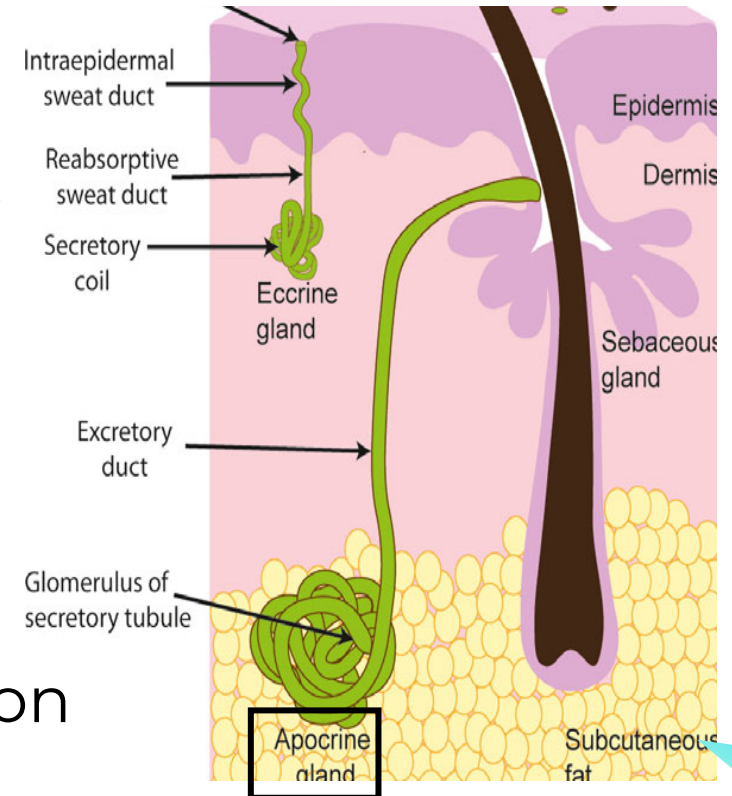




Introduction

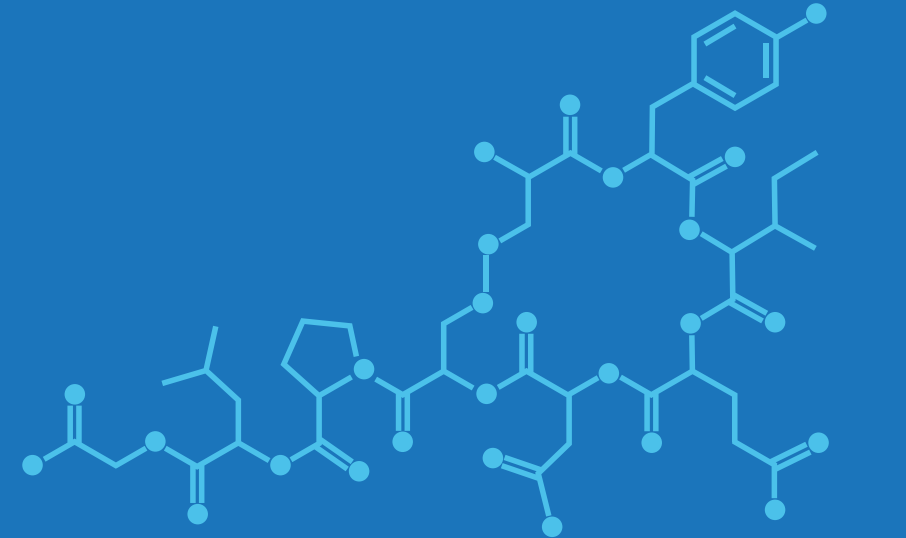
- **Chemo signal** molecules are involved in unconscious social communication.
- **Apocrine sweat** is the main source for chemo- signals substances [1].
- **Oxytocin** is a hormone that plays a role in social cognition and behaviors such as: bonding, parenthood, affiliation and friendship.
- Several studies have found that **aerobic exercise** is associated with high levels of Oxytocin, which may have led to improved birth processes and even reduced the size and volume of breast cancer growth in mice [2,3].



DOES IT MATTER WHO YOU EXERCISE WITH?

The role of oxytocin in aerobic activity

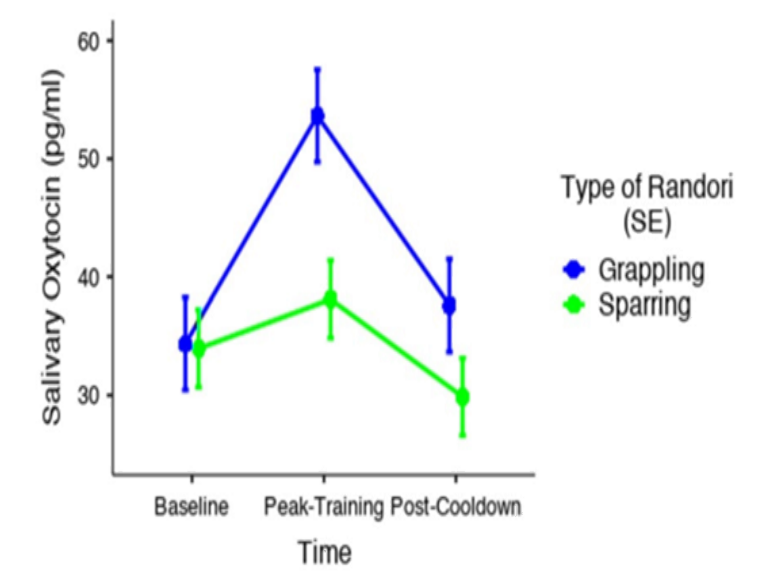
Neta Niv,
Ruth Feldman,
Orna Zagoory-Sharon



Previous Studies

Martial Arts:

Oxytocin levels in saliva increased while training in martial art. Significant differences in oxytocin levels were found in the Peak-Training time in ground grappling compared to "punch-kick" sparring [4].



The release of oxytocin to the blood during aerobic activity vs other activities:

A significant increase in oxytocin levels was found **only in the aerobic group**, this level remains stable even after 40 minutes from the beginning of the activity [5].

The Research Questions

1 Is there Oxytocin in human sweat?

2 How is oxytocin affected by aerobic exercise in the social environment we train in- alone vs. social?

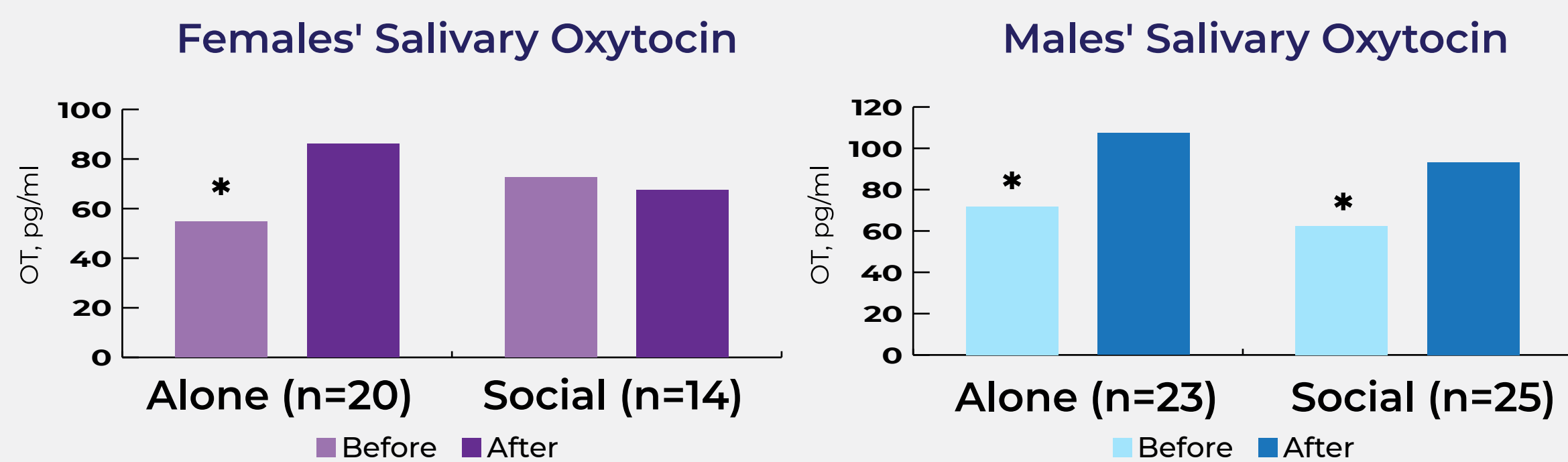
3 Is mood affected by our characteristics and the social environment in which we exercise before and after training?

Method



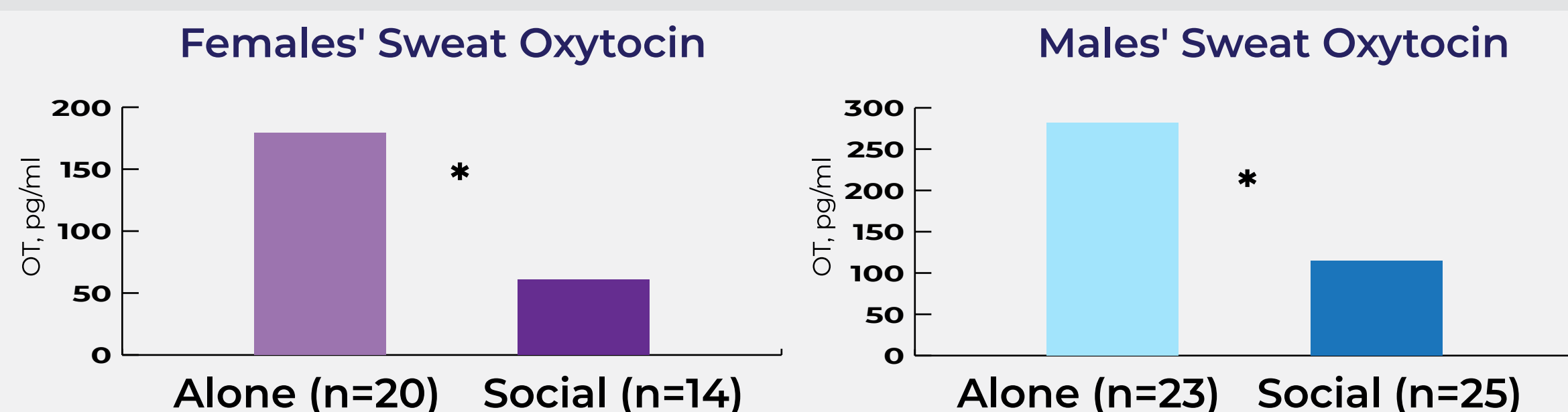
Study 1

The levels of Oxytocin in saliva in response to aerobic workout by gender



Males showed **significantly higher** levels of post activity oxytocin, regardless of the social environment. However, females showed **significantly higher** levels of post activity oxytocin, only when they trained alone

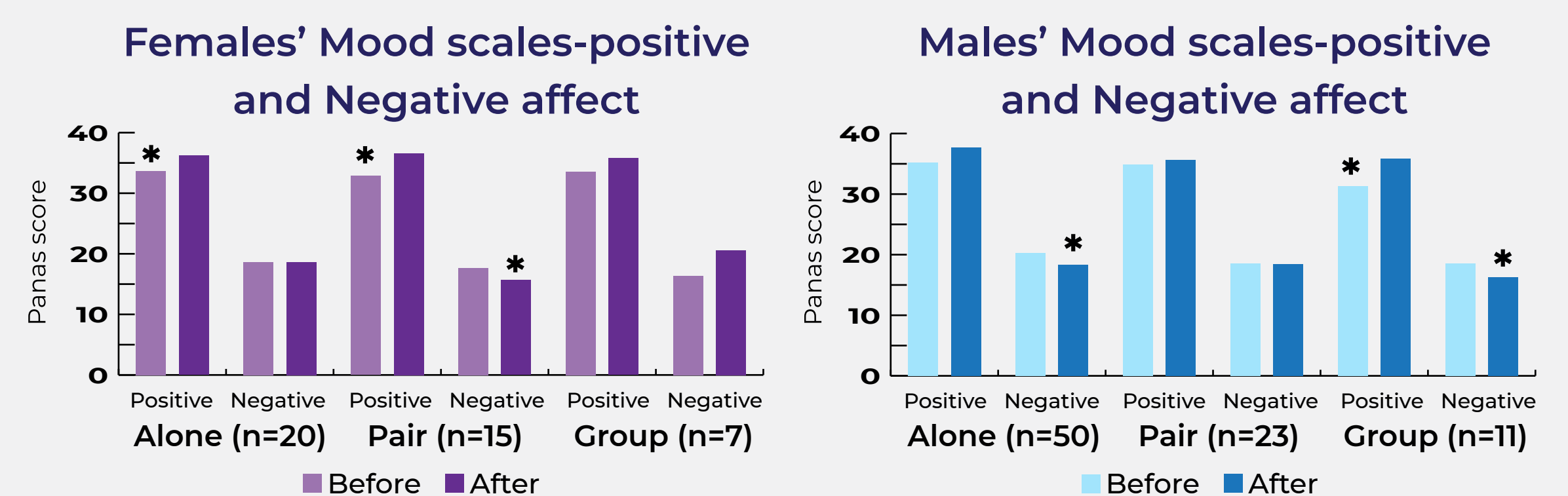
The levels of Oxytocin in sweat in response to aerobic workout by gender



Both genders showed **significantly higher** levels of Oxytocin while training alone compared to the social condition

Study 2

Positive and Negative Emotions by gender



Both genders have a general trend of **positive emotions increasing and negative emotions decreasing** after exercising for most cases.

Mood score - pre VS. post activity

	Panas Negative by group	Panas Positive by Alone
Pearson Correlation	.656*	-.392*
ATT_ANX	Sig (2 tailed) 0.028	0.032
N	11	30

High anxiety scores were correlated with **decreased positive emotions** after exercise when training alone.

High anxiety scores were correlated with **increased negative emotions** after exercise when training in a group.

Significant differences: *p < 0.05

Conclusions

Oxytocin is present in sweat.

For men, oxytocin levels in saliva increased in all conditions, whereas women's oxytocin levels rise only when they train alone.

Among both genders, there is more oxytocin in sweat while training in solitary condition compared to social conditions.

Positive and negative emotions depend on the social environment in which the activity was performed.

Mood ratio was found to be associated with an anxious attachment pattern.

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