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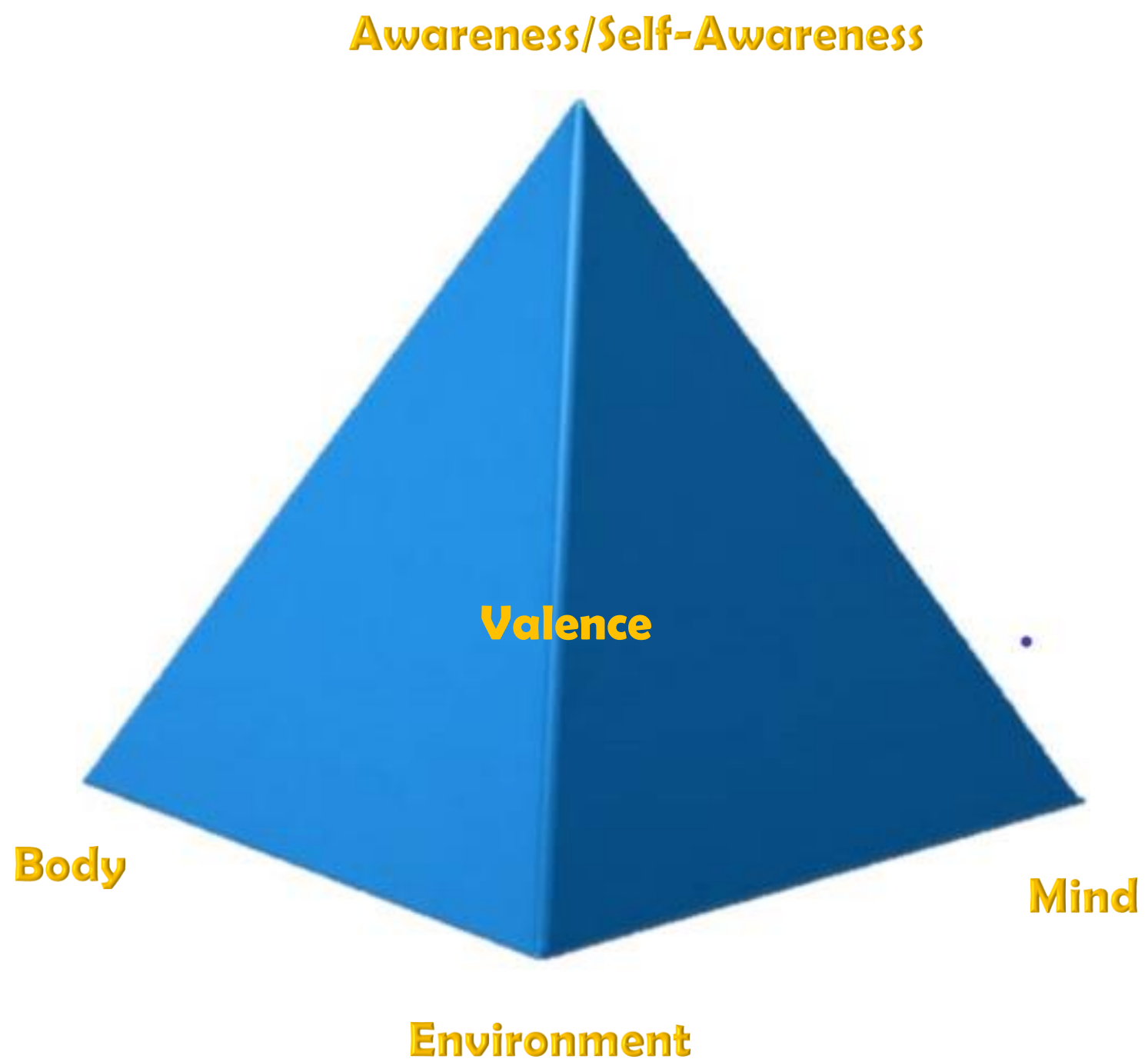
# Impact of Guided Rhythmic Slow Movement Practice on Integrative Wellbeing

- What is wellbeing?
- Slow Movement and Wellbeing- a pilot study;
- Directions for future research.

The Human System: an integrative model of being and becoming

“There is no whole system without an interconnection with its parts and there is no whole system without an environment.”

*Francisco Varela*



# Wellbeing: state of optimal functioning – coherent and energised

**Coherent** state in biology means each unit of the system is differentiated and at the same time has all the possibility for cooperation, working in harmony with others.

*Changlin Zhang, Phys*

**Energised** state is a state characterised by the capacity to change, adapt, respond, evolve and grow.

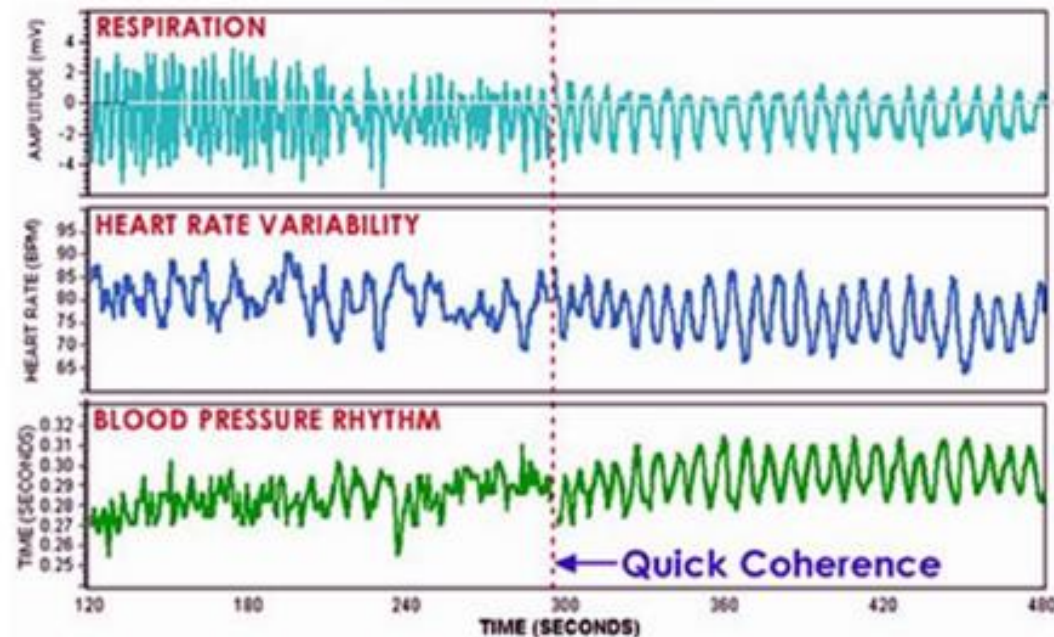




# Coherence

- The neurobiological process underpinning coherence occurs when a person's heart & breathing rhythms are in coherence with their 10 sec blood pressure rhythm (Prinsloo et al 2011).

*Coherence in three bodily rhythms*



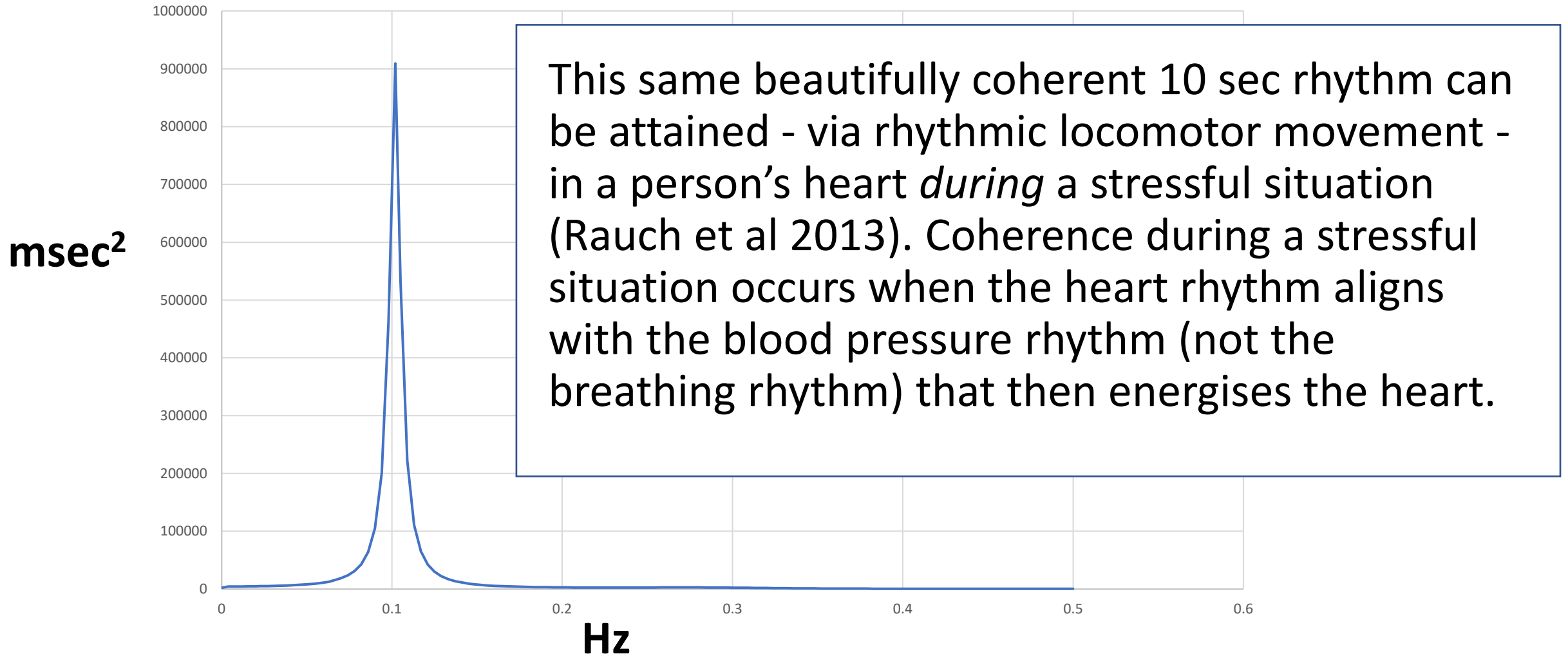


# The energised state and rhythmic locomotor movement

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- Rhythmic locomotor movement therapies have been found to have positive effects on the mind and the body.
- In a 2016 study in South Africa students completing twice weekly cycling for 6 weeks showed improvements in depressive symptoms (Balchin et al, 2016).
- Dance positively impacts depression, both acutely (Koch et al, 2007) and long term (Pylvanainen et al 2015) and improves cardiovascular fitness (Fong Yan et al, 2018).

# Slow Rhythmic Movement to bring about a Coherent & Energised state



## The main features of the rhythmic slow movement practice

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- Head as if suspended from string - single-minded focus on posture
- Stop thinking – coherence between mind and body
- Rotational spinal movements around T7 vertebra - locomotor
- Circular movement that rounds the spine – dolphin






Wellbeing diary **Sense of wellbeing post**

Sign up

Please now **again** reflect on, and rate your perception of how you are feeling **in the moment** using all of the sliders below:


To remind you of how you completed the form last time, the sliders has been set to the last position you choose. You can change them

**Physical Wellbeing**

Poor  Excellent (0)

Please describe any comfort / discomfort you are aware of

**Emotional Wellbeing**

Poor  Excellent

Please describe any emotions and thoughts you are aware of

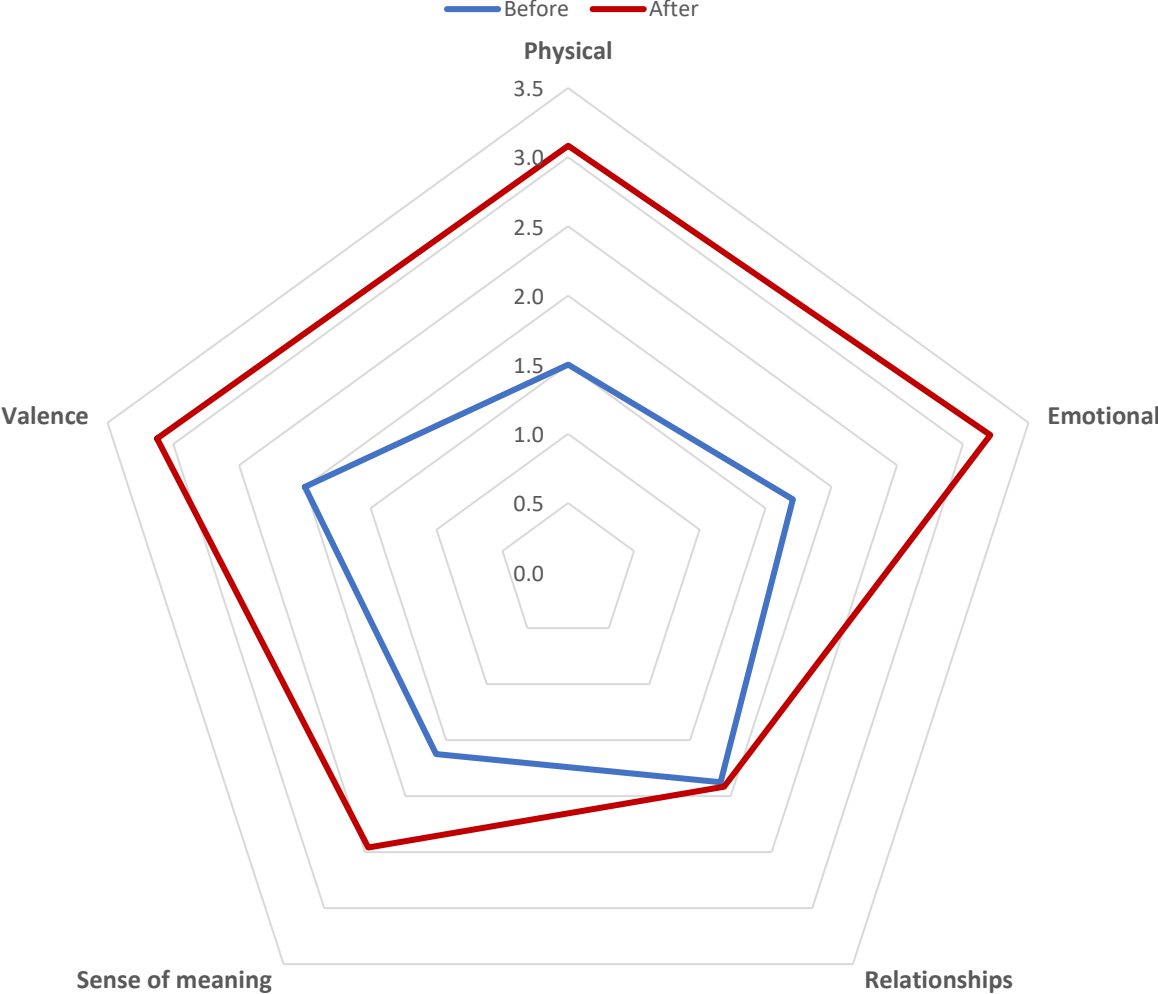
## Slow Rhythmic Movement: Data Collection Tools

Data was collected from online 'wellbeing diaries' (of self evaluation of physical, mental, relational wellbeing and valence) kept by users of the CALM foundation resources. Subjects were in some sense their own controls, an aspect of the study made possible by measurement "before and after" the intervention.

There were 60 participants in total, out of which 38 completed both the pre and post diaries. After cleaning the data to account for a minimum duration of 10 min, entries for 24 participants were considered.



Average scores before and after the exercise



*Table 3 One-tailed Wilcoxon signed-rank test results: z-score (test statistic), p-values, and effect size  $r$ . P-values less than 0.05 are in bold*

	Test statistic	$P$	$r$
Physical	3.774	<b>&lt;0.001</b>	0.545
Emotional	3.659	<b>&lt;0.001</b>	0.528
Relationships	0.373	0.354	0.054
Sense of meaning	3.490	<b>&lt;0.001</b>	0.504
Valence	2.721	<b>0.003</b>	0.393

*Table 4 Pearson correlation coefficients between valence and various wellbeing dimensions.*

	Physical	Emotional	Relationships	Meaning	Valence
Physical	1.000	0.899	0.612	0.737	0.809
Emotional	0.899	1.000	0.620	0.802	0.807
Relationships	0.612	0.620	1.000	0.568	0.600
Meaning	0.737	0.802	0.568	1.000	0.715
Valence	0.809	0.807	0.600	0.715	1.000



# Conclusion

- The slow movement exercise was found to have a positive impact on physical and emotional wellbeing, valence and sense of meaning. The changes that these entrainments produced were measurable and significant with a large size for physical and emotional wellbeing, sense of meaning, and a medium effect size for valence. This suggests there are potential health benefits to slow movement interventions and there is a need for further research into the impact of slow movement on health.
- The wellbeing model and diary approach used in the evaluation allowed for monitoring change, i.e. before and after exercise. The quality of the data was enhanced by: focusing the participants awareness on their immediate embodied experience of physical, emotional and relational wellbeing and sense of pleasure/displeasure, while requesting that they rate and interpret the experience themselves.



## Directions for Further Research

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**Integrating Perceptual correlates of Wellbeing with Biomarkers** (such as Blood Pressure, Heart rate variability, Brain activity, etc.)

**Artistic Spaces for Exploring Biofeedback**





## References

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