of the original 0-25N in relation to realistic force applied
Updated all other figures (now called figures 3 to 7) using the new values from Table 5.

4. Added error bar graphs for both physical experiment sets. (figure 1 and figure 2)

Performed ANOVA analysis for all physical results in table 4 for ANOVA of experimental setup

Performed ANOVA analysis for all simulated results and added to results section

Gave more data regarding reproducibility in force measurement system section as well as repetition count in Physical measurement method section

5. Conducted a listening test for verification of tone perception, including the method of conducting the survey and results (27 participants split equally into professional guitarist, amateur musicians and Non-musicians). And added it to verification of tone perception via listening test section right after Consonance-dissonance usage section

6. Repeated the physical measurements tests again by switching guitar neck(Switched to Maplewood)(Rosewood was original).
created a new Table 3 with these results.

7. Added 2 paragraphs discussing the contextual usage of consonant harmonic ratios in guitar tone, noting the intentional usage of dissonance in certain genres in the Consonance-disonance usage section with citations 6 and 7

Added 3 paragraphs in discussion discussing the limitations and contextual interpretation of results in relation to musical genres and tonal preferences with citations 11,12,13,14.

8. 6 Citations Added

- Bain, R. (2003). *The Harmonic Series*.(used in Consonance-dissonance usage section and discussion)
- Burton, C. J. L. (2015). *An Ideal Guitar Tuner: Optimizing Consonance by Minimizing Beating*. Bachelor of Science Thesis, Department of Physics and Astronomy, Brigham

Young University. Retrieved from https://physics.byu.edu/docs/thesis/696.(used in Consonance-dissonance usage section and discussion.

- Caroline, J., & Traube, C. (2000). “Estimating the Plucking Point on a Guitar String,” *Proceedings of the COST G-6 Conference on Digital Audio Effects (DAFX-00)*, Verona, Italy, pp. 45–48. *(used in Results section)*
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Specific Comments and Suggestions
1.Added a line stating Force-Frequency Gain (FFG) usage.
2. Revised Table 2 added new table 3 and validated values in Table 5(previously table 3) according to force.
3. Added a definition for pluck width for clarity. Defined the terms “good” and “bad” in relation to tuning.
4. Same as in Major concerns 5 and added citations 6 and 7
5. Complexity and Dissonance: Same as in Major concern 7
6. Frequency Ratios (i, j): clearly defined the these ratios as frequency ratios in table 1.
7. Experimental Repeatability: Clarified experiment was repeated 4 times for . and added reproducibility analysis in force measurement system section
8. Recording Conditions: Added the information about room acoustics, cable type(there was no microphone, instead there was a 3m guitar cable connected directly to the interfcace), ambient noise control(through soundproofed room), and digital audio interface specs.
9. Listener Mood and Preference: These human elements should be acknowledged as influential in perceived tone quality. 3 Subgroups of Non-Musician, amateur musician and professional guitarist were part of the test.
10. External Examples: same information as major concern 8.

Additional Recommendations (added 4/5 of additional recommendations)
• Expand Methodology: added information to force measurement system section (same as in 3)
• Explore Genre Dependence: same as info in 7
• Tonewood Impact: performed second experiment set with different Tonewood. Added related paragraph in results and discussion section
• Broader Applicability: added paragraph to discussion section

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The reviewer thanks the author for carefully addressing many of the earlier comments. While substantial progress has been made, there are still a few important points that require clarification and revision before the paper can be considered for publication:
1. The author states that error bars have been added to the figures; however, they are not visible in the submitted version. Could the author confirm whether the most recent versions of the figures were uploaded?
2. Figure 1 is labeled as showing 1–25 N (which is incorrect) and also in the manuscript it is referred to as Figure 3. Please clarify.
3. The statement “These results also indicate that the type of fretboard is less significant; however,

the slight changes in Q(k) value suggest it may influence tone" needs further explanation to clarify its meaning and implications.
4. All ANOVA results should be consolidated into a table and referenced appropriately in the text.
5. The ANOVA results for Force reported in Table 4 do not align with those described later in the Results section. Please explain this discrepancy.
6. The two values given in brackets after the F statistic (e.g., F(2,45)) should be explained, including what they represent (degrees of freedom, etc.).

Once these issues are addressed and the corrected figures are uploaded, the manuscript can be re-evaluated for consideration.

Changes

1. The author states that error bars have been added to the figures; however, they are not visible in the submitted version. Could the author confirm whether the most recent versions of the figures were uploaded?

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- The error bars for the physical experiments have been added in figure 1 and figure 2. The rest of the figures are simulated and do not have error bars.

- As per what I can see the proper figures had been attached in the last document as well with figures 1 and 2 being error bars and figures 3-7 being the changed version of the previous figures 1-5. Figure 3 has a range of 0-4N.

- Added explanation for this in ANOVA regression results section

- Added table with ANOVA results in extra section

- Added reasoning in results section and re-doing ANOVA with 3 groups instead

- Explained what the values mean in table 6 description and Anova regression results section in physical measurements. Made changes accordingly in results section.
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  The reviewer thanks the author for taking the time to address the reviewer's concerns. However, several important issues remain, particularly areas where the lack of detail is concerning and requires clarification.

1. The author wrote: “Explained what the values mean in table 6 description and ANOVA regression results section in physical measurements. Made changes accordingly in results section.”
However, the reviewer’s original comment referred to Table 4, not Table 6. In the paper, the author has written: “The 2 values in the brackets indicate between group degrees of freedom and within group degrees of freedom respectively.” This explanation appears under the multicollinearity section, but it should instead be associated with Table 4. This needs to be corrected.
2. Has the author verified whether the group variances are similar? This is an implicit assumption for performing ANOVA. The author should run Levene’s test to confirm this assumption. If the variances are not equal, then Welch’s ANOVA is the more appropriate test. The author needs to address this point and provide comments on the findings.
3. The ANOVA table listing all factors appears at the end of the paper without a table number and is not referenced within the text. Proper referencing and numbering of tables are essential. The reviewer also encourages the author to respond to comments carefully and thoroughly. Providing incomplete or incorrect responses may delay the review process and could ultimately preclude the paper from being considered for publication.

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- Associated explanation with table 4 in ANOVA regression results section instead of multicollinearity section.

- Ran Levene’s test for all ANOVA usage. Recalculated values for Material stiffness and plucking method according to welch’s ANOVA and added ANOVA type used in table4 and table 7.

- The table 7 description and number was already there in the additional information section. Moved the table to overall results section instead of additional information section and referenced it properly as table 7 in results section.
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Changes document 3

- Make sure relevant content appears in the corresponding section of the manuscript. As written, some results appear in the ‘methods’ section and some ‘methods’ appear in the ‘results’ section. Please check and ensure that the flow of the manuscript material is seamless from beginning to end.
- Format the references according to APA. If there are more than 6 authors, the first 6 should be listed followed by an et al. We require meticulous adherence to formatting guidelines. In addition, please make sure there is a live link for each reference. If you need guidance, please consult any published paper at the website.
- The manuscript should be written in past perfect tense, third person. Please pay attention to grammar, syntax and composition. Failure to do so will result in a multiple ‘revise and resubmit’ decisions and a delay in publication.
- Remove legends from the Figure. These need to be provided in a separate doc file. Resubmit all the figures with the legends removed.

- Made Anova results for experimental data appear in results section
- Formatted references according to APA and added live links
- Changed tense for introduction, results and discussion wherever Thought was needed
- Removed legends from figure and

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  Need acceptable English. This is far below commonly accepted scientific standard.

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Comment:
Need acceptable English.
Please submit a manuscript with acceptable English. As we discussed, a past-perfect tense cannot be applied carte' blanche' throughout the manuscript.
Resolution:

Have made changes throughout the manuscript based on grammar from previous draft and have written down all changes made in the following table:

Original	**Issue**	**Corrected**
simulations of guitar strings often focus on creating the best sounds.	tense: present → perfect	simulations of guitar strings have often focused on creating the best sounds.
Consonance-dissonance based methods had been used	tense: past → present perfect	Consonance–dissonance based methods have been used
multiple string simulation models exist.	less formal: exist → developed	and multiple string simulation models have been developed.
Until then, a study of picking techniques was summarized by Carral et al. (2).	Tense clarification	Previously, a study of picking techniques was summarized by Carral et al. (2).
proper quantification of the effects of playing techniques and room properties on tone had been missing.	tense/missing → present perfect negative	proper quantification of the effects of playing techniques and room properties on tone has been lacking.

technique used to pluck a string, such as fingerstyle versus picking, may have a significant impact	modal: may → can	technique used to pluck a string, such as fingerstyle versus picking, can have a significant impact
The factors influencing the tonal outcome in real-world settings are still to be studied.	phrasing/tense consistency	The factors influencing the tonal outcome in real-world settings have remained largely unstudied.
Until now there had been a study of the picking techniques depicted in the summary by Carral et al. (2).	tense consistency/clarity	Until then, a study of picking techniques was summarized by Carral et al. (2).
only considers the effects of the techniques on the harmonic component of the note	tense/plural mismatch	only considered the effects of the techniques on the harmonic components of the note
which includes the fundamental frequency and its overtones	agreement/tense error	including the fundamental frequency and its overtones
The summary does not take into consideration the effect of the techniques on the overall quality of tone	tense: present → past	It did not take into consideration the effect of these techniques on the overall quality of tone
requires an analysis of these harmonic components and their perception	smoother phrasing	requires analysis of harmonic components as well as their perception
method integrating simulation techniques developed by Bilbao et al. (3) and the consonance-dissonance method by Šali et al. (1)	missing “that”	method that integrates simulation techniques developed by Bilbao et al. (3) and the consonance–dissonance method by Šali et al. (1)
Tonewood (the type of wood …)	capitalization: Tonewood	tonewood (the type of wood …)
Speed of sound	Lack of the	The speed of sound
Fender strat	Full name	Fender stratocaster
With the use of these techniques, it had been found that there is likely a positive correlation of the quality of tone with picking width for values above .01m below which tone worsens.	tense/clarity/spacing	With the use of these techniques, it was found that there is likely a positive correlation of the quality of tone with picking width for values above 0.01 m, below which tone quality worsens.
Therefore, whenever a tone is called better in this study it is in terms of the general clarity and perception of being in tune of the tone compared to the other tone.	Lack of comma	Therefore, whenever a tone is called better in this study, it is in terms of the general clarity and perception of being in tune of the tone compared to the other tone.
For experimental data the results demonstrate	Lack of comma	For experimental data, the results demonstrate
There are also findings	grammar: clarity/voice	Findings also suggest a

which suggest that a range of 46.5 to 58 N/m stiffness of fretboard gives better quality of tone.		fretboard stiffness in the range of 46.5 to 58 N/m produces better tone quality.
More results suggesting influence of excitation force strength, plucking location and plucking time had been included in the paper.	tense/clarity	Additional results indicate the influence of excitation force strength, plucking location, and plucking timing on overall tone.
The results provide an insight into the different plucking methods as well as different fretboard material effects on overall tone.	minor phrasing	These results provide insight into different plucking methods as well as the effects of various fretboard materials on the overall tonal quality.
“using the conversion graph of dB to dB(A) which accurately depicts…”	missing comma	“using the standard dB-to-dB(A) conversion graph, which accurately depicts…”
“15 harmonics that are calculated”	tense inconsistency	“Fifteen harmonics were calculated”
“after audio is split into .2,.6 and 1 s”	article/tense error	“after the audio was split into 0.2 s, 0.6 s, and 1 s intervals”
“intervals were also sorted into consonant and dissonant intervals”	redundancy	“intervals were also categorized into consonant and dissonant types”
“Sounds having these ratios with more magnitude are termed as good”	redundant “as”	“Sounds with these ratios and higher magnitudes are considered *good*”
“the perception of instability”	missing article	“a perception of instability”
“as shown in Bain et al. (6) and Burton et al. (7)”	phrasing smoothness	“as shown in Bain *et al.* (6) and Burton *et al.* (7)”
“However this may change for specific genres”	missing comma	“However, this may change for specific genres”
“Hence this study pertains…”	missing comma	“Hence, this study pertains…”
“Equation 12 depicts the sound pressure level (SPL) of the intervals. Lj(k) and Li(k) represent…”	missing article	“Equation 12 depicts the sound pressure level (SPL) of the intervals, where (L_j(k)) and (L_i(k)) represent…”
ANOVA analysis had firstly been conducted for experimental data.	awkward tense	ANOVA analysis was first conducted for the experimental data.
For experimental data the results demonstrate that picking method significantly affects the Q(k) values ($p < 0.001$ at all force levels).	missing comma	For experimental data, the results demonstrate that picking method significantly affects the Q(k) values ($p < 0.001$ at all force levels).
The 2 values in the brackets indicate between group	clarity: hyphenation	The two values in brackets indicate between-group and

degrees of freedom and within group degrees of freedom respectively.		within-group degrees of freedom, respectively.

The language is better.
I came across various inconsistencies when preliminary copyediting. Please check these…
In addition, you will need to incorporate the additional limitations in the paper. Please resubmit when done.

1.fretboard stiffness ~58.9 N/m) appears unrealistically low for structural stiffness and may reflect a model collision parameter rather than material property.
2.Check contradictory statements about pick width (narrower is better vs narrower is worse).
Limitations that need to be included
1.Methodological claims about 0.05 N force resolution from 240 fps video analysis are likely to be optimistic.
2.weighting was assumed as a perceptual proxy, pairwise harmonic intervals were assumed to be determinants of tone quality, and the selection of an ‘assumed good’ reference was subjective.
3.robustness to pickup choice, guitar model, strings, gain staging, and room acoustics was not assessed.
4.Q(k) interpretability depends on chosen reference.
5.positive/negative controls (e.g., calibrated tone injections, silent baselines, re-amping to control playing variance) were not reported; mechanical plucking control was absent.
6.No clear corrections for pickup/cable/interface frequency response, output level normalization across takes were attempted. Hand-placement confounds were not accounted for. A-weighting was applied but not level-matched; string age was reset between days but material inhomogeneity corrections were not detailed.

Comment:
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In addition, you will need to incorporate the additional limitations in the paper. Please resubmit when done.

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- robustness to pickup choice, guitar model, strings, gain staging, and room acoustics was not assessed.
- Q(k) interpretability depends on chosen reference.
- positive/negative controls (e.g., calibrated tone injections, silent baselines, re-amping to control playing variance) were not reported; mechanical plucking control was absent.
- No clear corrections for pickup/cable/interface frequency response, output level normalization across takes were attempted. Hand-placement confounds were not accounted for. A-weighting was applied but not level-matched; string age was reset between days but material inhomogeneity corrections were not detailed.

Inconsistencies:

1. The apparent fretboard stiffness (~58.9 N/m) indeed does not represent a physical material property, but rather a scaled collision stiffness parameter used in the numerical model to reproduce realistic tonal behaviour. While this does not provide a direct measure of material rigidity, its used to qualitatively emulate the effects of different fretboard materials and stiffnesses.
Changes clarifying this issue have been made to the introduction, table 4, figure captions and results section

2. I have made changes clarifying that shortening plucking width until .01m will result in better quality of tone and that shortening it more under .01m will cause tone to worsen. These changes were made to the introduction, results section, and discussion

Limitations: I have made a separate paragraph addressing limitations of the study and added it as the third paragraph to the discussion section

However, there are also several methodological constraints which must be considered. The estimated 0.05 N force resolution from 240 fps video is likely optimistic, and tonal weighting, harmonic interval assumptions, and the choice of a “good” reference is subjective. The robustness to pickup choice, guitar model, and room acoustics were not assessed, and Q(k) depends on the chosen reference. There is also the fact that no mechanical plucking or control recordings were used, and pickup/cable/interface frequency response, output level normalization, and hand-placement effects had no clear corrections. A-weighting was also applied without level matching, and string age was reset between days, but material inhomogeneity corrections were not detailed.

Extra: I have also reviewed the paper 1 more time and have fixed an error in referencing the wrong table.

Thank you for addressing my comments. Accepted.