

Development and Validation of an Implicit Measure of (Chronic) Pain-related Fear, Avoidance, and Acceptance in Adolescents.

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STUDY 1



Spider
Fear
(n=30)

Can we assess children's automatic fear-avoidance responses with an implicit measure?

- ❖ Stimuli: pictures (spiders vs. bunnies) + statements (fear-avoidance vs. safety-approach)
- ❖ Implicit measures:

Implicit Relational Assessment Procedure (IRAP)³
Relational Responding Task (RRT)⁴
Implicit Association Test (IAT)⁵

- ❖ Explicit measures: Fear, Avoidance, Safety, and Approach ratings
- ❖ Results:

D_{IRAP} trial types (n=14)

D_{IAT} (n = 30): $M = .77$ ($SD = .31$); $t(29) = 13.43$, $p < .001$

D_{RRT} (n = 16): $M = .02$ ($SD = .28$); $t(14) = 0.28$, ns

Bunny ratings (-10 → 10)

$M_{safe} = 8.80$; range = 4 – 10

$M_{app} = 7.03$; range = -6 – 10

$M_{fear} = -9.23$; range = -10 – 0

$M_{avoid} = -9.03$; range = -10 – -3

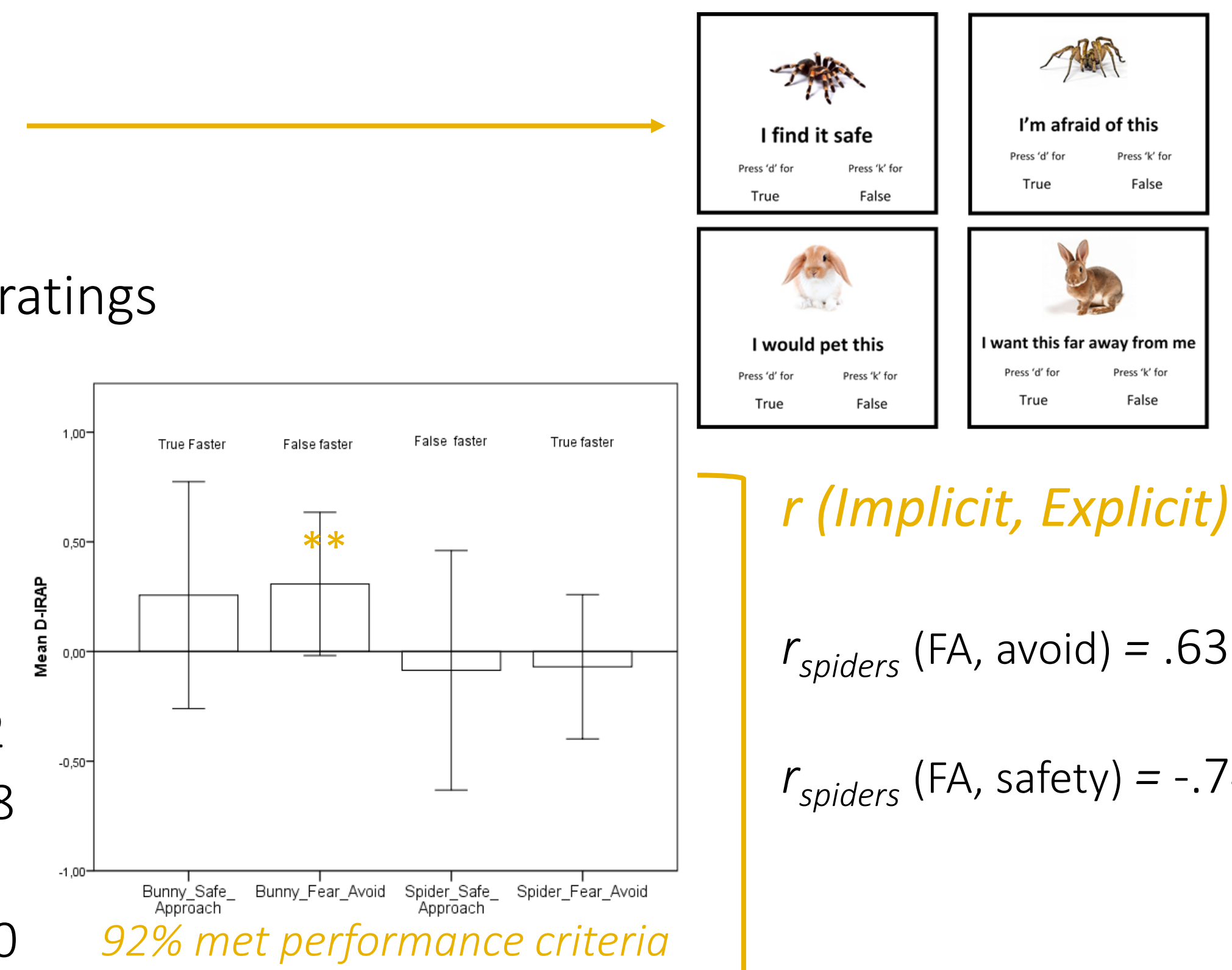
Spider ratings (-10 → 10)

$M_{safe} = -6.63$; range = -10 – 2

$M_{app} = -7.17$; range = -10 – 8

$M_{fear} = 2.60$; range = -9 – 10

$M_{avoid} = 6.13$; range = -2 – 10



r (Implicit, Explicit)

$r_{spiders}$ (FA, avoid) = .63*

$r_{spiders}$ (FA, safety) = -.74**

- ❖ Conclusion: IRAP and IAT can assess automatic fear responses in children but high variability in spider fear

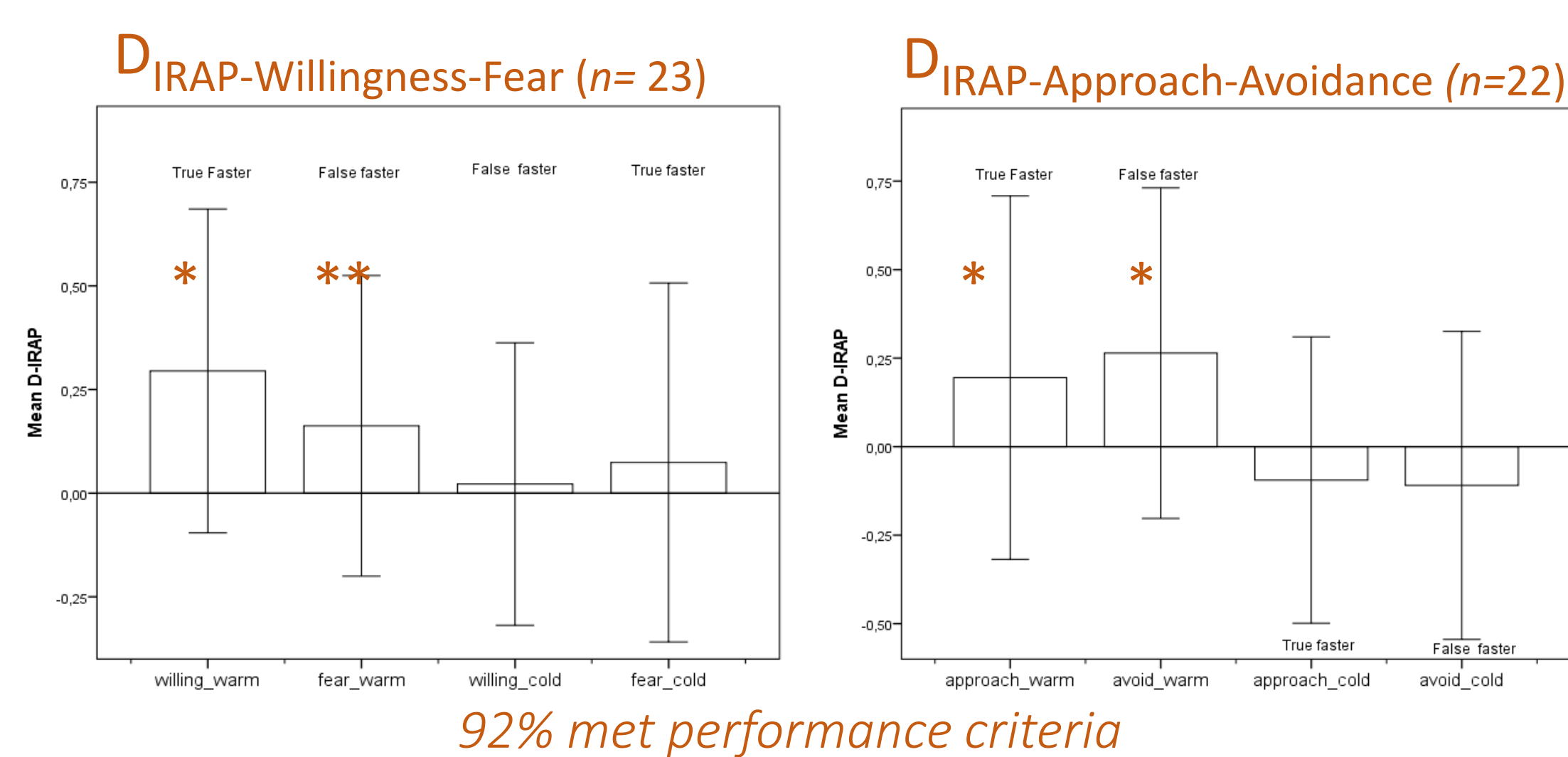
Can we assess children's automatic pain-related responses with an implicit measure? How does this relate to their explicit and behavioural responses in an acute pain context?

- ❖ Stimuli: pictures (hand in painful vs. neutral CPT) + statements (fear vs. willingness & avoidance vs. approach)
- ❖ Implicit measures: Willingness-Fear IRAP + Approach-Avoidance IRAP
- ❖ Explicit measures: pre-CPT fear, avoidance, approach, willingness ratings (0-10) + pain ratings (0-10) + self-reports
- ❖ Behavioural outcomes:

Cold Pressor Task (CPT⁶; CPT^A: baseline (1') + CPT^B tolerance) → pain tolerance (max = 4')

Tone detection task (RIR⁷; RIR^A baseline (1') + RIR^B during CPT) → pain interference = mean RT (ms), error %

- ❖ Results:



r (Implicit, Explicit): r (willing_cold, willingness) = -.48*

Pain (Post-CPT^A)

$M_{mean} = 5.92$; range = 0 – 9

$M_{end} = 6.27$; range = 0 – 10

$M_{worst} = 7.14$; range = 2 – 10

Pre-CPT^B

$M_{willing} = 4.98$; range = 0 – 10

$M_{fear} = 5.20$; range = 0 – 10

$M_{approach} = 3.35$; range = 0 – 10

$M_{avoid} = 5.49$; range = 0 – 10

CPT^B

$M_{tol} = 153$ 138 ms; range = 18 550 ms – 4'

RIR^A

$M_{RT} = 187$ ms; range = 139-261 ms

% error = 3 %; range = 0-2 %

RIR^B

$M_{RT} = 197$ ms; range = 137-301 ms

% error = 9 %; range = 0-4 %

$\Delta RT = ns$

$\Delta t(50) = 6.58***$

r (Implicit, Behavioural): no relations

r (Explicit, Behavioural)

r (Willing, error%) = -.41**

r (Fear, error%) = .34*

r (Approach, error%) = -.46**

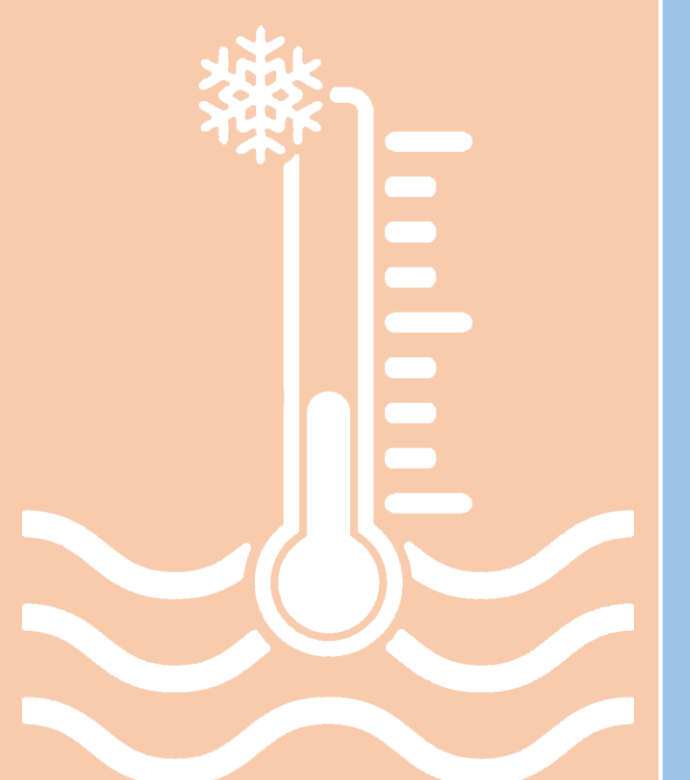
r (Avoid, error%) = .29*

r (Approach, CPT tolerance) = .29*

- ❖ Conclusions: IRAP works with children, but high variability in acute pain responses

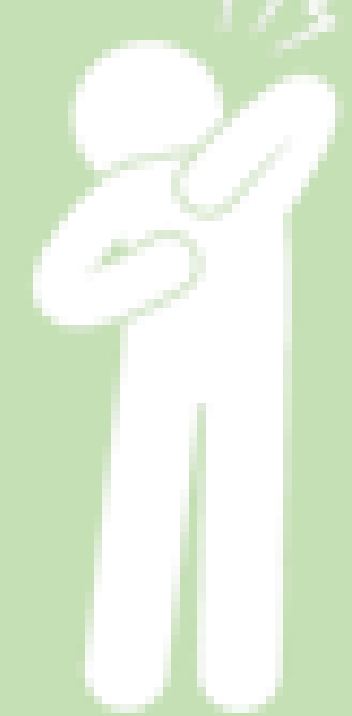
STUDY 2

2



Acute
Pain
(n=50)

STUDY 3



Chronic
Pain

Can we assess children's automatic pain-related responses in a chronic pain context? How does this relate to their explicit responses and daily pain-related functioning?

- ❖ Stimuli: idiosyncratically selected pictures of daily (painful) activities (PHODA⁸) + statements
- ❖ Implicit measure: Fear-Avoidance/Safety-Engage IRAP
- ❖ Explicit measures: fear, safety, avoidance & engagement (acceptance) ratings + value and frequency of engagement ratings (0-10) + self-reports (pain, pain-related functioning, pain catastrophizing, pain-related fear, pain acceptance)
- ❖ Behavioural outcomes:

Willingness Measure → "How willing are you to perform this activity here, right now?" (0-10)
→ stimuli = PHODA pictures (painful, non-painful, valued, non-valued)

1-Week Diary → pain-related thoughts, feelings, behaviour

>> Data collection starts in August 2017 <<

³ IRAP 6.0. (Dutch); Barnes-Holmes, D. (2009) ⁴De Houwer et al. (2015); ⁵ Greenwald, A. et al. (1998); ⁶ Type Techne B-26 with TE10D + Type Techne Dip Cooler RU-200; ⁷ Vandierendonck et al. (1998) ⁸ Verbunt et al. (2015)

* $p < .05$ ** $p < .01$ *** $p < .001$