

XXXI

Diada Pneumològica

Sitges, 12 i 13 d'abril de 2013



- Taula 2: Procediments en el segle XXI, de les “recomanacions” a l'evidència.

CLAPPING: NECESSITA AIRE FRESC?

Ricard Castro Prat (Universitat de Vic)

Sitges, abril 2013

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COPD. 2011 Jun;8(3):196-205. doi: 10.3109/15412555.2011.560582. Epub 2011 Apr 22.

Airway clearance in COPD: need for a breath of fresh air? A systematic review.

Ides K, Vissers D, De Backer L, Leemans G, De Backer W.

Artesis University College of Antwerp, Department of Health Science, J. De Boeckstraat 10, 2170 Merksem, Belgium. Kris.ides@artesis.be

“The evidence for passive techniques such as postural drainage and percussion is low.”

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[COPD](#). 2011 Jun;8(3):196-205. doi: 10.3109/15412555.2011.560582. Epub 2011 Apr 22.

Airway clearance in COPD: need for a breath of fresh air? A systematic review.

[Ides K](#), [Vissers D](#), [De Backer L](#), [Leemans G](#), [De Backer W](#).

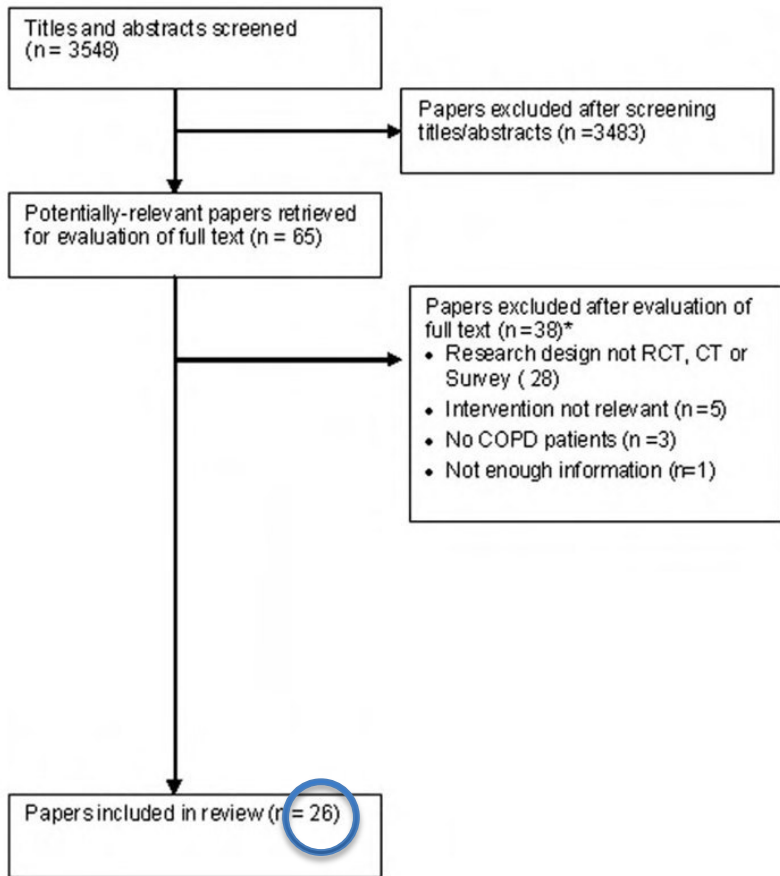
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Clapping

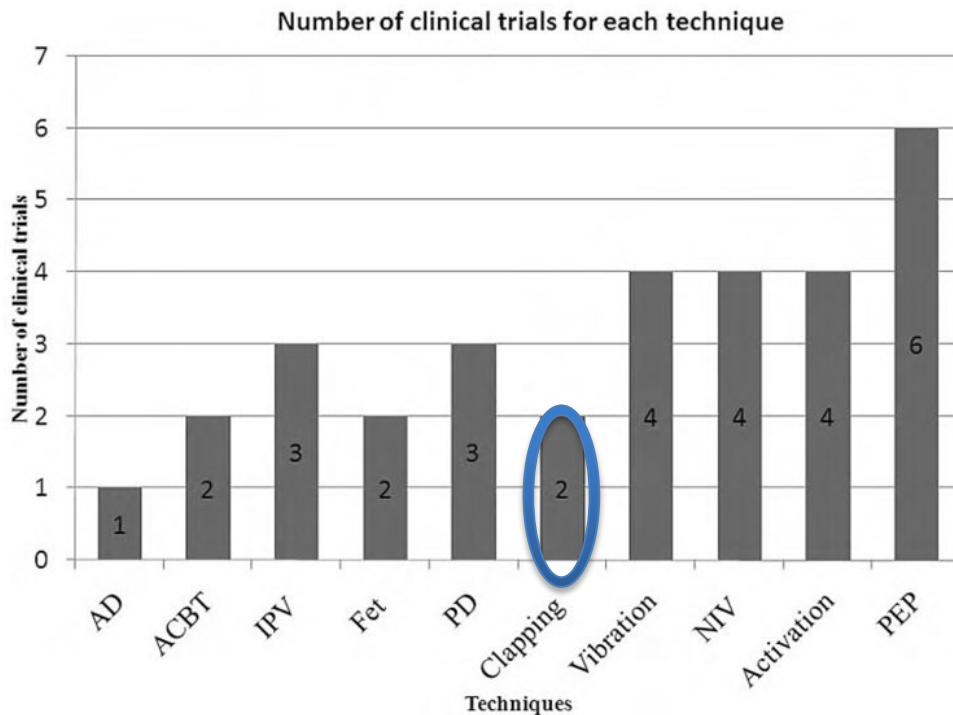
Moshenifar compared chest clapping (also referred to as chest percussion or tappotage), mechanical vibration and postural drainage (23). As previously stated, he found no changes in the outcome parameters for any of the treatments and concluded that routine use of mechanical chest vibration and chest physiotherapy is not indicated in the treatment of stable outpatients with COPD and moderate amounts of sputum production. In summary: No study could show an effect of manual vibration or chest clapping on commonly used outcome parameters. It is possible that the effect of clapping does not reach the small airways and therefore has little effect on mucus expectoration. It seems clear that clapping alone is insufficient to evacuate excess mucus. Therapists should consider active mucus evacuation techniques instead.

- *“... routine use [...] is not indicated in the treatment of stable outpatients with COPD and moderate amounts of sputum production.”*
- *“It seems [...] alone is insufficient to evacuate excess mucus.”*
- *“Therapists should consider active mucus evacuation techniques instead.”*

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Ann. Kinésithér., 1995, t. 22, n° 1, pp. 49-3^e de couverture
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CONFÉRENCE DE CONSENSUS



Une **conférence de consensus** est une méthode d'évaluation visant à faire la synthèse et le bilan des connaissances à propos d'une pratique médicale ou d'une intervention de santé, dans le but d'améliorer la qualité des soins.

Cette Conférence a été organisée et s'est déroulée conformément aux règles méthodologiques préconisées par l'Agence Nationale pour le Développement de l'Évaluation Médicale (ANDEM) qui lui a attribué son label de qualité.

Les conclusions et recommandations présentées dans ce document, ont été rédigées par le jury de la Conférence, en toute indépendance. Leur teneur n'engage en aucune manière la responsabilité de l'ANDEM.

Recommandations de la 1^{re} conférence de consensus en kinésithérapie respiratoire

Lyon, les 2 et 3 décembre 1994

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Recommandations de la 1^{re} conférence de consensus en kinésithérapie respiratoire

Ann. Kinésithér., 1995, t. 22, n° 1 51

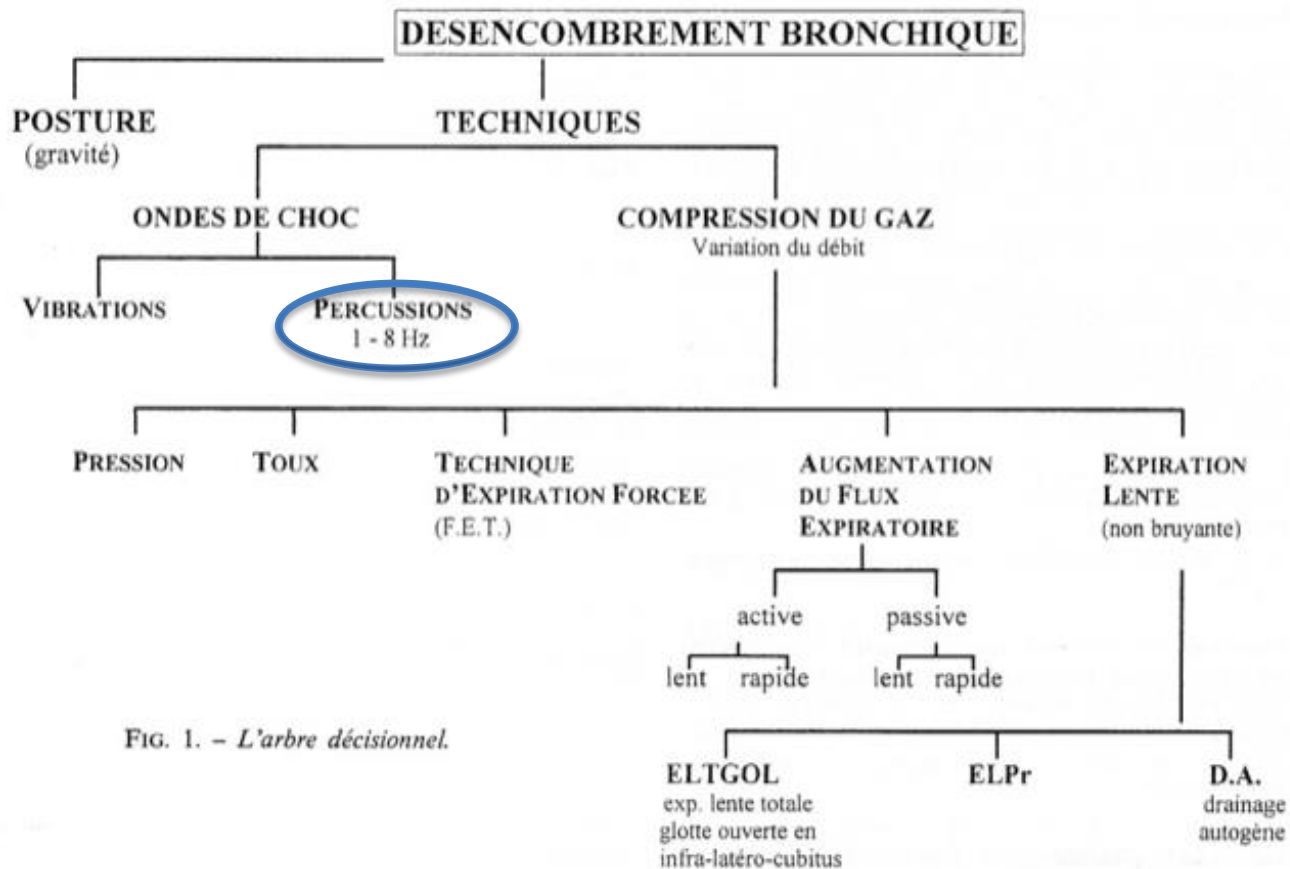


FIG. 1. - L'arbre décisionnel.

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Recommandations de la 1^{re} conférence de consensus en kinésithérapie respiratoire

- Les percussions thoraciques manuelles (**PTM**)
 - “Les vibrations appliquées au thorax, et les percussions communément nommées clapping occupent une place **anecdotique**. Ces techniques **ne font pas l'unanimité**”
 - “Les PTM n'ont fait l'objet d'aucun travail de validation en utilisation isolée alors qu'elles sont largement utilisées et diffusées dans les **pays anglo-saxons** où elles sont associées avec d'autres techniques sous le vocable de chest physiotherapy, dans la rubrique de la **physiothérapie conventionnelle**.
 - “... elles ont toutefois des **contre-indications** locales et générales à respecter. “
 - “Si action il y a, les PTM seraient **plus efficaces chez les patients ayant des sécrétions volumineuses, proximales**.”
 - “Elles semblent également utiles comme moyen de **stimuler la toux**.”
 - “...ne peuvent être envisagées **comme seul moyen de drainage bronchique**. “
 - “**Des études méthodologiquement acceptables sont nécessaires pour apprécier de façon plus précise à la fois les mécanismes d'action et l'efficacité**. “

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Ann. Kinésithér., 1997, t. 24, n° 1, pp. 51-55
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CONFÉRENCE DE CONSENSUS

Percussions thoraciques manuelles

J.F. FAZILLEAU (1), M. CABILLIC (2)

(1) Kinésithérapeute, 5, rue des Cadeniers, F 44000 Nantes. (2) Kinésithérapeute, Service de Pneumologie, CHU, F 44035 Nantes Cedex.

- *“Il nous apparaît que les PTM, lorsqu’elles sont associées au **drainage de posture**, ont une certaine efficacité chez **des grands sécrétants**. Par contre, leur effet semble nul voire négatif, chez des sujets peu sécrétants.”*
- *“Les PTM seraient un complément aux autres techniques. **Mais l’efficacité en tant que techniques isolée reste à démontrer.**”*
- *“... , utilisées seules, **ne semblent pas une technique performante.**”*

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Indications

Sécrétions volumineuses, situées de préférence dans les gros troncs [2, 18].

Stimulation de la toux [49].

Contre-indications [18]

Emphysème sous-cutané.

Ponctions lombaires récentes.

Greffes de peau récentes.

Brûlures thoraciques, blessures ouvertes, infections cutanées du thorax.

Pacemaker, sites implantables.

Suspicion de TP.

Contusions pulmonaires.

Bronchospasme.

Ostéomyélite des côtes.

Ostéoporose.

Coagulopathie.

Douleurs thoraciques (plaintes du patient).

Hémorragies pulmonaires [13].

Précisons que pour certains auteurs, il n'y a eu que peu de contre-indications [20].

Ann. Kinésithér., 1997, t. 24, n° 1, pp. 51-55
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European Respiratory Journal
ISSN 0903-1936

SERIES "CHEST PHYSIOTHERAPY"
Edited by S.L. Hill and B. Webber
Number 5 in this Series

Physiotherapy for airway clearance in adults

J.A. Pryor

- *Percussion and vibration*
 - *PMT and mechanical chest percussion will increase intrathoracic pressure, **but** the relationship between this increase in pressure and airway clearance is yet to be determined.*
 - *CAMPBELL and WOLLMER demonstrated an increase in airflow obstruction when chest clapping was included in an airway clearance regimen, **but** other studies have not shown any increase.*
 - *Chest clapping has also been shown to cause an increase in hypoxaemia, **but**, when short periods of chest clapping (<30 s) have been combined with three or four thoracic expansion exercises, no fall in oxygen saturation has been seen.*
 - *Some patients with severe lung disease demonstrate oxygen desaturation with self chest clapping. **This may** be due to the work of the additional upper limb activity.*

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European Respiratory Journal
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Number 5 in this Series

Physiotherapy for airway clearance in adults

J.A. Pryor

- *Percussion and vibration*
 - *In patients with neuromuscular weakness or paralysis and in those who are intellectually impaired, in addition to in infants and in small children, chest clapping or mechanical percussion **may be** a useful airway clearance technique; coughing is stimulated, possibly by the mobilization of secretions.*
 - *GALLON reviewed the literature on manual chest percussion and THOMAS that on mechanical percussors. They concluded that there is **a physiological rationale and a place for the use of percussion, but that the clinical evidence is inconclusive.***

The Evidence for Secretion Clearance Techniques

Dean R. Hess, PhD, RRT, FAARC¹

¹Department of Respiratory Care, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts

Cardiopulmonary Physical Therapy

Vol 13 ❖ No 4 ❖ December 2002

Table 1. Techniques Used to Clear Secretions from the Lower Respiratory Tract

| |
|--|
| Directed cough |
| Forced expiratory technique |
| "Chest physiotherapy (postural drainage, percussion, and vibration)" |
| Positive expiratory pressure |
| Flutter |
| Active cycle of breathing |
| Manual hyperinflation |
| Autogenic drainage |
| High frequency chest wall oscillation |
| Intrapulmonary percussive ventilation |
| Mechanical in-exsufflation |
| Exercise* |
| Suctioning* |
| Bronchoscopy* |
| Mucus-modifying medications* |

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Cardiopulmonary Physical Therapy

Vol 13 ❖ No 4 ❖ December 2002

- 34 estudis.
- Curta durada.
- Pocs pacients.
- Qualitat metod. pobre.
- CPT on Sputum Mass.
- CPT on FEV₁
- CPT on Radio. Aeros.
- CPT on Atelectasis.
- CPT on Hospital Stay
- Ch Per on Sputum Mass

Table 4. Studies Assessing the Effect of Chest Percussion on Sputum Mass

| First Author | Year | Duration | Diagnosis | n | Intervention | Control | Design | Difference (g) | 95% CI |
|-----------------------|------|----------|----------------|----|-------------------------------|-------------------------------|-----------|----------------|----------------|
| Denton ⁷⁵ | 1962 | 1 tx | CF | 23 | PD/mechanical percussion | PD | crossover | 11.16 | 7.3 to 15.1 |
| Maxwell ⁷⁶ | 1979 | 1 tx | CF | 10 | mechanical percussor | mechanical percussion | crossover | -0.8 | -9.8 to 8.3 |
| Pryor ⁷⁷ | 1979 | 1 d | CF | 16 | manual percussion/PD | FET/PD | crossover | -17.5 | -21.9 to -13.1 |
| Murphy ⁷⁸ | 1983 | 36 tx | CF | 2 | mechanical percussor | unassisted PD | crossover | -4.55 | -16.8 to 7.7 |
| Murphy ⁷⁸ | 1983 | 37 tx | CF | 2 | manual percussion | unassisted PD | crossover | -6.06 | -18.1 to 6 |
| Murphy ⁷⁸ | 1983 | 38 tx | CF | 2 | mechanical percussor | manual percussion | crossover | 1.51 | -11.5 to 14.5 |
| Brown ⁷⁹ | 1987 | 1 tx | COPD | 24 | mechanical vibration | positioning | crossover | 1.4 | -1.8 to 4.6 |
| Gallon ⁷⁴ | 1990 | 1 wk | bronchiectasis | 10 | PD/FET/fast manual percussion | PD/FET/no percussion | crossover | 3.1 | -6.9 to 13.1 |
| Gallon ⁷⁴ | 1991 | 1 wk | bronchiectasis | 10 | PD/FET/slow manual percussion | PD/FET/no percussion | crossover | 4.7 | -5.9 to 15.3 |
| Gallon ⁷⁴ | 1991 | 1 wk | bronchiectasis | 10 | PD/FET/fast manual percussion | PD/FET/slow manual percussion | crossover | -1.6 | -11.9 to 8.7 |

CI = confidence interval PD = postural drainage
 tx = treatment FET = forced expiratory technique
 CF = cystic fibrosis COPD = chronic obstructive pulmonary disease

The Evidence for Secretion Clearance Techniques

Dean R. Hess, PhD, RRT, FAARC¹

¹Department of Respiratory Care, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts

Cardiopulmonary Physical Therapy

Vol 13 ❖ No 4 ❖ December 2002

- The effect of percussion was reported in 10 studies.
 - Because of the poor methodological quality of these studies and the failure of most to report a treatment, **it is concluded that there is insufficient evidence to support a benefit from the use of percussion as a technique to improve secretion clearance.**
 - Moreover, there is **no benefit from the use of mechanical percussion versus manual percussion.**

The Evidence for Secretion Clearance Techniques

Dean R. Hess, PhD, RRT, FAARC¹

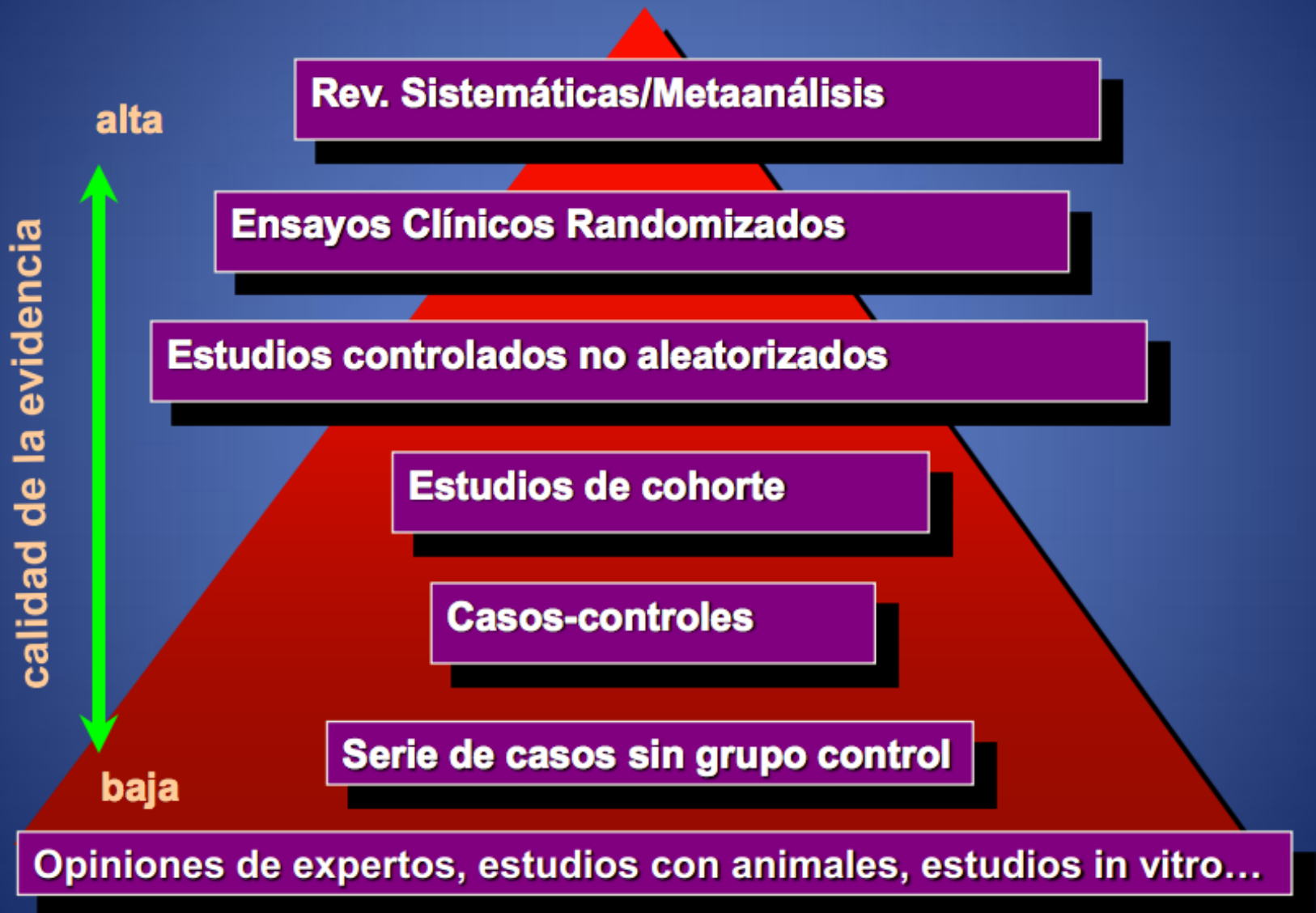
¹Department of Respiratory Care, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts

Cardiopulmonary Physical Therapy

Vol 13 ❖ No 4 ❖ December 2002

- There is **no role for routine** use of CPT in hospitalized patients.
- The effect of CPT on **long-term outcomes and quality of life in patients with chronic diseases such as CF is unknown.**
- There is **little evidence of benefit from chest percussion and vibration, compared to postural drainage alone.**
- The evidence for improved secretion clearance with postural drainage is weak; there is insufficient evidence to support or not support the use of this therapy.
- **CPT has the potential to harm some patients under some conditions.**

Nivel de evidencia científica en cuestiones terapéuticas



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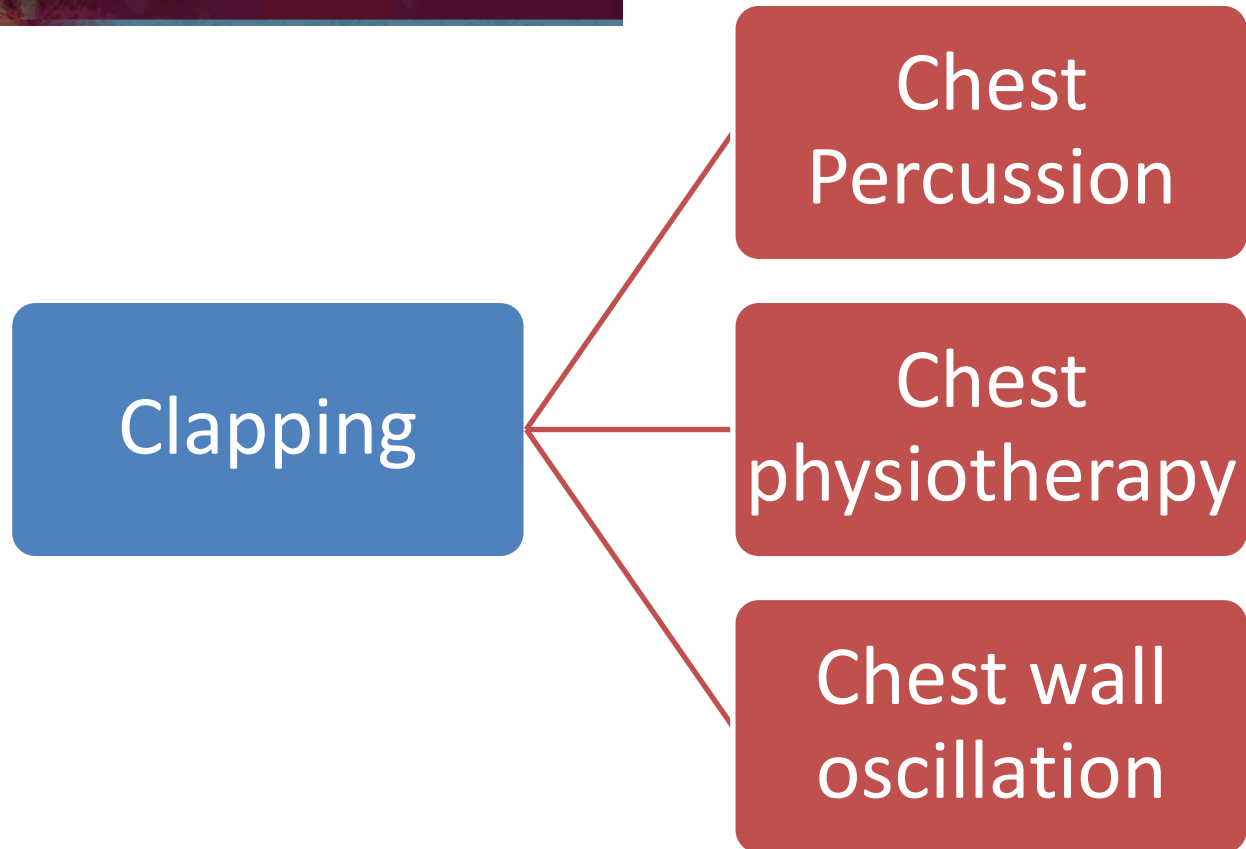


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[Understanding social motor coordination.](#)



1. Schmidt RC, Fitzpatrick P, Caron R, Mergeche J.
Hum Mov Sci. 2011 Oct;30(5):834-45. doi: 10.1016/j.humov.2010.05.014. Epub 2010 Sep 2. **Review.**
PMID: 20817320 [PubMed - indexed for MEDLINE]
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[Airway clearance techniques to treat acute respiratory disorders in previously healthy children: where is the evidence?](#)

2. De Boeck K, Vermeulen F, Vreys M, Moens M, Proesmans M.
Eur J Pediatr. 2008 Jun;167(6):607-12. doi: 10.1007/s00431-008-0689-y. Epub 2008 Mar 6. **Review.**
PMID: 18322699 [PubMed - indexed for MEDLINE]
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[WITHDRAWN: Bronchopulmonary hygiene physical therapy for chronic obstructive pulmonary disease and bronchiectasis.](#)

1.

Jones AP, Rowe BH.

Cochrane Database Syst Rev. 2011 Jul 6;(7):CD000045. doi: 10.1002/14651858.CD000045.pub2. **Review.**

PMID: 21735379 [PubMed - indexed for MEDLINE]

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[Does this patient have a pleural effusion?](#)

2.

Wong CL, Holroyd-Leduc J, Straus SE.


JAMA. 2009 Jan 21;301(3):309-17. doi: 10.1001/jama.2008.937. **Review.**

PMID: 19155458 [PubMed - indexed for MEDLINE]

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[Chest physiotherapy for pneumonia in adults.](#)

1. Yang M, Yan Y, Yin X, Wang BY, Wu T, Liu GJ, Dong BR.

Cochrane Database Syst Rev. 2013 Feb 28;2:CD006338. doi: 10.1002/14651858.CD006338.pub3. **Review.**

PMID: 23450568 [PubMed - indexed for MEDLINE]

[Related citations](#)

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Publication dates

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[Active cycle of breathing technique for cystic fibrosis.](#)

2. McKoy NA, Saldanha IJ, Odelola OA, Robinson KA.

Cochrane Database Syst Rev. 2012 Dec 12;12:CD007862. doi: 10.1002/14651858.CD007862.pub3. **Review.**

PMID: 23235649 [PubMed - indexed for MEDLINE]

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[Active cycle of breathing technique for cystic fibrosis.](#)

1. McKoy NA, Saldanha IJ, Odelola OA, Robinson KA.
Cochrane Database Syst Rev. 2012 Dec 12;12:CD007862. doi: 10.1002/14651858.CD007862.pub3. **Review.**
PMID: 23235649 [PubMed - indexed for MEDLINE]
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[Chest physiotherapy techniques in bronchiectasis.](#)

2. Flude LJ, Agent P, Bilton D.
Clin Chest Med. 2012 Jun;33(2):351-61. doi: 10.1016/j.ccm.2012.02.009. Epub 2012 Apr 4. **Review.**
PMID: 22640850 [PubMed - indexed for MEDLINE]
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1. McKoy NA, Saldanha IJ, Odelola OA, Robinson KA.
Cochrane Database Syst Rev. 2012 Dec 12;12:CD007862. doi: 10.1002/14651858.CD007862.pub3. **Review.**
PMID: 23235649 [PubMed - indexed for MEDLINE]
[Related citations](#)

Publication dates

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10 years

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[\[Cystic fibrosis: instrumental airway clearance techniques\].](#)

2. Reyckler G, Coppens T, Leonard A, Palem A, Lebecque P.
Rev Mal Respir. 2012 Feb;29(2):128-37. doi: 10.1016/j.rmr.2011.11.013. Epub 2012 Jan 4. **Review.** French.
PMID: 22405108 [PubMed - indexed for MEDLINE]
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- 1 **Nuevo** (2009) [Dispositivos de oscilación para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística](#)
Antecedentes La fisioterapia torácica generalmente se prescribe para ayudar a la limpieza de las secreciones de las vías respiratorias en los pacientes con fibrosis quística (FQ). Los dispositivos de oscilación generan oscilaciones intra o extratorácicas por vía oral o por fuera de la pared to
- 2 (2004) [Fisioterapia torácica convencional comparada con otras técnicas de eliminación de las secreciones de las vías respiratorias para la fibrosis quística](#)
Esta revisión demostró que las FTC no ofrecen más ventajas sobre la función respiratoria que las otras técnicas de eliminación de las secreciones de las vías respiratorias. Hubo una tendencia de los participantes a preferir las técnicas autoadministradas de eliminación de las secreciones de las vías

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- 1 **Nuevo** (2010) [Fisioterapia torácica para la neumonía en adultos](#)
Antecedentes A pesar de que las pruebas son contradictorias, la fisioterapia torácica se ha usado ampliamente como tratamiento adyuvante para los adultos con neumonía. Objetivos Evaluar la efectividad y seguridad de la fisioterapia torácica para el tratamiento de la neumonía en adultos.
- 2 **Nuevo** (2009) [Dispositivos de oscilación para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística](#)
Antecedentes La fisioterapia torácica generalmente se prescribe para ayudar a la limpieza de las secreciones de las vías respiratorias en los pacientes con fibrosis quística (FQ). Los dispositivos de oscilación generan oscilaciones intra o extratorácicas por vía oral o por fuera de la pared to
- 3 (2006) [Fisioterapia respiratoria para la bronquiolitis aguda en pacientes pediátricos de hasta 24 meses de vida](#)
Según los resultados de tres ECA, la fisioterapia respiratoria con técnicas de vibración y percusión no disminuye la duración de la estancia hospitalaria y la necesidad de oxígeno, ni mejora la puntuación clínica de la gravedad en los niños con bronquiolitis aguda. Estos estudios comprendieron niños
- 4 (2004) [Fisioterapia torácica convencional comparada con otras técnicas de eliminación de las secreciones de las vías respiratorias para la fibrosis quística](#)
Esta revisión demostró que las FTC no ofrecen más ventajas sobre la función respiratoria que las otras técnicas de eliminación de las secreciones de las vías respiratorias. Hubo una tendencia de los participantes a preferir las técnicas autoadministradas de eliminación de las secreciones de las vías

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Resultados de esta búsqueda: "CHEST PHYSIOTHERAPY"

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Todos [23] | Revisiones Cochrane [23] | PRC Protocolos Cochrane [0] | AETS Agencias [0]

GCS Gestión [0] | K Kovacs [0] | B Bandolera [0] | ECA Registro [0] | EAP Evidencia [0] | EVP Pediatría [0]

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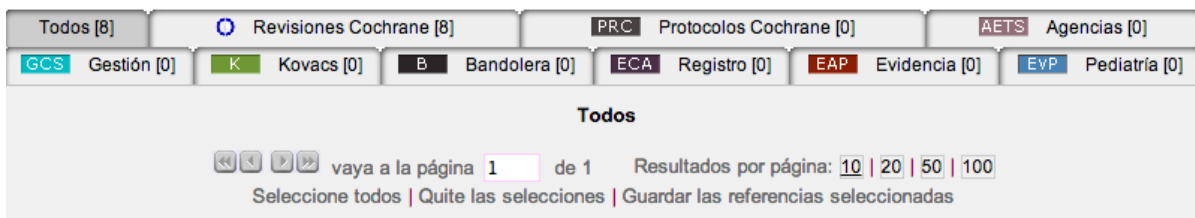
- 1 **Nuevo** (2010) [Fisioterapia torácica para la neumonía en adultos](#)
Antecedentes A pesar de que las pruebas son contradictorias, la fisioterapia torácica se ha usado ampliamente como tratamiento adyuvante para los adultos con neumonía. Objetivos Evaluar la efectividad y seguridad de la fisioterapia torácica para el tratamiento de la neumonía en adultos.
- 2 **Nuevo** (2009) [Dispositivos de oscilación para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística](#)
Antecedentes La fisioterapia torácica generalmente se prescribe para ayudar a la limpieza de las secreciones de las vías respiratorias en los pacientes con fibrosis quística (FQ). Los dispositivos de oscilación generan oscilaciones intra o extratorácicas por vía oral o por fuera de la pared to
- 3 **Nuevo** (2009) [Estimulación con espirómetro para la prevención de las complicaciones pulmonares posoperatorias de la cirugía abdominal superior](#)
Antecedentes Los procedimientos quirúrgicos en la región superior del abdomen están asociados con un alto riesgo de complicaciones pulmonares posoperatorias. El riesgo y gravedad de las complicaciones pulmonares posoperatorias se pueden reducir mediante el uso adecuado de maniobras terapéuticas

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Resultados de esta búsqueda: ("CHEST PHYSIOTHERAPY") AND (SECRETIONS)

Mostrar: [Resultados en español \[8 resultados \]](#) | [Resultados en inglés \[7 resultados \]](#) | en total 15



- 1 **Nuevo** (2009) [Dispositivos de oscilación para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística](#)
Antecedentes La fisioterapia torácica generalmente se prescribe para ayudar a la limpieza de las secreciones de las vías respiratorias en los pacientes con fibrosis quística (FQ). Los dispositivos de oscilación generan oscilaciones intra o extratorácicas por vía oral o por fuera de la pared to
- 2 (2008) [Fisioterapia torácica para la reducción de la morbilidad respiratoria en lactantes que requieren asistencia respiratoria](#)
Los resultados de esta revisión no suministran pruebas suficientes sobre las cuales basar la práctica clínica. Es necesario realizar ensayos controlados con asignación al azar más amplios para abordar estos temas.
- 3 (2007) [Entrenamiento físico para la fibrosis quística](#)
Son limitadas las conclusiones acerca de la eficacia del entrenamiento físico en la fibrosis quística por el tamaño pequeño, la duración corta y la información incompleta de la mayoría de los estudios incluidos en esta revisión. El entrenamiento físico es ya parte del conjunto de medidas ofrecidas a

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Inicio | Búsqueda simple | Búsqueda asistida | Historial | MeSH

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Resultados de esta búsqueda: "CHEST WALL OSCILLATION"

Mostrar: [Resultados en español \[4 resultados\]](#) | [Resultados en inglés \[48 resultados\]](#) | en total 52

Todos [4] | Revisiones Cochrane [4] | PRC Protocolos Cochrane [0] | AETS Agencias [0]

GCS Gestión [0] | K Kovacs [0] | B Bandolera [0] | ECA Registro [0] | EAP Evidencia [0] | EVP Pediatría [0]

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- 1 **Nuevo** (2009) **Dispositivos de oscilación para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística**
Antecedentes La fisioterapia torácica generalmente se prescribe para ayudar a la limpieza de las secreciones de las vías respiratorias en los pacientes con fibrosis quística (FQ). Los dispositivos de oscilación generan oscilaciones intra o extratorácicas por vía oral o por fuera de la pared to
- 2 (2008) **Intervenciones no farmacológicas para la disnea en los estadios avanzados de enfermedades neoplásicas y no neoplásicas**
El entrenamiento de la respiración, los dispositivos para ayudar a caminar, la EENM y la VPT parecen ser intervenciones efectivas no farmacológicas para aliviar la disnea en los estadios avanzados de la enfermedad.
- 3 (2005) **Fisioterapia con presión expiratoria positiva para la desobstrucción de las vías respiratorias en pacientes con fibrosis quística**
No está claro si la PEP fue, en general, una intervención más o menos efectiva que otras formas de fisioterapia. Hubo pruebas limitadas de que los participantes prefirieron la PEP en comparación con otras técnicas, y este hallazgo proviene de estudios de baja calidad.
- 4 (2004) **Fisioterapia torácica convencional comparada con otras técnicas de eliminación de las secreciones de las vías respiratorias para la fibrosis quística**
Esta revisión demostró que las FTC no ofrecen más ventajas sobre la función respiratoria que las otras técnicas de eliminación de las secreciones de las vías respiratorias. Hubo una tendencia de los participantes a preferir las técnicas autoadministradas de eliminación de las secreciones de las vías

➤ 3 ➡ 0

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Search Results

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Record 1 - 16 of 16

| Title | Method | Score (/10) | Select Record |
|---|-----------|-------------|------------------------|
| Nonpharmacologic airway clearance therapies: ACCP evidence-based clinical practice guidelines | guideline | N/A | Select |
| Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old (Cochrane review) [with consumer summary] | review | N/A | Select |
| Effect of airway clearance techniques in patients experiencing an acute exacerbation of chronic obstructive pulmonary disease: a systematic review | review | N/A | Select |
| Chest physiotherapy for patients admitted to hospital with an acute exacerbation of chronic obstructive pulmonary disease (COPD): a systematic review | review | N/A | Select |
| Chest physiotherapy for reducing respiratory morbidity in infants requiring ventilatory support (Cochrane review) [with consumer summary] | review | N/A | Select |

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Record 1 - 20 of 86 [Next](#) [Last](#)

| Title | Method | Score (/10) | Select Record |
|--|-----------|-------------|------------------------|
| Management of pulmonary contusion and flail chest: an Eastern Association for the Surgery of Trauma practice management guideline [for] | guideline | N/A | Select |
| Diagnosis and management of bronchiolitis | guideline | N/A | Select |
| Nonpharmacologic airway clearance therapies: ACCP evidence-based clinical practice guidelines | guideline | N/A | Select |
| Evidence-based clinical practice guideline for the prevention of ventilator-associated pneumonia | guideline | N/A | Select |
| Chest physiotherapy for pneumonia in adults (Cochrane review) [with consumer summary] | review | N/A | Select |
| Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old (Cochrane review) [with consumer summary] | review | N/A | Select |

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Search Results

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Record 1 - 13 of 13

| Title | Method | Score (/10) | Select Record |
|--|--------|-------------|------------------------|
| Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old (Cochrane review) [with consumer summary] | review | N/A | Select |
| Active cycle of breathing technique for cystic fibrosis (Cochrane review) [with consumer summary] | review | N/A | Select |
| Effect of airway clearance techniques in patients experiencing an acute exacerbation of chronic obstructive pulmonary disease: a systematic review | review | N/A | Select |
| Oscillating devices for airway clearance in people with cystic fibrosis (Cochrane review) [with consumer summary] | review | N/A | Select |
| Chest physiotherapy for reducing respiratory morbidity in infants requiring ventilatory support (Cochrane review) [with consumer summary] | review | N/A | Select |
| Positive expiratory pressure physiotherapy for airway clearance in people with cystic fibrosis (Cochrane review) [with consumer summary] | review | N/A | Select |
| Conventional chest physiotherapy compared to other airway clearance techniques for cystic fibrosis (Cochrane review) [with consumer summary] | review | N/A | Select |

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Search Results

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Record 1 - 14 of 14

| Title | Method | Score (/10) | Select Record |
|---|--------|-------------|------------------------|
| Oscillating devices for airway clearance in people with cystic fibrosis (Cochrane review) [with consumer summary] | review | N/A | Select |

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Bhowmik, A., Chahal, K., Austin, G., & Chakravorty, I. (2009). Improving mucociliary clearance in chronic obstructive pulmonary disease. *Respiratory Medicine*, 103(4), 496-502. doi:10.1016/j.rmed.2008.10.014

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De Boeck, K., Vermeulen, F., Vreys, M., Moens, M., & Proesmans, M. (2008). Airway clearance techniques to treat acute respiratory disorders in previously healthy children: Where is the evidence? *European Journal of Pediatrics*, 167(6), 607-612.

Dosman, C. F., & Jones, R. L. (2005). High-frequency chest compression: A summary of the literature. *Canadian Respiratory Journal*, 12(1), 37-41.

Elkins, M. R., Jones, A., & van der Schans, C. (2006). Positive expiratory pressure physiotherapy for airway clearance in people with cystic fibrosis. *Cochrane Database of Systematic Reviews (Online)*, (2)

Flude, L. J., Agent, P., & Bilton, D. (2012). Chest Physiotherapy Techniques in Bronchiectasis. *Clinics in Chest Medicine*, 33(2), 351-361. doi:10.1016/j.ccm.2012.02.009

Hill, K., Patman, S., & Brooks, D. (2010). Effect of airway clearance techniques in patients experiencing an acute exacerbation of chronic obstructive pulmonary disease: A systematic review. *Chronic Respiratory Disease*, 7(1), 9-17.

Hough, J. L., Flenady, V., Johnston, L., & Woodgate, P. G. (2008). Chest physiotherapy for reducing respiratory morbidity in infants requiring ventilatory support. *Cochrane Database of Systematic Reviews (Online)*, (3)

Jones, A. P., & Rowe, B. H. (2011). WITHDRAWN: Bronchopulmonary hygiene physical therapy for chronic obstructive pulmonary disease and bronchiectasis. *Cochrane Database of Systematic Reviews (Online)*, (7)

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Langer, D., Hendriks, E., Burtin, C., Probst, V., van der Schans, C., Paterson, W., . . . Troosters, T. (2009). A clinical practice guideline for physiotherapists treating patients with chronic obstructive pulmonary disease based on a systematic review of available evidence. *Clinical Rehabilitation*, 23(5), 445-462.

Lewis, L. K., Williams, M. T., & Olds, T. S. (2012). The active cycle of breathing technique: A systematic review and meta-analysis. *Respiratory Medicine*, 106(2), 155-172. doi:10.1016/j.rmed.2011.10.014

Main, E., Prasad, A., & Schans, C. (2005). Conventional chest physiotherapy compared to other airway clearance techniques for cystic fibrosis. *Cochrane Database of Systematic Reviews (Online)*, (1)

Marks, J. H. (2007). Airway clearance devices in cystic fibrosis. *Paediatric Respiratory Reviews*, 8(1), 17-23. doi:10.1016/j.prrv.2007.02.003

Martínez García, M. Á., Máiz Carro, L., & De Gracia Roldán, J. (2009). Bronchiectasis treatment in adults. [Tratamiento de las bronquiectasias en el adulto] *Medicina Clínica*, 133(11), 433-440. doi:10.1016/j.medcli.2008.12.018

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Pisi, G., & Chetta, A. (2009). Airway clearance therapy in cystic fibrosis patients. *Acta Biomedica De l'Ateneo Parmense*, 80(2), 102-106.

Reychler, G., Coppens, T., Leonard, A., Palem, A., & Lebecque, P. (2012). Cystic fibrosis: Instrumental airway clearance techniques. [Mucoviscidose: les techniques instrumentales de désencombrement des voies aériennes] *Revue Des Maladies Respiratoires*, 29(2), 128-137. doi:10.1016/j.rmr.2011.11.013

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Robinson, K. A., McKoy, N., Saldanha, I., & Odelola, O. A. (2010). Active cycle of breathing technique for cystic fibrosis. *Cochrane Database of Systematic Reviews (Online)*, 11

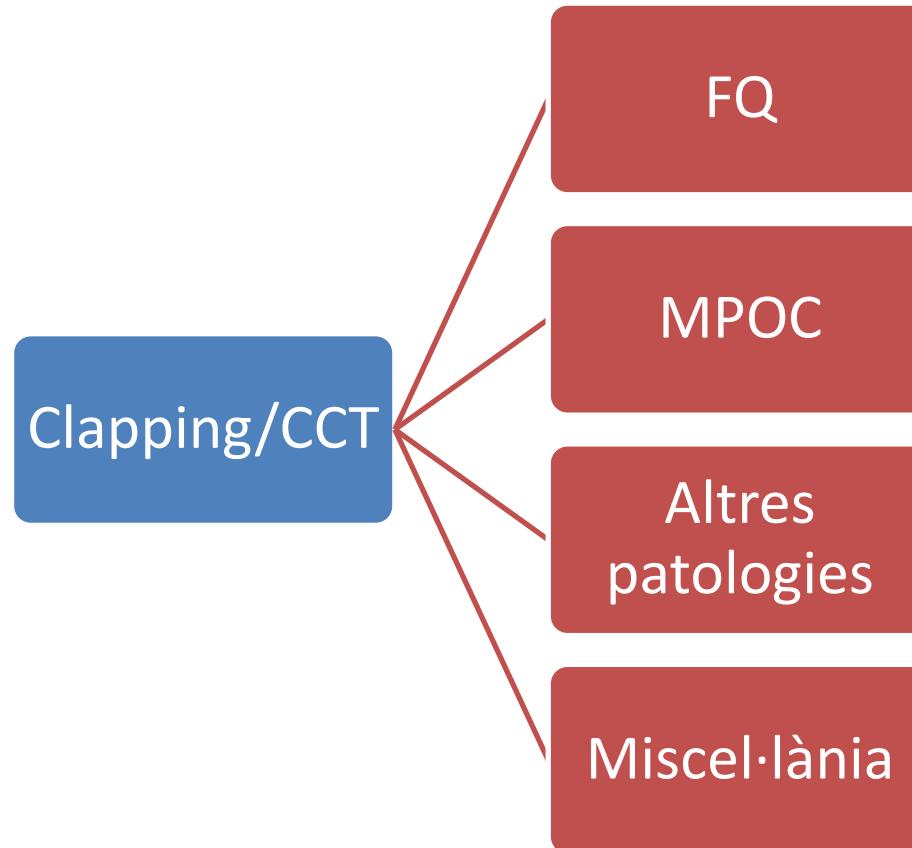
Roqué i Figuls, M., Giné-Garriga, M., Granados Rugeles, C., & Perrotta, C. (2012). Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old. *Cochrane Database of Systematic Reviews (Online)*, 2

Tang, C. Y., Taylor, N. F., & Blackstock, F. C. (2010). Chest physiotherapy for patients admitted to hospital with an acute exacerbation of chronic obstructive pulmonary disease (COPD): A systematic review. *Physiotherapy*, 96(1), 1-13. doi:10.1016/j.physio.2009.06.008

Van Der Schans, C. P. (2007). Conventional chest physical therapy for obstructive lung disease. *Respiratory Care*, 52(9), 1198-1206.

Yang, M., Yan, Y., Yin, X., Wang, B. Y., Wu, T., Liu, G. J., & Dong, B. R. (2013). Chest physiotherapy for pneumonia in adults. *Cochrane Database of Systematic Reviews (Online)*, 2

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Main, E., Prasad, A., & Schans, C. (2005). Conventional chest physiotherapy compared to other airway clearance techniques for cystic fibrosis. Cochrane Database of Systematic Reviews (Online), (1)

*Parece que **no hubo ventaja** de la FTC sobre otras TESVR en cuanto al efecto sobre la función respiratoria.*

*Al parecer hubo una **tendencia en los individuos a preferir** las TESVR autoadministradas. Estas parecían ofrecer más elección, independencia y comodidad para realizar esta rutina diaria.*

*En la revisión de los datos originales estaba claro que las respuestas individuales a los tratamientos fueron sumamente variables. Algunos individuos mejoraban significativamente mientras que otros se deterioraban. De acuerdo con el hecho de que esta revisión todavía **no puede recomendar algún tratamiento particular** sobre los otros, los fisioterapeutas y las personas con FQ quizás se sientan más cómodos si prueban diversas TESVR hasta **que encuentren el método que mejor le conviene a cada uno.***

Bradley, J. M., Moran, F. M., & Elborn, J. S. (2006). Evidence for physical therapies (airway clearance and physical training) in cystic fibrosis: An overview of five Cochrane systematic reviews. *Respiratory Medicine*, 100(2), 191-201. doi:10.1016/j.rmed.2005.11.02

Systematic review 1: **Airway clearance compared with no airway clearance in CF.**
*The long-term effect of no airway clearance is unknown, and short-term trials provide **some evidence of the benefit of airway clearance over no airway clearance in improved mucus transport.***

Systematic review 2: **Conventional chest physiotherapy compared with other forms of airway clearance in CF.**
*Medium- and long-term trials have shown that CCPT is at least **as effective as other forms** of airway clearance .
Patients tended to **prefer techniques that promoted independence to CCPT.***

Elkins, M. R., Jones, A., & van der Schans, C. (2006). **Positive expiratory pressure physiotherapy for airway clearance in people with cystic fibrosis.** Cochrane Database of Systematic Reviews (Online), (2)

*There was **no clear evidence that PEP was a more or less effective intervention overall than other forms of physiotherapy.***

There was limited evidence that PEP was preferred by participants compared to other techniques, but this finding is from studies of low quality

Marks, J. H. (2007). **Airway clearance devices in cystic fibrosis**. Paediatric Respiratory Reviews, 8(1), 17-23. doi:10.1016/j.prrv.2007.02.003

In the past the only method available was conventional chest physiotherapy (CCPT; also known as manual percussion and postural drainage). CCPT remains the 'gold standard' of airway clearance methods and **may be the best choice for some patients, such as infants and young children.**

Airway clearance **devices as alternatives to CCPT** allow CF patients to choose the therapy that best fits their lifestyle and **allows greatest independenc.**
Airway clearance **devices are preferred by many patients compared to CCPT and may result in better adherence.**

PEP **may be more effective** for airway clearance than CCPT.

Oscillating positive expiratory pressure devices and HFCWO **appear to be at least as effective as CCPT.**

Morrison, L., & Agnew, J. (2009). **Oscillating devices for airway clearance in people with cystic fibrosis**. Cochrane Database of Systematic Reviews, (1) doi:10.1002/14651858.CD006842.pub2

*El volumen espiratorio forzado en un segundo (VEF1) fue la medida de resultado usada con mayor frecuencia. Los resultados **no mostraron diferencias significativas del efecto entre los dispositivos de oscilación y otros métodos de desobstrucción de las vías respiratorias sobre el VEF1 u otros parámetros de la función pulmonar.***

*Cuando hubo un **cambio pequeño pero significativo de las variables como el volumen o el peso del esputo, no fue completamente a favor de los dispositivos de oscilación.***

La satisfacción de los participantes, pero no fue específicamente a favor de un dispositivo de oscilación, porque algunos participantes prefirieron las técnicas de respiración o las técnicas que usaban antes de las intervenciones del estudio.

Pisi, G., & Chetta, A. (2009). **Airway clearance therapy in cystic fibrosis patients**. Acta Biomedica De l'Ateneo Parmense, 80(2), 102-106.

*There is evidence from short-term, but not long-term, trials about **the benefit of ACT over no treatment**. However, there **is no consensus about which ACT is the most effective**. Traditionally, chest physiotherapy relied on postural drainage combined with percussion and forced expirations, although **there is evidence that CCPT is at least as effective as other forms of ACTs**. However, this kind of chest physiotherapy is **time-consuming** and sometimes **uncomfortable for patients**, who tend to prefer self-administered treatments. Among the self-administered techniques, ACBTs, PEP and AD require continuous active participation by the patient, while HFCC using the Vest System allows the patient to be passive and may be useful both in fatigued patients and in patients without a care-giver*

Robinson, K. A., McKoy, N., Saldanha, I., & Odelola, O. A. (2010). **Active cycle of breathing technique for cystic fibrosis**. Cochrane Database of Systematic Reviews (Online), 11

*No hay pruebas suficientes para apoyar o refutar el uso del CATR sobre cualquier otro tratamiento de depuración de las vías respiratorias. La opinión de los revisores es que el **CATR es equivalente a los otros tratamientos** en resultados como la preferencia de los pacientes, la función pulmonar, el peso del esputo, la saturación de oxígeno y el número de exacerbaciones pulmonares.*

Robinson, K. A., McKoy, N., Saldanha, I., & Odelola, O. A. (2010). **Active cycle of breathing technique for cystic fibrosis**. Cochrane Database of Systematic Reviews (Online), 11

McKoy, N. A., Saldanha, I. J., Odelola, O. A., & Robinson, K. A. (2012). **Active cycle of breathing technique for cystic fibrosis**. Cochrane Database of Systematic Reviews (Online), 12

*There is insufficient evidence to support or reject the use of ACBT over any other airway clearance therapy. Five studies, with five different comparators, **found that ACBT was comparable to other therapies in outcomes** such as patient preference, lung function, sputum weight, oxygen saturation, and number of pulmonary exacerbations.*

*Longer-term studies are needed to more adequately assess the effects of ACBT on **outcomes important for patients such as quality of life and patient preference**.*

Reychler, G., Coppens, T., Leonard, A., Palem, A., & Lebecque, P. (2012). **Cystic fibrosis: Instrumental airway clearance techniques.** [Mucoviscidose: les techniques instrumentales de désencombrement des voies aériennes] *Revue Des Maladies Respiratoires*, 29(2), 128-137. doi:10.1016/j.rmr.2011.11.013

*Results **suggest a potential place** for these techniques in the management of cystic fibrosis, but they remain poorly used.
A better knowledge of these approaches could enable them to integrate more widely into the physiotherapy management of patients with cystic fibrosis.*

Van Der Schans, C. P. (2007). **Conventional chest physical therapy for obstructive lung disease**. *Respiratory Care*, 52(9), 1198-1206.

Chest Percussion

Mechanical vibration and chest compression methods may induce small coughs or resonance with ciliary action. Chopra found in an animal study that manual percussion increased tracheal mucus transport.

I

n patients with COPD it was also found that chest percussion provided a small increase in bronchial mucus transport, but that it had no more benefit than cough and postural drainage.

The effect of percussion seems to be frequency-dependent, and several studies have found that the optimal frequency is well above the 6 Hz possible in manual percussion.

Bauer compared manual chest percussion with mechanical percussion in subjects with CF during exacerbations with hospitalization and found pulmonary function improvement similar in the groups. Other studies have similarly failed to detect a difference between manual and mechanical chest percussion.

In a meta-analysis of airway clearance modalities in subjects with CF, Thomas reported no significant difference for sputum production or FEV1 in 4 studies, which included 68 subjects and compared manual and mechanical percussion and vibration.

A systematic review of airway clearance therapy concluded that there is insufficient evidence to support a benefit for the use of percussion as a technique to improve secretion clearance.

Van Der Schans, C. P. (2007). **Conventional chest physical therapy for obstructive lung disease**. *Respiratory Care*, 52(9), 1198-1206.

It is not clear which groups of patients benefit from which airway clearance modalities, so an n of 1 study with the various airway clearance modalities is probably the best way to determine which, if any, will benefit a given patient.

At present, the patient's subjective preference is the best measure of which modality to use.

The most effective and important part of conventional CPT is directed cough and/or huff.

Many questions about conventional CPT have not been studied, so much of **CPT practice is not evidence-based and differs markedly at different institutions**. For example, CPT is often started in infants and young children with CF who have very small amounts of retained secretions and thus probably do not benefit from CPT. On the other hand, introducing the patient to CPT an early age may lead to better patient adherence to the CPT regimen in the long term. CPT is often increased during exacerbations, on the reasoning that there are more secretions during exacerbations, but in a patient who is severely ill and weak and therefore has a low cough flow, CPT might not provide clinically important benefit. CPT is often withheld if there is hemoptysis, on the reasoning that chest percussion might dislodge a clot and/or worsen the bleeding, but bleeding within the airway will produce clots and airway obstruction, and the inflammation from the bleeding is likely to increase secretions, which suggests that CPT might be of greater benefit in a patient with hemoptysis. Finally, the optimal frequency and duration of any of the CPT interventions has not been well studied.

Bhowmik, A., Chahal, K., Austin, G., & Chakravorty, I. (2009). **Improving mucociliary clearance in chronic obstructive pulmonary disease**. *Respiratory Medicine*, 103(4), 496-502. doi:10.1016/j.rmed.2008.10.014

Conventional chest physiotherapy (CCPT)

Although CCPT is still considered the gold standard of treatment in clinical practice, a Cochrane review in 2000 concluded that the evidence for this was not robust. This is possibly due to a lack of appropriate trials rather than any evidence of lack of benefit. A systematic review carried out in 2004 to look at airway clearance techniques in all disorders of airway clearance to produce American College of Chest Physicians (ACCP) guidelines, found that although some techniques improved sputum expectoration, there was no high quality evidence for long term outcomes with these techniques.

They recommended the use of CCPT in CF but noted that manually assisted cough might be detrimental in COPD and recommended that this technique not be used in these patients. CCPT requires active intervention from a trained assistant or therapist.

Langer, D., Hendriks, E., Burtin, C., Probst, V., van der Schans, C., Paterson, W., . . . Troosters, T. (2009). **A clinical practice guideline for physiotherapists treating patients with chronic obstructive pulmonary disease based on a systematic review of available evidence.** *Clinical Rehabilitation*, 23(5), 445-462.

Treatment of impaired mucus clearance, especially during acute exacerbations, requires further research

26. *Percussão e vibração torácicas*

A vibração manual isolada não é uma técnica efetiva para melhorar a depuração mucociliar.

Qualidade dos artigos: D (opinião de especialistas).

Hill, K., Patman, S., & Brooks, D. (2010). **Effect of airway clearance techniques in patients experiencing an acute exacerbation of chronic obstructive pulmonary disease: A systematic review.** *Chronic Respiratory Disease*, 7(1), 9-17.

*airway clearance techniques did not improve measures of resting lung function or produce any consistent change in measures of gas exchange, (ii) **the application of 5 min of continuous chest wall percussion reduced forced expiratory volume in 1 second (FEV 1)***

With the exception of continuous chest wall percussion, airway clearance techniques were safe in patients during an AECOPD

Tang, C. Y., Taylor, N. F., & Blackstock, F. C. (2010). **Chest physiotherapy for patients admitted to hospital with an acute exacerbation of chronic obstructive pulmonary disease (COPD): A systematic review.** *Physiotherapy*, 96(1), 1-13. doi:10.1016/j.physio.2009.06.008

*There is **moderate evidence showing a lack of effect with the combination of postural drainage and percussion** on sputum expectoration, lung function and arterial blood gases.*

*There is **limited evidence that percussion can result in a drop in FEV1** during treatment.*

*There is **moderate evidence that percussion can have detrimental short-term effects on lung function**, but moderate evidence that other chest physiotherapy techniques are safe.*

*There is **moderate evidence that the introduction of a walking programme is beneficial and that chest physiotherapy techniques other than percussion are safe for administration to this patient population.***

As there is moderate evidence that percussion is not beneficial for this patient population, it should not be included as part of the treatment.

Jones, A. P., & Rowe, B. H. (2011). **WITHDRAWN: Bronchopulmonary hygiene physical therapy for chronic obstructive pulmonary disease and bronchiectasis.** Cochrane Database of Systematic Reviews (Online), (7)

*The seven included trials involved six comparisons and a total of 126 people. The trials were small and not generally of high quality. The results could not be combined as trials addressed different patient groups and outcomes. **In most comparisons, bronchial hygiene physical therapy produced no significant effects on pulmonary function, apart from clearing sputum in chronic obstructive pulmonary disease and in bronchiectasis.** An update search carried out in January 2007 did not identify any new studies for inclusion.*

*There is not enough **evidence to support or refute the use of bronchial hygiene physical therapy in people with chronic obstructive pulmonary disease and bronchiectasis.***

Martínez García, M. Á., Máiz Carro, L., & De Gracia Roldán, J. (2009). **Bronchiectasis treatment in adults.** [Tratamiento de las bronquiectasias en el adulto] *Medicina Clínica*, 133(11), 433-440. doi:10.1016/j.medcli.2008.12.018

Fisioteràpia respiratòria

*Se realitzarà en pacients amb hipersecreció bronquial (≥ 30 ml/dia), de 1 a 3 vegades al dia, després del tractament broncodilatador i abans dels antibiòtics inhalats. **Inclou diverses tècniques que poden combinar-se, sense que existeixi una evidència clara de què és la més efectiva.** La elecció dependrà de l'edat del pacient i la seva capacitat per realitzar la tècnica, encara que sempre **es aconsella ensenyar als pacients les tècniques autoadministrades amb el fi de facilitar i afavorir el compliment a llarg termini***

Perrotta, C., Ortiz, Z., & Roque, M. (2007). **Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old.** Cochrane Database of Systematic Reviews, (1) doi:10.1002/14651858.CD004873.pub3

En conclusió, no se ha demostrat que les tècniques de vibració i percussió disminueixin la duració de la estada hospitalària en la bronquiolitis aguda o millorin la puntuació clínica de la gravetat. Es necessita realitzar investigació addicional per avaluar altres tipus de fisioteràpia i és essencial que els autors escullin les seves mesures de resultat amb precisió i declaren amb antelació els beneficis que esperen obtenir amb la intervenció.

Perrotta, C., Ortiz, Z., & Roque, M. (2007). **Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old.** Cochrane Database of Systematic Reviews, (1) doi:10.1002/14651858.CD004873.pub3

Roqué i Figuls M, Giné-Garriga M, Granados Rugeles C, Perrotta C. **Chest physiotherapy for acute bronchiolitis in paediatric patients between 0 and 24 months old.** Cochrane Database of Systematic Reviews **2012**, Issue 2. Art. No.: CD004873. DOI: 10.1002/14651858.CD004873.pub4.

*Since the last publication of this review new good-quality evidence has appeared, strengthening the conclusions of the review. **Chest physiotherapy does not improve the severity of the disease, respiratory parameters, or reduce length of hospital stay or oxygen requirements in hospitalised infants with acute bronchiolitis not on mechanical ventilation. Chest physiotherapy modalities (vibration and percussion or passive expiratory techniques) have shown equally negative results.***

De Boeck, K., Vermeulen, F., Vreys, M., Moens, M., & Proesmans, M. (2008). **Airway clearance techniques to treat acute respiratory disorders in previously healthy children: Where is the evidence?** *European Journal of Pediatrics*, 167(6), 607-612.

*It is necessary to name the specific airway clearance technique used in treatment rather than to just state "chest physiotherapy," a term that is often confused with chest clapping or vibration plus postural drainage. **There is little evidence that airway clearance techniques play a role in the management of children with an acute respiratory problem.***

Physicians routinely prescribing airway clearance techniques in previously healthy children should question their practice.

Hough, J. L., Flenady, V., Johnston, L., & Woodgate, P. G. (2008). **Chest physiotherapy for reducing respiratory morbidity in infants requiring ventilatory support.** Cochrane Database of Systematic Reviews (Online), (3)

En un ensayo la FTT no fue mejor que la atención estándar en la depuración de las secreciones.

En otro ensayo indicó que la atelectasia no resuelta se redujo en más neonatos sometidos a la técnica de compresión torácica (LST, por sus siglas en inglés, lung squeezing technique) en comparación con el drenaje postural, percusión y vibración. No se demostró ninguna diferencia en la depuración de las secreciones o en la tasa de hemorragia intraventricular o leucomalacia periventricular.

*El otro ensayo mostró que el uso de la **percusión o “palmeo cerrado” produjo una mayor incidencia de hipoxemia y una mayor necesidad de oxígeno comparado con la talopercusión de contacto.***

Los resultados de esta revisión no suministran pruebas suficientes sobre las cuales basar la práctica clínica. Es necesario realizar ensayos controlados con asignación al azar más amplios para abordar estos temas.

Yang, M., Yan, Y., Yin, X., Wang, B. Y., Wu, T., Liu, G. J., & Dong, B. R. (2013). **Chest physiotherapy for pneumonia in adults**. Cochrane Database of Systematic Reviews (Online), 2

*Ninguna de las fisioterapias (versus ninguna fisioterapia o placebo) mejoró las **tasas de mortalidad** en los adultos con neumonía.*

La fisioterapia torácica convencional (versus ninguna fisioterapia), el ciclo activo de técnicas respiratorias (versus ninguna fisioterapia) y el tratamiento de manipulación osteopática (versus placebo) no aumentaron la tasa de curación o la tasa de mejoría en las radiografías de tórax.

*El tratamiento con manipulación osteopática (versus placebo) y la presión respiratoria positiva (versus ninguna fisioterapia) **redujeron la duración media de la estancia hospitalaria** en 2,0 días y 1,4 días, respectivamente.*

No fue así con la fisioterapia torácica convencional y el ciclo activo de técnicas respiratorias.

Sobre la base de las pruebas limitadas actuales, la fisioterapia torácica no puede recomendarse como tratamiento adyuvante habitual para la neumonía en los adultos.

Lewis, L. K., Williams, M. T., & Olds, T. S. (2012). **The active cycle of breathing technique: A systematic review and meta-analysis.** *Respiratory Medicine*, 106(2), 155-172. doi:10.1016/j.rmed.2011.10.014

*The standardised mean difference showed an **increase in sputum wet weight during and up to 1 h post ACBT compared to conventional physiotherapy, external oscillatory devices, and control.***

High level, variable risk of bias research evidence favours ACBT over most alternatives for short-term improvements in secretion clearance.

McCool, F. D., & Rosen, M. J. (2006). **Nonpharmacologic airway clearance therapies: ACCP evidence-based clinical practice guidelines.** *Chest*, 129(1 SUPPL.), 250S-259S. doi:10.1378/chest.129.1_suppl.250S

*The efficacy of **chest physiotherapy** in disorders other than CF (eg, COPD and bronchiectasis) has been less well-studied. An evidence-based review of five studies on the role of chest physiotherapy in patients with bronchiectasis due to a variety of disorders (including a few cases of CF) **suggested that, as in CF, it increases the amount of expectorated sputum, has no effect on FEV1, and is beneficial only in patients who typically produce > 20 to 30 mL of mucus daily.** Nevertheless, chest physiotherapy is still considered to be the standard of care in patients with CF. There is still insufficient evidence to recommend this therapy for patients with other disorders.*

1. In patients with CF, chest physiotherapy is recommended as an effective technique to increase mucus clearance, but the effects of each treatment are relatively modest and the long-term benefits unproven. Level of evidence, fair; benefit, small; grade of recommendation, C

7. In patients with CF, PEP is recommended over conventional chest physiotherapy because it is approximately as effective as chest physiotherapy, and is inexpensive, safe, and can be self-administered. Level of evidence, fair; benefit, intermediate; grade of recommendation, B

8. In patients with CF, devices designed to oscillate gas in the airway, either directly or by compressing the chest wall, can be considered as an alternative to chest physiotherapy. Level of evidence, low; benefit, conflicting; grade of recommendation, I

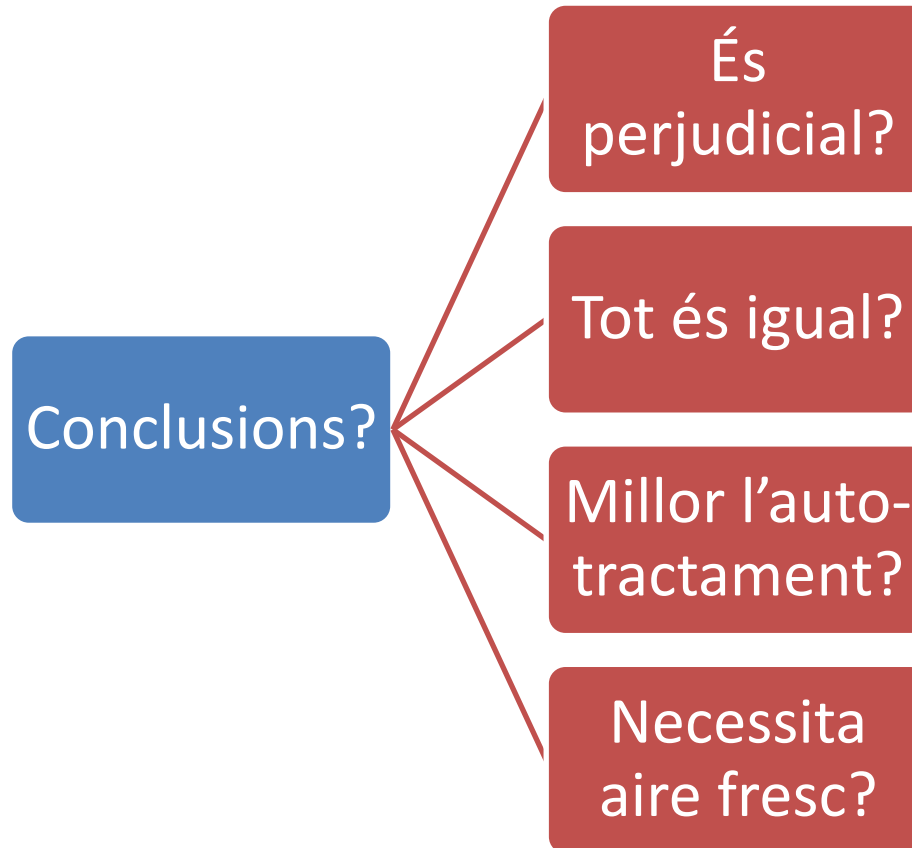
10. The effect of nonpharmacologic airway clearance techniques on long-term outcomes such as health-related quality of life and rates of exacerbations, hospitalizations, and mortality is not known at this time. The committee recommends that future investigations measure these outcomes in patients with CF, and in other populations with bronchiectasis, COPD, and neuromuscular diseases. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

Conclusions: Some nonpharmacologic therapies are effective in increasing sputum production, but their long-term efficacy in improving outcomes compared with unassisted cough alone is unknown.

Table 1. Protussive Maneuvers*

| Treatment | Reference | Subjects, No./Dx | Age, [†] yr | Dosing | Results | p Value |
|----------------|-----------|------------------|----------------------|-------------------------|---|---------|
| CPT | 12 | 8/CB | 55–70 | bid for 3 d | No significant improvement in FEV ₁ between control and CPT groups | NS |
| CPT | 13 | 10/COPD, B | 63 ± 13 | CPT 20 min/d for 2 d | CPT produced more sputum than control subjects | < 0.01 |
| CPT | 14 | 6/COPD | 60 ± 16 | CPT 20 min | CPT produced more sputum than control subjects | < 0.05 |
| CPT | 15 | 9/CF | 12 ± 4 | CPT once daily for 2 d | CPT cleared more radiotracer than cough alone | < 0.001 |
| CPT | 16 | 10/CF | 11 | CPT bid for 3 wk | No significant change in FEV ₁ with CPT, but FEV ₁ declined without CPT | NS |
| CPT | 2 | 6/CF | 23 | 40 min of CPT | CPT cleared more radiotracer than control or PD alone | < 0.05 |
| CPT | 17 | 69/CB, CHF | 54–64 | Once daily for 10 d | No difference in sputum weight compared to baseline | NS |
| CPT + exercise | 18 | 8/CF | 18–27 | CPT 25–40 min/d for 2 d | CPT + exercise produced more sputum than CPT alone | 0.023 |
| AD | 55 | 17/CF | 20 ± | AD bid for 4 wk | Cough clearance and FEV ₁ were not | NS |

CLAPPING: NECESSITA AIRE FRESC?



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Moltes gràcies

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