

Table S1. Excluded studies and exclusion reasons

Author	Year of Publication	Reason for Exclusion
Serel, S ¹	2013	Lack of Outcomes
Erdur, O ²	2017	No Comparison Group
Kim, B.R ³	2010	Ineligible Study Design
Levy, D.S ⁴	2019	Lack of Outcomes
Rosen, R ⁵	2018	Lack of Outcomes
Duncan, D ⁶	2018	No Comparison Group
Kyoung-Moo, L. E. E ⁷	2017	Lack of Outcomes
Schwarz, S. M ⁸	2001	Adult population
Bock, J.M ⁹	2017	Adult Population
Shin, J.C ¹⁰	2011	Adult population
Wong, N.S ¹¹	2019	Adult population
Lagos-Guimarães, H. N. C ¹²	2016	Adult population
Lefton-Greif, M. A ¹³	2000	Adult population
Alnassar, M ¹⁴	2011	Ineligible Intervention
Duncan, D.R ¹⁵	2018	Ineligible Intervention
Bowman, O. Jayne ¹⁶	2020	Lack of Outcomes
Osborn, A. J ⁵	2014	Adult population
Stanley, M. A ¹⁶	2019	Adult population
Teive, H. G. ¹⁷	2014	Adult population
Terré, R. ¹⁶	2009	Adult population
Schurr, M. J ¹⁶	1999	Adult population
Madhoun, L ¹⁸	2018	Adult population
Morgan, A ¹⁶	2005	Adult population
Birutis, R.I ¹⁶	2013	Adult population

Soria, F ¹⁹	2013	Adult population
Rosen, R ²⁰	2018	Duplicate Study
Lee, J. H ²¹	2011	Lack of Outcomes
De Fatima Da Silva Munhoz, L ²²	2015	Lack of Outcomes
Kyeong-Woo, Lee ¹⁶	2011	Lack of Outcomes
Duncan, D ²³	2017	Lack of Outcomes
Dharmarathna, I ²⁴	2021	Lack of Outcomes
Diniz, P ²⁵	2015	Duplicate Study
Akel, K ¹¹	2017	Ineligible Study Design
Duncan, D. ¹²	2018	Lack of Outcomes
Dharmarathna, Isuru ²⁶	2021	Ineligible Intervention
Diniz, P. B ²⁷	2017	Lack of Outcomes
Levy, D. S ²⁸	2018	Lack of Outcomes
Kyeong-Eun, U. H. M ²⁹	2013	Lack of Outcomes
Kaymaz, Nazan ³⁰	2017	Ineligible Study Design

Table S2. ROBINS risk of bias assessment with explanations

Author	Year	Outcome Studied	Overall Risk of Bias Assessment	Reason for Risk of Bias
Maireade E. McSweeney ¹³	2020	Enteral Feeding	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders
Pavithran, Jayanthi ³¹	2019	Aspiration Pneumonia	Moderate	Potential for confounding effects
Kim, GE ⁶	2018	Aspiration Pneumonia	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders
Kim, Bo Ryun ⁷	2014	Enteral Feeding	Moderate	Potential for confounding effects
Gurberg, Joshua ³²	2015	Aspiration Pneumonia	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders (3) Outcome data unavailable for all participants (4) Participants excluded due to missing data for analysis
Kemps, Glen ²⁵	2015	Aspiration Pneumonia	Moderate	(1) Potential for confounding effects (2) Participants excluded due to missing data for analysis

Newman, Lisa A. ²⁶	2001	Aspiration Pneumonia	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders (3) Intervention groups not clearly defined
Lefton-Greif, Maureen A. ²⁷	2006	Aspiration Pneumonia	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders (3) Intervention groups not clearly defined (4) Participants excluded due to missing data for analysis (5) Reasons for missing data inconsistent among all interventions (6) Lack of evidence that results were robust to the presence of missing data
Lefton-Greif, Maureen A. ²⁸	2006	Enteral Feeding	High	(1) Did not account for all confounders (2) Did not account for time-varying confounders (3) Intervention groups not clearly defined (4) Participants excluded due to missing data for analysis (5) Reasons for missing data inconsistent among all interventions (6) Lack of evidence that results were robust to the presence of missing data
Weir, Kelly ²⁹	2011	Aspiration Pneumonia	Moderate	Potential for confounding effects
Weir, Kelly ²⁷	2011	Enteral Feeding	Moderate	Potential for confounding effects
Taniguchi, M. H. ³⁰	1994	Aspiration Pneumonia	Moderate	(1) Potential for confounding effects (2) Participants excluded due to missing data for analysis (3) Lack of evidence that results were robust to the presence of missing data
Weir, Kelly ¹³	2007	Aspiration Pneumonia	Moderate	Potential for confounding effects

Footnote: Risk of bias was assessed according to Cochrane risk of bias tool for observational studies (ROBINS-1). We assessed the risk of bias from each study for a given outcome.

Supplementary Table S3: GRADE evidence profile

Question: Laryngeal penetration compared to No laryngeal penetration in pediatric patients with dysphagia

Setting: mainly outpatient

Certainty assessment							№ of patients		Effect	Certainty
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Laryngeal penetration	No laryngeal penetration	Relative (95% CI)	
Aspiration Pneumonia										
6	observational studies	serious ^a	not serious	not serious	serious ^b	none	294	251	OR 1.44 (0.94 to 2.19)	⊕⊕○○ Low
Enteral Tube										
1	observational studies	serious ^b	not serious	not serious	serious ^b	none	66	46	OR 0.77 (0.26 to 2.29)	⊕⊕○○ Low

Abbreviations: CI: confidence interval; OR: odds ratio

Explanations

- a. Two of the included studies were at high risk of bias because they did not adjust for any confounders.
b. The confidence interval around the summary estimate was wide and included null effects.

Table S4. GRADE evidence profile

Question: Tracheal aspiration compared to No tracheal aspiration in pediatric patients with dysphagia

Setting: mainly outpatient

Certainty assessment							№ of patients		Effect	Certainty
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Tracheal Aspiration	No Tracheal Aspiration	Relative (95% CI)	
Aspiration Pneumonia										
7	observational studies	serious ^a	not serious	not serious	not serious	none	-/344	-/453	OR 2.72 (1.86 to 3.98)	⊕⊕⊕○ Moderate
Enteral Tube										
2	observational studies	serious	not serious	not serious	serious ^b	none	-/139	-/273	OR 1.32 (0.58 to 2.98)	⊕⊕○○ Low
Hospitalization										
1	observational studies	not serious	not serious	not serious	not serious	none	-/0	-/0	RR 1.043 (1.010 to 1.070)	⊕⊕⊕⊕ High

CI: confidence interval; OR: odds ratio; RR: risk ratio

Explanations

- a. Two of the included studies were at high risk of bias because they did not adjust for any of the confounders.
- b. The confidence interval around the summary estimate was wide and included a null effect.

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