



Salivary Testosterone Levels and Pain Perception Exhibit Sex-Specific Association in Healthy Adults



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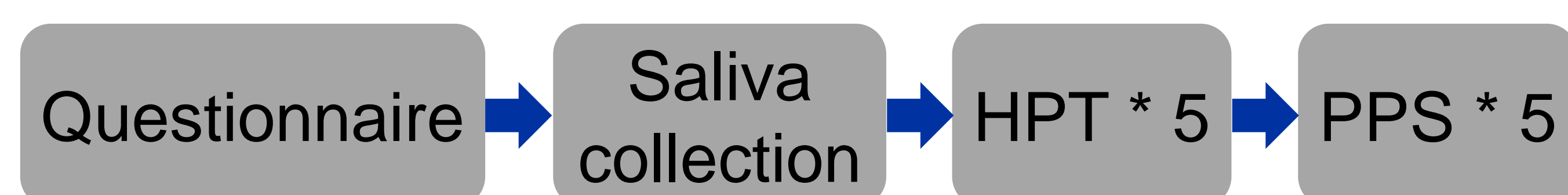
Objective

- Sex-specific differences in chronic pain conditions, such as migraines, as well as in the mechanisms of pain processing and modulation.
- Balance and levels of testosterone and estrogen were reported to affect one's perception of pain.

Aims

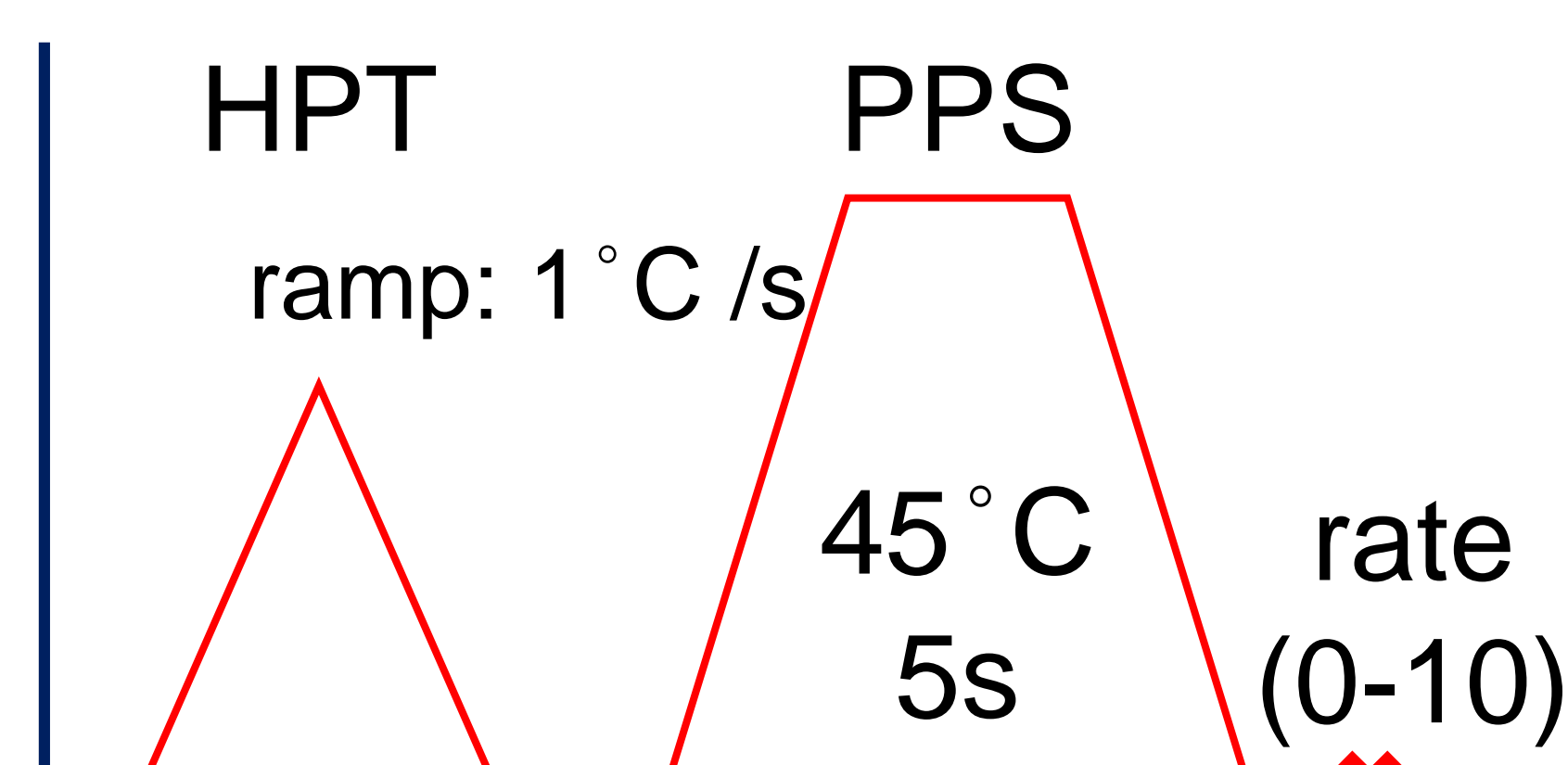
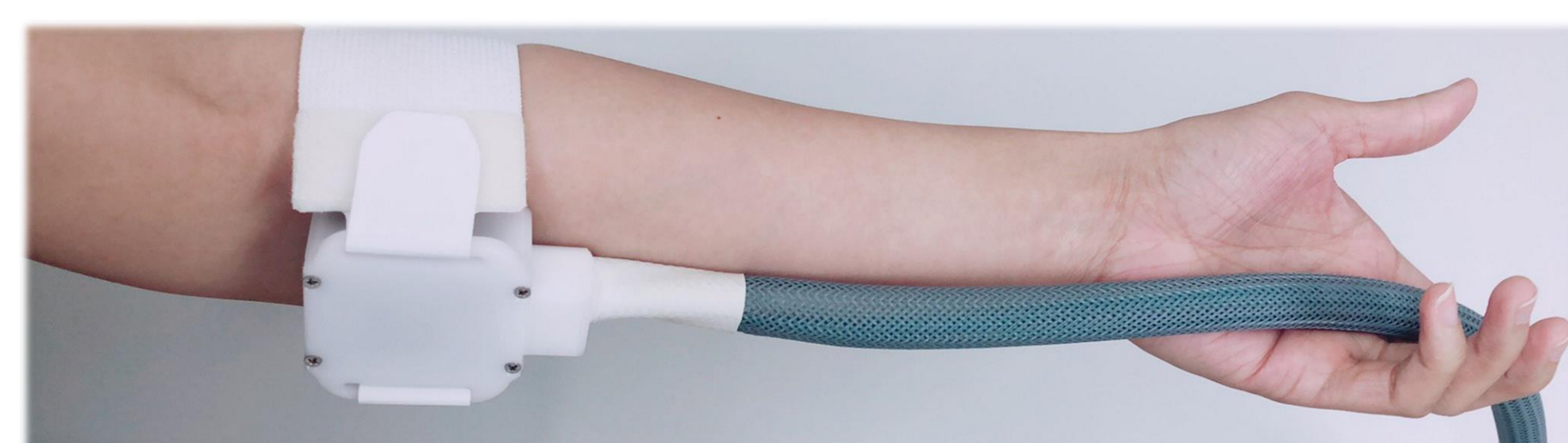
- To investigate the association between pain perception and testosterone levels in healthy controls (HCs) and patients with migraine (MIGs)

Methods



Participants

- HCs: devoid of any pain conditions
- MIGs: diagnosed with migraine (ICHD-3)
- Heat pain thresholds (HPTs) & suprathreshold pain ratings at 45°C (pain perception score, PPS): Medoc TSA-II (Medoc, Israel)
- Salivary testosterone (sTT) levels: Salimetrics 1-2402, ELISA Kit



Conclusion

- Testosterone levels demonstrate opposite associations with pain perception in healthy men and women
- Presence of pain condition, such as migraine, appears to disrupt this sex-specific association

Results

- 88 HCs (41M, 29.9 ± 7.7 yrs.) and 75 MIGs (30M, 31.1 ± 7.7 yrs.) included
- MIGs showed higher levels of anxiety and depression compared to HCs
- Male participants has significantly higher sTT levels in both HCs and MIGs
- No significant differences in HPT, PPS, and sTT between HCs and MIGs

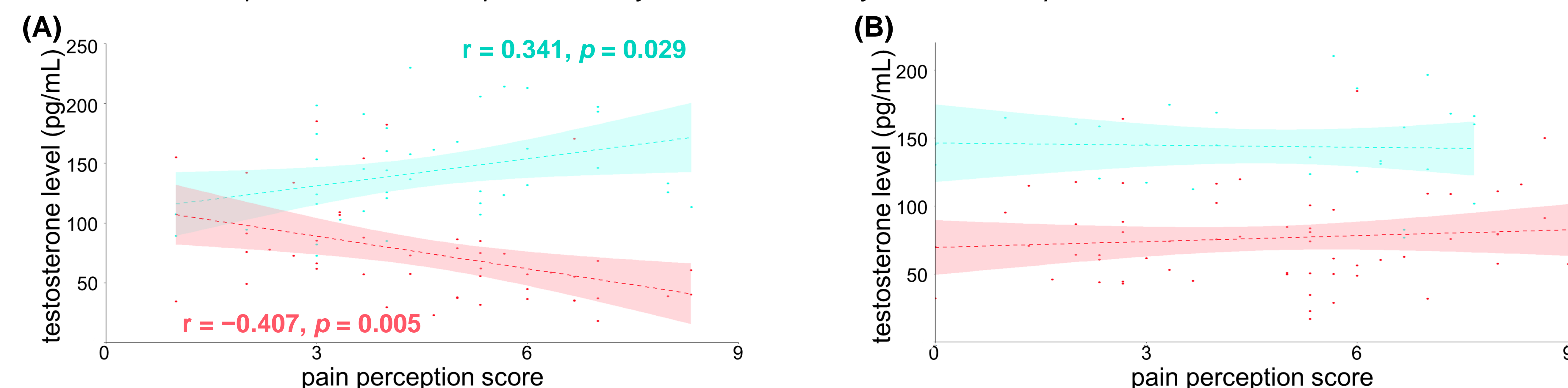
Table 1. Comparison between male and female in HCs

	Male	Female	p
N	41	47	-
Age (yrs.)	30.2 ± 7.5	29.6 ± 8.0	0.730
HADS-A	3.5 ± 2.7	4.0 ± 2.9	0.372
HADS-D	2.8 ± 2.6	2.5 ± 2.7	0.660
HPT (°C)	40.5 ± 3.7	40.7 ± 4.1	0.748
PPS	4.5 ± 1.8	4.6 ± 1.9	0.677
sTT (pg/mL)	142.1 ± 40.8	74.3 ± 42.6	< 0.001*

Table 2. Comparison between male and female in MIGs

	Male	Female	p
N	30	45	-
Age (yrs.)	33.1 ± 8.9	29.7 ± 6.6	0.077
HADS-A	6.8 ± 4.0	8.6 ± 4.2	0.082
HADS-D	5.3 ± 3.9	5.8 ± 3.9	0.525
HPT (°C)	40.0 ± 4.6	40.4 ± 3.8	0.668
PPS	5.0 ± 2.4	5.3 ± 2.5	0.604
sTT (pg/mL)	157.1 ± 45.7	87.8 ± 48.1	< 0.001*

HADS-A: Anxiety section of Hospital Anxiety and Depression Scale, HADS-D: Depression section of Hospital Anxiety and Depression Scale, HPT: heat pain threshold, PPS: pain sensitivity score, sTT: salivary testosterone. *p < 0.05



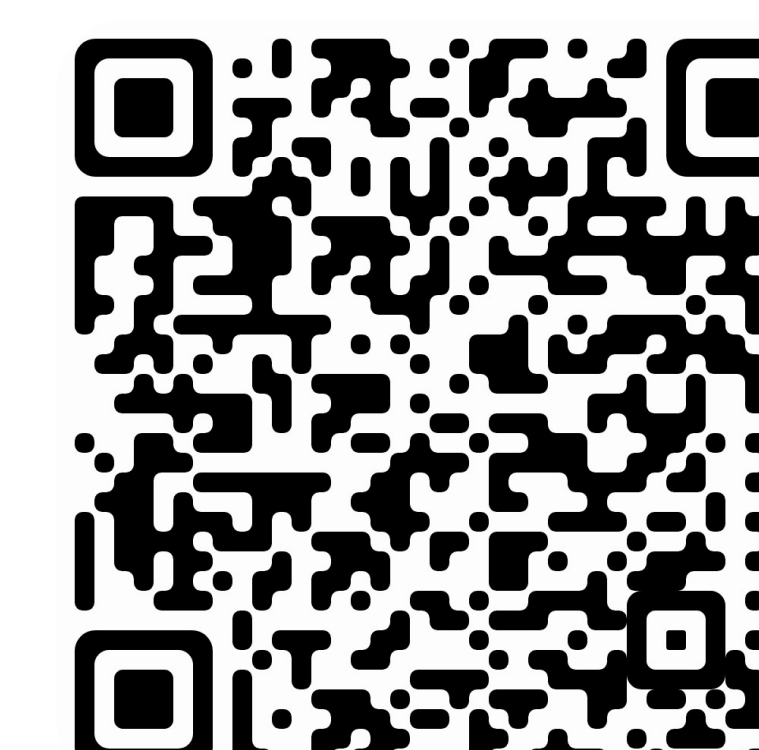
- Male HCs showed positive correlation between sTT and PPS whereas female HCs showed negative correlations. (Fig. A)
- No significant correlation were found between sTT and PPS in MIGs. (Fig. B)

The complete results are published in the Journal of Pain. Please scan QR code for more information.

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