





“Tune My
Heart to Sing
Thy Grace”

Ephesians 5:18-20

What does it mean for my *heart* to be tuned?



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- What comes next in **Ephesians 5**?



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(19) Speaking to yourselves in psalms and hymns and spiritual songs,

singing and **making melody in your heart to the Lord;**



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Colossians 3:16 “Let

the word of Christ dwell in you richly in all wisdom;

teaching and admonishing one another in psalms and hymns and spiritual songs,

singing **with grace in your hearts to the Lord.**



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 - “...with **thankfulness in your hearts** to God.” (ESV)



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- My heart is “in tune” when my heart is **THANKFUL** to God for what He has done. This gratitude is what should motivate my praise/worship to God.



Cardiac and Respiratory Patterns Synchronize between Persons during Choir Singing

Viktor Müller , Ulman Lindenberger

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Abstract

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Dyadic and collective activities requiring temporally coordinated action are likely to be associated with cardiac and respiratory patterns that synchronize within and between people. However, the extent and functional significance of cardiac and respiratory between-person couplings have not been investigated thus far. Here, we report interpersonal oscillatory couplings among eleven singers and one conductor engaged in choir singing. We find that: (a) phase synchronization both in respiration and heart rate variability increase significantly during singing relative to a rest condition; (b) phase synchronization is higher when singing in unison than when singing pieces with multiple voice parts; (c) directed coupling measures are consistent with the presence of causal effects of the conductor on the singers at high modulation frequencies; (d) the different voices of the choir are reflected in network analyses of cardiac and respiratory activity based on graph theory. Our results suggest that oscillatory

Heart Rate Variability Synchronizes When Non-experts Vocalize Together



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Singing and chanting are ubiquitous across World cultures. It has been theorized that such practices are an adaptive advantage for humans because they facilitate bonding and cohesion between group members. Investigations into the effects of singing together have so far focused on the physiological effects, such as the synchronization of heart rate variability (HRV), of experienced choir singers. Here, we study whether HRV synchronizes for pairs of non-experts in different vocalizing conditions. Using time-frequency coherence (TFC) analysis, we find that HRV becomes more coupled when people make long (> 10 s) sounds synchronously compared to short sounds (< 1 s) and baseline measurements ($p < 0.01$). Furthermore, we



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- **EX:** Exodus 15, Numbers 21, Judges 5, Luke 1, **Psalm 148**, etc.



How do I bring my *heart* back into tune?



How do I bring my *heart* back into tune?

ASK:

Where would I be without the Lord?

