

EVIDENCE WORKSHEET

Guideline 9.2.13

ARC Subcommittee: First Aid

Guideline author: Finlay Macneil

Clinical (PICO) question:

Population: Adults and children with signs and symptoms of faintness or presyncope of suspected vasovagal or orthostatic origin

Intervention: interventions such as physical counter-pressure maneuvers, body positioning, hydration or other

Comparison: no intervention or each other

Outcomes:

- Abortion of Syncope
 - (high number considered beneficial)
 - (critical)
- Injuries or adverse events
 - (low number considered beneficial)
 - (critical)
- Symptom improvement
 - (high number considered beneficial)
 - (important)
- Change in heart rate
 - (increase considered beneficial for VVS)
 - (important)
- Change in systolic blood pressure
 - (increase considered beneficial)
 - (important)
- Change in diastolic blood pressure
 - (increase considered beneficial)
 - (important)

Study Designs: Randomized controlled trials (RCTs) and non-randomized studies (non-randomized controlled trials, interrupted time series, controlled before-and-after studies, cohort studies) were eligible for inclusion. Case series and unpublished studies (for example, conference abstracts, trial protocols) were excluded.

Timeframe and Languages: All years and all languages were included provided an English abstract was available. (Evidence update to Jan 2023)

Results of original Search undertaken November 2018		
1	syncope/ or syncope, vasovagal/	12008
2	(Syncope or syncopal or syncope or syncopes or pre-syncope or presyncope).ab,kf,ti.	16797
3	(vasovagal adj1 (syncope* or episode* or symptom* or recurrent or repeat or attack* or collapse* or shock*)).ab,kf,ti.	1586
4	Tilt-Table Test/	2409
5	(Tilt-Table Test or tilt test* or Tilt-induced).ab,kf,ti.	2419
6	orthostatic intolerance/ or hypotension, orthostatic/ or Lower Body Negative Pressure/	6733
7	(orthostatic or orthostasis or drop attack* or lipothymia*).ab,kf,ti.	12022
8	VVS.ab,kf,ti.	508
9	((feeling or blood donor*) adj2 (faint* or Dizzy* or Dizzi* or Lighthead* or Light-Head* or Disequilibrium or dis-equilibrium or Vertigo or Discomfort)).ab,kf,ti.	247
10	(Lower body adj2 pressure).ab,kf,ti.	1641
11	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10	35502
12	Valsalva Maneuver/	3907
13	(Valsalva or maneuver or maneuvers or manoeuvres or manoeuvre).ab,kf,ti.	31604
14	counterman*.ab,kf,ti.	189
15	exp hypertonic solutions/ or isotonic solutions/ or rehydration solutions/	19916
16	water/ or drinking water/	148433
17	fluid therapy/ or hypodermoclysis/	18487
18	Drinking/	13598
19	((isotonic or isometric or hypertonic) adj1 solution*).ab,kf,ti.	3254
20	(water or waters).ab,kf,ti.	694552
21	(rehydration or re-hydration or hydration or drink or drinks or drinking).ab,kf,ti.	155430

22	exp Beverages/	121917
23	(fluid therap* or oral fluid replacement* or beverage* or milk or tea or coffee).ab,kf,ti.	166359
24	exp Exercise Therapy/	42846
25	Salts/	12755
26	Pressure/	68853
27	Hemodynamics/	132812
28	Baroreflex/	5624
29	(Hemodynamic or Hemodynamics).ab,kf,ti.	130671
30	(salts or pressure or posture or supine or postural change or trendelenburg or Squatting or standing or handgrip or counterpressure* or grip or gripping).ab,kf,ti.	904668
31	(leg adj2 cross*).ab,kf,ti.	485
32	exp Posture/	69334
33	Patient Positioning/	4962
34	((Patient or dorsal or body) adj1 (position or positioning)).ab,kf,ti.	6572
35	((arm* or leg* or limb* or chest) adj2 (low* or elevat* or rais* or position*)).ab,kf,ti.	61944
36	Non?pharmacological*.ab,kf,ti.	3391
37	((arm or muscle or leg) adj1 (tensing or tension or counter pressure or exercise* or counterpressure*)).ab,kf,ti.	5649
38	(Abdominal adj1 (Compression or bandage*)).ab,kf,ti.	560
39	(Inspiratory adj1 (sniffing or pursed lips breathing or obstruction)).ab,kf,ti.	42
40	Breathing Exercises/ or Respiratory Therapy/ or Compression Bandages/ or *Isometric Contraction/	16011
41	or/12-40	2192458
42	treatment outcome/ or treatment failure/ or disease management/	901322
43	pc.fs.	1182586

44	tu.fs.	2061208
45	th.fs.	1698548
46	(prevent or preventing or prevention).ab,kf,ti.	943678
47	(improve or improved or improvement or improves).ab,kf,ti.	1846613
48	(reduce or reduced or reduces or reducing or reduction).ab,kf,ti.	2802252
49	(treat or treatment or therapy or therapies).ab,kf,ti.	4918547
50	(ameliorate or effect* or benefit* or impact or efficacy).ab,ti.	7144588
51	(intervention or interventions).ab,ti.	781522
52	"standard of care".ab,kf,ti.	32293
53	or/42-52	13274521
54	Animals/ not (Animals/ and Humans/)	4433348
55	(letter or comment or editorial).pt.	1637897
56	case reports/	1883228
57	55 or 56	3323279
58	11 and 41 and 53	9021
59	58 not 54	8687
60	59 not 57	7606

Evidence update January 2023, same search strategy

PRISMA table of results evidence update

Treatment recommendation from ILCOR CoSTR: We recommend the use of any type of physical counter-pressure maneuver by individuals with acute symptoms of presyncope due to vasovagal or orthostatic causes in the first aid setting (strong recommendation, low and very low-certainty evidence).

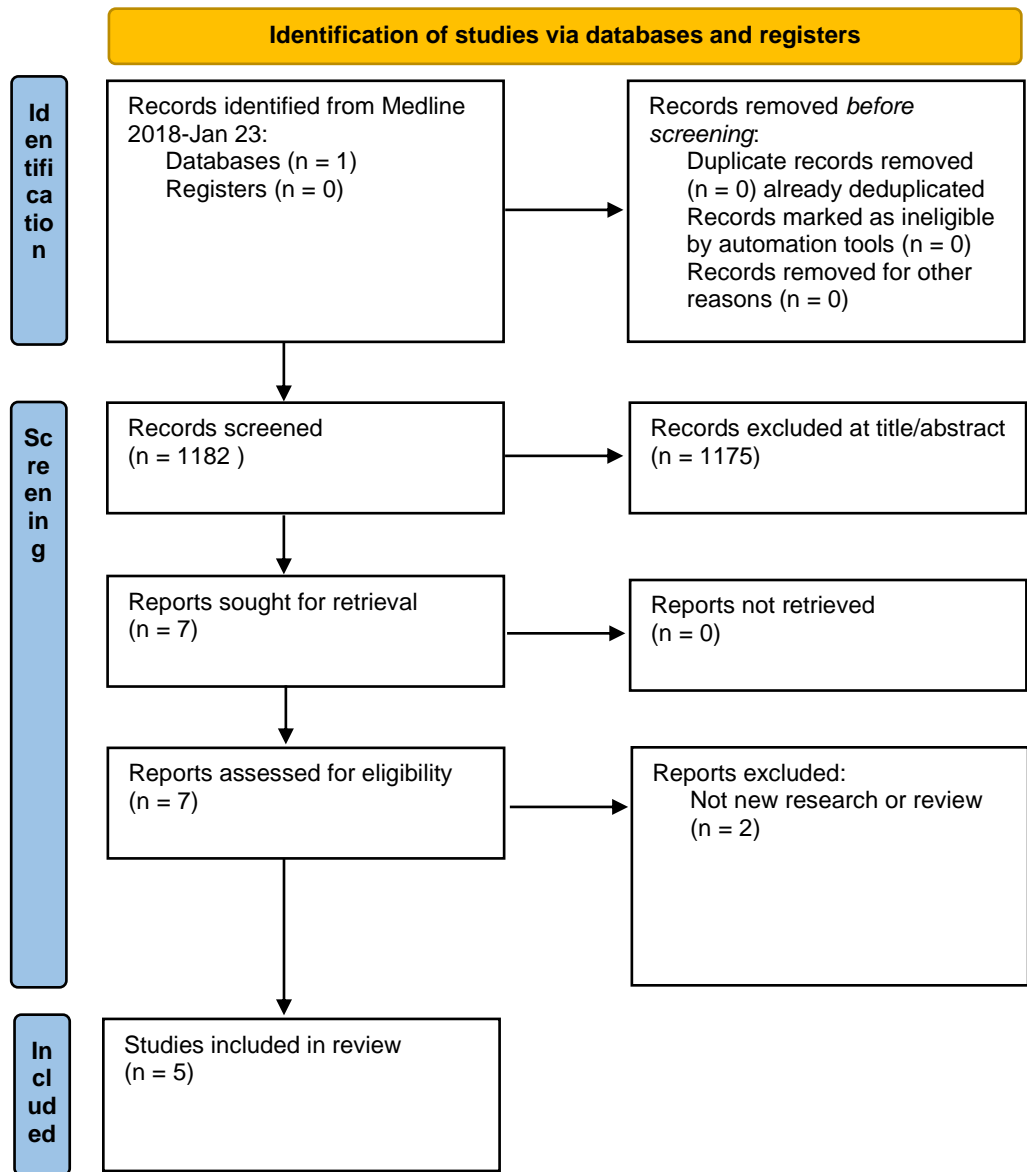
We suggest that lower body physical counter-pressure maneuvers are preferable to upper body and abdominal physical counter-pressure maneuvers (weak recommendation, very low-certainty evidence).

Justification from ILCOR CoSTR:

- PCM is a simple, feasible, no-cost intervention that has the potential to temporize symptoms and the task force believes this intervention will be acceptable to most stakeholders.
- In considering this recommendation, the First Aid Task Force places value on avoidance of progression of presyncope symptoms to full loss of consciousness. While several included observational studies failed to show a benefit in the critical outcome of aborting syncope, one RCT showed benefit for individuals with vasovagal etiology presyncope. The same RCT and another observational study identified improvement in symptoms. Only one observational study failed to demonstrate improvement of symptoms in a follow-up phase. Furthermore, the First Aid Task Force also placed value on the lack of harm associated with the use of PCM, and no adverse events or injuries were reported for this critical outcome.
- This review only identified the management of individuals with confirmed orthostatic or vasovagal presyncope.
- No literature was identified for alternative interventions, such as hydration or body positioning, to manage the symptoms of presyncope once they had developed. However, the First Aid Task Force discussed the potential risk of loss of postural tone should individuals with presyncope remaining standing/upright while attempting PCM. It was the consensus of the task force that individuals should be positioned lying or sitting when possible before using PCM.
- The First Aid Task Force discussed that although First Aid providers could be trained to advise individuals with acute presyncope in the use of the major types of PCM, it may be challenging to train first aid providers to identify vasovagal and orthostatic causes of presyncope.
- Included studies comprised participants who had been trained in the use of PCM after the onset of symptoms (as compared with studies that provided interventions or instructions in the use of PCM prior to the onset of symptoms), which is similar to a first aid situation. We were unable to perform subgroup analysis for age, gender or etiology (vasovagal compared with orthostatic) of presyncopal symptoms.

Reviewer's final comments:

The evidence update found 5 papers relevant to the topic published since the systematic review by ILCOR in 2019, but no studies to justify a change from the original CoSTR statements of the ILCOR first aid task force. The PRSMA table of the Evidence Update in Jan 23 is shown here:



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>

Evidence gaps and research priorities:

As for the original ILCOR CoSTR:

- Considering the benefit and feasibility of PCM, additional research is needed to more fully evaluate the effect and clinical outcomes of PCM in groups based on age, gender, etiology of presyncope.
- Future research should focus on the ability of first aid providers to recognize or to be trained to recognize orthostatic or vasovagal presyncope/syncope.
- Research is required on the clinical outcomes of first aid providers instructing individuals with presyncope on how to use PCM.

- Research is required to determine the effect of various body positions such as lying supine, sitting or standing in combination with PCM.
- Research is required to compare various levels of hydration with PCM for the management of presyncope.

Citation List:

See attached Excel spreadsheet for evidence update and original papers for ILCOR CoSTR and McClure et al Rapid review.