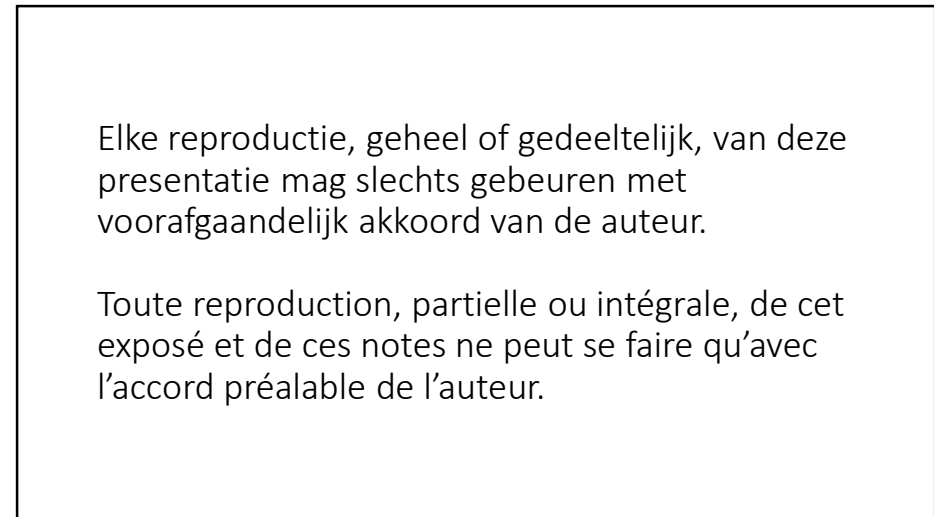
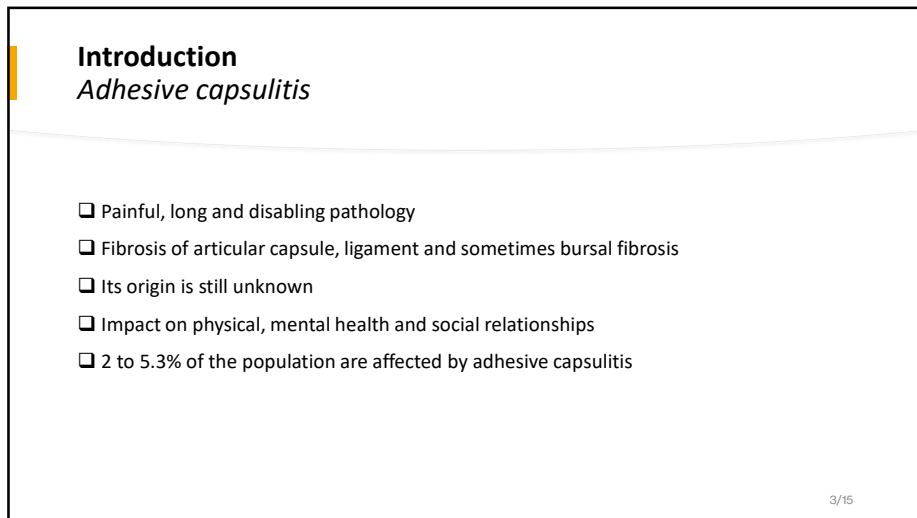




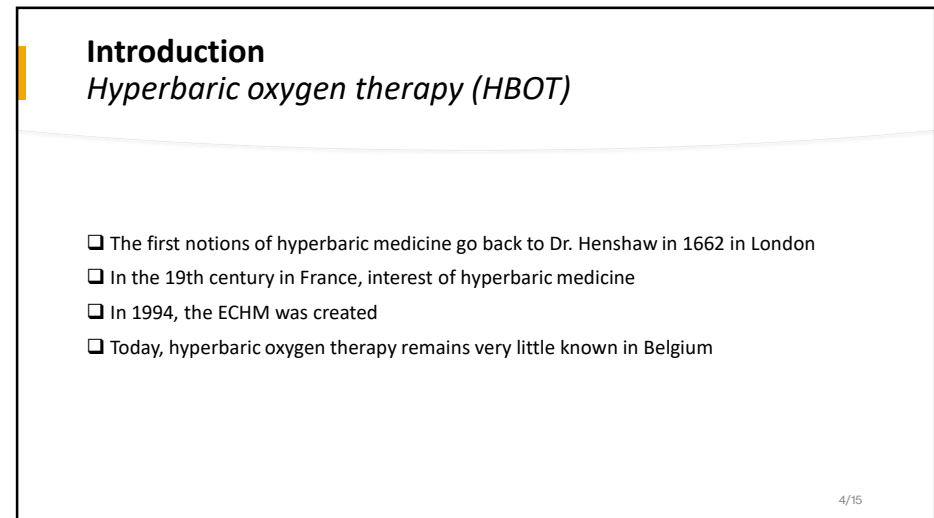
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Introduction

Hyperbaric oxygen therapy (HBOT)



Figure 1: Hyperbaric chamber Military Hospital Neder-over-Heembeek

Hyperbaric chamber creating pressurized environment



Figure 2: Hyperbaric chamber interior

Oxygen administration

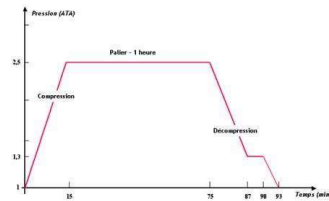


Figure 3: Graph of the sequence of a HBOT session

The 3 successive phases of HBOT

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Introduction

Biochemical principles

- ☐ Increased plasma oxygen content in the blood
- ☐ Decreased edema formation
- ☐ Maturation and proliferation of fibroblasts
- ☐ Increased collagen synthesis
- ☐ Facilitates angiogenesis in ischemic wounds
- ☐ Decreases the development of bacteria

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Introduction

Problematic

- ☐ Adhesive capsulitis treatments:
 - Poorly codified
 - No consensus
 - Long
- ☐ HBOT :
 - Little known practice
 - Several biochemical benefits
 - Positive testimonial

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Introduction

Research question

"What is the impact of hyperbaric therapy on the pain, quality of life and range of motion of glenohumeral articulation in patients with adhesive capsulitis, over 2 weeks?"

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Materials and method

Experimental protocol

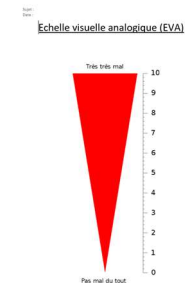
- ☐ Experimental single-case study
- ☐ 3 patients
- ☐ The independent variable is hyperbaric treatment (2.5 ATA)
- ☐ The dependent variables assessed are pain, range of motion and quality of life

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Pain

Visual Analog Scale



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Range of motion

goniometer and inclinometer



Figure 4: inclinometer

Figure 5: goniometer



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Quality of life

Questionnaire DASH

Questionnaire DASH - Membre Supérieur.

Instructions

Vous évaluez votre capacité à réaliser les activités suivantes **au cours des 7 derniers jours**. (Estimez une seule réponse par ligne.)

	aucune difficulté	difficulté légère	difficulté moyenne	difficulté importante	impossible
1. Dresser un coude vers le haut	1	2	3	4	5
2. Étirer	1	2	3	4	5
3. Tourner une vis dans une serrure	1	2	3	4	5
4. Porter un objet	1	2	3	4	5
5. Ouvrir un portail ou une lourde porte en la poussant	1	2	3	4	5
6. Placer un objet sur une étagère au-dessus de votre tête	1	2	3	4	5
7. Effectuer des tâches ménagères (nettoyer, changer des sacs ou des sacs)	1	2	3	4	5
8. Jeter, vider, vider (des papiers, des sacs et autres)	1	2	3	4	5
9. Faire un lit	1	2	3	4	5
10. Porter une sacoche de provisions ou une valise	1	2	3	4	5
11. Porter un objet lourd (supérieur à 5 kg)	1	2	3	4	5
12. Changer une ampoule en hauteur	1	2	3	4	5
13. Se tenir sur un sol irrégulier	1	2	3	4	5
14. Se tenir sur un sol irrégulier	1	2	3	4	5
15. Porter un objet	1	2	3	4	5
16. Couper le matériel avec un couteau	1	2	3	4	5
17. Activités de loisir sans gros effort (jeux de cartes, télévision, etc.)	1	2	3	4	5
18. Activités de loisir nécessitant une certaine force ou une certaine endurance (tennis, golf, etc.)	1	2	3	4	5
19. Activités de loisir nécessitant toute la force de mouvement (sport, travail de force, etc.)	1	2	3	4	5
20. Déplacements (transport)	1	2	3	4	5
21. Vie sociale	1	2	3	4	5

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Results**Subject 1 in stiffness phase****Table 1:** Summary of glenohumeral measurements

	Session 1	Session 10
Flexion	135 °	152°
Extension	26°	40°
Abduction	95°	94°
External rotation	44 °	52°

Standard Recall	Scapulohumeral
Flexion	180°
Extension	60°
Abduction	180°
External rotation (R1)	80°

Table 2: Summary of VAS Results

	Session 1	Session 10
Pain intensity	2	1

Table 3: Different scores for DASH

	Session 1	Session 10
Physical capacity	40	25
Severity of symptoms	11	5
Social skills	4	4
Total	45	27,5

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Results**Subject 2 in stiffness phase****Table 4:** Summary of glenohumeral measurements

	Session 1	Session 10
Flexion	109°	119°
Extension	10°	8°
Abduction	71°	70°
External rotation	41 °	39°

Table 5: Summary of EVA results

	Session 1	Session 10
Pain intensity	1	3

Table 6: Different scores for DASH

	Session 1	Session 10
Physical capacity	80	56
Severity of symptoms	12	14
Social skills	12	8
Total	86,66	64,16

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Results**Subject 3 in stiffness phase****Table 7:** Summary of glenohumeral measurements

	Session 1		Session 10	
	shoulder right	shoulder left	Shoulder right	Shoulder left
Flexion	141	131	150	162
Extension	20	40	32	49
Abduction	47	57	76	80
External rotation	45	41	48	50

Table 8: Summary of VAS Results

	Session 1	Séance 10
Pain intensity	2	1

Table 9: Different scores for DASH

	Session 1	Session 10
Physical capacity	55	26
Severity of symptoms	10	6
Social skills	12	4
Total	63,33	29,16

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Discussion**Table 10:** linking results

	Subject 1	Subject 2	Subject 3
Range of motion	Functional improvement of glenohumeral	Functional improvement of glenohumeral	Functional improvement of glenohumeral
Pain	Decreases	Increases	Decreases
Dash	Goes from 45 to 27.5 Same social capacities	Goes from 86.66 to 64.16	Goes from 63.33 to 29.16

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Discussion

□ Assumptions:

- Vascular reactivity (Sanela Unfirer et al., (2008))
- Neovascularization

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Conclusion

Conclusion and perspectives

□ Results :

- All subjects following the same trend
- They responded to treatment with functional progression dynamics

□ Perspectives :

- RCT (statistical inference) research design
- Long-term study
- Larger sample size
- Blood test

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Thank you for your attention

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