Physiologie de la déglutition

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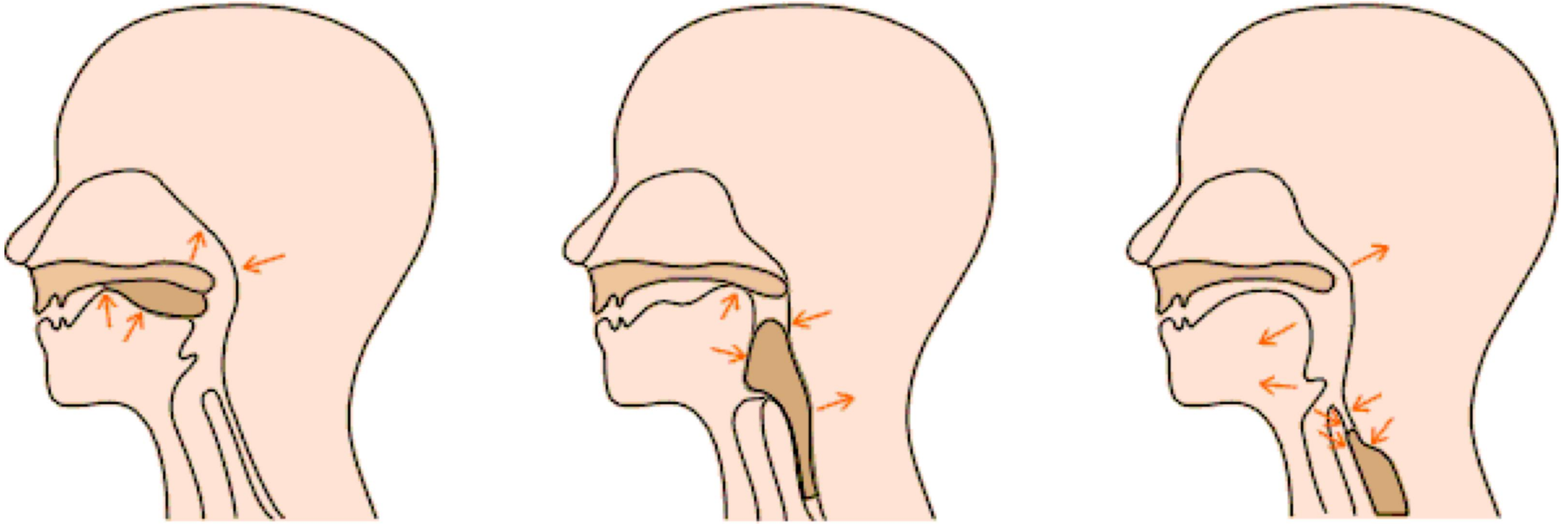
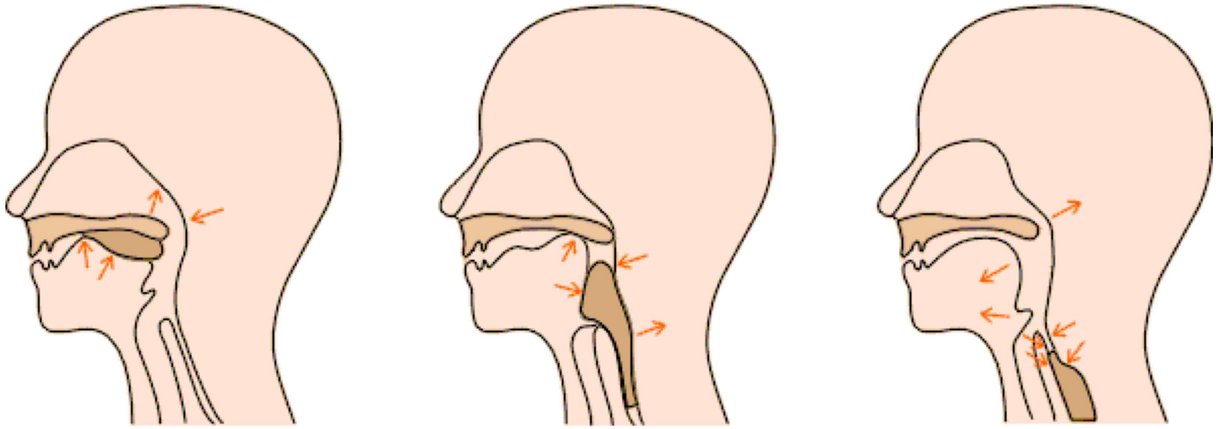
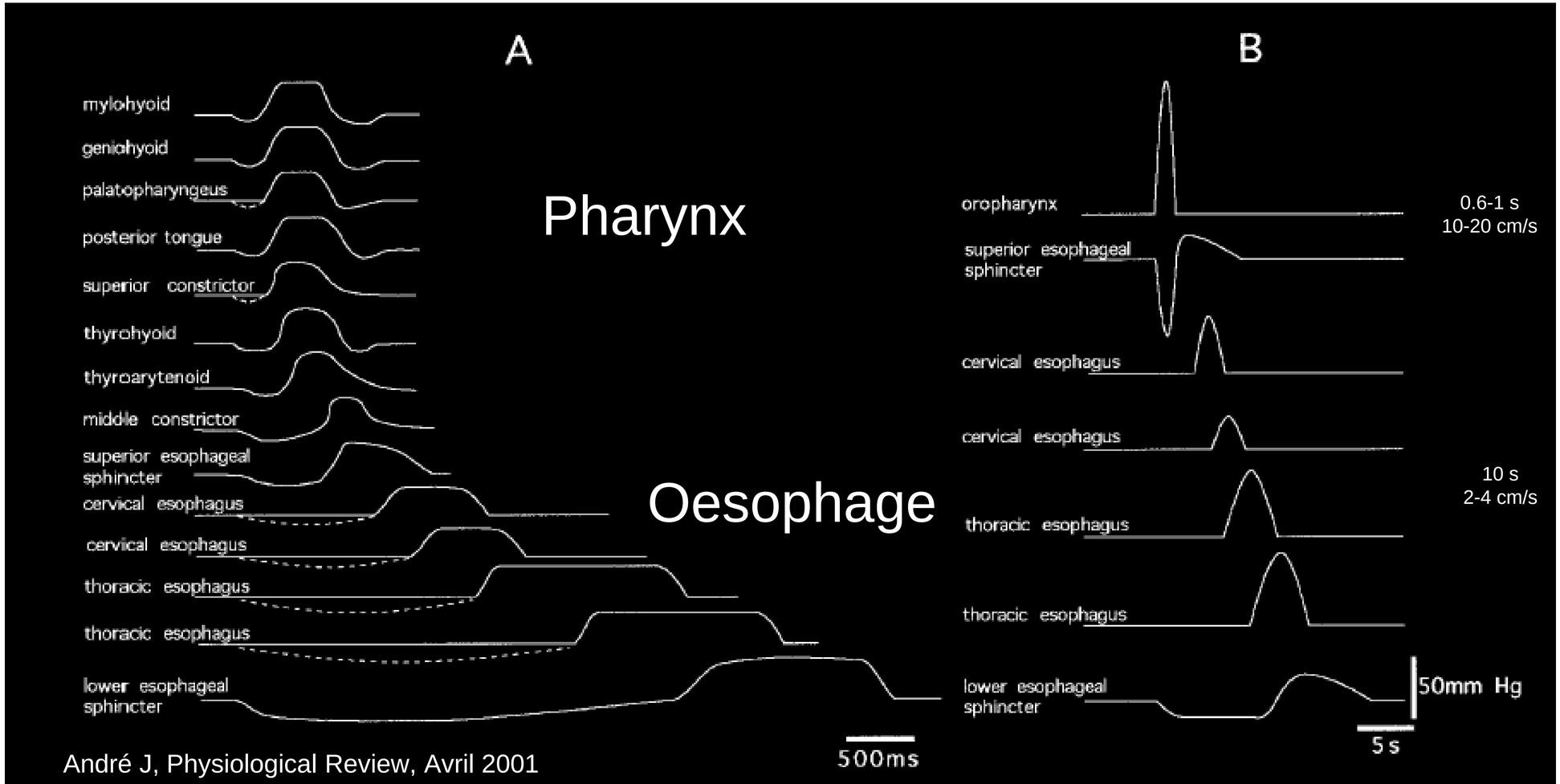
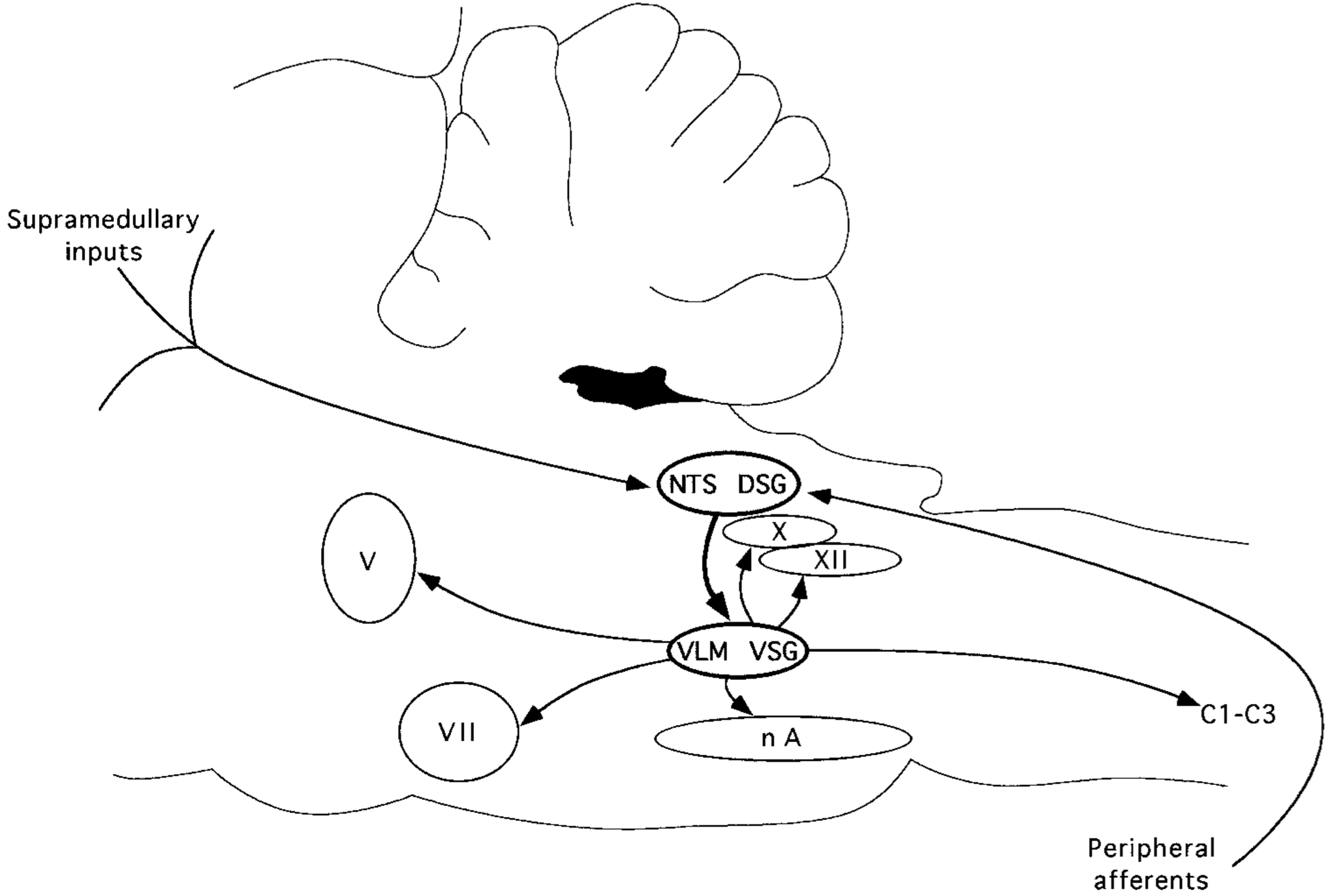
CHU de ROUEN Physio Digestive
70 kVp
0,53 mA
18
0
58,88 mGycm2
OEC



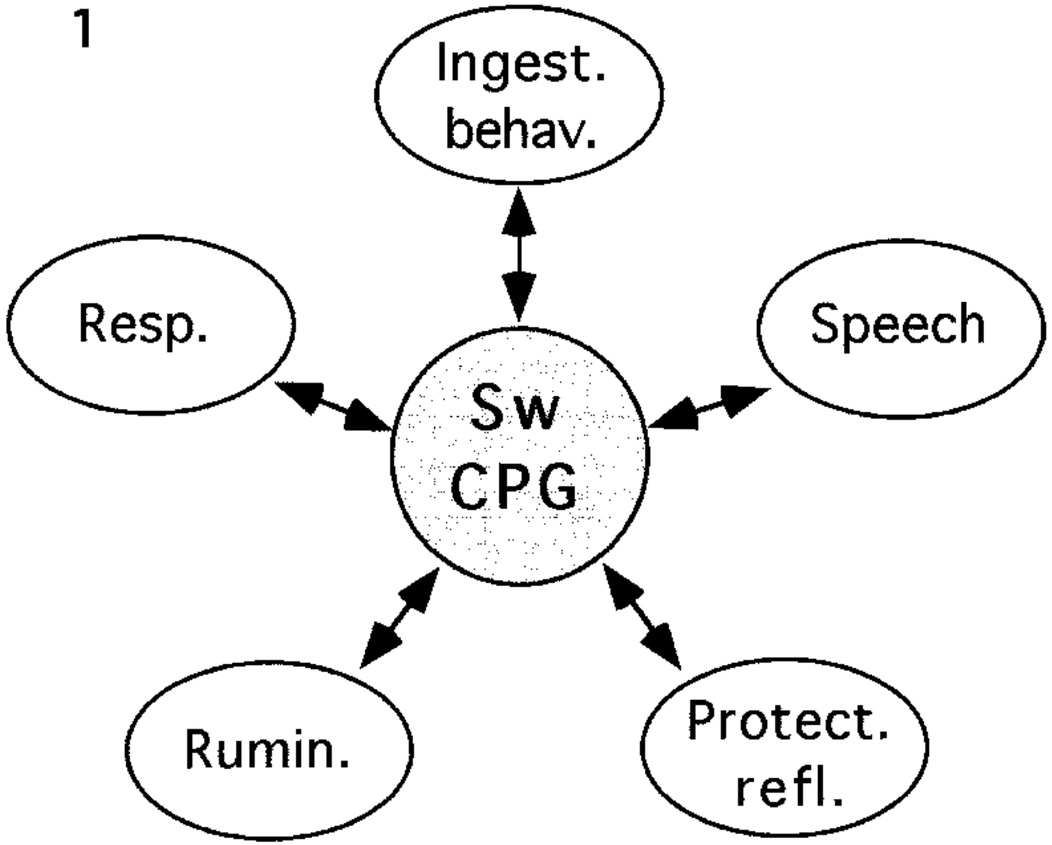




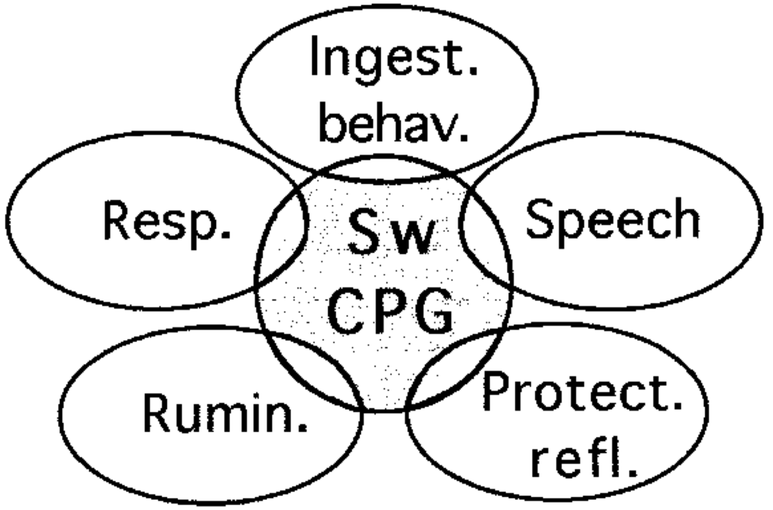
André J, Physiological Review, Avril 2001

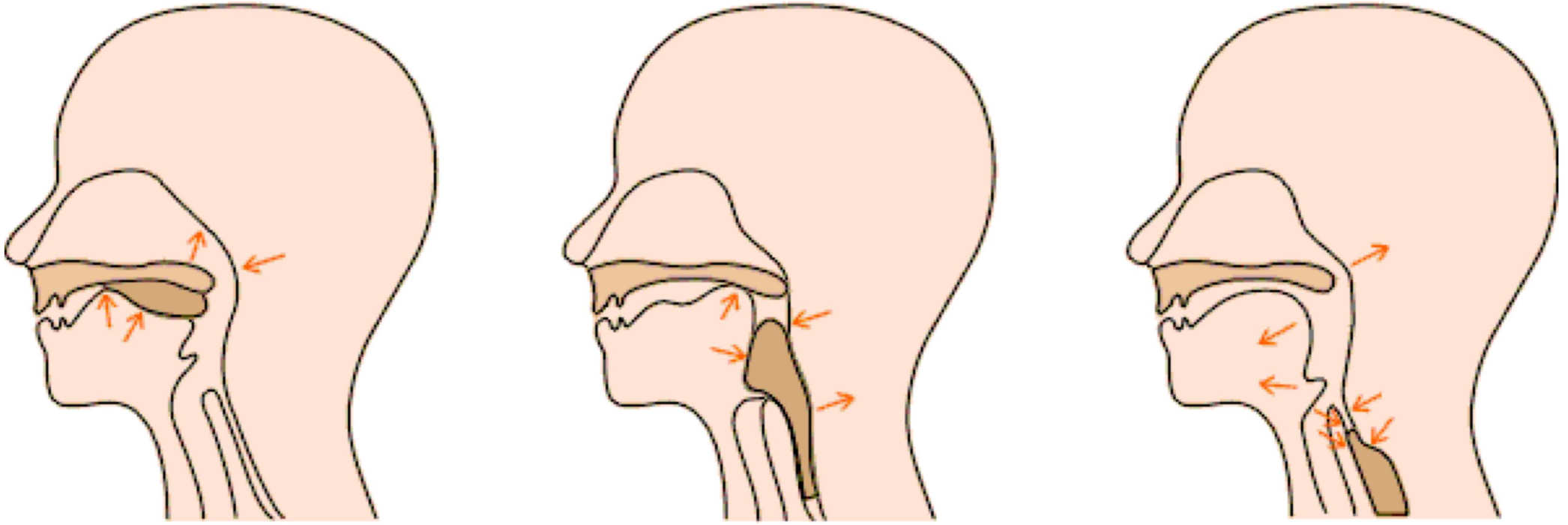

Supramedullary
inputs
NTS DSG
X
XII
V
VLM VSG
VII
n A
C1-C3
Peripheral
afferents

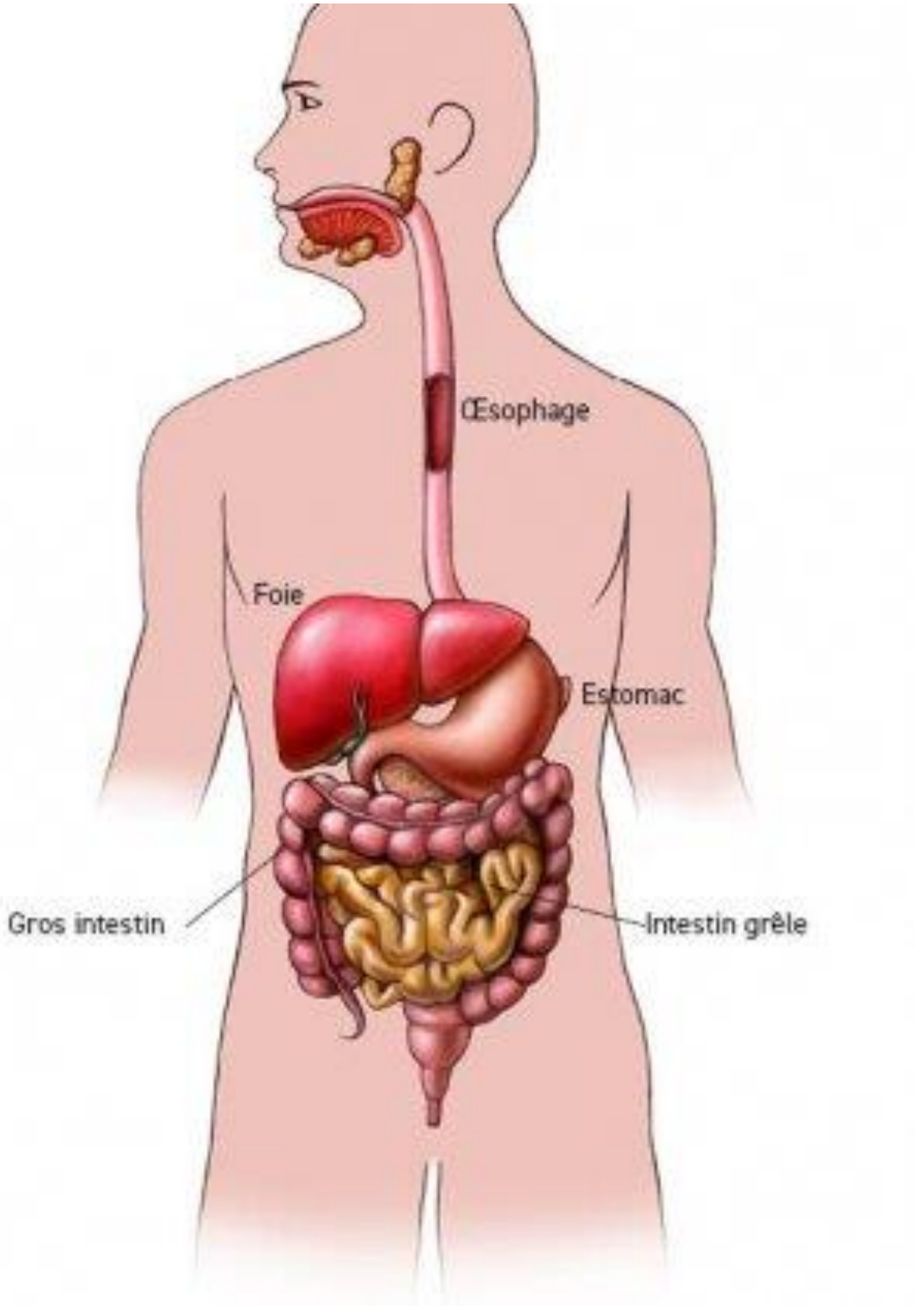
1


Ingest.
behav.
Resp.
Speech
Sw
CPG
Rumin.
Protect.
refl.

2


Ingest.
behav.
Resp.
Speech
Sw
CPG
Rumin.
Protect.
refl.

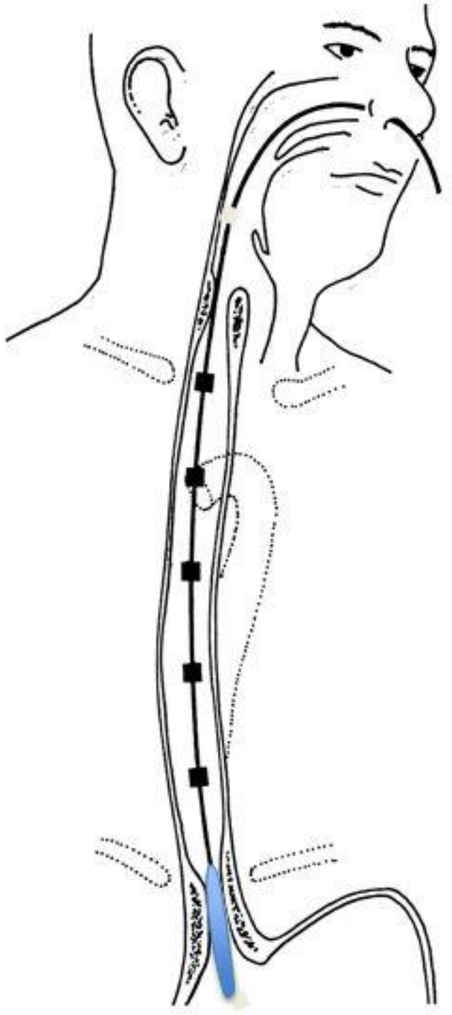


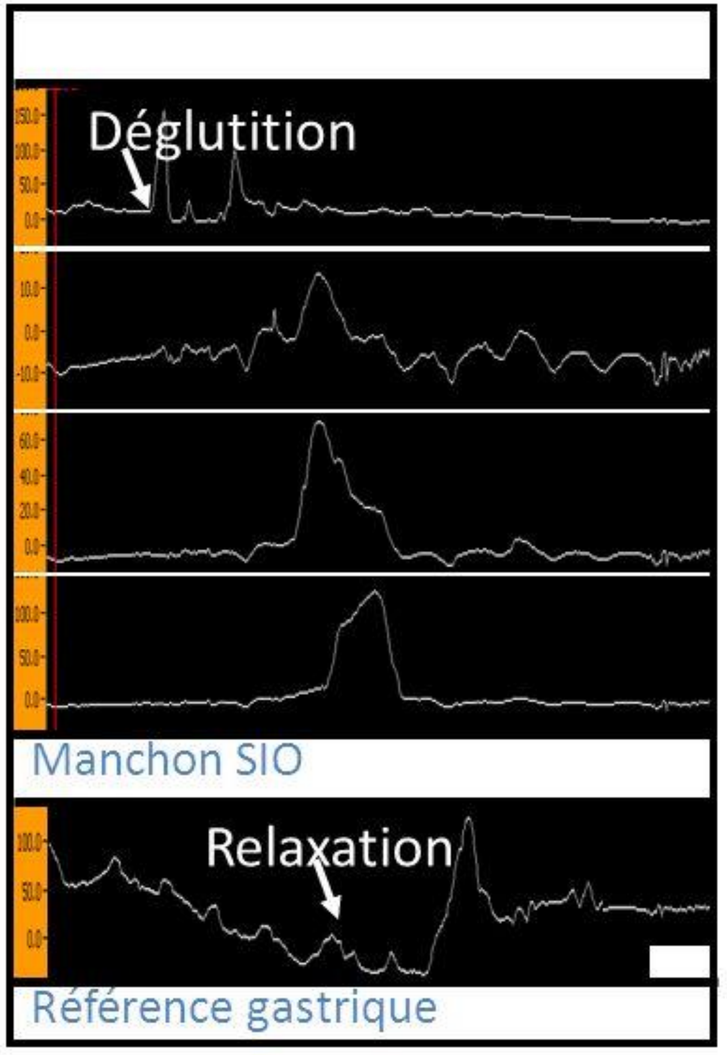

Œsophage
Foie
Estomac
Gros intestin
Intestin grêle

Manométrie oesophagienne

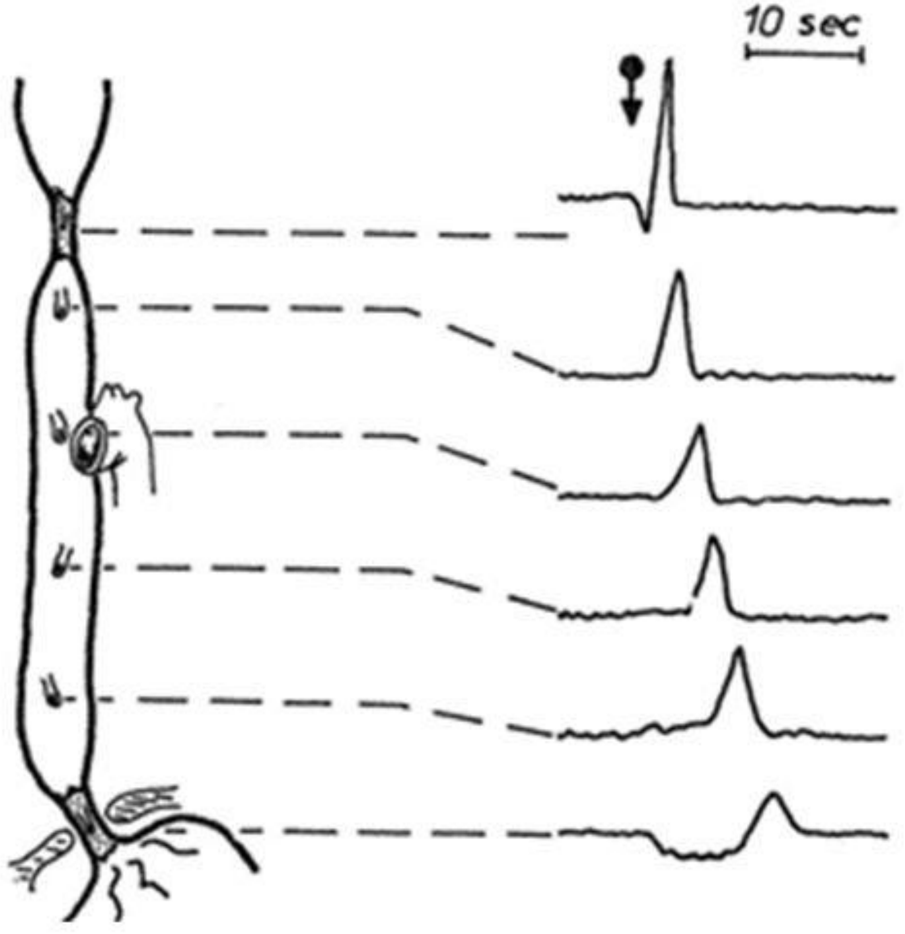
Pharynx
(Déglutition)
SSO

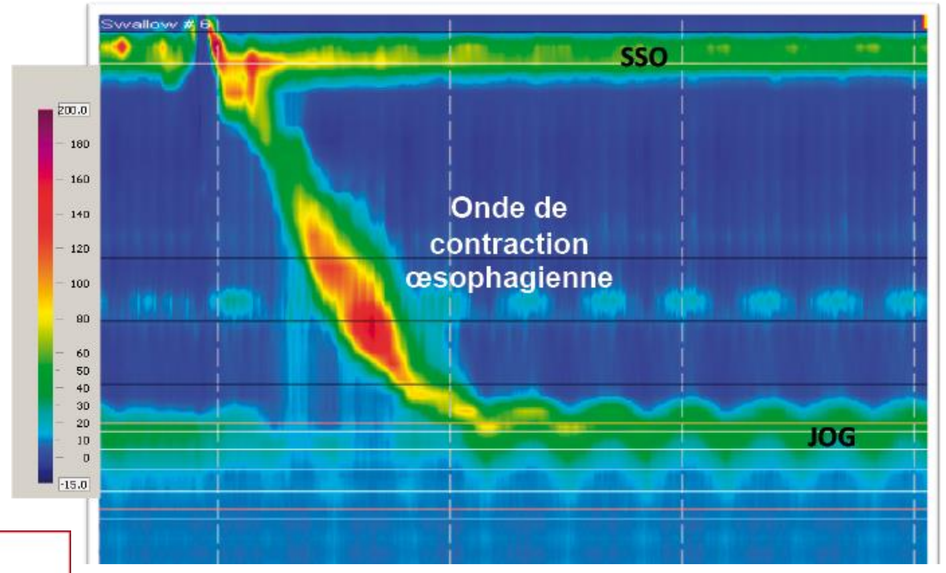
SIO
Gastrique
(Référence)

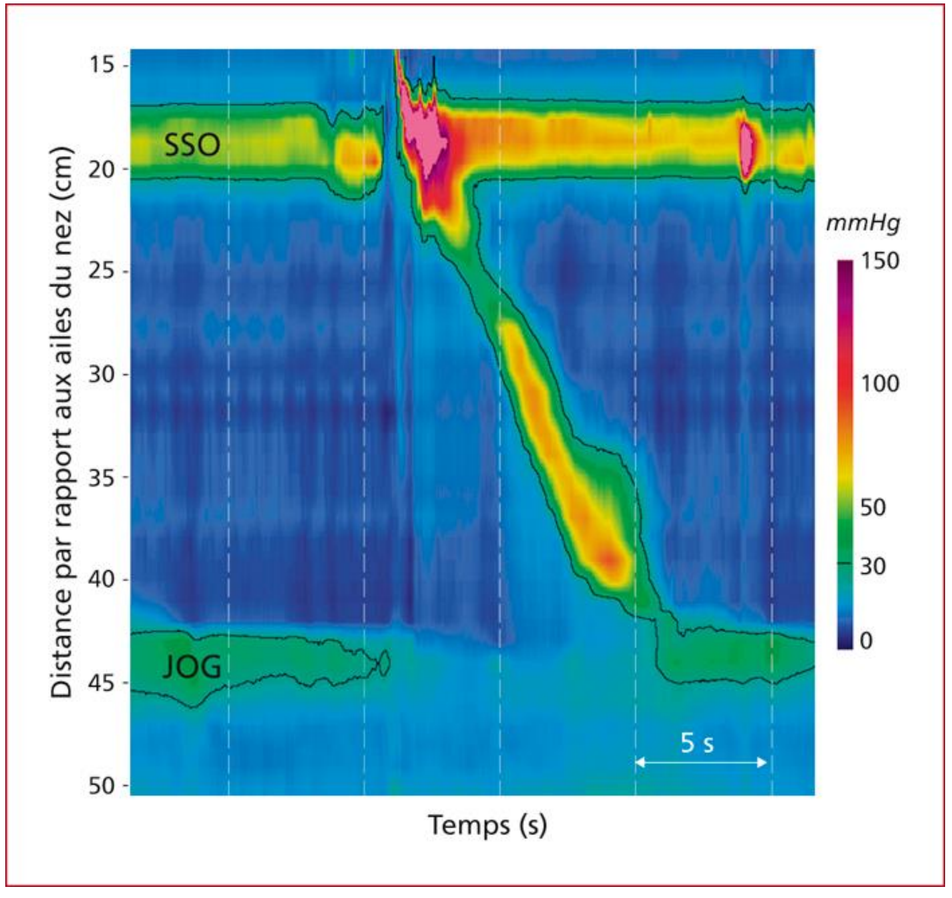


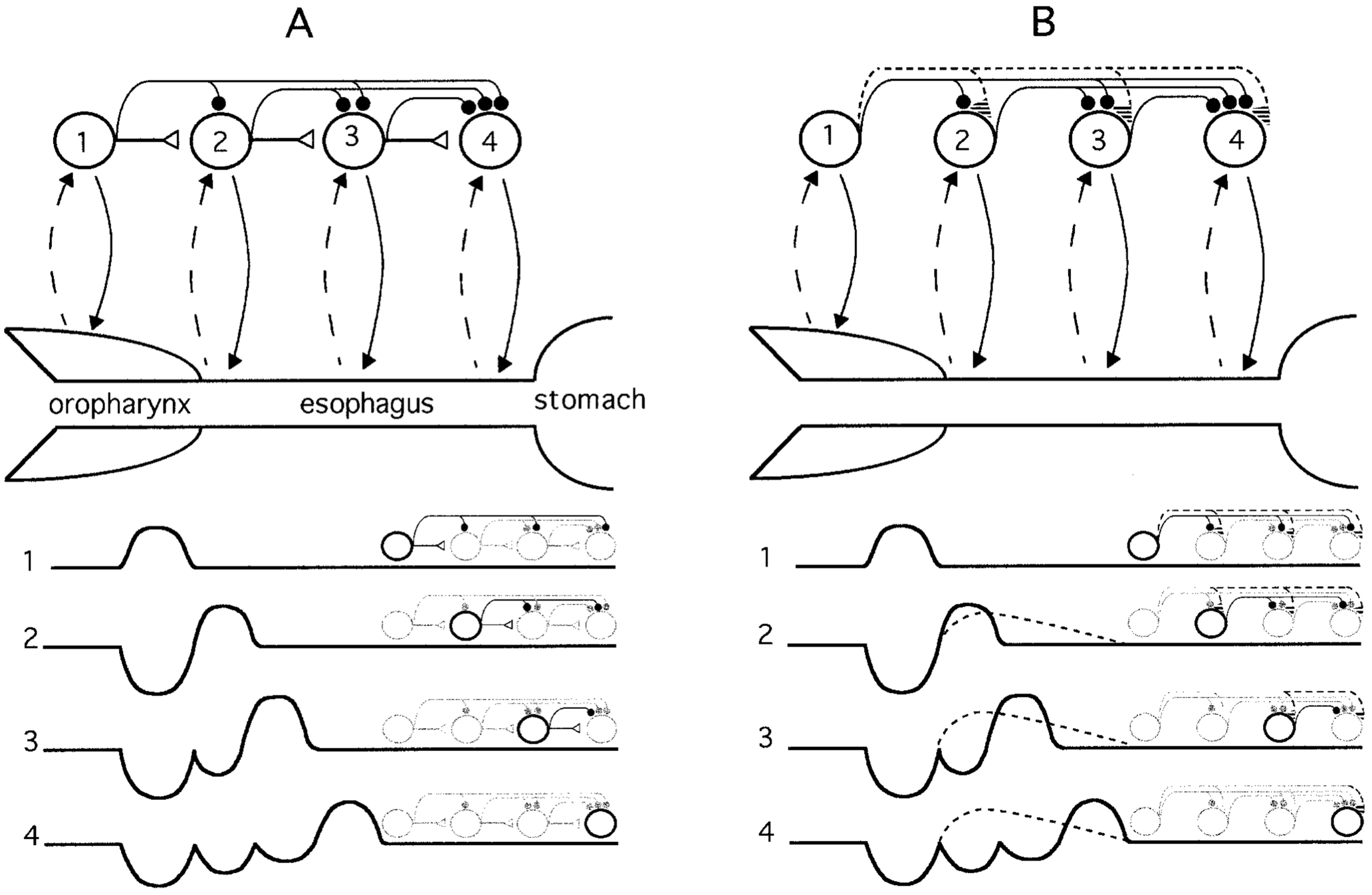


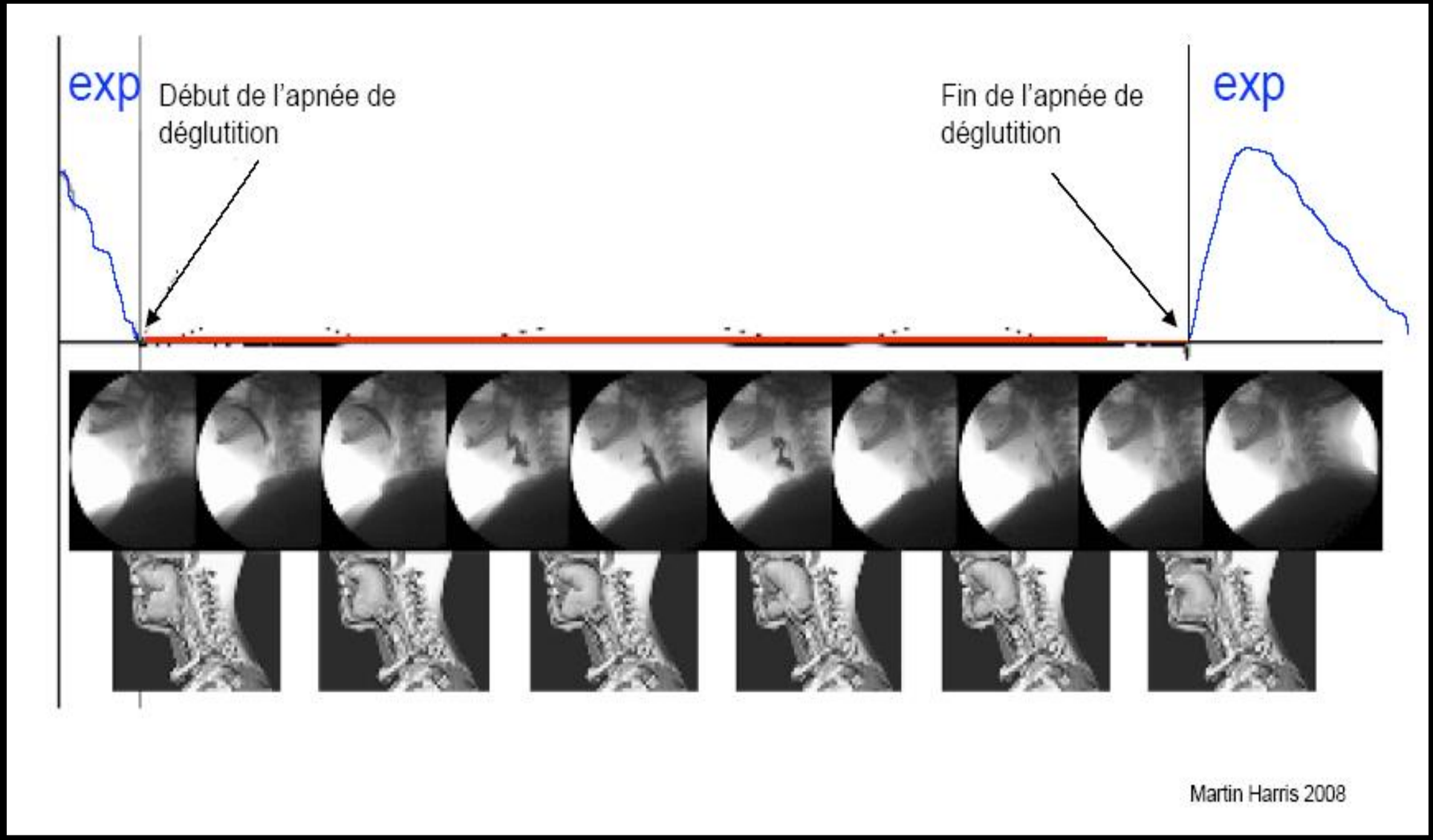
Manométrie œsophagienne normale




SSO
Onde de
contraction
œsophagienne
JOG


15
20
25
30
35
40
45
50
SSO
JOG
Distance par rapport aux ailes du nez (cm)
5 s
Temps (s)
mmHg
150
100
50
30
0


A
B
1
2
3
4
oropharynx
esophagus
stomach
1
2
3
4
1
2
3
4


exp
Début de l'apnée de déglutition
Fin de l'apnée de déglutition
exp
Martin Harris 2008

Hypercapnia Enhances the Development of Coughing during Continuous Infusion of Water into the Pharynx

TAKASHI NISHINO, RISA HASEGAWA, TOHRU IDE, and SHIRO ISONO

Department of Anesthesiology, School of Medicine Chiba University, Chiba, Japan

AM J RESPIR CRIT CARE MED 1998;157:815–821.

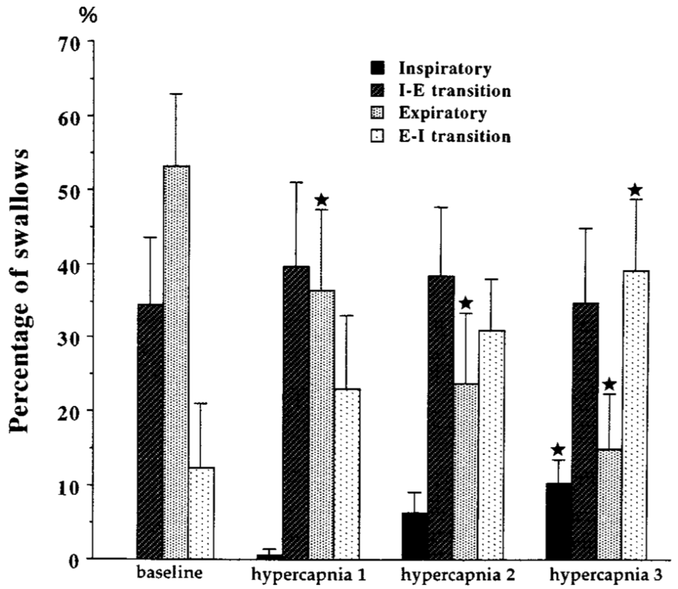


Figure 3. Timing of swallows in relation to the phase of the respiratory cycle during continuous infusion of water. Percentage of swallows coinciding with each phase of the respiratory cycle was calculated for individual subjects; the values shown are mean ± SEM of these percentages for each type of swallow.

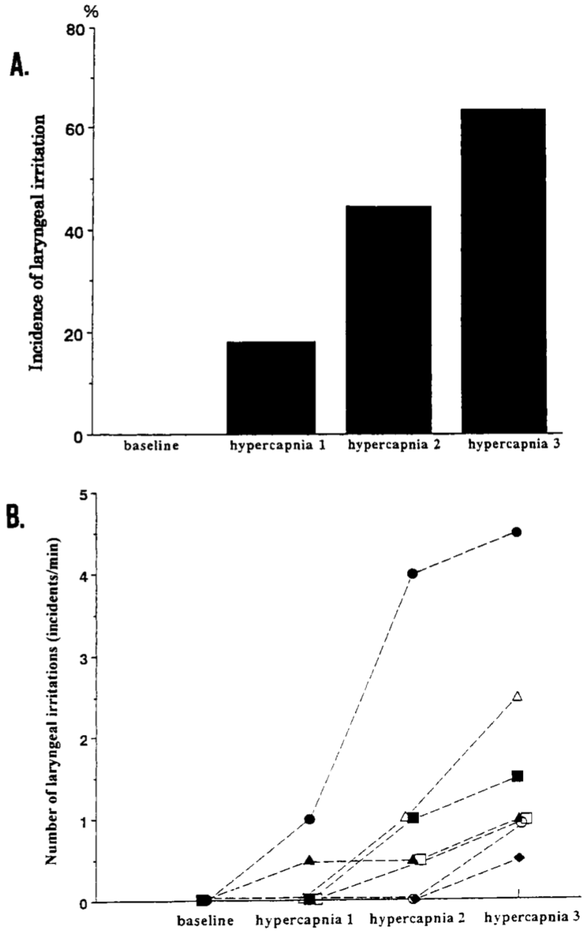
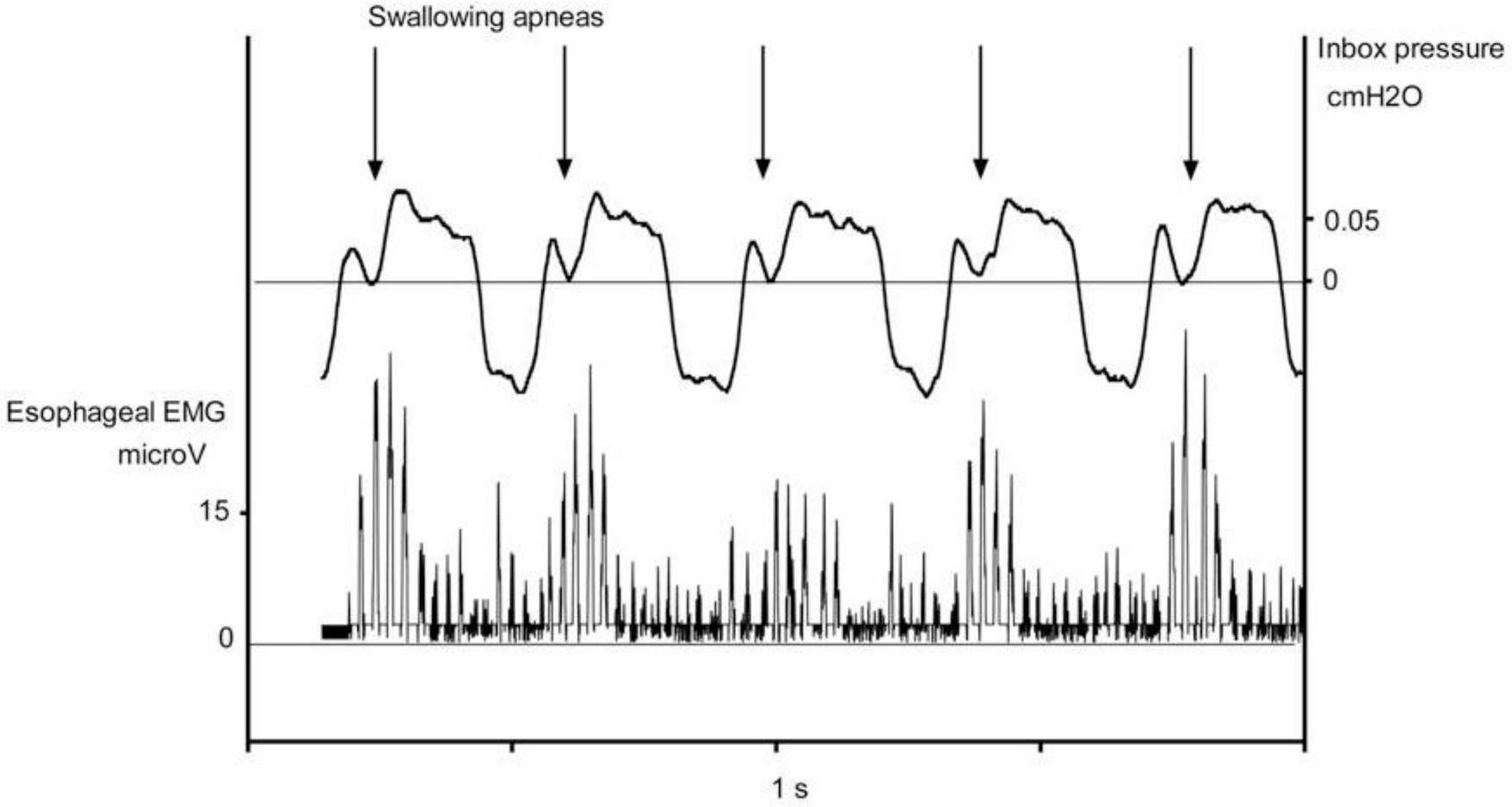


Figure 4. Incidence of laryngeal irritation during continuous infusion of water at different levels of $P_{ET_{CO_2}}$. (*A*) Occurrence of laryngeal irritation during continuous infusion of water (% of subjects). (*B*) Data for individual subjects on the frequency of laryngeal irritations. Individual subjects are represented by different symbols.

Baby bottle



Ouahchi Y, Bon-Mardion N, Marie JP, Verin E. Involvement of the aero-digestive tract in swallowing-ventilation coordination: an animal study. Neurogastroenterol Motil. 2011;23(3):e136-40.

Pharyngeal sensitivity implicated

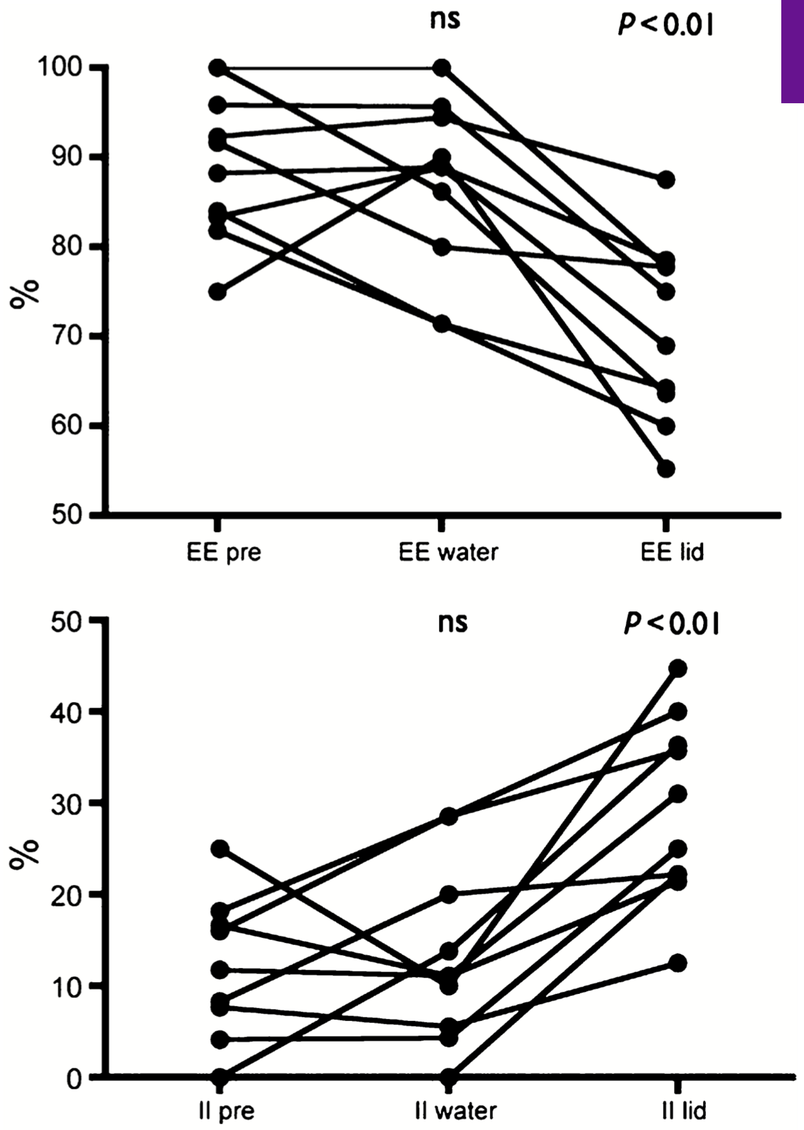
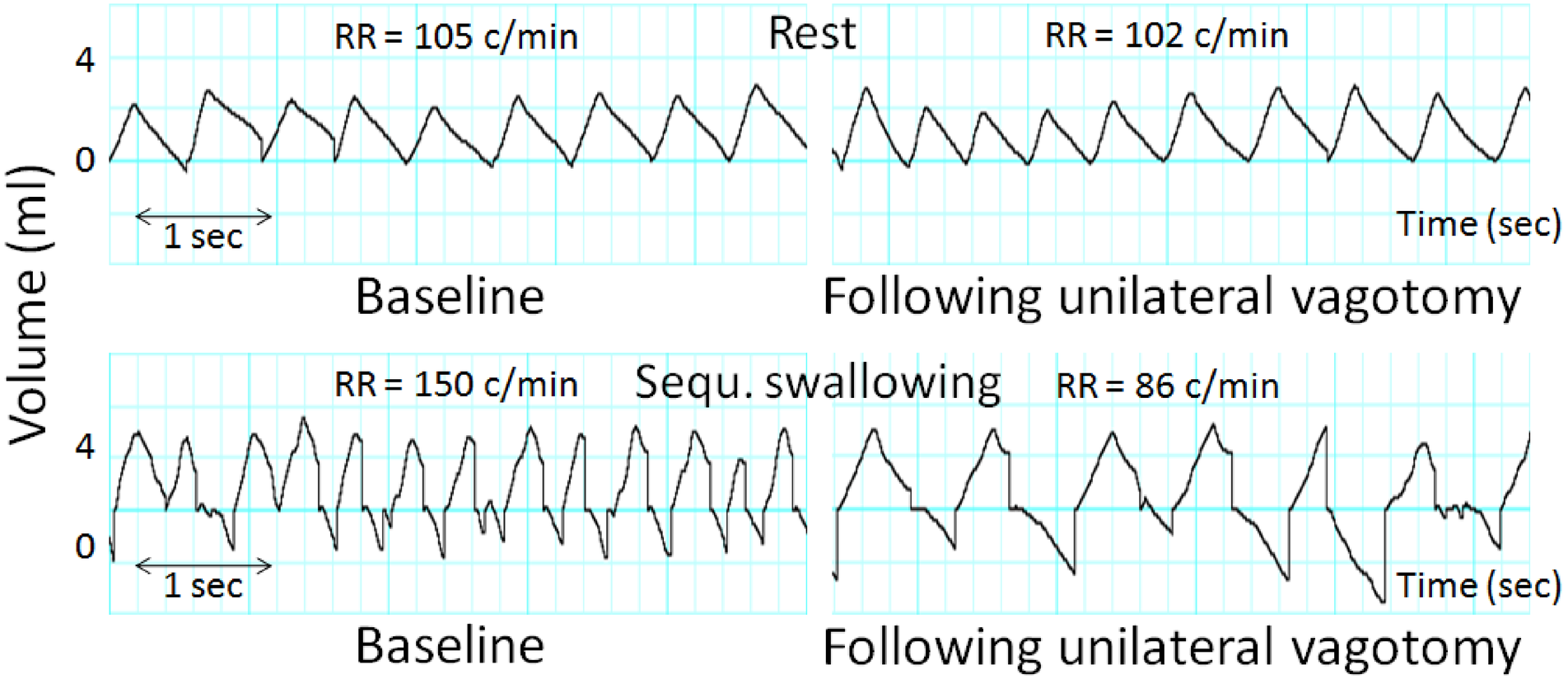


Figure 2 Coordination of swallowing with ventilation. The percentage of swallowing during expiration was lower after lidocaine intake (lid) than in healthy animals (pre) or after water intake (water) (top). The percentage of swallowing during inspiration (bottom) was lower after lidocaine intake than in healthy animals and after water. Each point represents one animal.

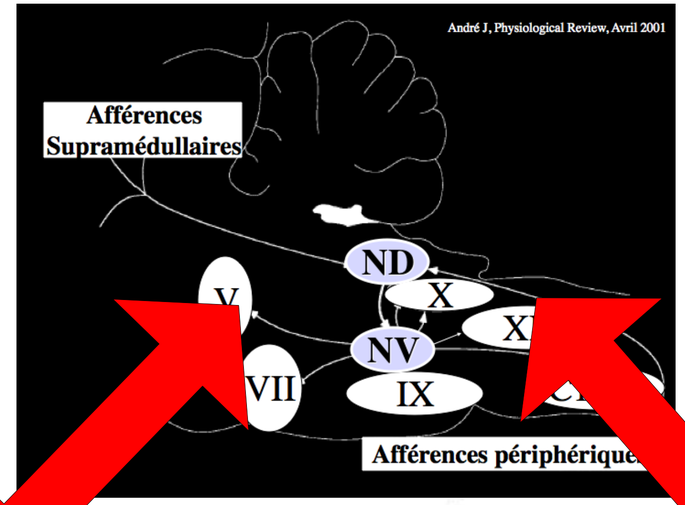
Ouahchi Y, Letelier C, Bon-Mardion N, Marie JP, Tardif C, Verin E. Effects of chronic aspirations on breathing pattern and ventilatory drive in vagatomized rats. Respir Physiol Neurobiol. 2011;176(3):98-102.

Mediated by the vagus nerve

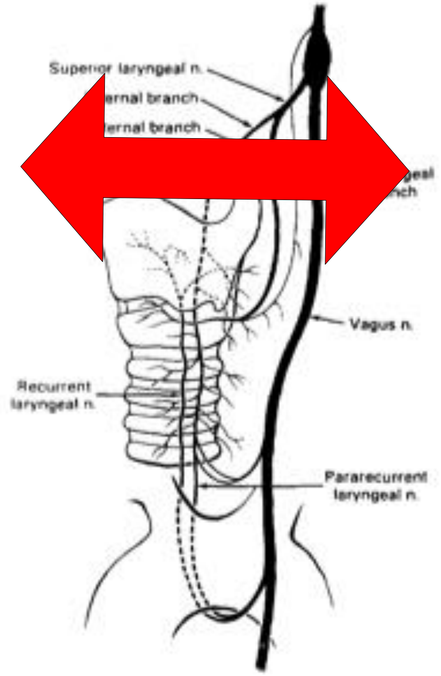


Ouahchi Y, Duclos C, Marie JP, Verin E. Implication of the vagus nerve in breathing pattern during sequential swallowing in rats. Physiol Behav. 2017;179:434-41.

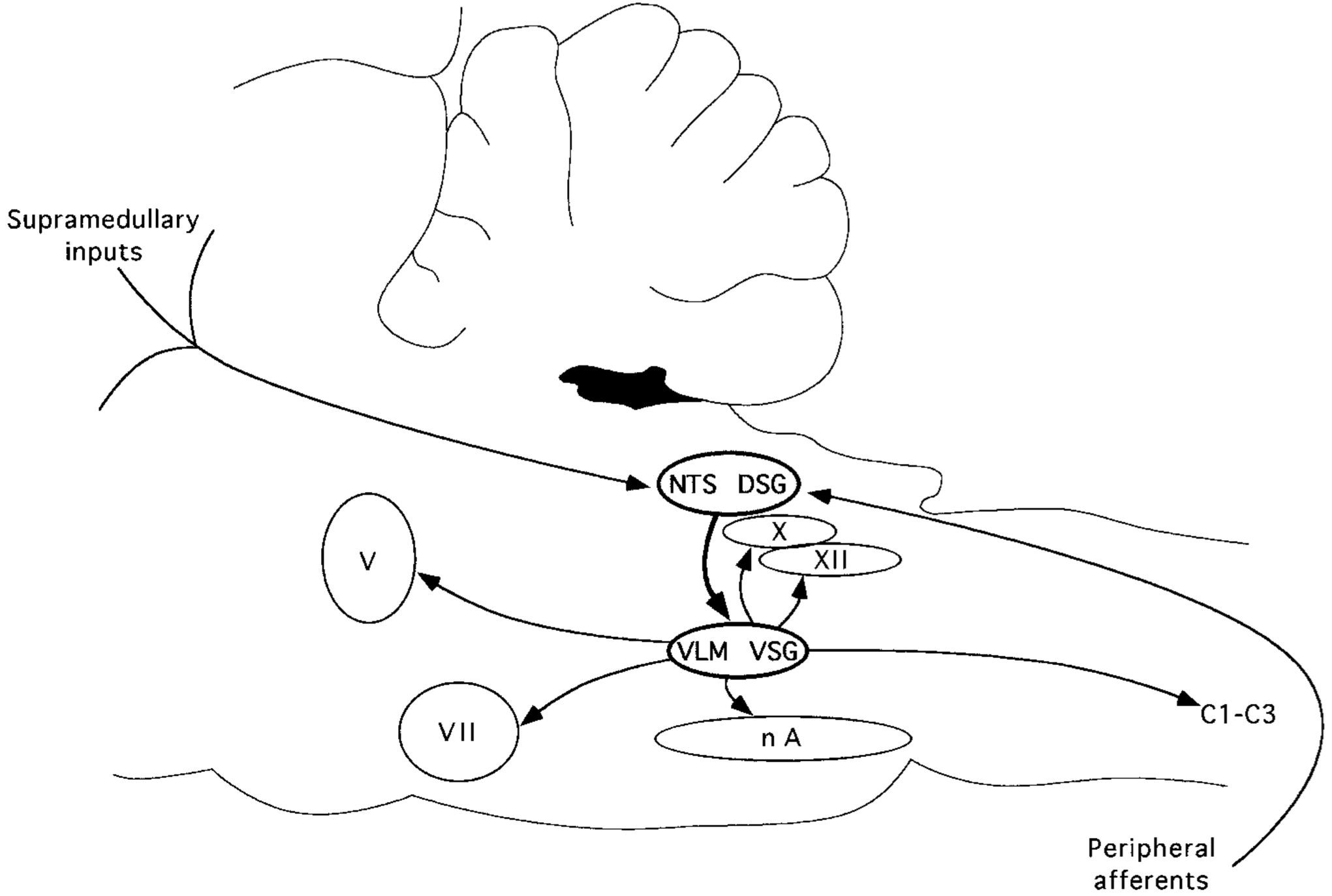
Cortex



Swallowing



Ventilation


Supramedullary
inputs
NTS DSG
X
XII
V
VLM VSG
VII
n A
C1-C3
Peripheral
afferents

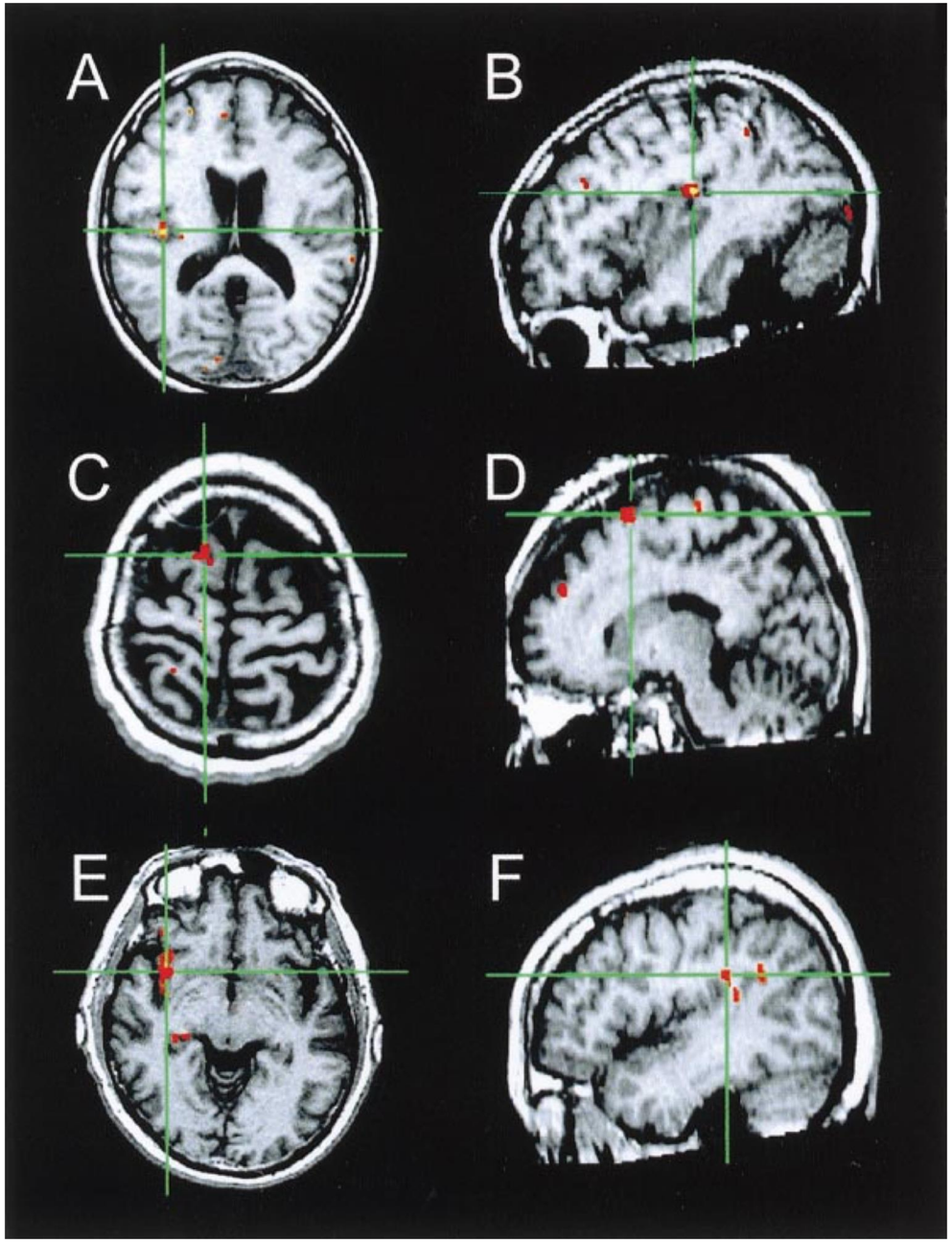
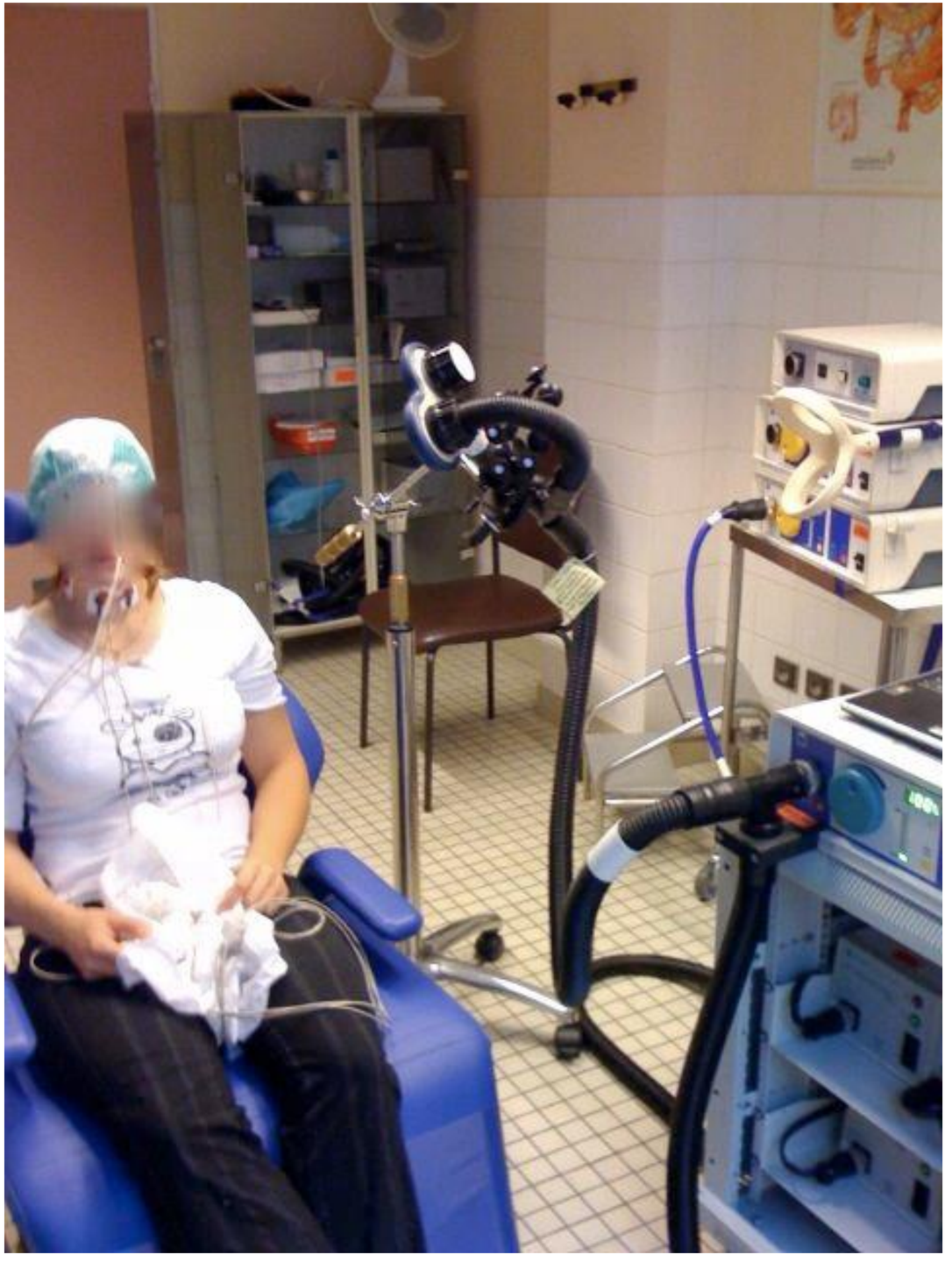
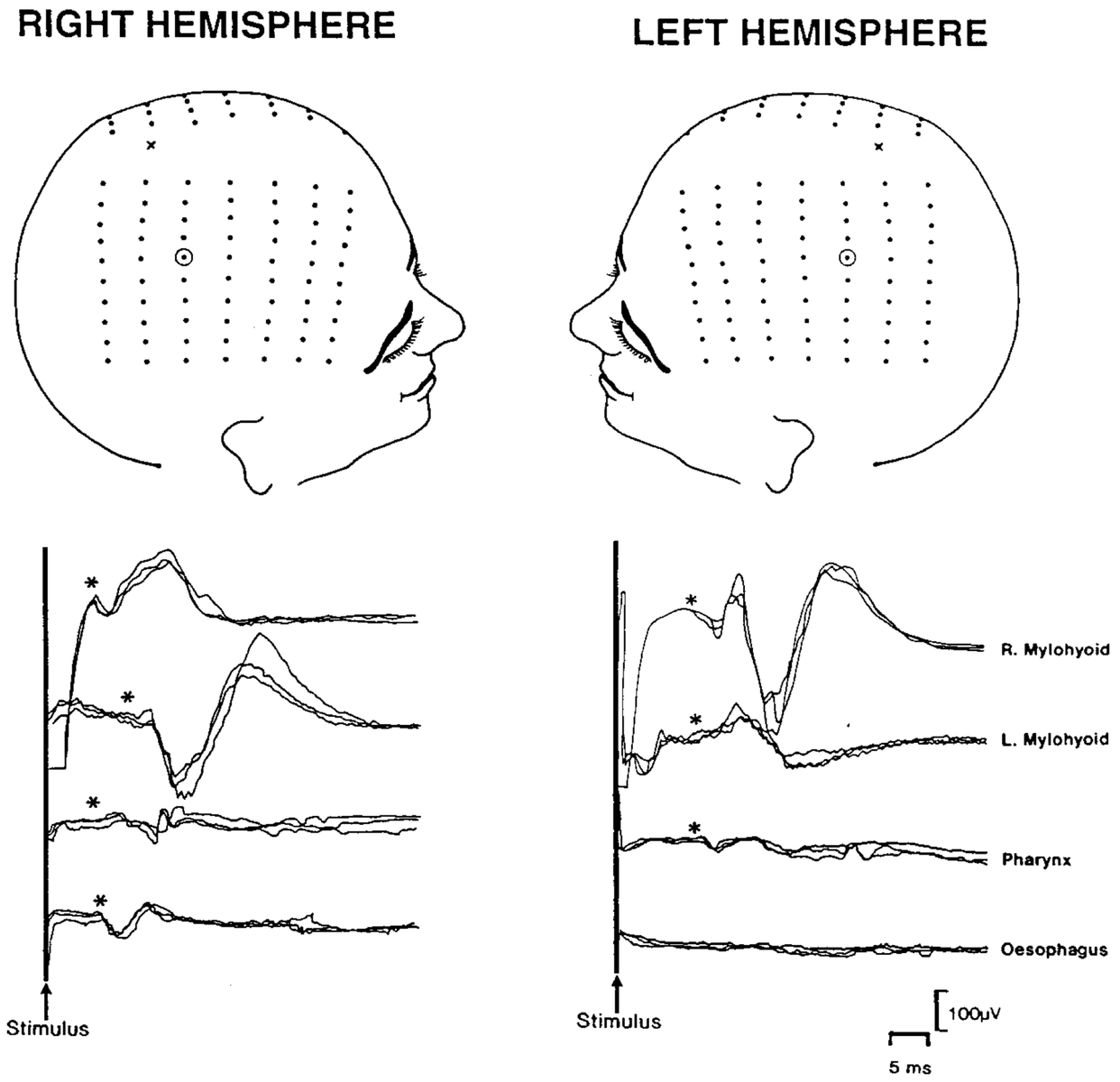


Fig. 2. Cortical activation patterns in 1 subject, shown as a series of magnetic resonance imaging (MRI) orthogonal planes (*A*–*F*). Activations shown include right caudolateral pericentral gyri (somatosensory cortex, Brodmann's areas 2, 3; *A* and *B*), bilateral (right > left) middle and superior frontal gyri (premotor cortex, Brodmann's areas 6, 8; *C* and *D*), right anterior insula cortex (*E*), and right caudolateral posterior parietal cortex/precuneus (Brodmann's areas 7, 39; *F*).

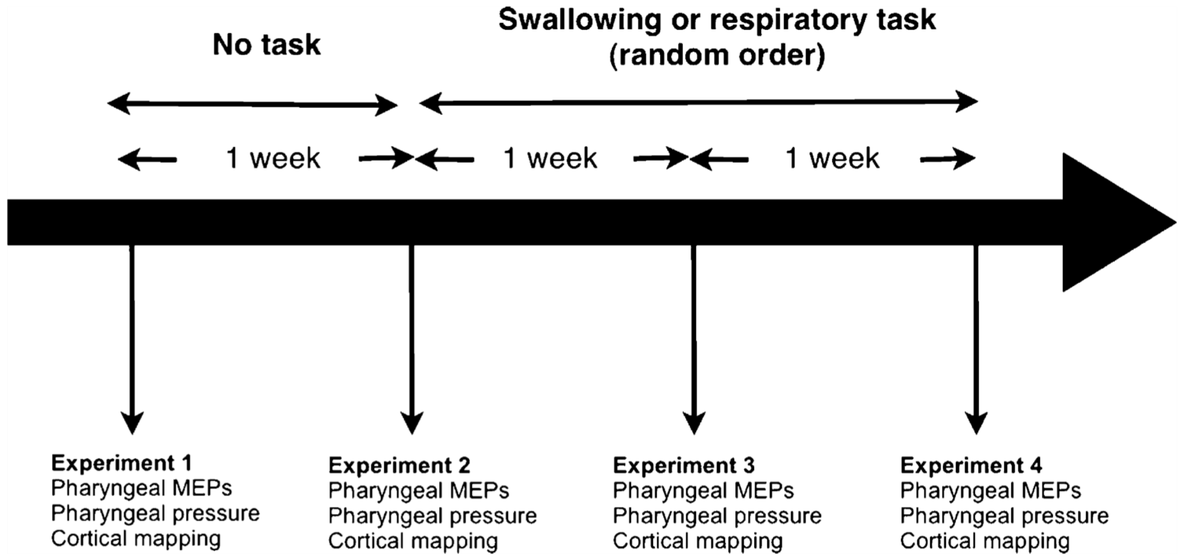


Il existe un hémisphère dominant pour la déglutition



Hamdy S, Aziz Q, Rothwell JC, Singh KD, Barlow J, Hughes DG, et al. The cortical topography of human swallowing musculature in health and disease. Nat Med. 1996;2(11):1217-24.

Plasticité corticale pharyngée



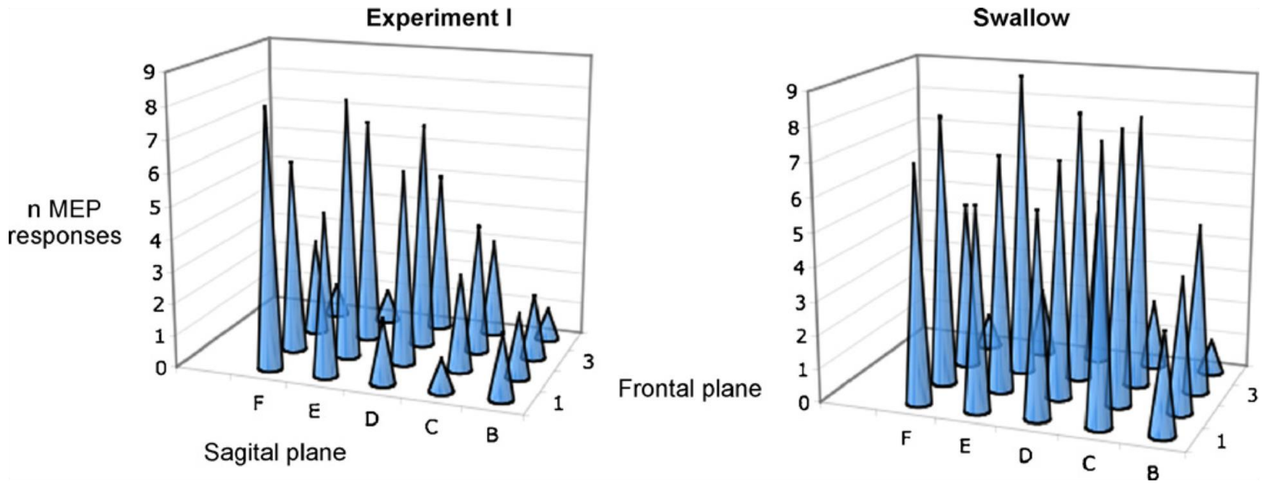
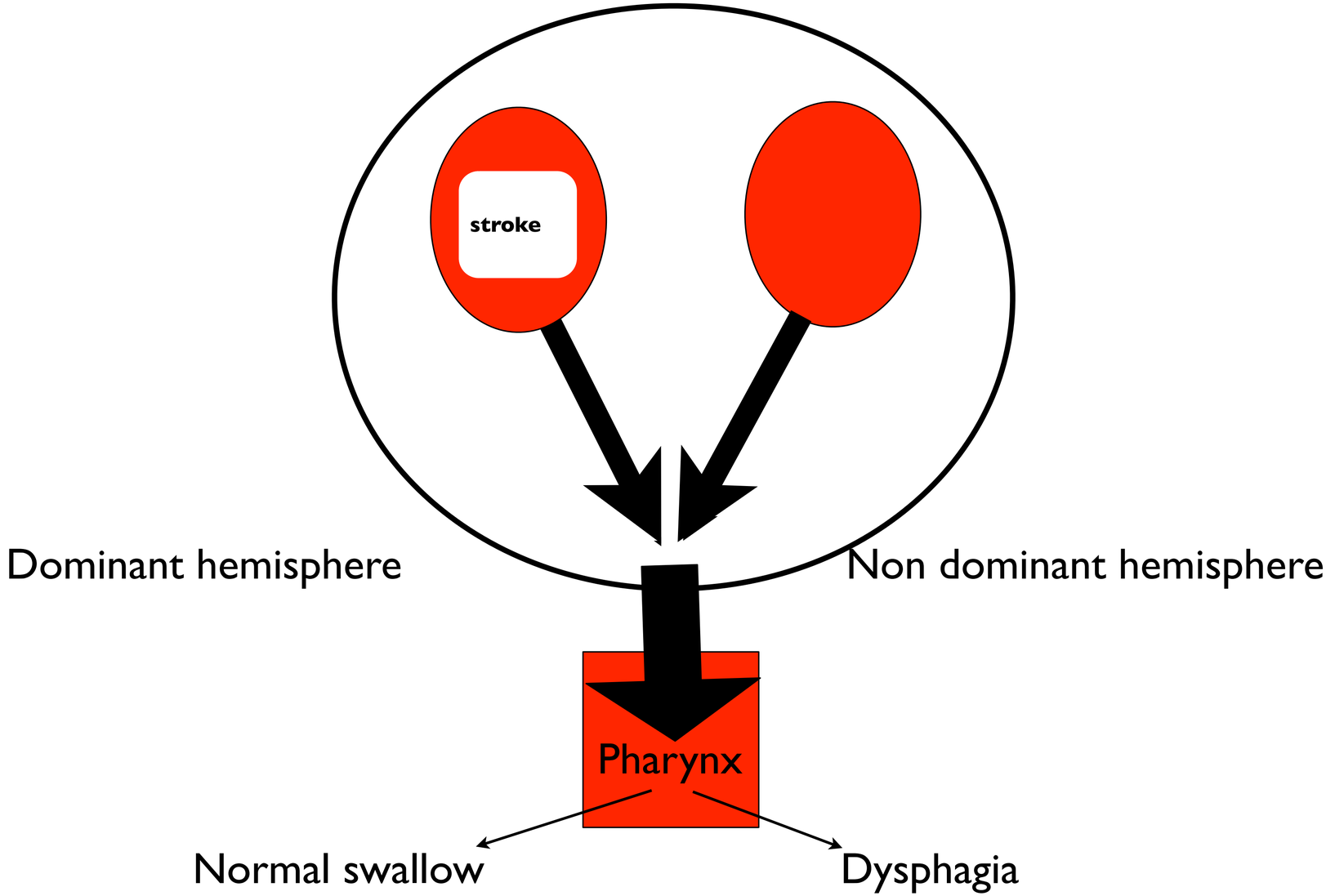
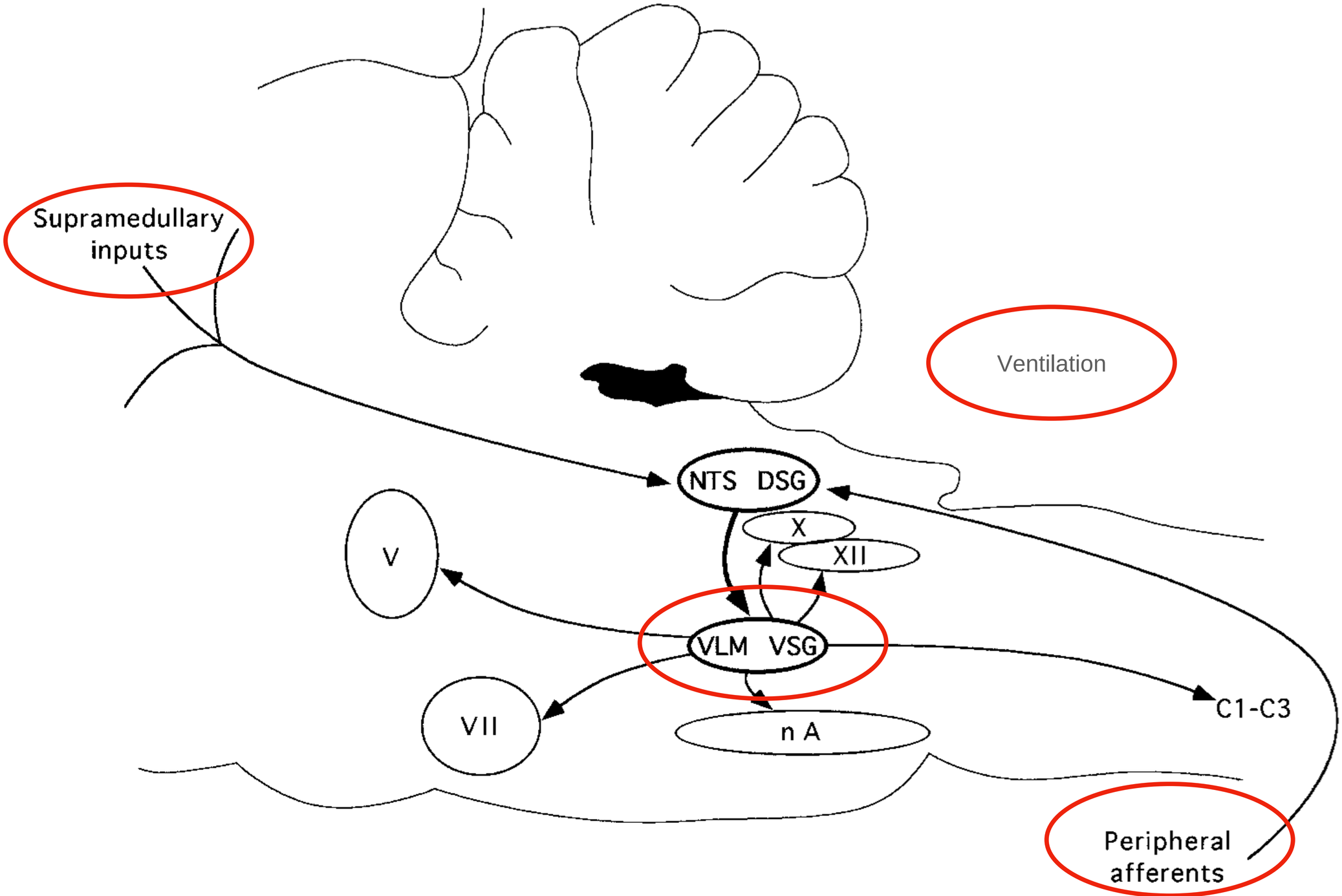


Fig. 3. The focal stimulations made it possible to record MEPs and map the mylohyoid area. The cortical representation (left) is shown before and after the swallowing task (right). The *n* sites correspond to the *n* points where mylohyoid MEPs were evoked. The letters correspond to the sagittal plane and the numbers to the frontal plane.

Gallas, S., J. P. Marie, et al. (2009). "Impact of swallowing and ventilation on oropharyngeal cortical representation." Respir Physiol Neurobiol **167**(2): 208-213.



Hamdy, S., Q. Aziz, J. C. Rothwell, R. Crone, D. Hughes, R. C. Tallis and D. G. Thompson (1997). "Explaining oropharyngeal dysphagia after unilateral hemispheric stroke." Lancet 350(9079): 686-92.
Hamdy, S., Q. Aziz, J. C. Rothwell, M. Power, K. D. Singh, D. A. Nicholson, R. C. Tallis and D. G. Thompson (1998). "Recovery of swallowing after dysphagic stroke relates to functional reorganization in the intact motor cortex." Gastroenterology 115(5): 1104-12.
Hamdy, S., Q. Aziz, J. C. Rothwell, K. D. Singh, J. Barlow, D. G. Hughes, R. C. Tallis and D. G. Thompson (1996). "The cortical topography of human swallowing musculature in health and disease." Nat Med 2(11): 1217-24.


Supramedullary inputs
Ventilation
NTS DSG
X
XII
V
VLM VSG
VII
n A
C1-C3
Peripheral afferents