A Manuscript Microscope 'Sentence Audit' of:

Respiration, heartbeat, and conscious tactile perception

What is the Manuscript Microscope Sentence Audit?

The Manuscript Microscope Sentence Audit is a research paper introspection system that parses the text of your manuscript into minimal sentence components for faster, more accurate, enhanced proofreading.

Why use a Sentence Audit to proofread your manuscript?

- Accelerated Proofreading: Examine long technical texts in a fraction of the usual time.
- Superior Proofreading: Detect subtle errors that are invisible to traditional methods.
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- Reliable Proofreading: Ensure every single word of your manuscript is correct.
- Easier Proofreading: Take the hardship out of crafting academic papers.

Bonus 1: Improved Productivity: Rapidly refine rough drafts to polished papers.
Bonus 2: Improved Authorship: Cultivate a clear, concise, consistent, writing style.
Bonus 3: Improved Reputation: Become known for rigorously precise publications.

Manuscript Source: https://www.biorxiv.org/content/10.1101/2021.03.22.436396v1

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Audit Date: 31/03/21 **Audit Identifier:** 2UKE2CF6066102S **Code Version:** 3.6

Features of the Sentence Audit:

The Sentence Audit combines two complementary proofreading approaches:

1. Each sentence of your text is parsed and displayed in isolation for focused inspection.
2. Each individual sentence is further parsed into Minimal Sentence Components for a deeper review of the clarity, composition and consistency of the language you used.

The Minimal Sentence Components shown are the smallest coherent elements of each sentence of your text as derived from it's conjunctions, prepositions and selected punctuation symbols (i.e. commas, semicolons, round and square brackets).

The combined approaches ensure easier, faster, more effective proofreading.

Comments and Caveats:

• The sentence parsing is achieved using a prototype natural language processing pipeline written in Python and may include occasional errors in sentence segmentation.

• Depending on the source of the input text, the Sentence Audit may contain occasional html artefacts that are parsed as sentences (E.g. "Download figure. Open in new tab").

• Always consult the original research paper as the true reference source for the text.

Contact Information:

To get a Manuscript Microscope Sentence Audit of any other research paper, simply forward any copy of the text to John.James@OxfordResearchServices.com.

All queries, feedback or suggestions are also very welcome.

Research Paper Sections:

The sections of the research paper input text parsed in this audit.

Section No.	Headings	Sentences
Section: 1	Abstract	13
Section: 2	Introduction	14
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title # Respiration, heartbeat, and conscious tactile perception

S1 [001] Abstract

S1 [002] Cardiac activity has been shown to interact with conscious tactile perception: Detecting near-threshold tactile stimuli is more likely during diastole than systole and heart slowing is more pronounced for detected compared to undetected stimuli.

Cardiac activity has been shown ...
... to interact ...
... with conscious tactile perception: ...
... Detecting near-threshold tactile stimuli is more likely ...
... during diastole ...
... than systole ...
... and heart slowing is more pronounced ...
... for detected compared ...
... to undetected stimuli.

S1 [003] Here, we investigated how cardiac cycle effects on conscious tactile perception relate to respiration given the natural coupling of these two dominant body rhythms.

Here, ...
... we investigated how cardiac cycle effects ...
... on conscious tactile perception relate ...
... to respiration given the natural coupling ...
... of these two dominant body rhythms.

S1 [004] Forty-one healthy participants had to report conscious perception of weak electrical pulses applied to the left index finger (yes/no) and confidence about their yes/no-decision (unconfident/confident) while electrocardiography (ECG), respiratory activity (chest circumference), and finger pulse oximetry were recorded.

Forty-one healthy participants had ...
... to report conscious perception ...
... of weak electrical pulses applied ...
... to the left index finger ...
... (yes/no) ...
... and confidence ...
... about their yes/no-decision ...
... (unconfident/confident) ...
... while electrocardiography ...
... (ECG), ...
... respiratory activity ...
... (chest circumference), ...
... and finger pulse oximetry were recorded.

S1 [005] We confirmed the previous findings of higher tactile detection rate during diastole and unimodal distribution of hits in diastole, more specifically, we found this only when participants were confident about their detection decision.

We confirmed the previous findings ...
... of higher tactile detection rate ...
... during diastole ...
... and unimodal distribution ...
... of hits ...
... in diastole, ...
... more specifically, ...
... we found this ...
... only ...
... when participants were confident ...
... about their detection decision.

S1 [006] Lowest tactile detection rate occurred 250-300 ms after the R-peak corresponding to pulse-wave onsets in the finger.

Lowest tactile detection rate occurred 250-300 ms ...
... after the R-peak corresponding ...
... to pulse-wave onsets ...
... in the finger.

S1 [007] Inspiration was locked to tactile stimulation, and this was more consistent in hits than misses.

Inspiration was locked ...
... to tactile stimulation, ...
... and this was more consistent ...
... in hits ...
... than misses.

S1 [008] Respiratory cycles accompanying misses were longer as compared to hits and correct rejections.

Respiratory cycles accompanying misses were longer ...
... as compared ...
... to hits ...
... and correct rejections.

S1 [009] Cardiac cycle effects on conscious tactile perception interact with decision confidence and coincide with pulse-wave arrival, which suggests the involvement of higher cognitive processing in this phenomenon possibly related to predictive coding.

Cardiac cycle effects ...
... on conscious tactile perception interact ...
... with decision confidence ...
... and coincide ...
... with pulse-wave arrival, ...
... which suggests the involvement ...
... of higher cognitive processing ...
... in this phenomenon possibly related ...
... to predictive coding.

S1 [010] The more consistent phase-locking of inspiration with stimulus onsets for hits than misses is in line with previous reports of phase-locked inspiration to cognitive task onsets which were interpreted as tuning the sensory system for incoming information.

The more consistent phase-locking ...
... of inspiration ...
... with stimulus onsets ...
... for hits ...
... than misses is ...
... in line ...
... with previous reports ...
... of phase-locked inspiration ...
... to cognitive task onsets ...
... which were interpreted ...
... as tuning the sensory system ...
... for incoming information.

S1 [011] Significance statement Mechanistic studies on perception and cognition tend to focus on the brain neglecting contributions of the body.

Significance statement Mechanistic studies ...
... on perception ...
... and cognition tend ...
... to focus ...
... on the brain neglecting contributions ...
... of the body.

S1 [012] Here, we investigated how respiration and heartbeat influence tactile perception: We show that inspiration locked to expected stimulus onsets optimizes detection task performance and that tactile detection varies across the heart cycle with a minimum 250-300 milliseconds after heart contraction, when the pulse reaches the finger.

Here, ...
... we investigated how respiration ...
... and heartbeat influence tactile perception: ...
... We show ...
... that inspiration locked ...
... to expected stimulus onsets optimizes detection task performance ...
... and that tactile detection varies ...
... across the heart cycle ...
... with a minimum 250-300 milliseconds ...
... after heart contraction, ...
... when the pulse reaches the finger.

S1 [013] Lower detection was associated with reduced confidence ratings, indicating – together with our previous finding of unchanged early ERPs - that this effect is not a peripheral physiological artifact but a result of higher cognitive processes that model the internal state of our body, make predictions to guide behavior, and might also tune respiration to serve the task.

Lower detection was associated ...
... with reduced confidence ratings, ...
... indicating – together ...

... with our previous finding ...
... of unchanged early ERPs - ...
... that this effect is not a peripheral physiological artifact ...
... but a result ...
... of higher cognitive processes ...
... that model the internal state ...
... of our body, ...
... make predictions ...
... to guide behavior, ...
... and ...
... might also tune respiration ...
... to serve the task.

S2 [014] Introduction

S2 [015] Our body senses signals from the outer world (exteroception), but also visceral signals from inside the body (interoception) and it has been shown that these two continuous types of perception interact (Critchley and Harrison, 2013; Critchley and Garfinkel, 2015; Babo-Rebelo et al., 2016; Azzalini et al., 2019).

Our body senses signals ...
... from the outer world ...
... (exteroception), ...
... but also visceral signals ...
... from ...
... inside the body ...
... (interoception) ...
... and it has been shown ...
... that these two continuous types ...
... of perception interact ...
... (Critchley ...
... and Harrison, 2013; ...
... Critchley ...
... and Garfinkel, 2015; ...
... Babo-Rebelo et al., 2016; ...
... Azzalini et al., 2019).

S2 [016] For example, we have recently shown that tactile perception interacts with cardiac activity as conscious detection of near-threshold stimuli was more likely towards the end of the cardiac cycle (Motyka et al., 2019; Al et al., 2020) and was followed by a more pronounced deceleration of heart rate as compared to missed stimuli (Motyka et al., 2019).

For example, ...
... we have recently shown ...
... that tactile perception interacts ...
... with cardiac activity ...
... as conscious detection ...
... of near-threshold stimuli was more likely towards the end ...
... of the cardiac cycle ...
... (Motyka et al., 2019; ...

End of Sample Audit

This is a truncated Manuscript Microscope Sample Audit.

To get the full audit of this text (or any other research paper),
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