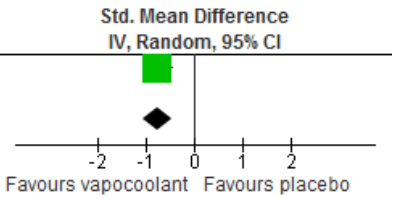
**Revman Plots: Vapocoolants adult**

## Pain Acute

| Study or Subgroup | Vapocoolant Mean | SD | Total | Placebo Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Mawhorter 2004 | 4.4 | 0.98 | 93 | 5.6 | 1.94 | 92 | 100.0% | -0.78 [-1.08, -0.48] |
| **Total (95% CI)** | | | **93** | | | **92** | **100.0%** | **-0.78 [-1.08, -0.48]** |

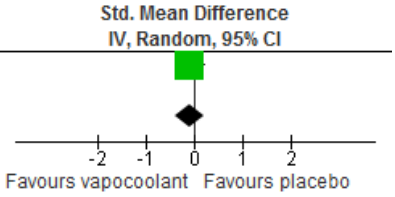
Heterogeneity: Not applicable
Test for overall effect: Z = 5.10 (P < 0.00001)




## Pain Recovery

| Study or Subgroup | Vapocoolant Mean | SD | Total | Placebo Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Mawhorter 2004 | 3.4 | 1.94 | 93 | 3.6 | 1.94 | 92 | 100.0% | -0.10 [-0.39, 0.19] |
| **Total (95% CI)** | | | **93** | | | **92** | **100.0%** | **-0.10 [-0.39, 0.19]** |

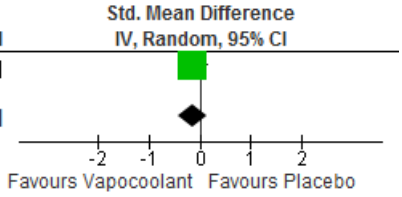
Heterogeneity: Not applicable
Test for overall effect: Z = 0.70 (P = 0.49)




## Safety (Discomfort with application of intervention)

| Study or Subgroup | Vapocoolant Mean | SD | Total | Placebo Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Mawhorter 2004 | 1.25 | 1.68 | 93 | 1.5 | 1.68 | 92 | 100.0% | -0.15 [-0.44, 0.14] |
| **Total (95% CI)** | | | **93** | | | **92** | **100.0%** | **-0.15 [-0.44, 0.14]** |

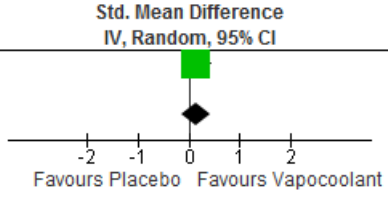
Heterogeneity: Not applicable
Test for overall effect: Z = 1.01 (P = 0.31)




## Preferences

| Study or Subgroup | Vapocoolant Mean | SD | Total | Placebo Mean | SD | Total | Weight | Std. Mean Difference IV, Random, 95% CI |
|---|---|---|---|---|---|---|---|---|
| Mawhorter 2004 | 7.5 | 1.68 | 93 | 7.25 | 1.68 | 92 | 100.0% | 0.15 [-0.14, 0.44] |
| **Total (95% CI)** | | | **93** | | | **92** | **100.0%** | **0.15 [-0.14, 0.44]** |

Heterogeneity: Not applicable
Test for overall effect: Z = 1.01 (P = 0.31)



**Author(s):** VS/AT
**Date:** 2015-02-24
**Question:** Should vapocoolants before vaccine injections vs placebo be used for reducing vaccine injection pain in adults?
**Settings:** travel clinic
**Bibliography:** Mawhorter 2004

| Quality assessment | | | | | | | No of patients | | Effect | | Quality | Importance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Vapocoolant be applied before vaccine injections | Placebo | Relative (95% CI) | Absolute | | |
| **Pain (Acute)[1] (measured with: validated tool (McGill Present Pain Intensity of 0-5); Better indicated by lower values)** | | | | | | | | | | | | |
| 1 | randomised trials | serious[2,3] | no serious inconsistency | no serious indirectness | serious[4] | none | 93 | 92 | - | SMD 0.78 lower (1.08 to 0.48 lower)[5] | ⊕⊕OO LOW | CRITICAL |
| **Pain (Recovery)[1] (measured with: validated tool (McGill Present Pain Intensity 0-5); Better indicated by lower values)** | | | | | | | | | | | | |
| 1 | randomised trials | serious[2,3] | no serious inconsistency | no serious indirectness | serious[4] | none | 93 | 92 | - | SMD .10 lower (0.39 lower to 0.19 higher)[5] | ⊕⊕OO LOW | CRITICAL |
| **Safety[1] (measured with: validated tool (Likert scale describing discomfort with administration 1-5) ; Better indicated by lower values)** | | | | | | | | | | | | |
| 1 | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[6] | none | 93 | 92 | - | SMD 0.15 lower (0.44 lower to 0.14 higher) | ⊕⊕OO LOW | IMPORTANT |
| **Preference[1] (measured with: validated tool (likert scale 1-5); Better indicated by higher values)** | | | | | | | | | | | | |
| 1 | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[4] | none | 93 | 92 | - | SMD 0.15 higher (0.14 lower to 0.44 higher) | ⊕⊕OO LOW | IMPORTANT |
| **Fear, Distress, Procedure Outcomes, Vaccine Compliance, Memory, Satisfaction (assessed with: no data were identified for these important outcomes)** | | | | | | | | | | | | |
| 0 | No evidence | | | | | none | - | - | - | - | | IMPORTANT |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | available | | | | | | | 0% | | - | | |

[1] Intervention (vapocoolant) administered with a cotton ball
[2] Immunizer not blinded
[3] Insufficient information regarding vaccines given (e.g., type, route), intervention administration details (e.g., duration of application) and limb being vaccinated relative to limb being treated with intervention (e.g., arm treated with intervention injected first)
[4] Sample size was below the recommended optimum information size (OIS) of 400 for an effect size of 0.2
[5] In a recent systematic review of venipuncture pain (Hogan 2014), effectiveness was demonstrated for vapocoolant vs. no treatment control only (not compared to placebo). Moreover, discomfort from application offset the benefit.
[6] Confidence interval crosses the line of nonsignificance and sample size was below the recommended optimum information size (OIS) of 400 for an effect size of 0.2