

成人使用增稠液體是否會 造成身體的負面影響？

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The primary strategies used to manage dysphagia in adults

1. **Modified Diet**
2. Swallowing Strategies
3. Oral Motor Exercises
4. Education and Counseling
5. Instrumental Assessments

What is Modified Diet ?

- Modifying the texture of food and liquids to make swallowing safer and more efficient.

Good effects

- The studies suggest that thickened liquids (TLs) are frequently recommended and are considered by clinicians to be a conservative and safe option for individuals with dysphagia (Desai & Namasivayam-MacDonald, 2020; Garcia et al., 2005; McCurtin et al., 2020; Murray et al., 2014; Rumbach et al., 2018)
- Many studies indicating their effectiveness in avoiding aspiration and reducing pulmonary injury (Barbon et al., 2022; Clavé et al., 2006; Kuhlemeier et al., 2001; Masuda et al., 2022; Rofes et al., 2014; Trent et al., 2014).
- Comprehensive systematic reviews have found that TLs reduce aspiration, with thicker liquids being associated with the lowest incidences of aspiration (Newman et al., 2016; Steele et al., 2015).

Bad effects

- The studies demonstrates that thicker consistencies are typically associated with increased postswallow pharyngeal residue, which may be aspirated after the swallow or on subsequent swallows (Newman et al., 2016; Steele et al., 2015, 2020).
- TL recommendation may result in reduced fluid intake (Crary et al., 2016; Howard et al., 2018; Murray et al., 2016; Robbins et al., 2008)
- TL use is also associated with clinical dehydration measures (Crary et al., 2016; Howard et al., 2018; McGrail & Kelchner, 2012; Murray et al., 2016).

臨床研究問題

P : Adults

(people with dysphagia or healthy people)

I : Using thickened liquid

C : Not using thickened liquid

O : Cause adverse events that affect the body

Literature Review



AJSLP

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American Journal of Speech-Language Pathology

Review Article

11 Sep 2023

The Adverse Effects and Events of Thickened Liquid Use in Adults: A Systematic Review

Sophia Werden Abrams , Pooja Gandhi and Ashwini Namasivayam-MacDonald

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Review Aims

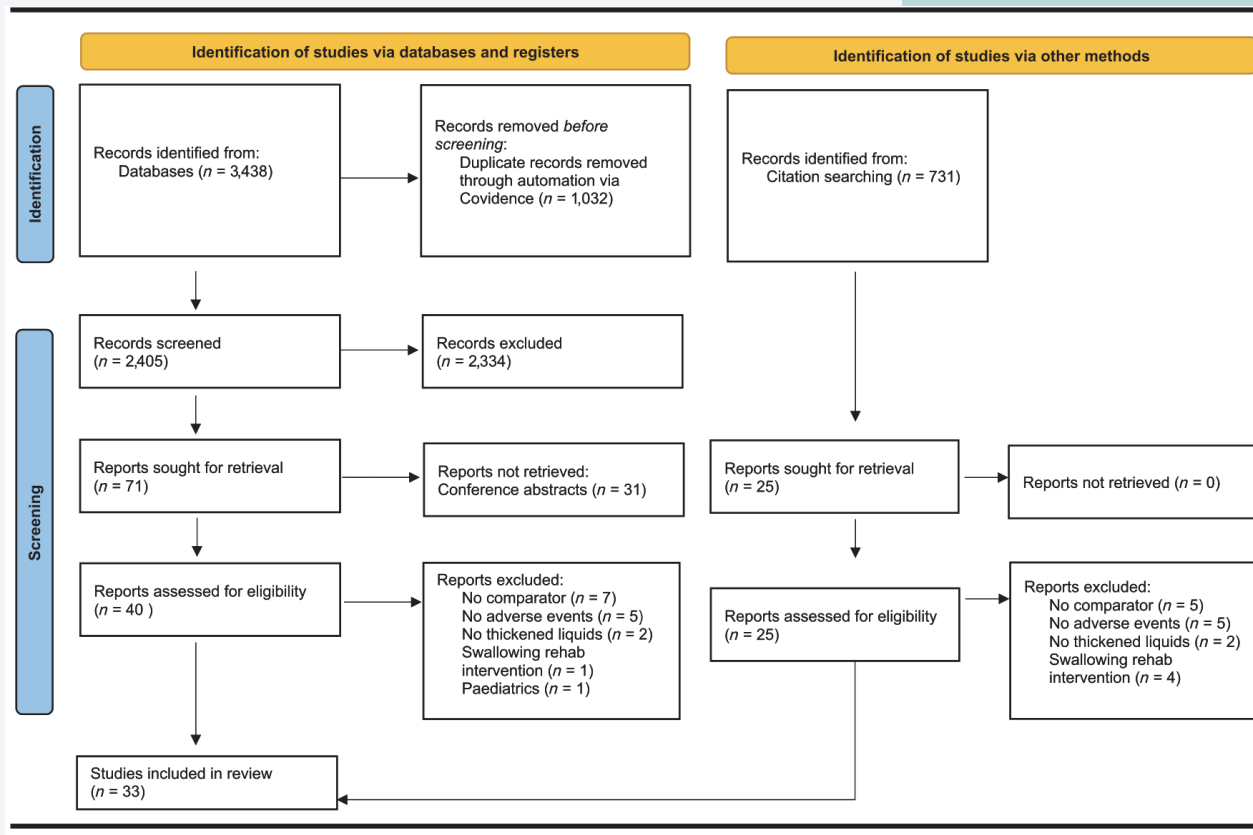
- This review aimed systematically to explore :
 1. summarize the evidence on adverse events and effects associated with the use of TLs in adults across all experimental study designs
 2. assess the quality of evidence describing the adverse effects and events associated with the use of TLs in adults.

Method

- Search was carried out in line with the guidance in the PRISMA statement.
- Six databases were searched in February 2022
 - EMBASE, MEDLINE (PubMed), Speechbite, AMED, AgeLine, and CINAHL
- Screening and data extraction were completed by two independent reviewers.
- Risk of bias was assessed using Cochrane tools
- Data Synthesis

Results

- 33 studies (n = 4,990 participants across all studies) were included
- 6 RCTs, 27 nonrandomized studies
- age from 19 to 102 years
- participants with dysphagia or healthy volunteer.



Author (year)	Adverse effects				Adverse event or effect		Adverse events			
	n=8 Reduced intake	n=4 Increased residue	n=18 Reduced QOL	n=2 Delayed disintegration of medication	n=11 Aspiration	n=4 Pneumonia	n=2 Death	n=1 Hospitalization	n=5 Dehydration	n=1 UTI
Alves & Dantas (2017)	x		x							
Bosch et al. (2012)					x	x	x			
Carlaw et al. (2012)	x		x							
Colodny (2005)			x							
Crary et al. (2016)									x	
Espinosa-Val et al. (2020)			x							
Frey & Ramsberger (2011)					x	x				
Garcia et al. (2005)			x							
Garon et al. (1997)	x		x							
Garon et al. (2009)					x					
Goulding & Bakheit (2000)	x				x					
Hind et al. (2012)		x	x		x					
Howard et al. (2018)			x						x	
Karagiannis et al. (2011)	x		x							
Karagiannis & Karagiannis (2014)	x		x							
King & Ligman (2011)			x							
Lim et al. (2016)			x							
McCurtin et al. (2018)			x							
McGrail & Kelchner (2012)	x									
McGrail & Kelchner (2015)										
Miles et al. (2018)					x					
Murray et al. (2014)	x		x						x	
Murray et al. (2016)			x						x	
Paramita et al. (2021)		x			x					
Robbins et al. (2008)					x	x			x	x
Schmidt et al. (1994)					x	x	x			
Seshadri et al. (2018)			x							
Shim et al. (2013)			x					x		
Simon et al. (2020)		x			x					
Tomita et al. (2016)				x						
Tomita et al. (2017)				x						
Vilardell et al. (2016)		x			x					
Yver et al. (2018)			x							

Note. QOL = quality of life; UTI = urinary tract infection.

Results

Table 3. Adverse effects and events mapped on International Classification of Functioning, Disability and Health (ICF) domains.

ICF domains	Body structure/function	Activity/participation	Environmental/personal factors
Adverse Events & Effects	<ul style="list-style-type: none">-Aspiration (<i>b510 Ingestion function, b51051 swallowing</i>)-Death-Dehydration (<i>b5450 water balance</i>)-Increased residue (<i>b510 Ingestion function, b51051 swallowing</i>)-Pneumonia (<i>b440 respiration functions</i>)-Reduced quality of life (<i>b152 emotional functions</i>)-Urinary tract infections (<i>b620 urination functions</i>)	<ul style="list-style-type: none">-Reduced intake (<i>d560 drinking, d440 picking something up, d4153 maintaining a sitting position</i>)-Reduced quality of life (<i>d570 looking after one's health, d20 recreation and leisure, d102 ceremonies</i>)	<ul style="list-style-type: none">-Delayed medication delivery (<i>e1101 drugs</i>)-Hospitalization (<i>e5800 health services, e355 health professionals</i>)-Reduced intake (<i>e310 immediate family, e340 personal care providers and personal assistants</i>)-Reduced quality of life (<i>e3499 attitudes, e3450 individual attitudes of health professionals</i>)

文獻評讀

(A)研究結果可信嗎？

<input type="checkbox"/>	是
	不確定
	否

1. 此篇系統性文獻回顧是否問了一個清楚、明確的問題？
 - investigate the adverse effects and events associated with the use of thickened liquids in adults

文獻評讀

(A)研究結果可信嗎?

<input type="checkbox"/>	是
	不確定
	否

2. 作者是否尋找適當研究型態的文獻?

Inclusion:

1. provided original data addressing the study question
2. discussed a minimum of one adverse outcome directly related to consuming TLs
3. had adult participants (≥ 18 years of age)
4. compared and investigated adverse effects or events between adults receiving TLs to those receiving thin liquids or a different level of TLs.

Exclusion:

1. were not written in English
2. focused solely on pediatric participants
3. were animal studies
4. did not discuss TLs
5. were non-peer-reviewed publications
6. focused on a swallowing rehabilitation intervention
7. were rheological analyses.

文獻評讀

(A)研究結果可信嗎？

<input type="checkbox"/>	是
	不確定
	否

2. 作者是否尋找適當研究型態的文獻？

- 33 studies were included
- 6 RCTs, 27 nonrandomized studies

文獻評讀

(A)研究結果可信嗎？

	是
<input type="checkbox"/>	不確定
	否

3. 你認為所有重要且相關的研究都被納入？

- The authors searched six databases (EMBASE, MEDLINE, Speechbite, AMED, AgeLine, and CINAHL)
- Exclude the papers not written in English.

文獻評讀

(A)研究結果可信嗎？

<input type="checkbox"/>	是
	不確定
	否

4. 系統性文獻回顧的作者是否評估所納入研究文獻的品質？

- Bias Assessment
 - The Cochrane Risk of Bias Tool
- Independent Review
 - Having two independent reviewers for screening and data extraction

Critical: 6
Serious:12
Moderate:4
Low:5
No information:0

Serious:12

Moderate:4

Low:5

No information:0

	Risk of Bias Domains				
	D1 Confounding	D2 Participant selection	D3 Intervention classification	D4 Intervention deviations	D5 Missing data
Alves & Dantas (2017)	x	+	+	+	?
Bosch et al. (2012)	x	-	?	?	?
Colodny (2005)	x	?	?	?	?
Crary et al. (2015)	x	x	+	+	+
Espinosa-Val et al. (2020)	-	-	+	+	?
Frey & Ramsberger (2011)	x	+	+	+	?
Garcia et al. (2005)	?	?	?	?	+
Garon et al. (2009)	!	-	?	?	?
Hind et al. (2012)	!	-	+	+	?
Howard et al. (2018)	x	x	-	+	?
Karagiannis & Karagiannis (2014)	!	x	-	?	?
King & Ligma (2011)	?	?	?	?	+
Lim et al. (2016)	x	-	+	+	?
McCurtin et al. (2018)	?	?	?	?	+
McGrail & Kelchner (2012)	x	x	-	+	?
McGrail & Kelchner (2015)	!	!	-	x	?
Miles et al. (2018)	-	-	+	+	+
Murray et al. (2014)	?	?	?	?	+
Paramita et al. (2021)	!	x	-	-	?
Schmidt et al. (1994)	x	x	-	-	?
Seshadri et al. (2018)	?	?	?	?	+
Shim et al. (2013)	x	-	?	?	?
Simon et al. (2019)	x	-	+	+	?
Tomita et al. (2016)	-	-	+	+	?
Tomita et al. (2017)	x	-	+	+	?
Villard et al. (2016)	!	-	?	?	?
Yver et al. (2018)	x	-	+	+	?
	Judgment: ! critical, x serious, - moderate, + low, ? no information				

The risk of bias assessment summaries for randomized controlled trials

Figure 3. ROB 2 risk of bias assessment for randomized controlled trials. ROB 2 = Cochrane Risk-of-Bias Tool for Randomized Trails.

	Risk of Bias Domains					Overall
	D1 Randomization	D2 Intervention deviations	D3 Missing outcome data	D4 Outcome measurement	D5 Selection of reported results	
Carlaw et al. (2012)	+	-	+	-	-	-
Garon et al. (1997)	-	-	-	-	+	-
Goulding et al. (2000)	-	-	+	x	-	x
Karagiannis et al. (2011)	-	-	-	+	+	-
Murray et al. (2016)	-	-	x	+	+	-
Robbins et al. (2008)	-	-	+	-	+	-
Judgment: x high concern, - some concern, + low concern						

High concern: 1 Some concern: 5 Low concern: 0

文獻評讀

(A)研究結果可信嗎？

<input type="checkbox"/>	是
	不確定
	否

5. 如果作者將研究結果進行合併，這樣的合併是否合理？

- The authors acknowledge the heterogeneity in study designs, participant characteristics, and outcome measures.
- Combining results to provide an overview of potential adverse effects is reasonable.

文獻評讀

(B)研究結果為何?

6. 這篇系統性文獻回顧的整體結果為何?

7. 結果精準嗎?

- Adverse Events Reported
 - Dehydration (n=5), pneumonia (n=4), death (n=2), urinary tract infection (n=1), and hospitalization (n=1).
- Adverse Impacts
 - Decreased quality of life (n=18), aspiration (n=12), reduced intake (n=8), increased residue (n=4), and decreased medication bioavailability (n=2).
- The narrative synthesis does not provide confidence intervals or p-values, limiting the assessment of precision.

Author (year)	Adverse effects				Adverse event or effect		Adverse events			
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Alves & Dantas (2017)	x		x							
Bosch et al. (2012)					x	x	x			
Carlaw et al. (2012)	x		x							
Colodny (2005)			x							
Crary et al. (2016)									x	
Espinosa-Val et al. (2020)			x							
Frey & Ramsberger (2011)					x	x				
Garcia et al. (2005)			x							
Garon et al. (1997)	x		x							
Garon et al. (2009)					x					
Goulding & Bakheit (2000)	x				x					
Hind et al. (2012)		x	x		x					
Howard et al. (2018)			x						x	
Karagiannis et al. (2011)	x		x							
Karagiannis & Karagiannis (2014)	x		x							
King & Ligman (2011)			x							
Lim et al. (2016)			x							
McCurtin et al. (2018)			x							
McGrail & Kelchner (2012)	x									
McGrail & Kelchner (2015)										
Miles et al. (2018)					x					
Murray et al. (2014)	x		x						x	
Murray et al. (2016)			x						x	
Paramita et al. (2021)		x			x					
Robbins et al. (2008)					x	x			x	x
Schmidt et al. (1994)					x	x	x			
Seshadri et al. (2018)			x							
Shim et al. (2013)			x					x		
Simon et al. (2020)		x			x					
Tomita et al. (2016)				x						
Tomita et al. (2017)				x						
Vilardell et al. (2016)		x			x					
Yver et al. (2018)			x							

Note. QOL = quality of life; UTI = urinary tract infection.

文獻評讀

(C)研究結果對於當地病人有幫助嗎？

<input type="checkbox"/>	是
	不確定
	否

9. 是否所有重要的臨床結果都有被考量到？

- The review considers a wide range of adverse effects and impacts, including both physiological outcomes (like dehydration and aspiration) and quality-of-life measures, providing a comprehensive view of the risks associated with thickened liquid use.

文獻評讀

(C)研究結果對於當地病人有幫助嗎？

	是
<input type="checkbox"/>	不確定
	否

10. 付出的傷害和花費換得介入措施所產生的益處是否值得？

- The review highlights significant adverse effects, suggesting that while thickened liquids may be beneficial in managing dysphagia, the potential harms need to be carefully considered.
- Clinicians must weigh the individual patient's risk factors and potential benefits against these documented adverse effects to make informed decisions about thickened liquid use.

Discussion

- The most frequently reported adverse outcome associated with the use of TLs was reduced QOL.
- the use of TLs impacts the activity/participation and environmental/personal factors domains
- Any clinical recommendations for the use of TLs should consider the potential influence across all domains of life, thus moving from a biomedical model to a more holistic biopsychosocial model of care (Threats, 2007; WHO, 2001)
- Modification of liquid viscosity remains an important tool for dysphagia management and can provide improved safety and comfort to many patient populations (Newman et al., 2016; Steele et al., 2015).

Limitation

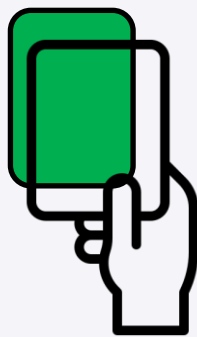
- Heterogeneity of Included Studies
- Limited Generalizability
- Short Follow-Up Periods
- Potential for Reporting Bias
- Limited Focus on Patient-Centered Outcomes

Conclusion

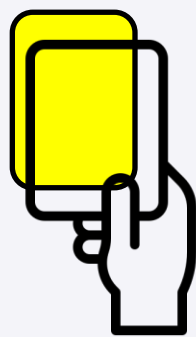
- TLs can be a useful clinical tool.
- The future research directions identified in this systematic review highlight the need for rigorous, high-quality studies to address the current gaps in understanding the use of thickened liquids in adults with dysphagia.
- **Should not be recommended as the first and safest option.**

Let's Vote !

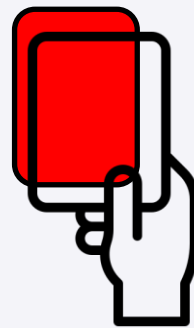
成人使用增稠液體是否會造成身體的負面影響？



同意



需再討論



不同意

謝謝大家的聆聽