

ÉVALUATION DES TROUBLES DE LA DÉGLUTITION

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Partage d'expérience

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Troubles de la déglutition acquis en Réanimation

- *L'étiologie des troubles de déglutition après extubation est considérée comme multifactorielle*

ICU-Acquired Swallowing Disorders

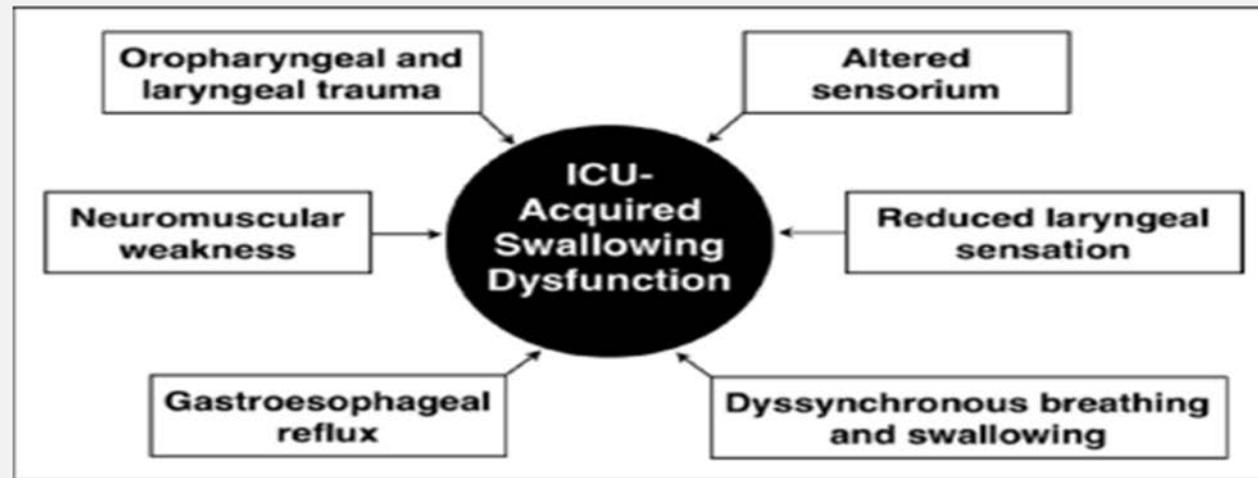


Figure 2. Six potential mechanisms for the development of ICU-acquired swallowing disorders.

Macht M, Wimbish T, Bodine C, Moss M. ICU-Acquired Swallowing Disorders: Crit Care Med. oct 2013;41(10):2396-405.

- *Principales conséquences: augmentation du risque de pneumopathie d'inhalation, augmentation du risque de RIOT, prolongation de la durée de séjour, augmentation de la malnutrition...*

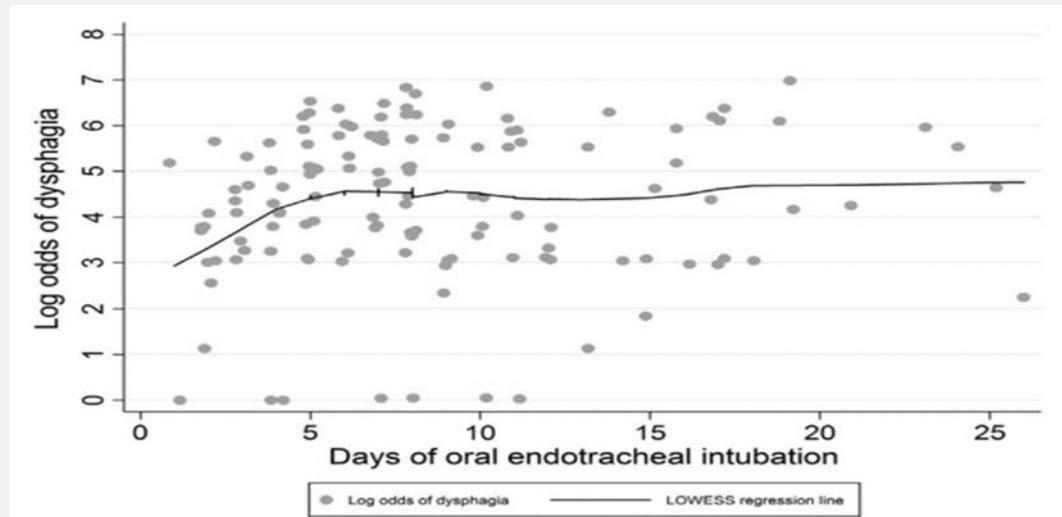
Facteurs de risque

- Le principal facteur de risque: la durée d'intubation oro-traquéale (Brodsky 2014, Lingyu 2023)

Table 3
Meta-analysis of risk factors of post-extraction dysphagia in ICU.

Risk factors	Combination studies	OR (95% CI)	z	P	Heterogeneity of study design			Analysis model	Egger test
					χ^2	P	I		
Age	4	1.04 (1.03–1.05)	6.34	.28	3.84	.28	22%	Fixed	0.044
Tracheal intubation time	6	1.61 (1.28–2.04)	4.00	<.0001	63.64	<.00001	92%	Random	0.037
APACHE II	3	1.04 (1.01–1.08)	2.75	.006	1.39	.50	0	Fixed	0.967
Tracheostomy	3	3.75 (1.81–7.80)	3.54	.0004	2.89	.24	31%	Fixed	0.121

CI = confidence interval, ICU = intensive care unit, OR = odds ratio.



Hou L, Li Y, Wang J, Wang Y, Wang J, Hu G, et al. Risk factors for post-extubation dysphagia in ICU: A systematic review and meta-analysis. *Medicine (Baltimore)*. *Medicine*, 102(10), e33153.

Brody MB, Gellar JE, Dinglas VD, Colantuoni E, Mendez-Tellez PA, Shanholtz C, et al. Duration of oral endotracheal intubation is associated with dysphagia symptoms in acute lung injury patients. *J Crit Care*. Août 2014;29(4):574-9.

Comment évaluer les troubles de la déglutition?

- Les Gold Standard (vidéofluoroscopie et nasofibroscopie) sont difficilement réalisables en réanimation
- Il n’y a pas de consensus → le dépistage repose sur la clinique

Troll C, Trapl-Grundschober M, Teuschl Y, Cerrito A, Compte MG, Siegemund M. A bedside swallowing screen for the identification of post-extubation dysphagia on the intensive care unit – validation of the Gugging Swallowing Screen (GUSS)—ICU. *BMC Anesthesiol.* 2023;23(1).

GUSS – ICU (Gugging Swallowing Screen for ICU)						
Recommended for all patients who were intubated for more than 24 hours.						
The screening is to be conducted no earlier than 1 hour after extubation. If necessary, perform oral hygiene.						
Preliminary Investigation / Indirect Swallowing Test			Direct Swallowing Test (4 subtests)			
	Yes	No			Pass	Fail
RASS from 0 to +2	1	0	6 points: Proceed to "Direct Swallowing Test" < 6 points: Stop the screening (SLP and/or FEES)	1. Semisolid: Give 3-5 tsp. of thickened water (IDDSI 3) *	1	0
Stridor present	0	1		2. Liquids: Give 3, 5, 10, 20, 50 ml of water (IDDSI 0) *	1	0
Coughing and/or throat clearing efficiently	1	0		3. Solids: Give a piece of bread (1.5 x 1.5cm) *	1	0
Swallowing saliva possible	1	0				
Drooling (saliva)	0	1		4. Liquids & Solids: Give a piece of bread (1.5 x 1.5cm) and a sip of water after half of the chewing time *	1	0
Change of voice after swallowing saliva	0	1				
SUM:				SUM:		
				TOTAL SUM:		

* Observe the patient after each swallow.
 Discontinue the subtest and the screening if the patient shows any of the following signs:
Difficulty swallowing (prolonged oral phase: > 10sec with liquids and semisolids, >23 sec. with bread), coughing, drooling or change of voice.
 If there are no visible problems, proceed to the next subtest. (IDDSI= International Dysphagia Standardization Initiative)
 FEES (Fiberoptic Endoscopic Evaluation of Swallowing), IDDSI (International Dysphagia Standardization Initiative), RASS (Richmond Agitation Sedation Scale)

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(Gugging Swallowing Screen for ICU)

GUSS-ICU-EVALUATION		
Results	Severity Code	Diet Recommendations (based on IDDSI-Framework)
0-6 points	Preliminary investigation or semisolids failed (Severe Dysphagia with high risk of aspiration)	<ul style="list-style-type: none"> * NPO (non per os) --> Refer to Speech and Language Pathologist (SLP) / Speech&Language Therapist (SLT) or ENT/Phoniatrician/Dysphagia Specialist. Repeat the test after 4 hours at the earliest.
7 points	Semisolids passed, fluids failed (moderate dysphagia with aspiration risk)	<ul style="list-style-type: none"> * Pureed or liquidised textures (IDDSI 3-4) * All liquids must be thickened (IDDSI 2-3) * Pills should be crushed and mixed with puree (IDDSI: 3-4) * No liquid medication! * Optional: Further functional swallowing assessments (FEES, VFSS)¹ * Optional: Refer to Speech&Language Pathologist (SLP) / Speech&Language Therapist (SLT) * Supplementation via PEG, nasogastric tube or parenteral + supplementary food
8 points	Semisolids passed, fluids passed, solids failed (mild dysphagia with low risk of aspiration)	<ul style="list-style-type: none"> * Dysphagia diet (minced & moist or soft & bite-sized) (IDDSI: 5 or 6) * Liquids IDDSI 0 * Optional: Further functional swallowing assessments (FEES, VFSS)¹ * Optional: Refer to Speech&Language Pathologist(SLP) / Speech&Language Therapist (SLT) * Supplementation via PEG, nasogastric tube or parenteral + supplementary food
9 points	Semisolids passed, fluids passed, solids passed, mixed textures failed (mild dysphagia with low risk of aspiration)	<ul style="list-style-type: none"> * Dysphagia diet (soft & bite-sized or Easy to chew) (IDDSI: 6 or 7 EC) * avoid mixed or hard to chew textures * Liquids (IDDSI 0) * Optional: Further functional swallowing assessments (FEES, VFSS)¹ * Optional: Refer to Speech&Language Pathologist(SLP) / Speech&Language Therapist (SLT) * Supplementation via PEG, nasogastric tube or parenteral + supplementary food
10 points	All textures passed (Minimal/no Dysphagia; Minimal/no risk of aspiration)	<ul style="list-style-type: none"> * Normal diet (IDDSI: 7, 7 EC) * Regular liquids (IDDSI: 0) * First normal meal under supervision of a SLP/SLT or dysphagia-trained nurse to evaluate the swallowing ability of mixed consistencies

¹ Use functional investigations like: Fiberoptic Endoscopic Evaluation of Swallowing (FEES), Videofluoroscopic Swallowing Study (VFSS). (IDDSI= International Dysphagia Standardization Initiative)

Troll, Trapl-Grundschober; 2022

Évaluation avant Extubation

Table 1. Analysis of the 9 Criteria Defining the Global Swallowing Pattern

Criteria		Re-Intubation Due to AEUAS	No Re-Intubation Due to AEUAS	<i>P</i>
Salivary stasis during the hour preceding extubation†	> 10 mL	6 (86)	124 (83)	> .99
	≤ 10 mL	1 (14)	26 (17)	
Holding the head‡	No	0 (0)	17 (11)	> .99
	Yes	7 (100)	133 (89)	
Opening the mouth*	No	0 (0)	7 (5)	> .99
	Yes	7 (100)	144 (95)	
Pursing the lips*	No	1 (14)	15 (10)	.53
	Yes	6 (86)	136 (90)	
Clenching the teeth*	No	2 (29)	12 (8)	.12
	Yes	5 (71)	139 (92)	
Sticking out the tongue‡	No	0 (0)	20 (13)	.60
	Yes	7 (100)	130 (87)	
Gag reflex: right side‡	No	4 (57)	21 (14)	.01
	Yes	3 (43)	128 (86)	
Gag reflex: left side§	No	4 (57)	22 (15)	.02
	Yes	3 (43)	126 (85)	
Swallowing function*	No	3 (43)	26 (17)	.12
	Yes	4 (57)	125 (83)	

Data are expressed as *n* (%). Re-intubate group: *n* = 7 subjects; No re-intubate group: *n* = 152 subjects. Analysis was performed according to extubation success or failure related to excessive secretions ≤ 72 h after planned extubation.

Yes denotes a test correctly performed by the subject; No denotes when the subject was not able to perform the test (partially or completely), with global swallowing pattern assessment ranging from 0 to 9.

* = 1 missing value (inability for patient to perform the test)

† = 2 missing values (inability for patient to perform the test)

‡ = 3 missing values (inability for patient to perform the test)

§ = 4 missing values (inability for patient to perform the test)

AEUAS = aspiration and/or upper airway secretions

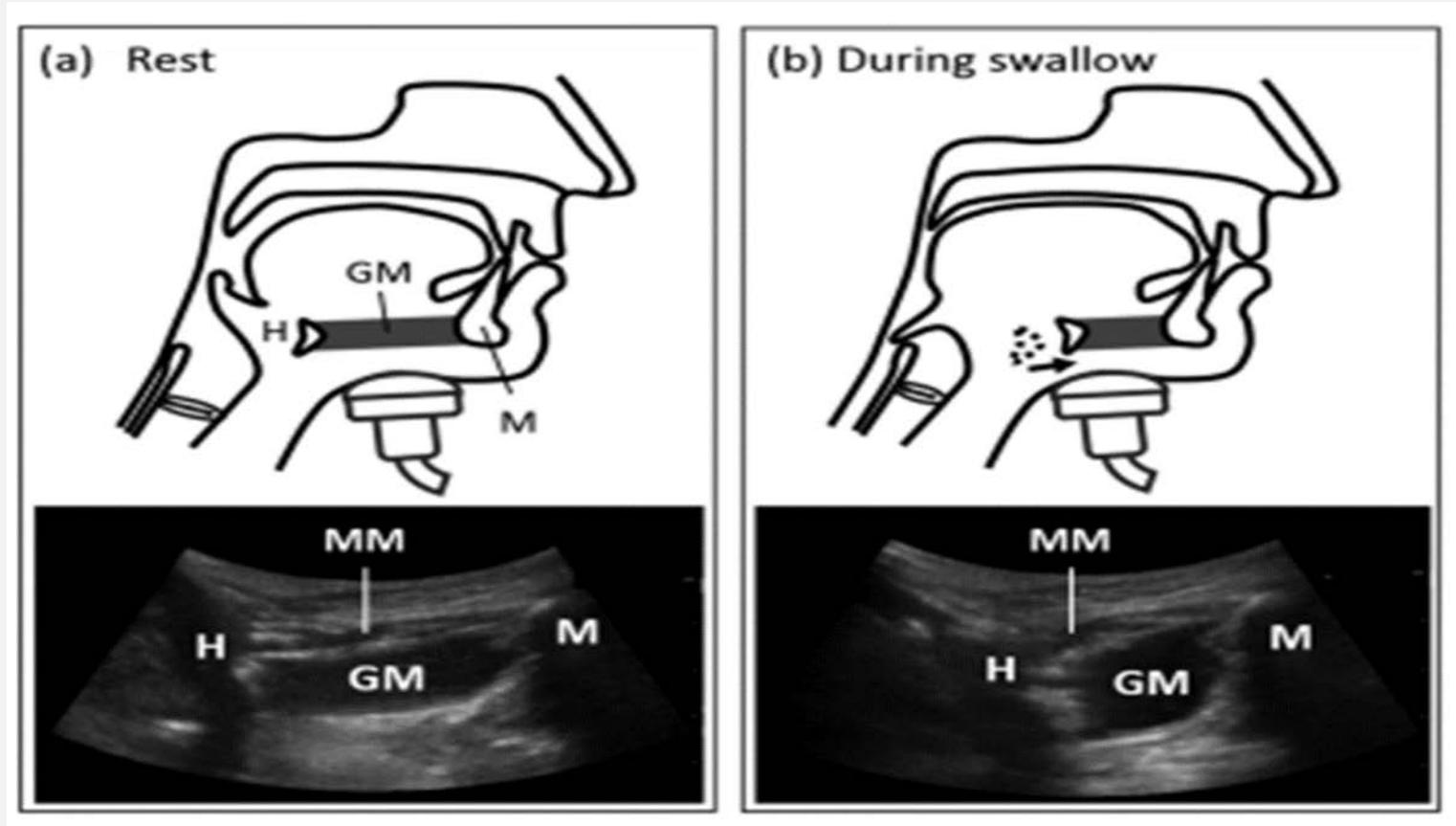
Colonel P, Houzé MH, Vert H, Mateo J, Mégarbane B, Goldgran-Tolédano D, et al. Swallowing Disorders as a Predictor of Unsuccessful Extubation: A Clinical Evaluation. *Am J Crit Care.* nov 2008;17(6):504-10.

extubation. Results are expressed as median (interquartile range [IQR]). RESULTS: The study included 159 subjects (age 61 y [IQR 48–75]; male/female ratio 1.5; Simplified Acute Physiologic score II 54 [IQR 42–66]; duration of mechanical ventilation 11 d [IQR 8–17]). A total of 23 subjects (14.5%) required re-intubation, with 16 occurring within the first 72 h after extubation and 7 related to aspiration or excessive secretions. Swallowing assessment was significantly lower in subjects with re-intubation related to aspiration or excessive secretions within the first 72 h after extubation versus those not re-intubated for aspiration or excessive secretions (6 [IQR 5–7] vs 8 [IQR 7–8], *P* = .008, respectively). Among the 9 swallowing assessment criteria, normal right pharyngeal gag reflex was associated with a lower incidence of re-intubation related to aspiration or excessive secretions (odds ratio 0.12, 95% CI 0.03–0.59, *P* = .01), as well as normal left pharyngeal gag reflex (odds ratio 0.13, 95% CI 0.03–0.63, *P* = .01), with a negative predictive value of 0.98 for each reflex.

Exemple



L'intérêt de l'échographie



Hsiao MY, Chang YC, Chen WS, Chang HY, Wang TG. Application of Ultrasonography in Assessing Oropharyngeal Dysphagia in Stroke Patients. *Ultrasound Med Biol.* sept 2012;38(9):1522-8.

Shimizu S, Hanayama K, Metani H, Sugiyama T, Abe H, Seki S, et al. Retest reliability of ultrasonic geniohyoid muscle measurement. *Jpn J Compr Rehabil Sci.* sept 2016;7(0):55-60.

Quand évaluer après Extubation?

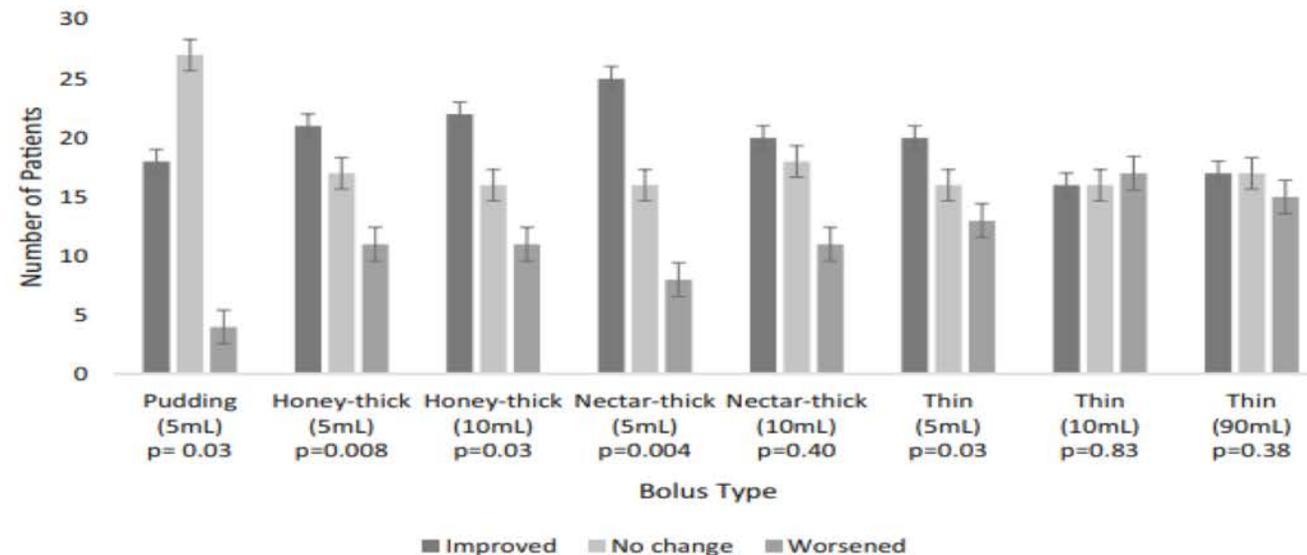
Table 2. Pass/Fail Results of the Yale Swallow Protocol at 1 Hour, 4 Hours, and 24 Hours \pm 10 Minutes, Respectively, Post-Extubation.

Outcome	1 h No. (%)	Intubation Duration, h Median (IQR)	GCS Median (IQR)	4 h No. (%)	Intubation Duration, h Median (IQR)	GCS Median (IQR)	24 h No. (%)	Intubation Duration, h Median (IQR)	GCS Median (IQR)
Passed	166 (82.2)	33 (24, 72)	15 (15, 15)	11 (30.6)	120 (48, 168)	15 (14, 15)	8 (32.0)	72 (48, 96)	14 (13, 15)
Failed	27 (13.4)	96 (48, 168)	15 (14, 15)	15 (41.7)	120 (39, 192)	15 (14, 15)	13 (52.0)	144 (39, 192)	15 (14, 15)
Not administered	9 (4.5)	72 (48, 168)	12 (9, 13)	10 (27.8)	72 (24, 96)	12 (9, 14)	4 (16.0)	72 (27, 96)	13 (11, 13)

Abbreviations: GCS, Glasgow Coma Scale; IQR, interquartile range.

Leder SB, Warner HL, Suiter DM, Young NO, Bhattacharya B, Siner JM, et al. Evaluation of swallow function post-extubation: Is it necessary to wait 24 hours? *Ann Otol Rhinol Laryngol.* 2019;128(7):619–24.

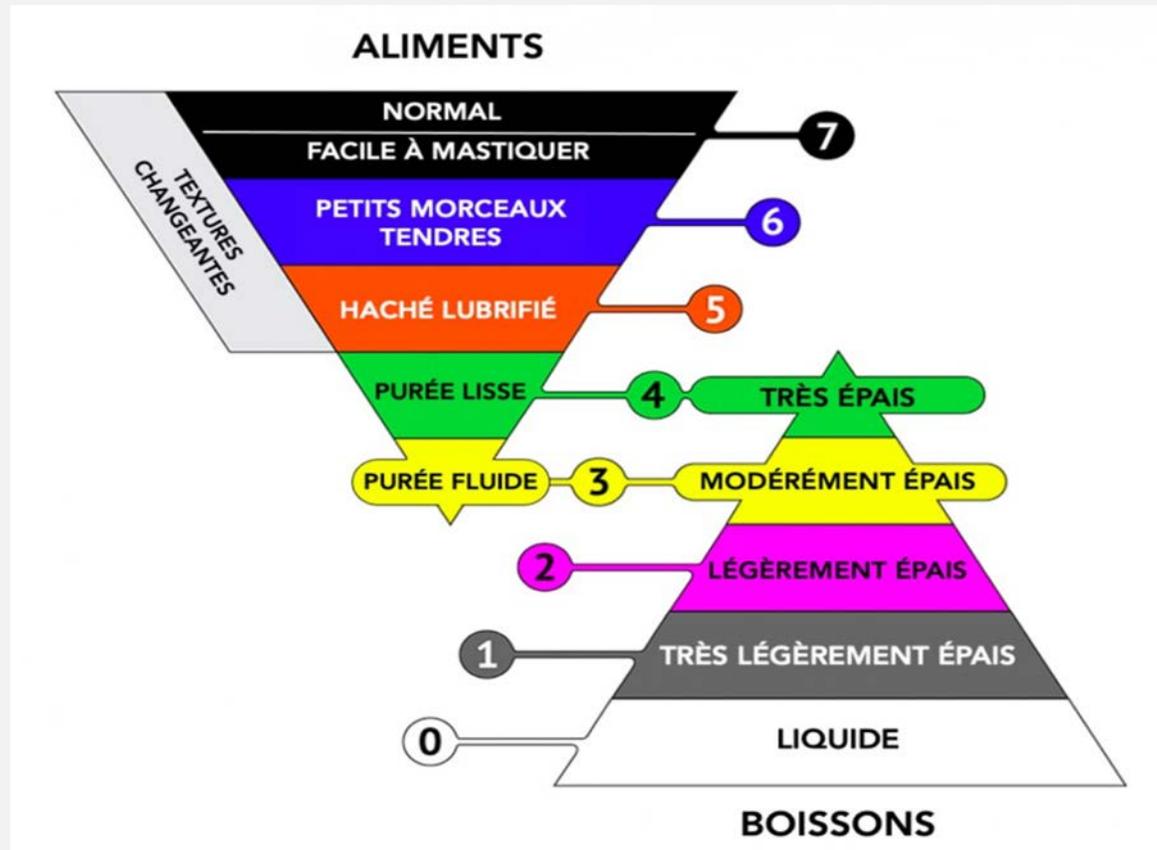
Fig. 1 Change in airway invasion score (normal, penetration, aspiration) between first and second FEES (improved, no change, worsened) in each consistency trial



Marvin S, Thibeault S, Ehlenbach WJ. Post-extubation dysphagia: does timing of evaluation matter? *Dysphagia.* avr 2019;34(2):210-9.

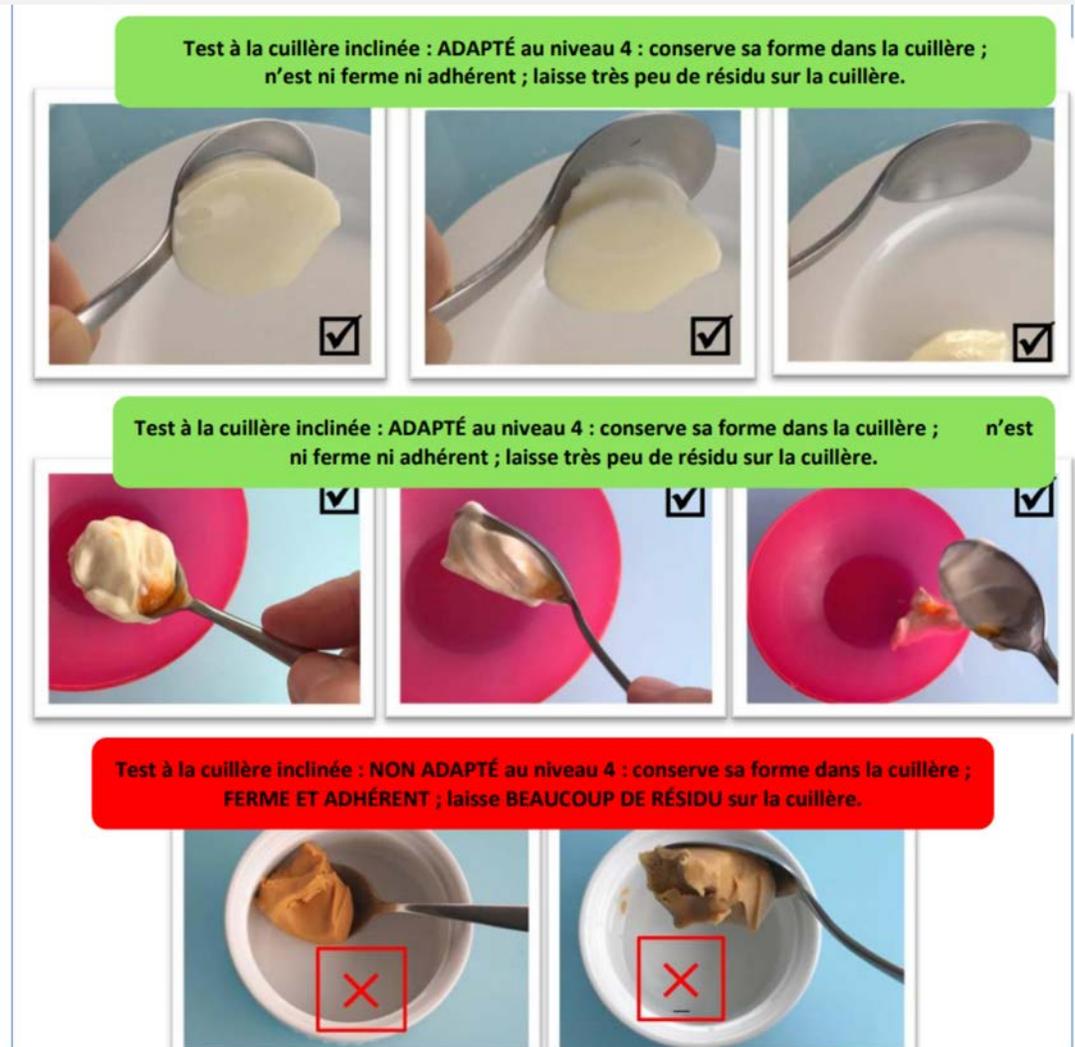
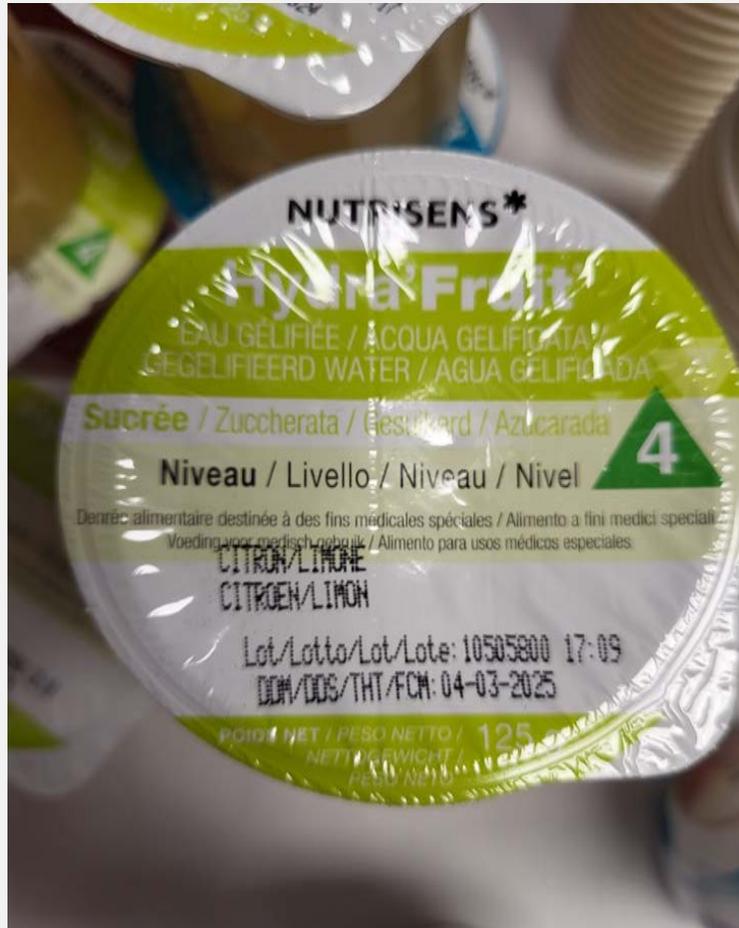
Le TEST de Déglutition

- I. Le feu vert → l'état respiratoire et neurologique du patient
- II. Anticiper la fausse route → comment désencombrer le patient?
- III. Installation
- IV. Humidification de la sphère ORL et désencombrement
- V. Choisir la texture



Choisir la texture

- https://iddsi.org/IDDSI/media/images/FrameworkDocuments/IDDSI-Testing-Methods-FRENCH-July-2022_1.pdf



Exploration fonctionnelle de la déglutition par fibroscopie naso-pharyngée (NF)

- Objectiver les anomalies structurelles: oédème, paralysie des CV, RGO...
- Évaluer la capacité de protection des VAS: fermeture des CV et mécanismes d'expulsion
- Évaluer la capacité à gérer les stases
- Évaluer la sévérité des TD et le risque d'aspiration

Table 2. Final version of the 8-Point Penetration-Aspiration Scale

1. Material does not enter the airway
2. Material enters the airway, remains above the vocal folds, and is ejected from the airway
3. Material enters the airway, remains above the vocal folds, and is not ejected from the airway
4. Material enters the airway, contacts the vocal folds, and is ejected from the airway
5. Material enters the airway, contacts the vocal folds, and is not ejected from the airway
6. Material enters the airway, passes below the vocal folds and is ejected into the larynx or out of the airway
7. Material enters the airway, passes below the vocal folds, and is not ejected from the trachea despite effort
8. Material enters the airway, passes below the vocal folds, and no effort is made to eject

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P. D. Neubauer et al.: The Yale Pharyngeal Residue Severity Rating Scale: An Anatomically...

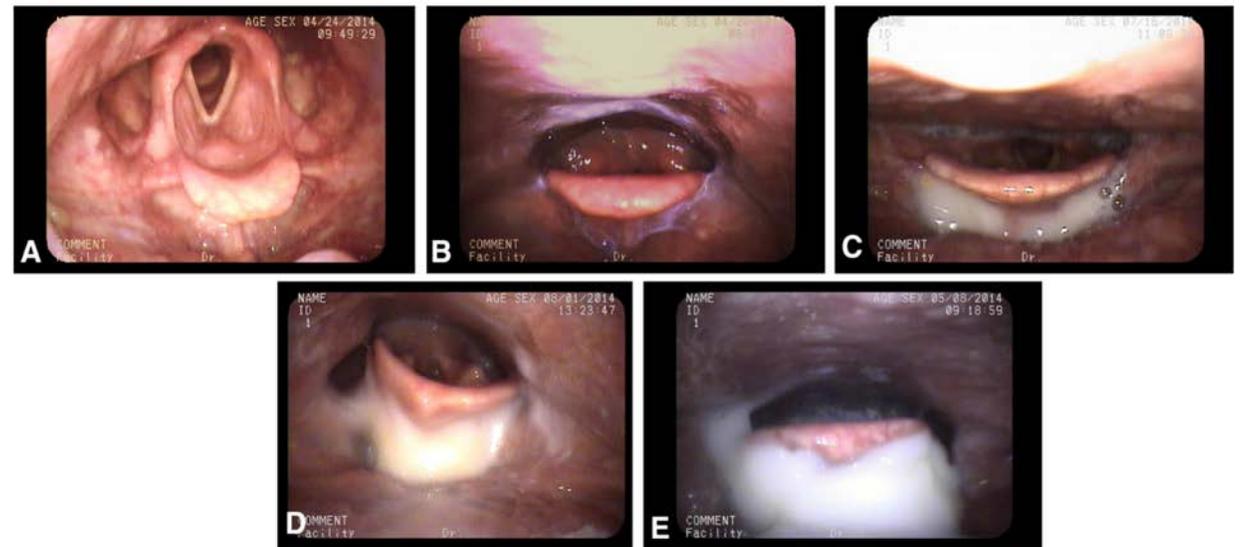


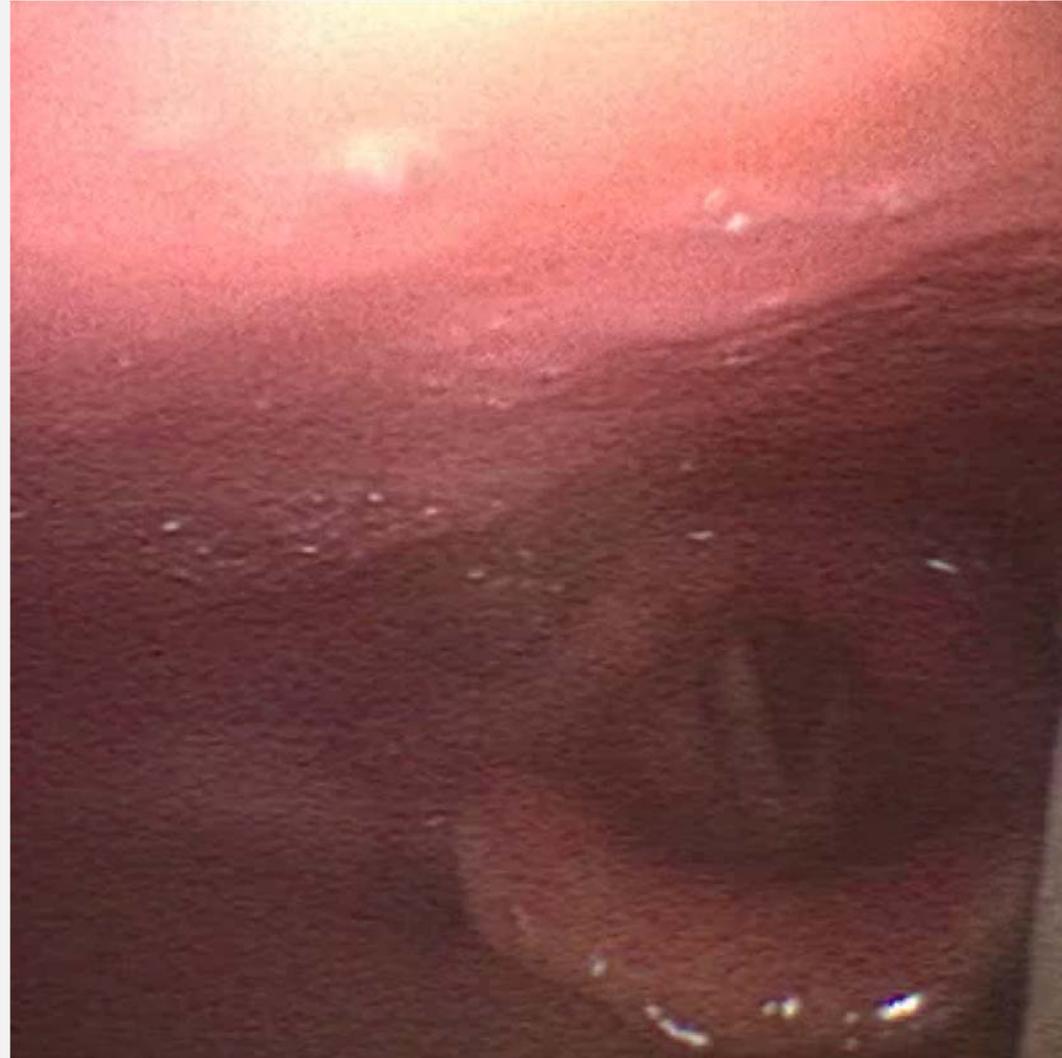
Fig. 1 The vallecula images with the greatest inter-rater agreement for each residue level: **a** none; **b** trace; **c** mild; **d** moderate; and **e** severe

Rosenbek JC, Robbins JA, Roecker EB, Coyle JL, Wood JL. A penetration-aspiration scale. *Dysphagia*. mars 1996;11(2):93-8.

Neubauer PD, Rademaker AW, Leder SB. The Yale Pharyngeal Residue Severity Rating Scale: An Anatomically Defined and Image-Based Tool. *Dysphagia*. oct 2015;30(5):521-8.

Nasofibroscopie

Exemple I



Nasofibroscopie

Exemple II



Exploration fonctionnelle de la déglutition par fibroscopie naso-pharyngée (NF)



COOPERATION ENTRE PROFESSIONNELS DE SANTE

Evaluation fonctionnelle de la déglutition par fibroscopie naso-pharyngée par un masseur-kinésithérapeute D.E en Secteur de Neuroréanimation
-Région Nouvelle Aquitaine-

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Evaluation fonctionnelle de la déglutition par fibroscopie naso-pharyngée par
un masseur-kinésithérapeute D.E en Secteur de Neuroréanimation
-Région Nouvelle Aquitaine-

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Synthèse

- Identifier les facteurs de risque → durée d'intubation
- Dépistage précoce → Évaluation Pre-extubation
- Évaluation Post-Extubation (GUSS-ICU)
- Test de Déglutition: -Installation
 - Humidification de la sphère ORL
 - Choisir la texture
- Identifier les mécanismes physiopathologiques
- Proposition du traitement
- Évaluation par nasofibroscopie si besoin

Études en cours concernant l'application de l'échographie comme méthode d'évaluation de la déglutition:

- *Protocole DARC VADOC (Carlos Díaz – Hôpital Forcilles): Objectif de construire un score échographique pour le diagnostic de TD. Patients qui consultent en hôpital de jour pour suspicion de TD et qui subissent un examen échographique, une fibroscopie et une vidéofluoroscopie (en aveugle). Chaque mesure échographique a été comparée à la présence ou à l'absence d'un trouble pour retenir les variables échographiques les plus associées et les pondérer dans un score.*

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- *Protocole EIDAR (Jose A. Pineda – CHU Dijon): Évaluer la performance diagnostique des paramètres échographiques avant extubation afin d'identifier les patients à risque de TD après extubation. La présence ou pas de TD sera diagnostiqué avec la réalisation d'une nasofibroscopie 24h-36h après extubation.*

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MERCI POUR VOTRE ATTENTION