

Rémission du Diabète de Type 2 : perspectives et pratiques



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Dre Diane Zimmermann, *PhD*

Dre Sophie Comte, *MD, diabétologue*

Forum diabète Vaud
ISREC - 17 septembre 2026

Que connaissez-vous de :

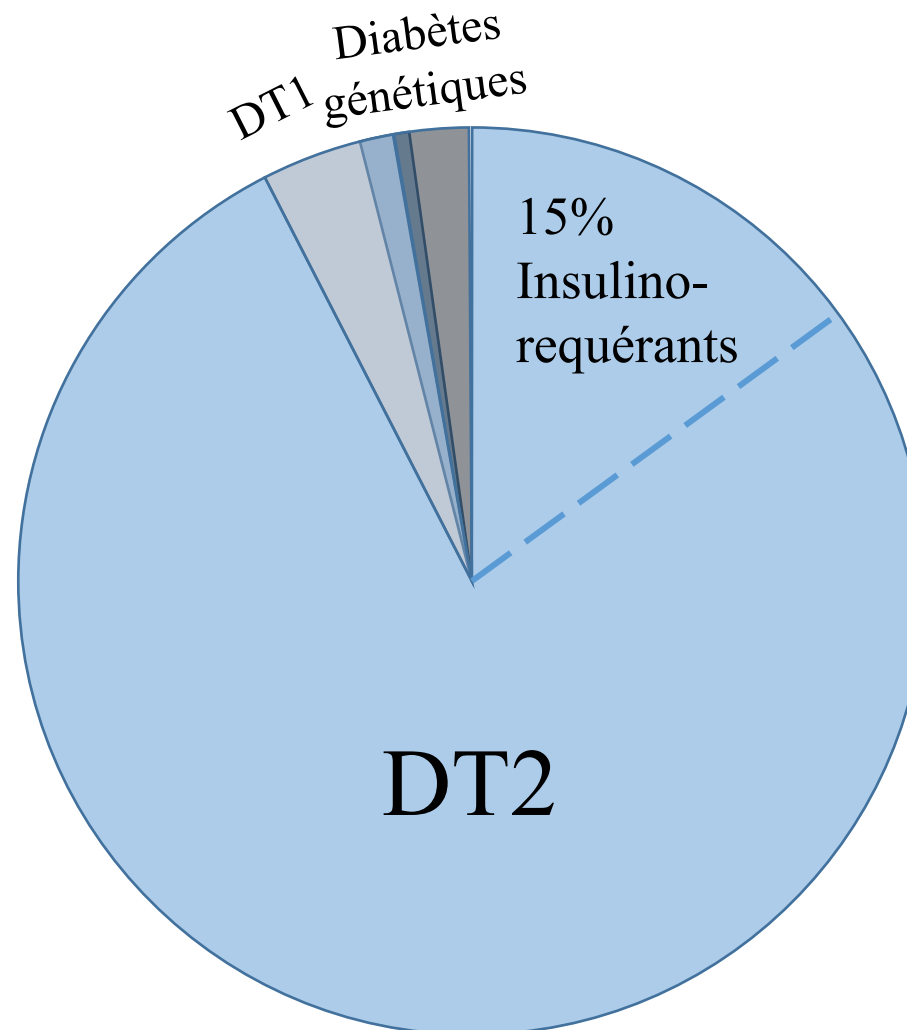
la réversibilité du diabète de type 2 non insulino-requérant

?

**Aujourd'hui, le diabète de type 2
représente plus de 90% des diabètes**

+ de 530 millions d'adultes touchés

Ref. IDF Diabetes Atlas, 2025



Les différents stades du DT2

Diabète de type 2
Insulino-requérant

Diabète de type 2

Glycémies perturbées
Pré-diabète

Début de la
résistance à l'insuline

Evolution habituelle du DT2 sans apprentissage
ni changements de comportements

Temps

0

5-10 ans

15-20 ans

Causes et déterminants du DT2

- Prédisposition familiale (génétique 3% !), histoire personnelle
- Déterminants sociaux et environnementaux
- Sédentarité, alimentation raffinée et en excès, stress, troubles du sommeil, addictions

Mendenhall E. *The Lancet*, Vol. 389, 2017.

Eléments physiopathologiques du DT2

- Résistances à l'insuline des tissus musculaire et adipeux
- Stéatoses : hépatique et pancréatique
- Stress oxydatif, inflammation à bas bruit
- Défaillance relative puis absolue de la sécrétion d'insuline

Louis Monnier. *Diabétologie*, Masson, 2010.

Rémission du DT2 – Histoire et littérature

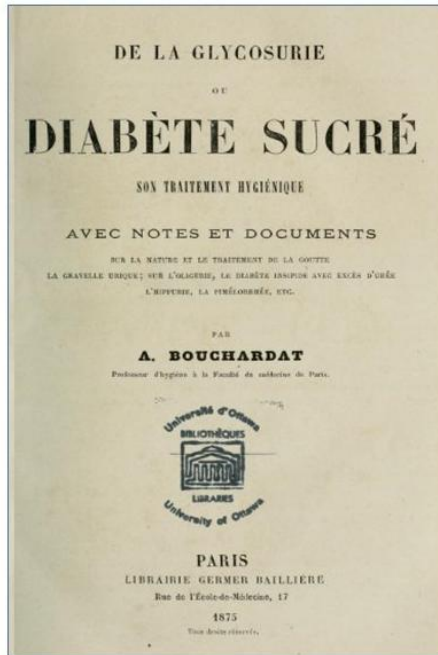
- Le diabète de type 2 est connu comme étant potentiellement réversible depuis longtemps

Contrairement aux représentations habituelles

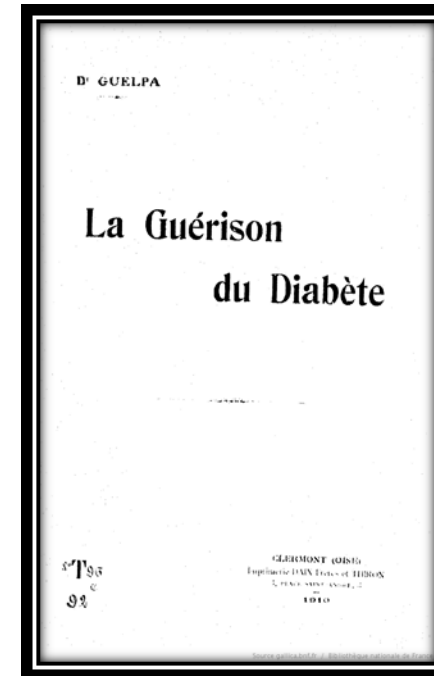
- Maladie **potentiellement réversible**,
jusqu'à 5-10 ans post-diagnostic
- Historiquement connu, grâce aux :
 - chirurgien de l'obésité
 - hépatologues et diabétologues
 - médecins du sport
 - médecins/soignants psychopédagogues

Recul du DT2 historiquement attesté

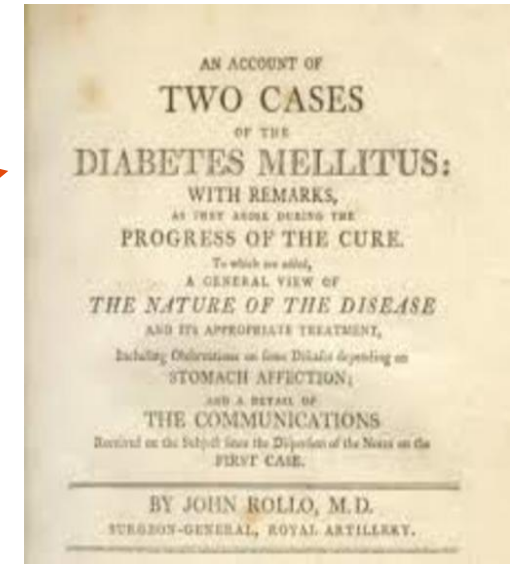
- Chine VII^{ème} siècle
- Médecins de marine anglais XVIII^{ème}
- Médecins français XIX^{ème} et début XX^{ème}



*“Diabète sucré. Son
Traitement hygiénique”,
Dr. Bouchardat, 1875.*



*“La Guérison du Diabète”
Dr. Guelpa, 1910.*



*Temple RKG. Picquier, 2007.
Rollo J. 1798, Gillet, London.*

Recul du DT2 historiquement attesté

- Chine VII^{ème} siècle
- Médecins de marine anglais XVIII^{ème}
- Médecins français XIX^{ème} et début XX^{ème}

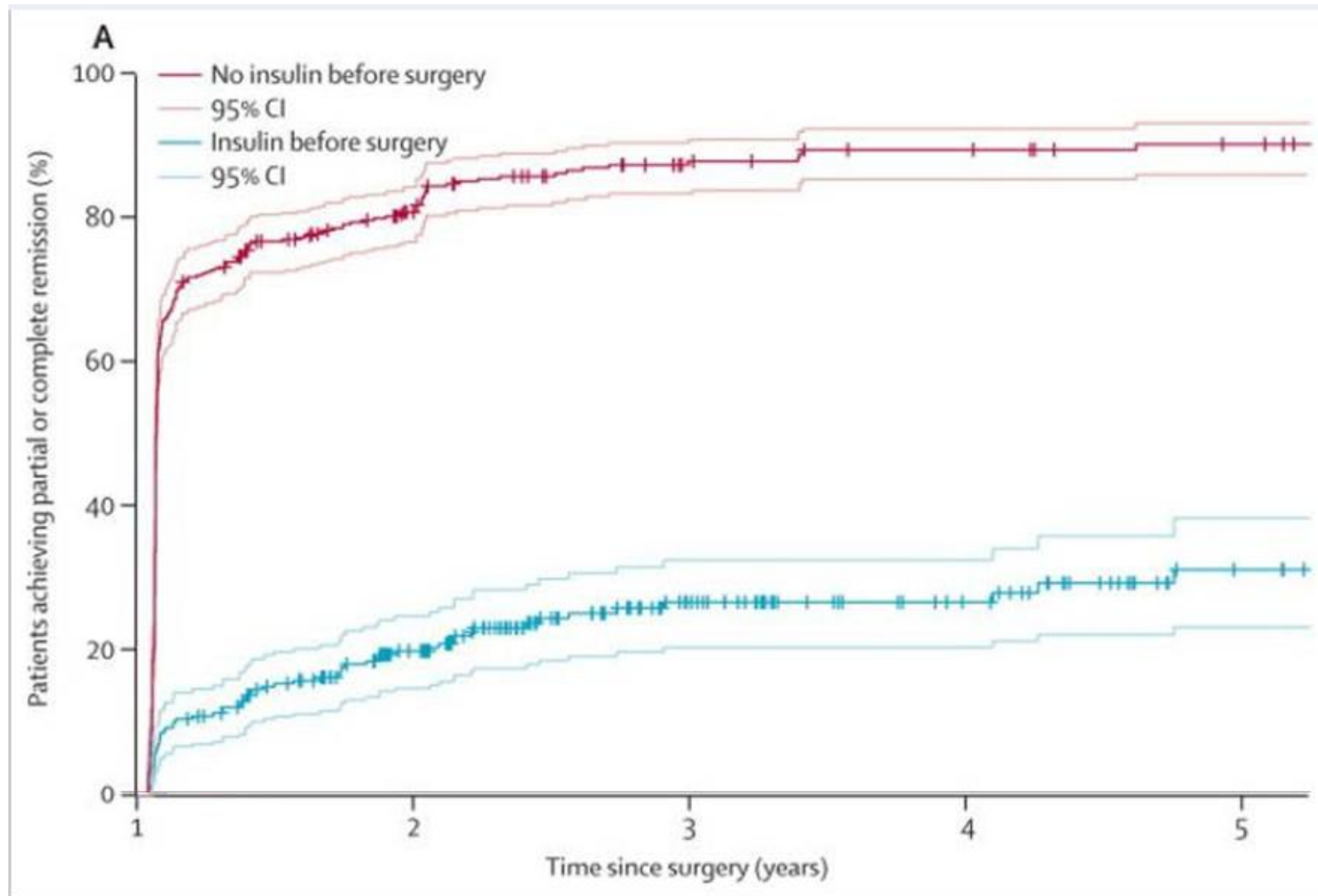
- Chirurgie bariatrique depuis 1955
- Traitement intensif, alimentaire/mixte (25 ans)
- Education du Patient au recul du DT2 (15 ans)

Temple RKG. *Picquier*, 2007.

Rollo J. Gillet, London, 1798.

Mingrone G. *Diabetes, Obesity and Metabolism*, 2009.

Chirurgie bariatrique et rémission du Diabète de type 2



Still et al. *Lancet Diabetes Endocrinol.*, 2014

Rémission du DT2 : 7'437 articles au 6 février 2026

PubMed®

(type 2 diabetes[MeSH Terms]) AND ((remission or revers* or cure))

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MY CUSTOM FILTERS

7,437 results

RESULTS BY YEAR

1983 2026

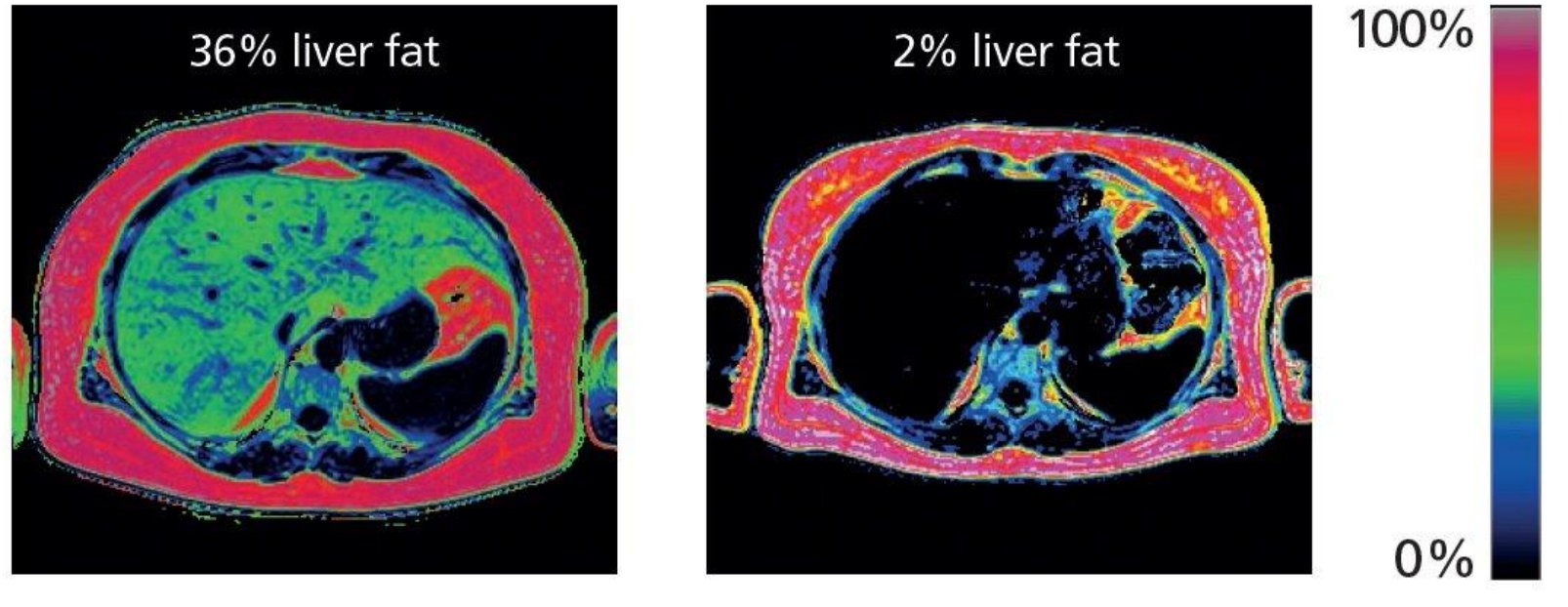
PUBLICATION DATE

☐ 1 year
☐ 5 years
☐ 10 years
☐ Custom Range

☐ 1
Cite Long-term effectiveness on glycemic control of insulin compared to combined oral antidiabetic drugs for initial intensive treatment in newly diagnosed type 2 diabetes: A duplicated target trial.
Kim TH, Hwang Y, Woo S, Lee K, Son Y, Park S, Kim H, Shin JY, Cho Y, Shin D, Cho D, Lee KJ, Rhee SY, Yon DK.
Medicine (Baltimore). 2026 Jan 30;105(5):e47235. doi: 10.1097/MD.00000000000047235.
PMID: 41630246 Free PMC article.
Successful initial intensive treatment was defined as HbA1c <7.0% following treatment cessation. Failure of drug-free glycemic **remission** was defined as HbA1c 7.0% during follow-up. After 1:1 propensity score matching, Cox proportional hazard model was employed to evalua ...

☐ 2
Cite Undiagnosed Diabetes and Prediabetes in Yemen: A Growing Public Health Crisis in the Shadow of Conflict.
Al-Hetar MAMY, Saud Gany SL, Rusli N, Kamaruzzaman MA, Wan Ngah WZ, Shah SA, Almatary A, A Wahab N.

Un foie gras qui se purge...

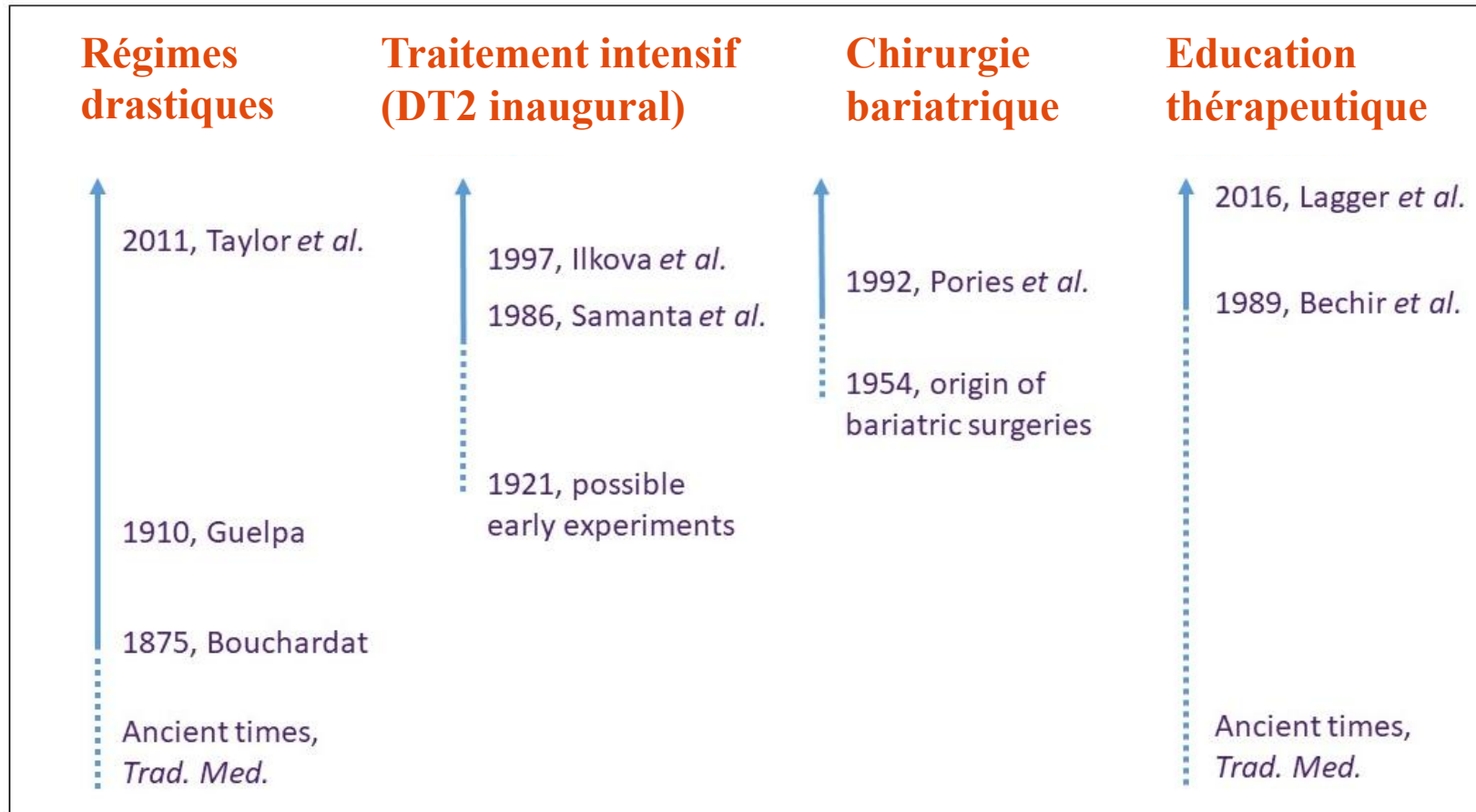


Lim *et al.*, *Diabetologia*, 2011.

Et la cellule β qui refonctionne...

- Karaca et al. Functional **pancreatic beta-cell mass**: **involvement** in type 2 diabetes and therapeutic intervention. *Diabetes Metab*, 2009.
- Mingrone G, et al. Bariatric surgery: **unstressing or boosting the β -cell?** *Diabetes, Obesity and Metabolism*, 2009.
- Folli et al. Altered insulin receptor signalling and **β -cell cycle dynamics** in type 2 diabetes mellitus. *PLoS One*, 2011.
- Cerf. Beta cell dynamics: **beta cell replenishment**, beta cell **compensation** and diabetes. *Endocrine*, 2013.
- Ziv et al. The **plastic pancreas**. *Developmental Cell*, 2013.
- Tortosa et al. Incretin hormones and **beta-cell mass expansion**: what we know and what is missing ? *Arch Physiol Biochem*, 2013.

4 stratégies pour la rémission du DT2



Rémission du DT2 – Historique et efficacité

Chirurgie métabolique

Association of bariatric surgery with long-term remission of type 2 diabetes and with microvascular and macrovascular complications

Lars Sjöström¹, Markku Peltonen², Peter Jacobson¹, Sofie Ahlin¹, Johanna Andersson-Assarsson¹, Åsa Anveden¹, Claude Bouchard³, Björn Carlsson¹, Kristjan Karason¹, Hans Lönroth⁴, Ingmar Näslund⁵, Elisabeth Sjöström¹, Magdalena Taube¹, Hans Wedel⁶, Per-Arne Svensson¹, Kajsa Sjöholm¹, Lena M S Carlsson¹

Affiliations + expand

PMID: 24915261 DOI: 10.1001/jama.2014.5988

Abstract

Importance: Short-term studies show that bariatric surgery causes remission of diabetes. The long-term outcomes for remission and diabetes-related complications are not known.

Objectives: To determine the long-term diabetes remission rates and the cumulative incidence of microvascular and macrovascular diabetes complications after bariatric surgery.

Régime drastique

Diabetologia (2011) 54:2506–2514
DOI 10.1007/s00125-011-2204-7

ARTICLE

Reversal of type 2 diabetes: normalisation of beta cell function in association with decreased pancreas and liver triacylglycerol

E. L. Lim • K. G. Hollingsworth • B. S. Aribisala • M. J. Chen • J. C. Mathers • R. Taylor

Received: 22 March 2011 / Accepted: 5 May 2011 / Published online: 9 June 2011
© The Author(s) 2011. This article is published with open access at Springerlink.com

Abstract

Aims/hypothesis Type 2 diabetes is regarded as inevitably progressive, with irreversible beta cell failure. The hypothesis was tested that both beta cell failure and insulin resistance can be reversed by dietary restriction of energy intake.

Methods Eleven people with type 2 diabetes (49.5±

values (0.62±0.15 nmol min⁻¹ m⁻²; $p=0.42$). Maximal insulin response became supranormal at 8 weeks (1.37±0.27 vs controls 1.15±0.18 nmol min⁻¹ m⁻²). Pancreatic triacylglycerol decreased from 8.0±1.6% to 6.2±1.1% ($p=0.03$).

Conclusions/interpretation Normalisation of both beta cell function and hepatic insulin sensitivity in type 2 diabetes was

Education thérapeutique

Educ Ther Patient/Ther Patient Educ 2018, 10, 20206
© EDP Sciences, SETE, 2018
<https://doi.org/10.1051/tpe/2018018>

ETP/TPE

Available online at:
www.etp-journal.org

ORIGINAL ARTICLE/ARTICLE ORIGINAL

A 5-dimension patient education program targeting type 2 diabetes remission

Grégoire Lagerre^{1,*}, Jorge Cesar Correia², Peter Fernandes¹, Frédéric Sittaramé¹ and Alain Golay¹

¹ Service of Therapeutic Patient Education for Chronic Disease – Department of Community Medicine, Primary and Emergency Care, University Hospital of Geneva, Geneva, Switzerland

² Division of Tropical and Humanitarian Medicine – Department of Community Medicine, Primary and Emergency Care, University Hospital of Geneva, Geneva, Switzerland

Received: 21 March 2018 / Accepted: 5 October 2018

Abstract – Introduction: Type 2 diabetes (T2D) reversal has been demonstrated in patients undergoing bariatric surgery or low caloric diets. **Objective:** To investigate the effects of therapeutic patient education alone on T2D reversal in early diagnosed patients. **Methods:** Seventeen T2D patients underwent a one-week therapeutic education program, followed by 12 months of 1 hour sessions every month, targeting diabetes reversal. This reversal was determined using the DiaRem score which integrates glycated hemoglobin levels and antidiabetic drug treatment. Patient's conceptions, perceptions and motivation were assessed using a 5-dimensional psychopedagogic score. **Results:** After 1 year, the mean HbA_{1c} fell from 7.2% (±1.9) to 6.2% (±0.8) ($p<0.05$), antidiabetic drug doses decreased by 25% ($p<0.05$), and the DiaRem score increased by 1.5% ($p<0.01$), indicating a reversal of the disease not correlated to weight loss. At the end of the study, 15

25-80% de rémission à 5 ans.

(Still et al. 2014, Jans et al. 2019)

30-46 % de rémission à 6 mois.

(Taylor et al. 2018-2019)

19-24% de rémission à 1 an.

(Lagerre et al. 2016, 2018)

Behaviour change

DIABETICMedicine

DOI: 10.1111/dme.14122

Research: Epidemiology

Behaviour change, weight loss and remission of Type 2 diabetes: a community-based prospective cohort study

H. Dambha-Miller^{1,2,3} , A. J. Day¹, J. Strelitz² , G. Irving¹ and S. J. Griffin^{1,2} 

¹Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge School of Clinical Medicine, Institute of Public Health, Cambridge, ²MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Institute of Metabolic Science, Cambridge, and ³Primary Care and Population Sciences, University of Southampton, Southampton, UK

Accepted 28 August 2019

Abstract

Aim To quantify the association between behaviour change and weight loss after diagnosis of Type 2 diabetes, and the likelihood of remission of diabetes at 5-year follow-up.

Method We conducted a prospective cohort study in 867 people with newly diagnosed diabetes aged 40–69 years from the ADDITION-Cambridge trial. Participants were identified via stepwise screening between 2002 and 2006, and underwent assessment of weight change, physical activity (EPAQ2 questionnaire), diet (plasma vitamin C and self-report), and alcohol consumption (self-report) at baseline and 1 year after diagnosis. Remission was examined at 5 years after diabetes diagnosis via HbA_{1c} level. We constructed log binomial regression models to quantify the association between change in behaviour and weight over both the first year after diagnosis and the subsequent 1–5 years, as well as remission at 5-year follow-up.

Results Diabetes remission was achieved in 257 participants (30%) at 5-year follow-up. Compared with people who maintained the same weight, those who achieved ≥ 10% weight loss in the first year after diagnosis had a significantly higher likelihood of remission [risk ratio 1.77 (95% CI 1.32 to 2.38; *p* < 0.01)]. In the subsequent 1–5 years, achieving ≥ 10% weight loss was also associated with remission [risk ratio 2.43 (95% CI 1.78 to 3.31; *p* < 0.01)].

Conclusion In a population-based sample of adults with screen-detected Type 2 diabetes, weight loss of ≥ 10% early in the disease trajectory was associated with a doubling of the likelihood of remission at 5 years. This was achieved without intensive lifestyle interventions or extreme calorie restrictions. Greater attention should be paid to enabling people to achieve weight loss following diagnosis of Type 2 diabetes.

Diabet. Med. 37, 681–688 (2020)

30 % de rémission à 5 ans. (Dambha-Miller et al. 2020)

Lifestyle interventions

DOI: 10.1111/wvn.12608

WORLDVIEWS ON EVIDENCE-BASED NURSING

ORIGINAL ARTICLE

The effectiveness of lifestyle interventions for diabetes remission on patients with type 2 diabetes mellitus: A systematic review and meta-analysis

Yating Zhang MSc  | Yajie Yang MSc | Qifang Huang MSc | Qi Zhang PhD Candidate | Mingzi Li PhD | Yi Wu MSc 

School of Nursing, Peking University, Beijing, China

Correspondence
Mingzi Li, School of Nursing, Peking University, Beijing, China.
Email: limingzi@bjmu.edu.cn

Funding information
National Natural Science Foundation of China, Grant/Award Number: 72074008

Abstract

Background: Conventional wisdom affirmed that diabetes was irreversible, but current research shows that lifestyle interventions may achieve diabetes remission among patients with type 2 diabetes mellitus. Recently, many original studies have examined the effectiveness of lifestyle interventions. However, great heterogeneity in intervention approaches resulted in inconsistent intervention effects.

Aims: The aim of this study was to determine the effectiveness of lifestyle interventions for diabetes remission among patients with type 2 diabetes mellitus.

Methods: PubMed, CINAHL, Embase, Web of Science Core Collection, and Cochrane Library were searched for relevant articles from their inceptions to March 26, 2021. Reference lists and a relevant journal were searched manually as well. Both randomized controlled trials and quasi-experimental studies were included. The quantita-

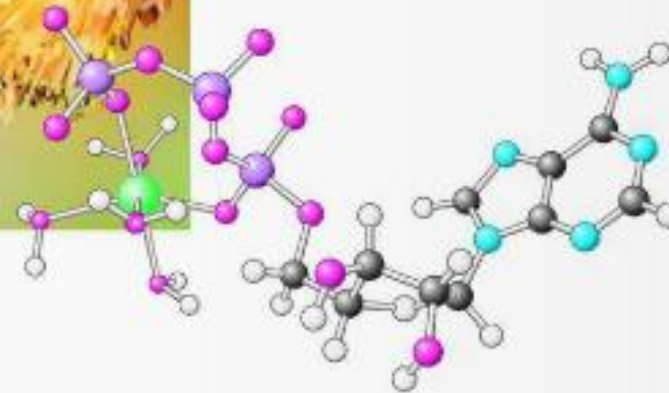
... this review suggests that medical workers are recommended to apply lifestyle interventions ... to help patients with T2D achieve diabetes remission.

(Yating Zhang et al. 2022)

Un élément-clé...

Quel est notre premier organe endocrinien ?

Le métabolisme : concepts de base et architecture

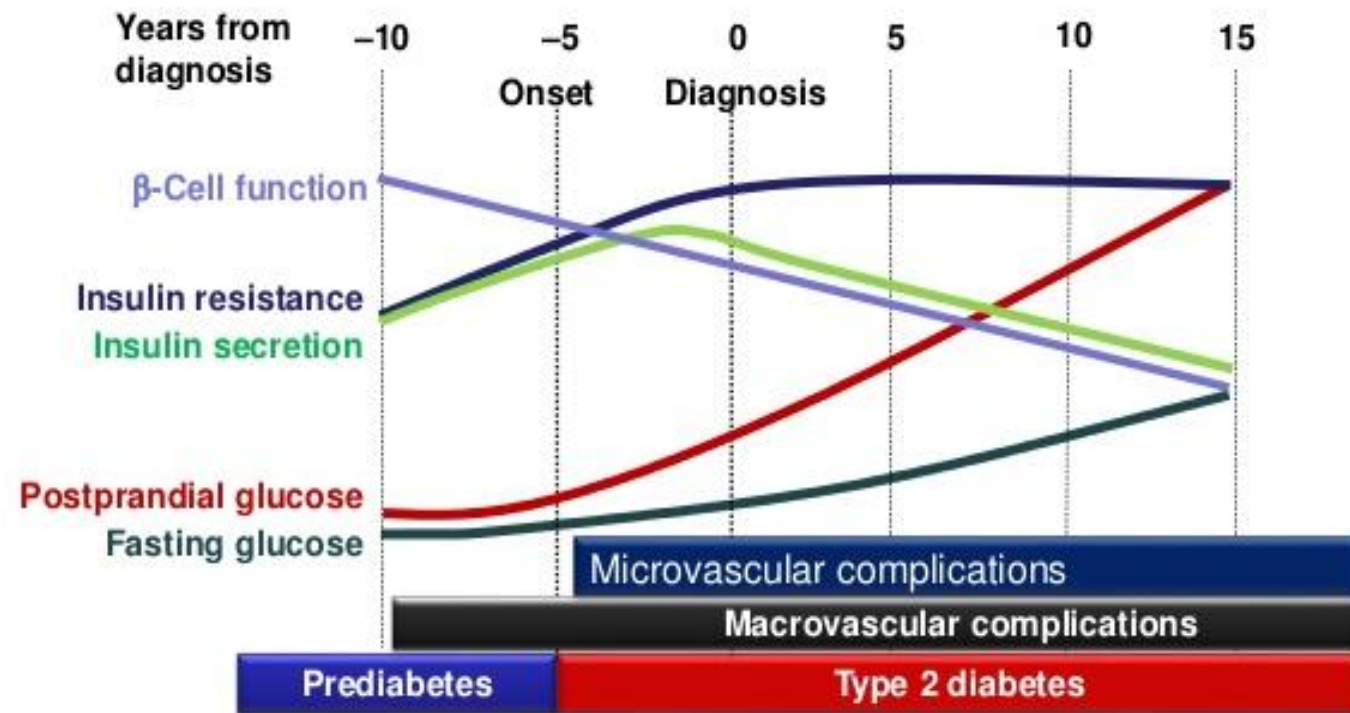


Tous les animaux brûlent des sucres et des graisses pour bouger

Biochimie 7^{ème} Ed. Éditions Lavoisier

Histoire « naturelle » du DT2 !?

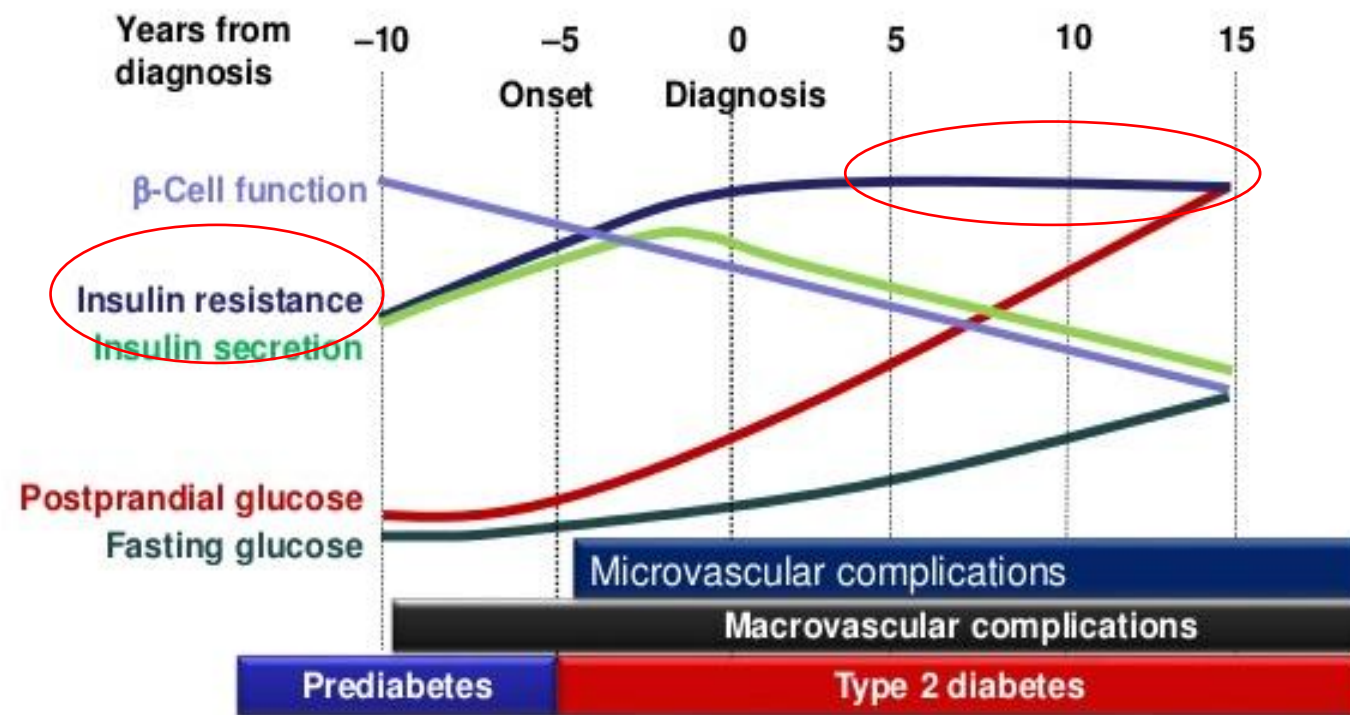
Natural History of Type 2 Diabetes



Multiple sources, e.g. Holman 1998.

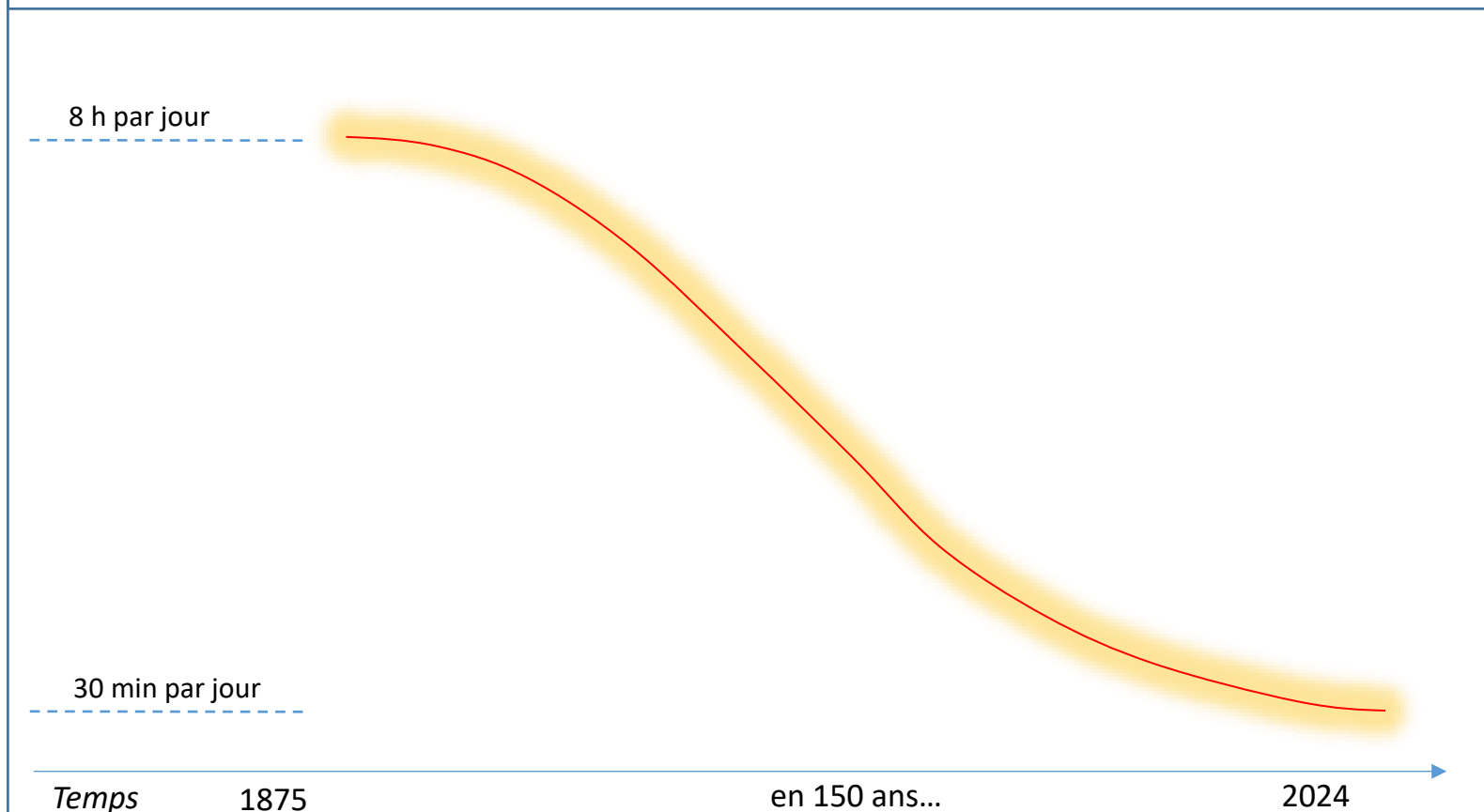
Histoire « naturelle » du DT2 !?

Natural History of Type 2 Diabetes



Multiple sources, e.g. Holman 1998.

Une diminution de l'activité physique...





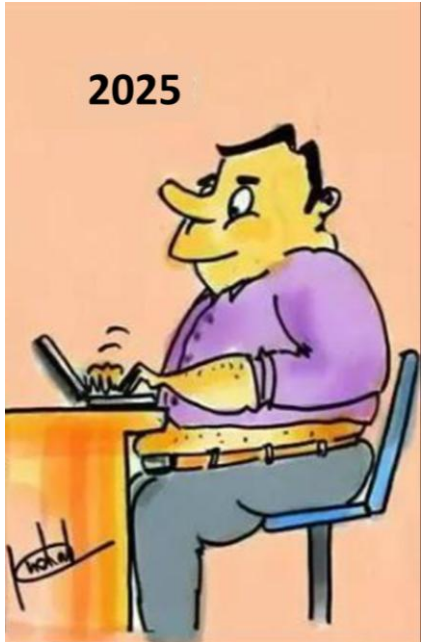
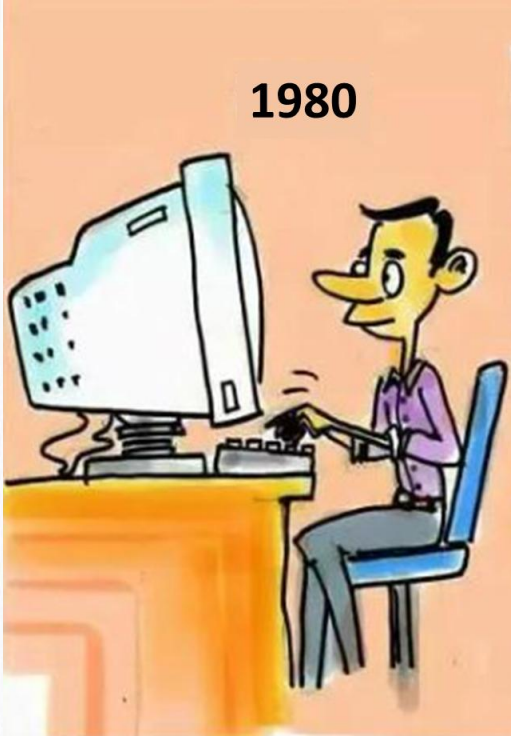
Musée National Suisse

Jusqu'au début du XX^{ème} siècle

Une majorité de citoyens paysans...

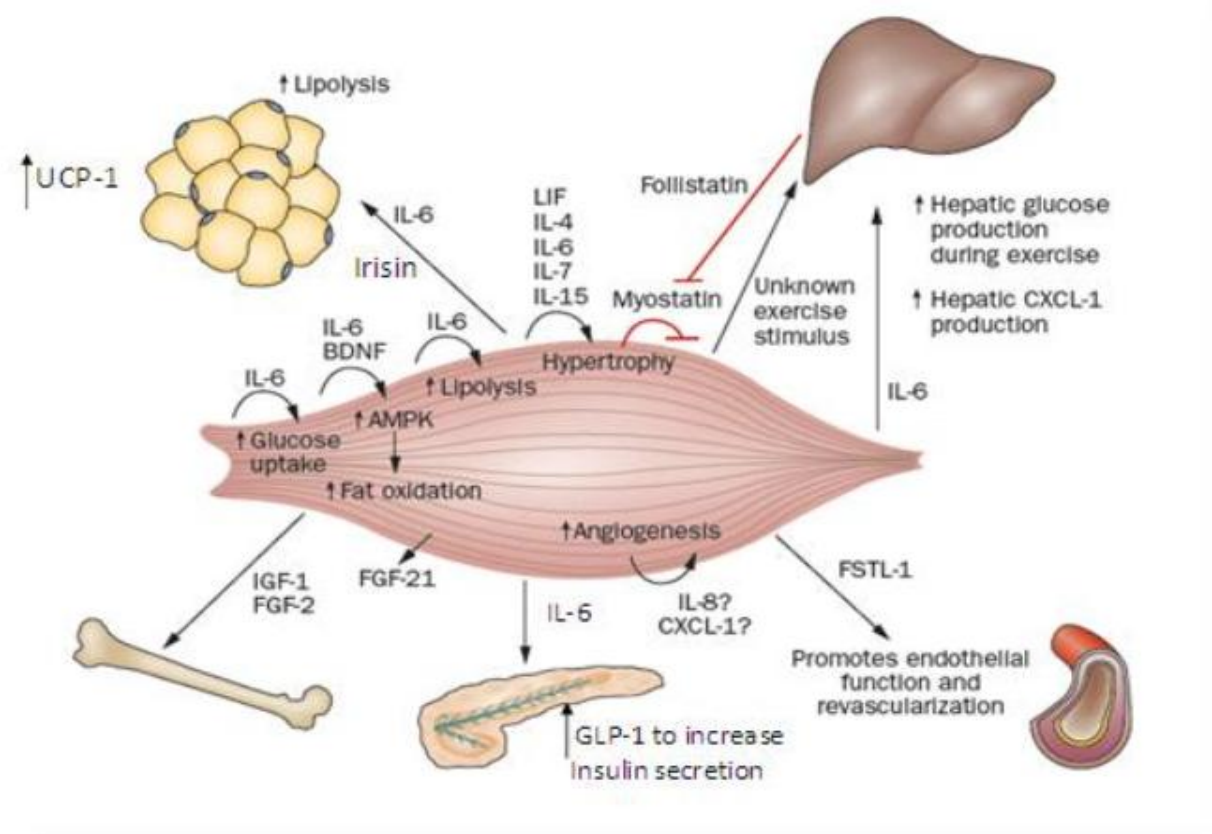


Musée National Suisse



Le muscle, premier organe endocrinien...

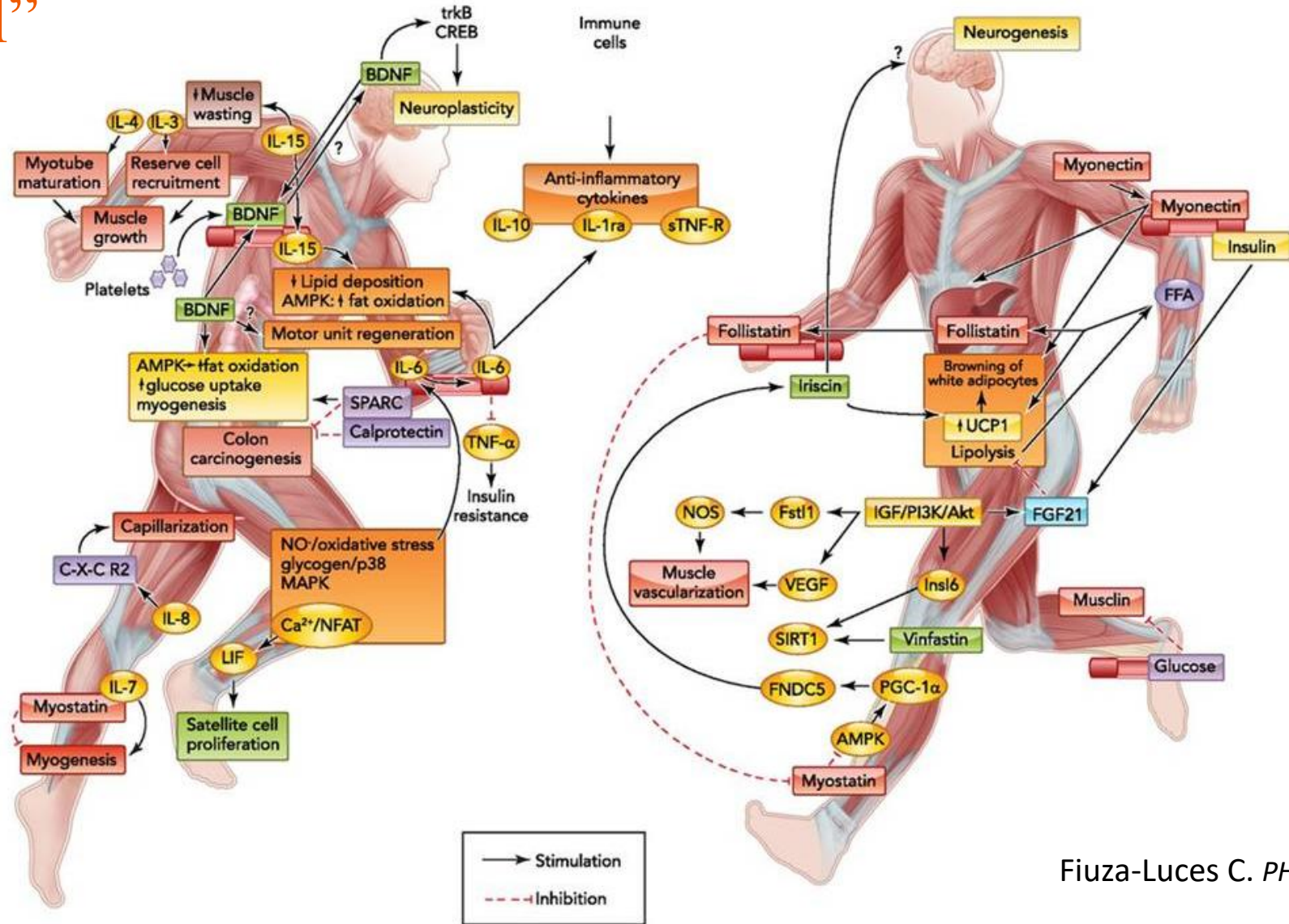
The «myokinome»



Trayhurn P. *Arch Physiol Biochem*. 2011.

Görgens SW. *Prog Mol Biol Transl Sci*. 2015.

“The Real Polypill”



Fiuza-Luces C. *PHYSIOLOGY*, 2013.

Il y a 550'000'000 d'années...



Un tube digestif, des muscles, du gras en réserve ...?

Des maladies chroniques qui...

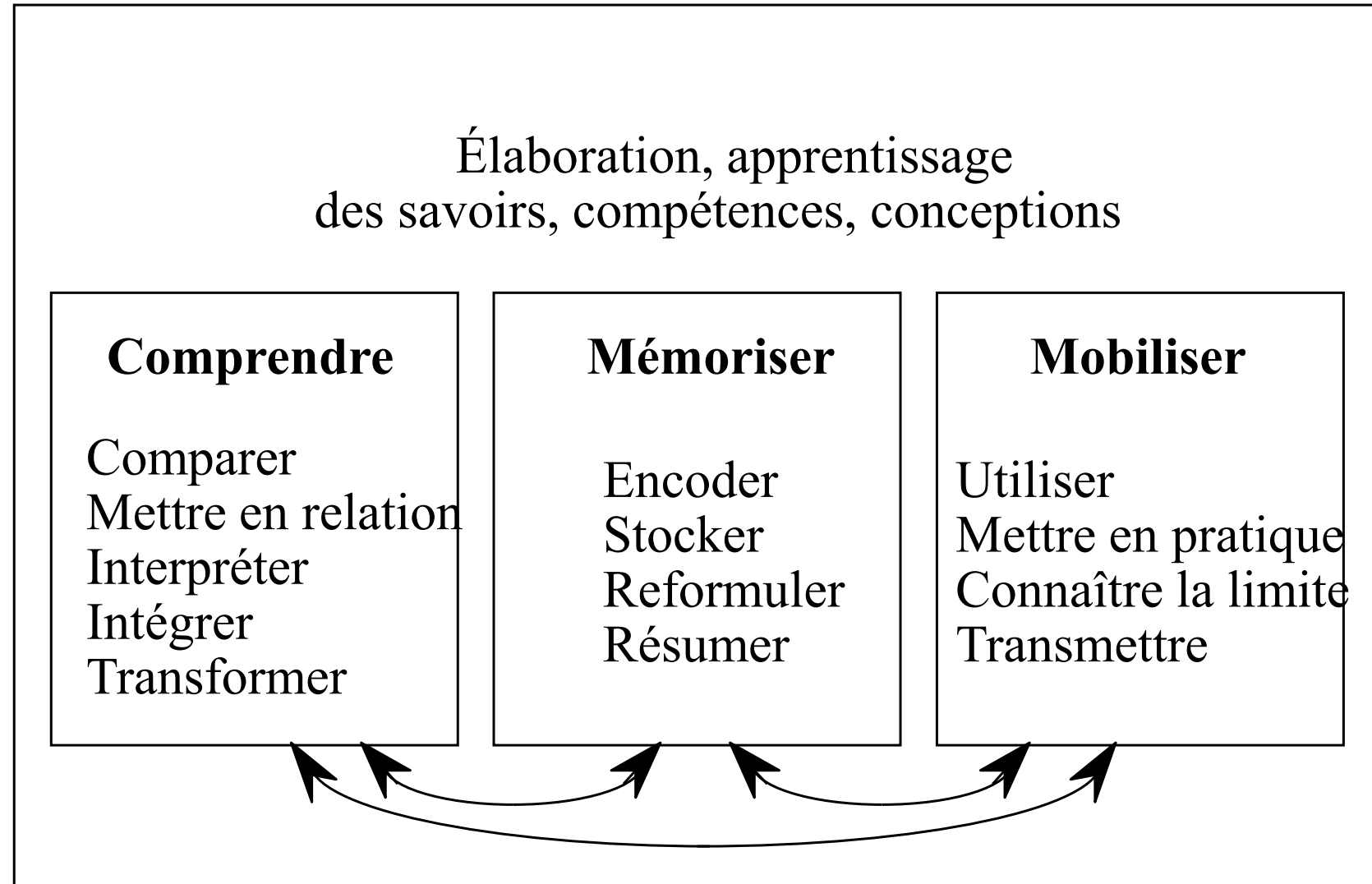


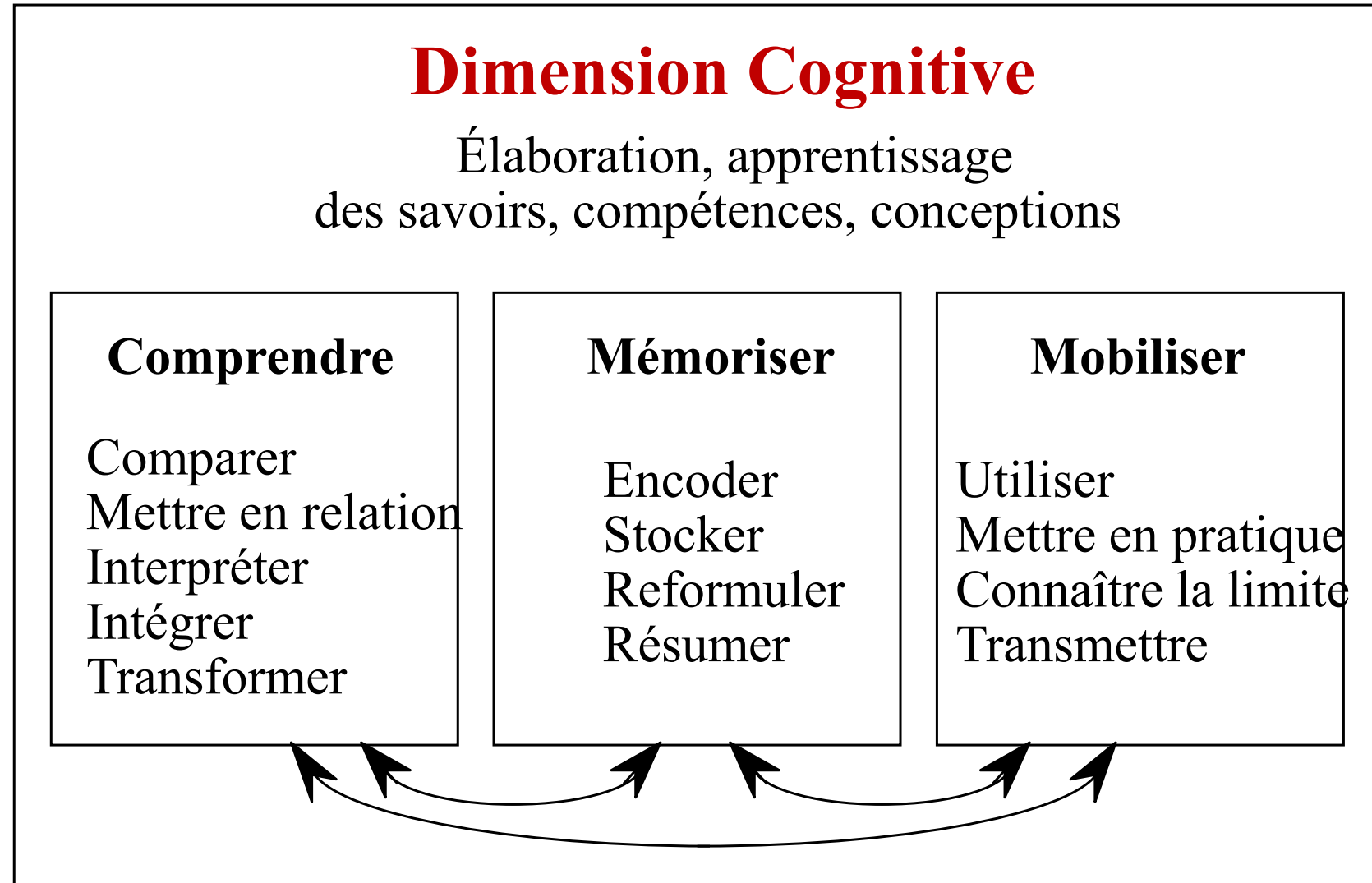
Requièrent des changements de comportements



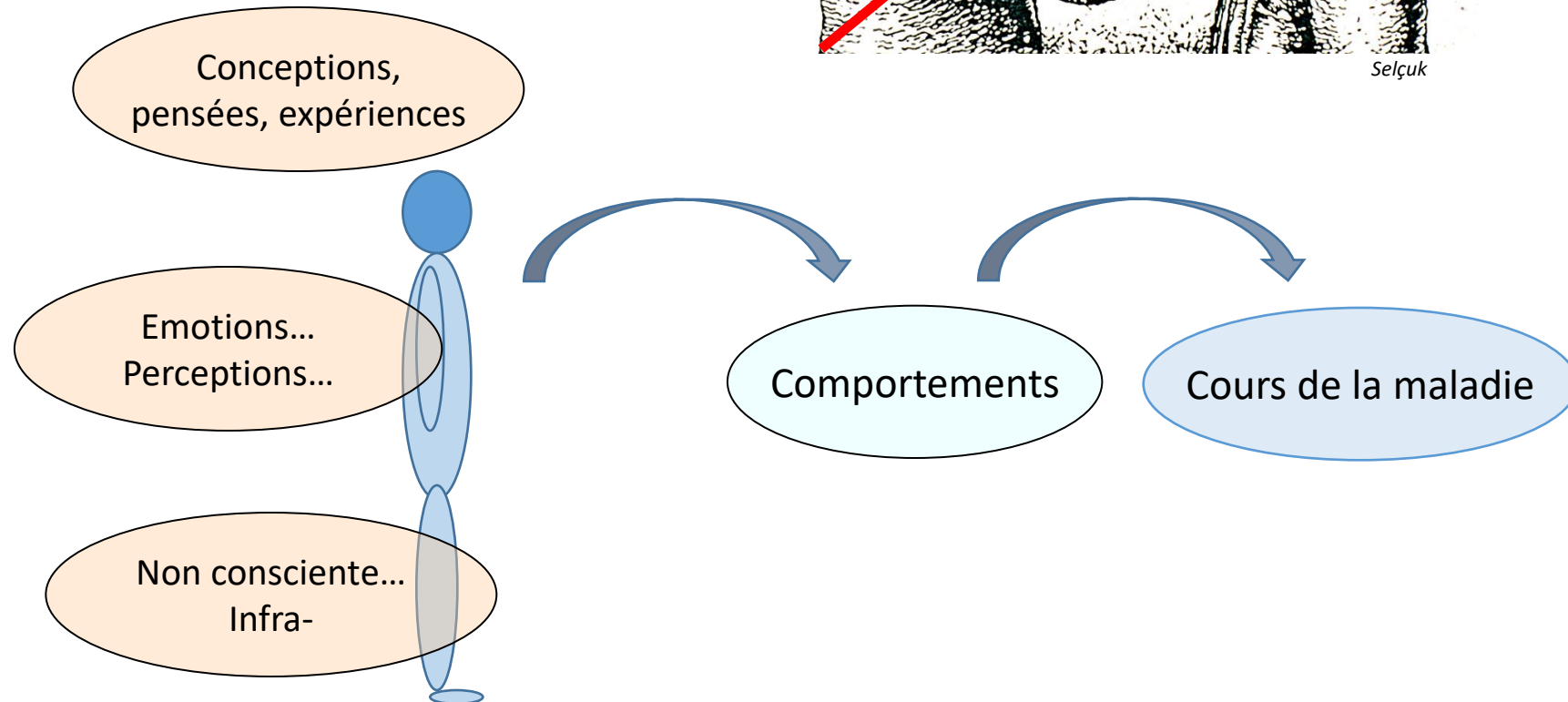
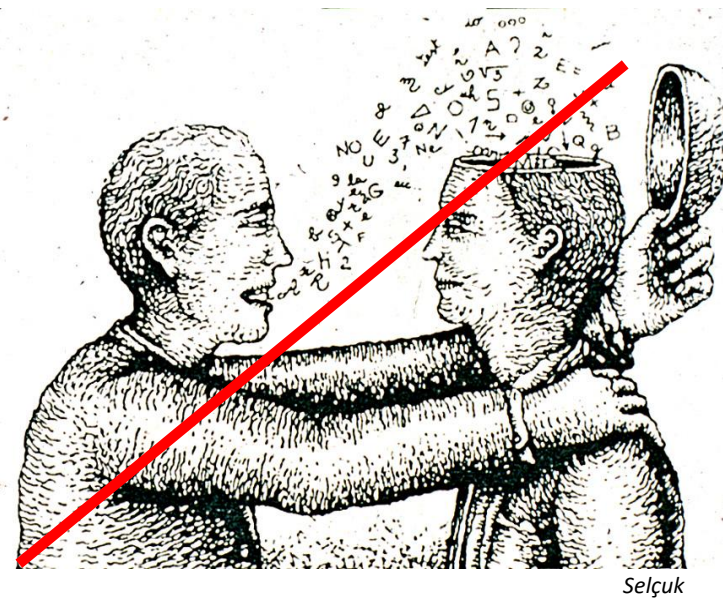
Donc certains apprentissages...

Engagement et apprentissages du patient

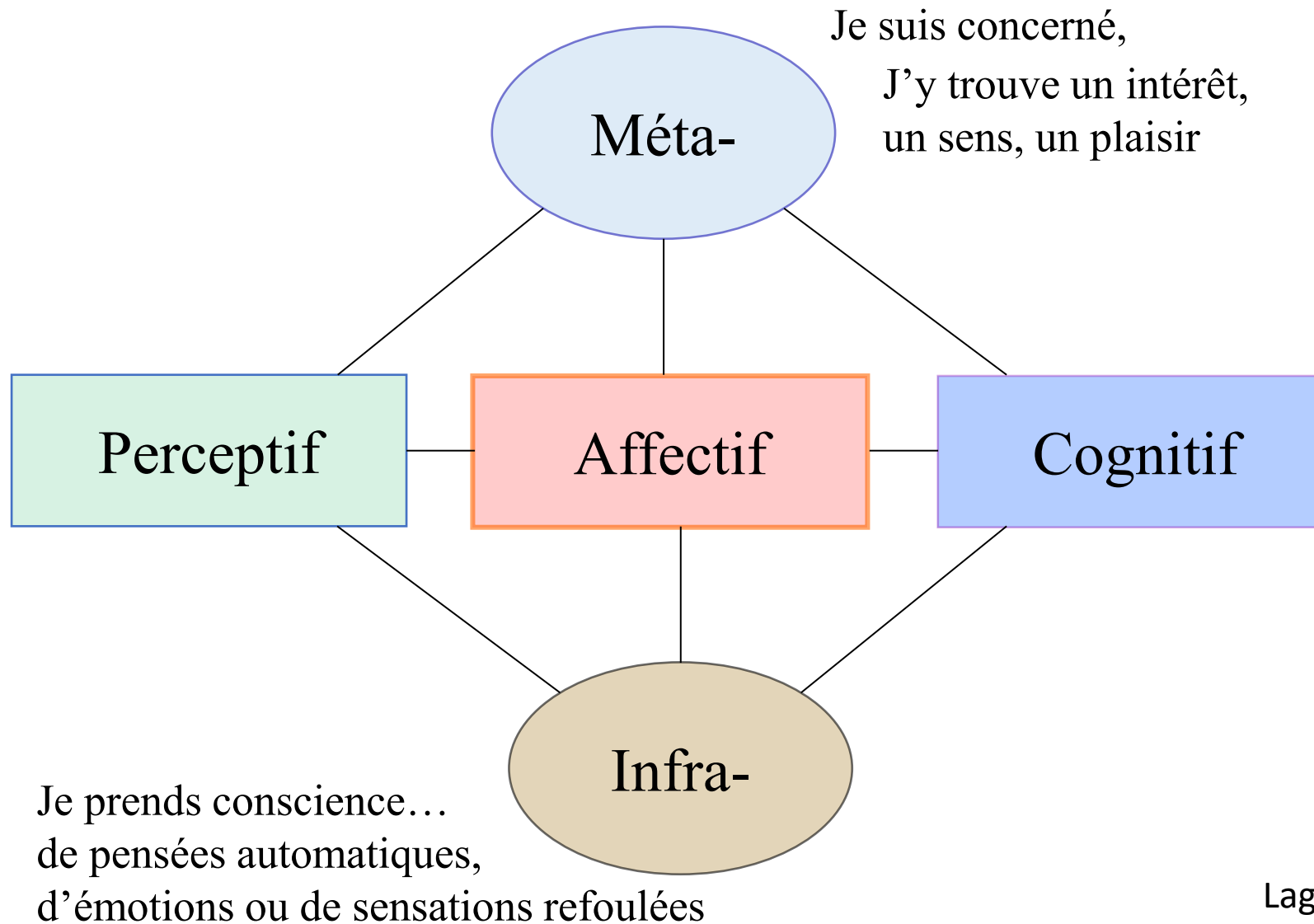




Apprendre et changer ?

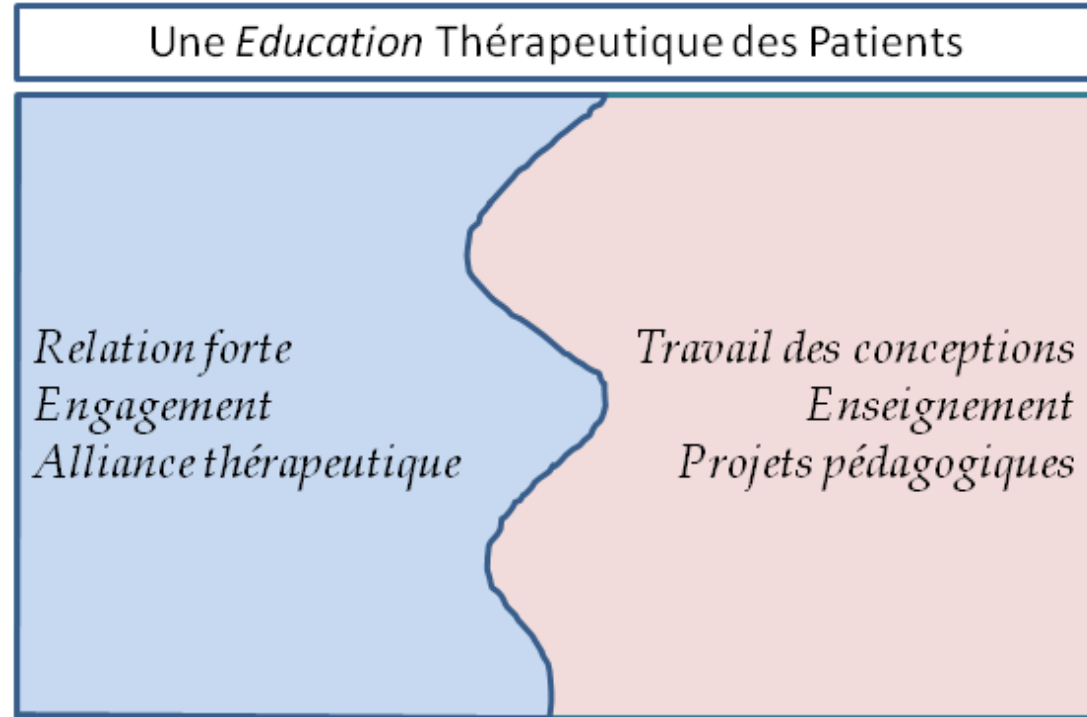


Une Education Thérapeutique en 5 dimensions



Lagger G. et al. Médecine, 2008.

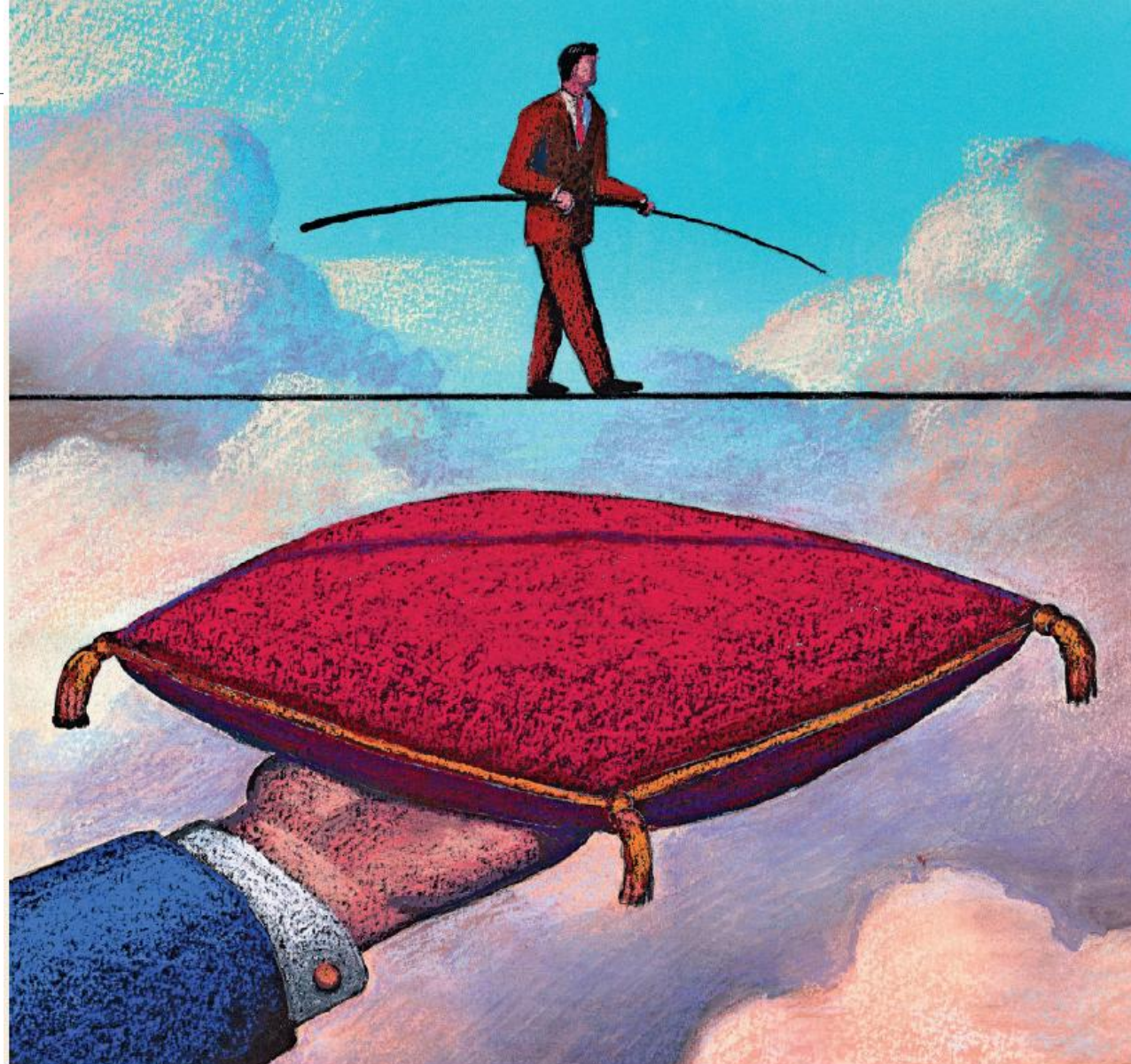
Combinaison complexe de **deux** registres pour **une** posture



Qualité de la
relation

&

Didactique



In. André Grimaldi.
Le Journal des psychologues
n° 295 – mars 2012

Aider le patient à trouver lui-même le comportement optimal et à se connaître.

« Dans mes premières années de métier, je me demandais :
comment puis-je traiter, ou guérir, ou changer cette personne ?

Maintenant, je reformulerais cette question de cette manière :
comment puis-je créer une relation que cette personne pourrait
utiliser pour sa propre croissance personnelle ? »

Carl Rogers

Eléments-clés d'une Education Thérapeutique

- Créer une alliance thérapeutique

Eléments-clés d'une Education Thérapeutique

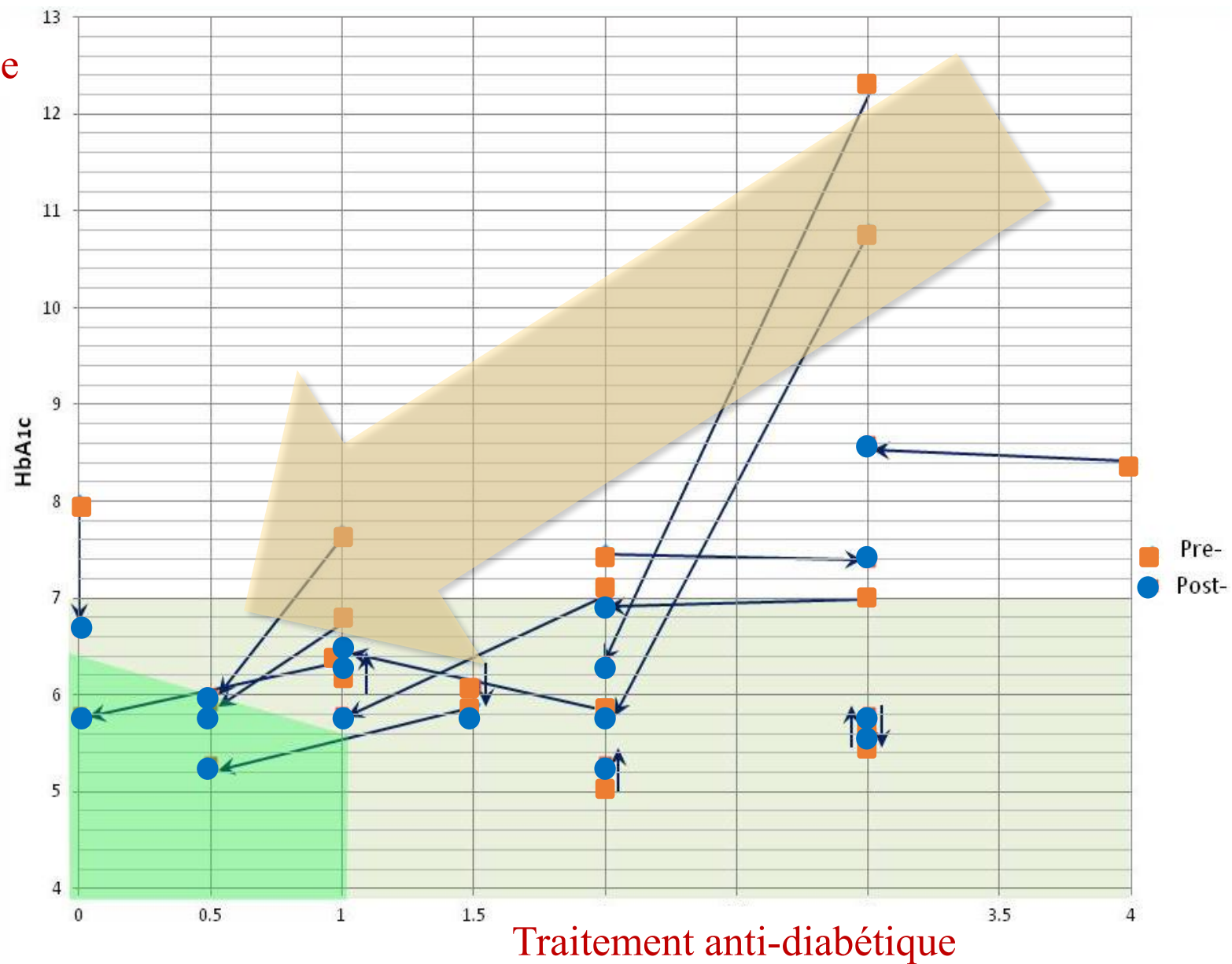
- Créer une alliance thérapeutique
- Se mettre à l'écoute du vécu de l'autre

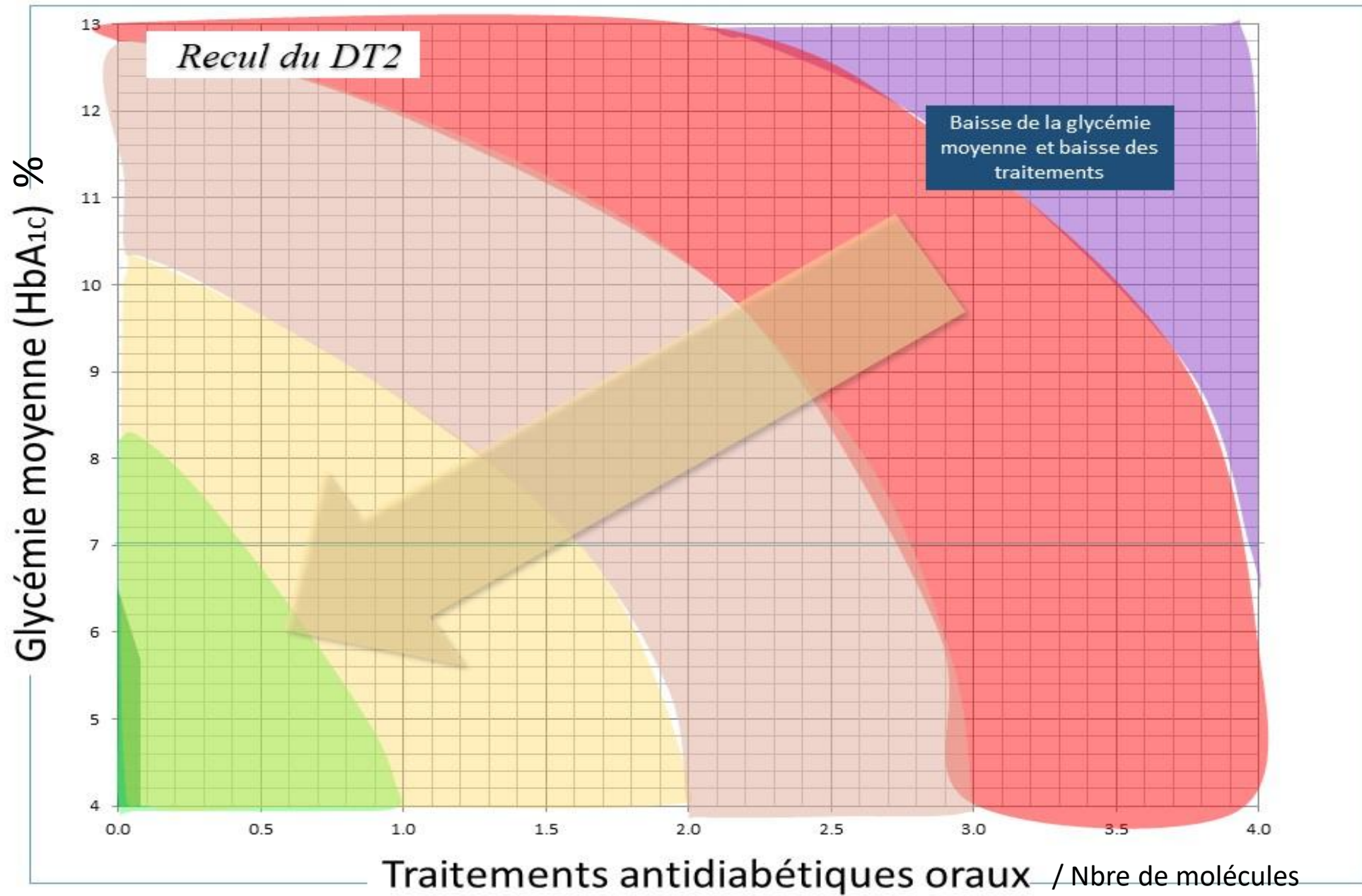
Eléments-clés d'une Education Thérapeutique

- Créer une alliance thérapeutique
- Se mettre à l'écoute du vécu de l'autre
- Lui permettre de développer des compétences

Recul du diabète de type 2

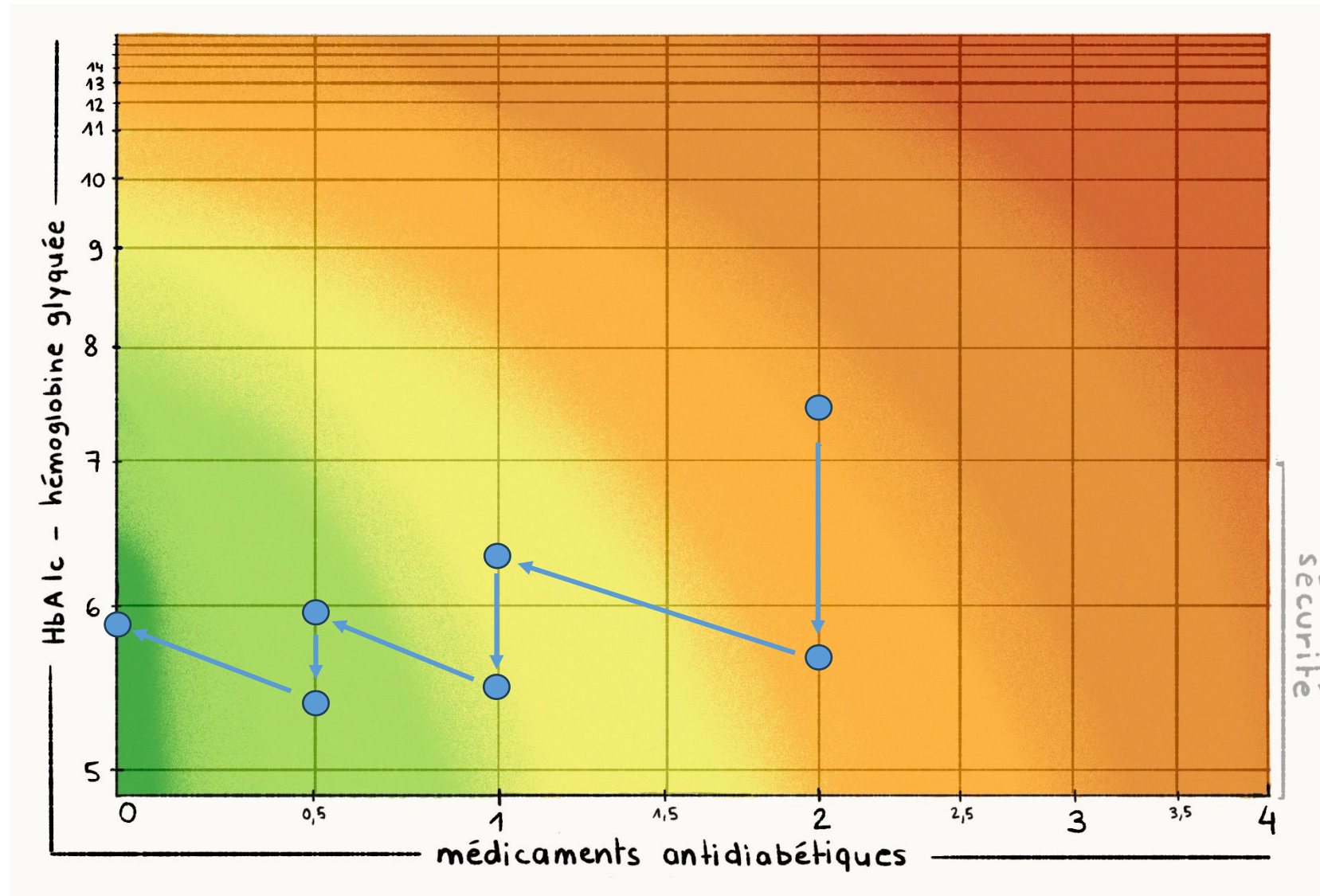
Hémoglobine glyquée





Outil pédagogique pour les patients issu du résultat de recherche (Lagger et al. TPE/ETP 2018) pour la rémission du DT2.

Outil pédagogique



Résultats R2D2 à l'EHC

Groupe R2D2

 8 femmes / 23 hommes

 48 ans (± 9.63)

 31.96 kg/m² (± 4.67)

 8.39% (± 2.69)

 1.05 ADO (± 1.08)

 62.45% (± 23.78)

 1.87 ans (± 2.97)

Groupe Contrôle

 8 femmes / 11 hommes

 53 ans (± 8.95)

 31.27 kg/m² (± 5.97)

 7.98% (± 2.03)

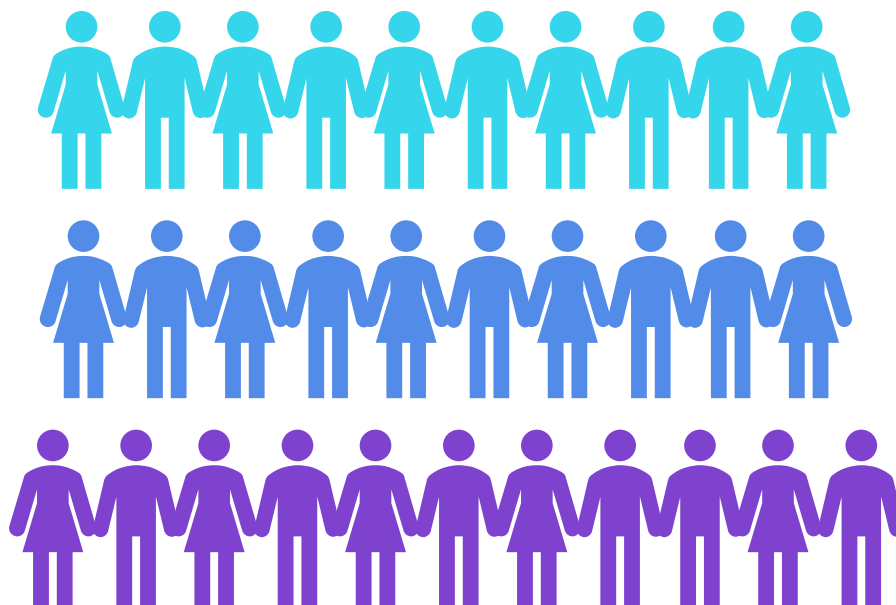
 1.22 ADO (± 1.14)

 62.93% (± 18.41)

 3.21 ans (± 3.82)

En résumé

31 patients
suivis



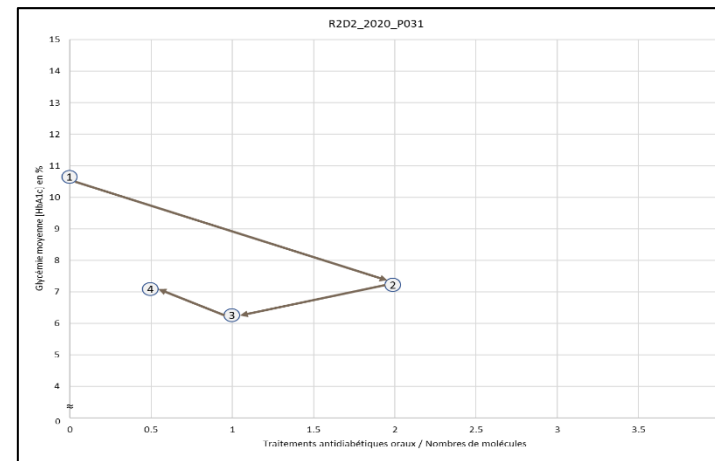
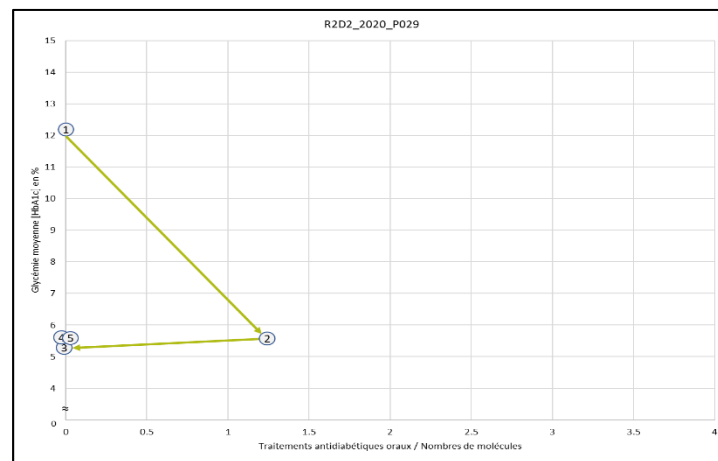
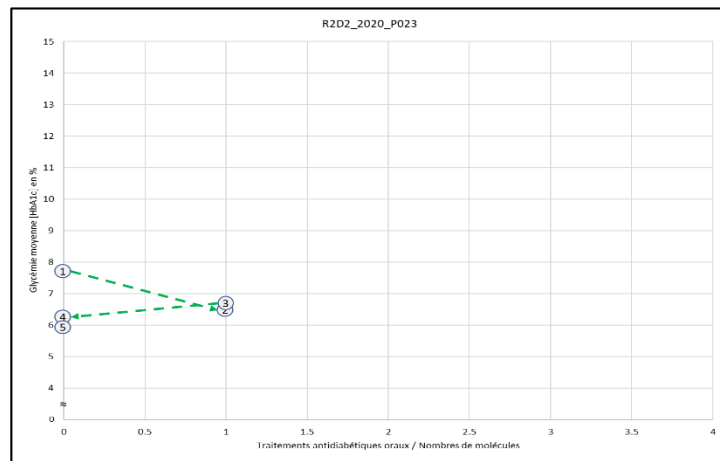
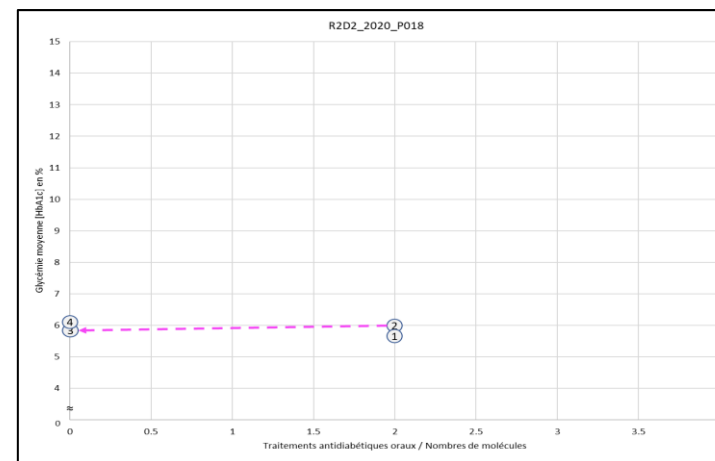
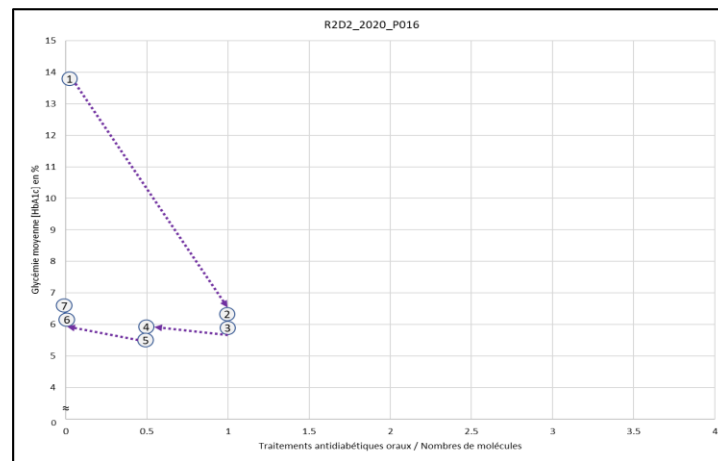
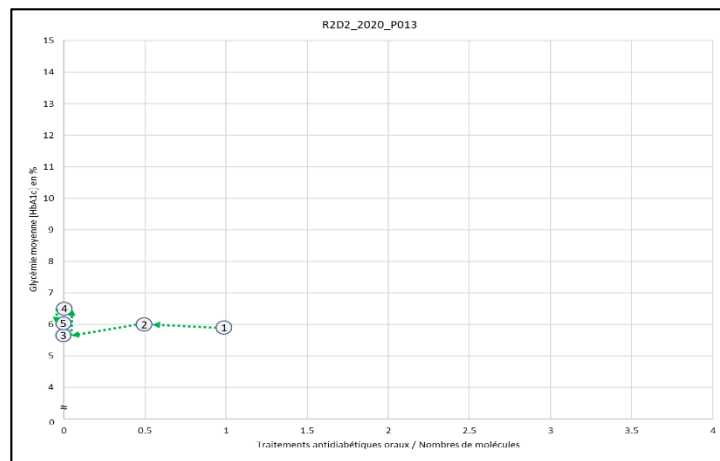
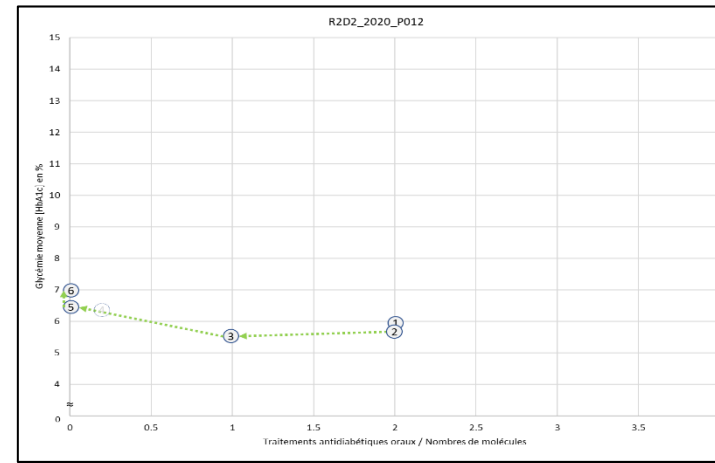
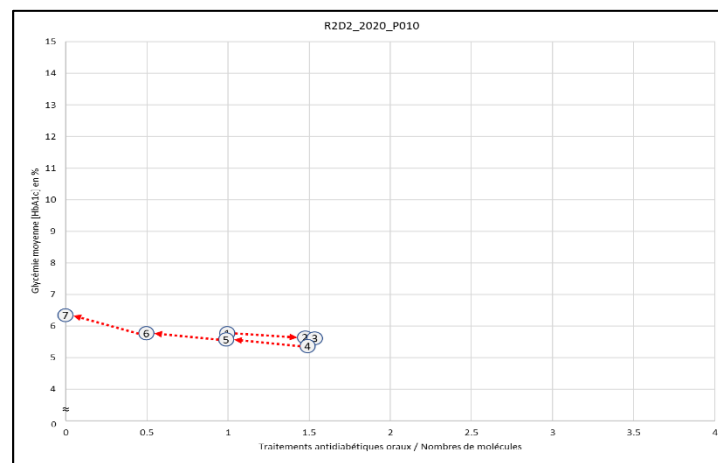
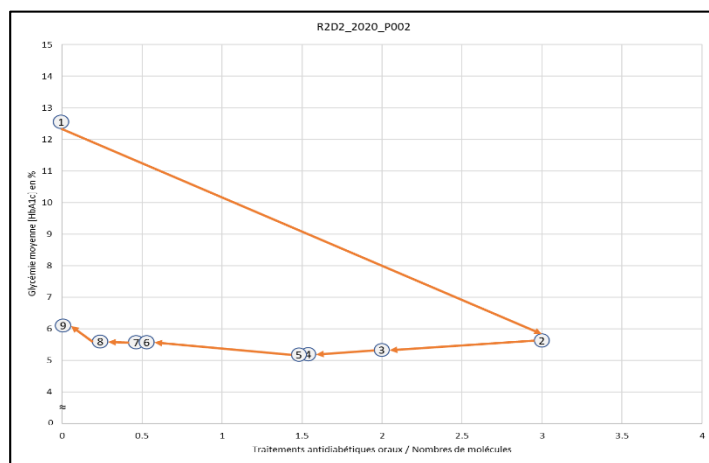
10 sans péjoration

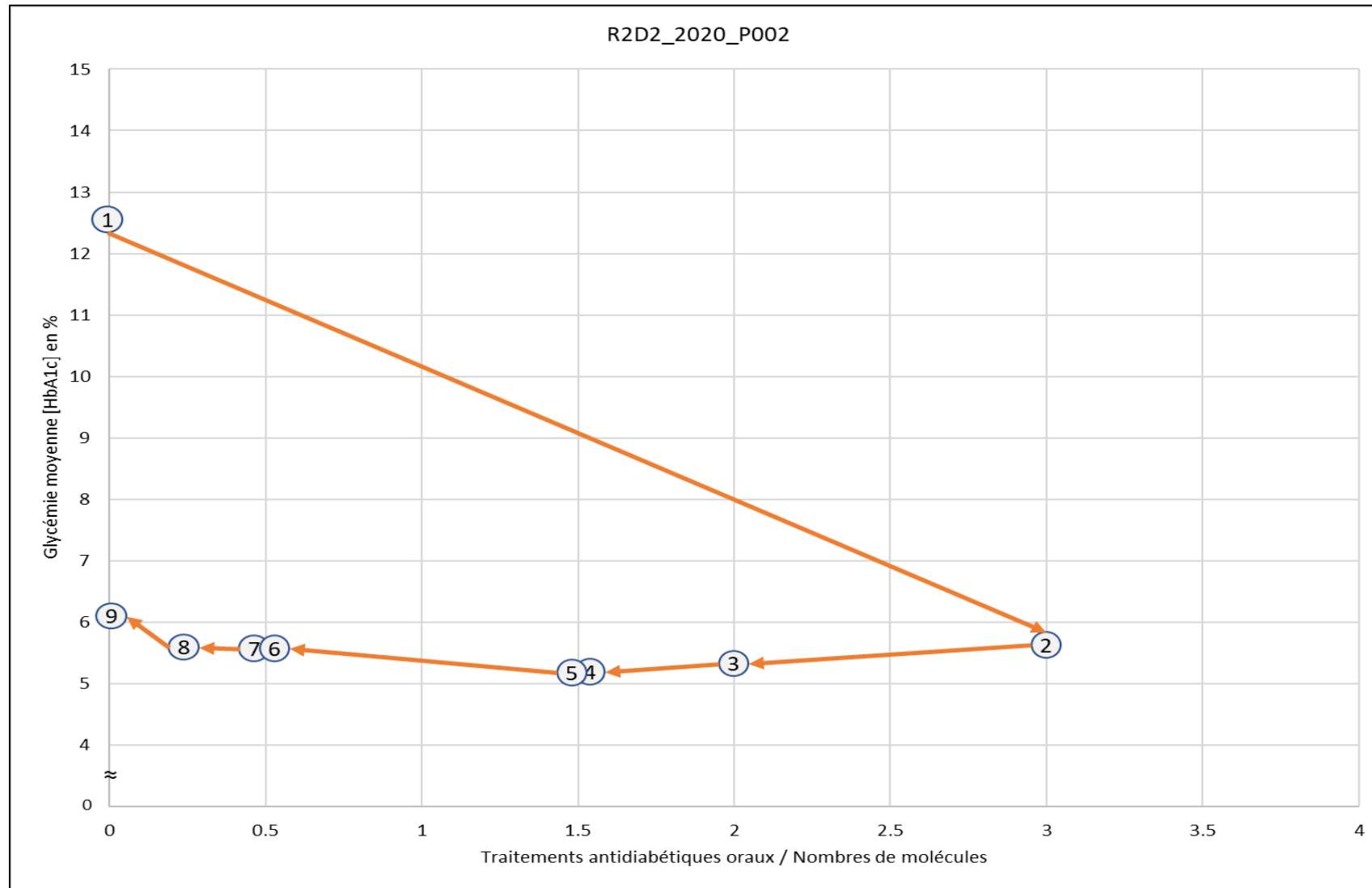
10 en fort recul

11 en rémission

19 patients
contrôle

Moitié stable, moitié légère
péjoration du DT2





Atouts de l'étude :

- Une éducation thérapeutique efficace en 5 dimensions;
- Fort recul du DT2, jusqu'à la rémission pour certains patients;
- Non corrélé à la perte de poids;
- Projet enthousiasmant pour les patients. Agir dans le futur et transmettre.

Limitations de l'étude :

- Effet de l'adhésion aux traitements ?
- Pas de recul à distance de l'intervention (5 ans ?)
- Petite cohorte, absence d'un groupe contrôle.

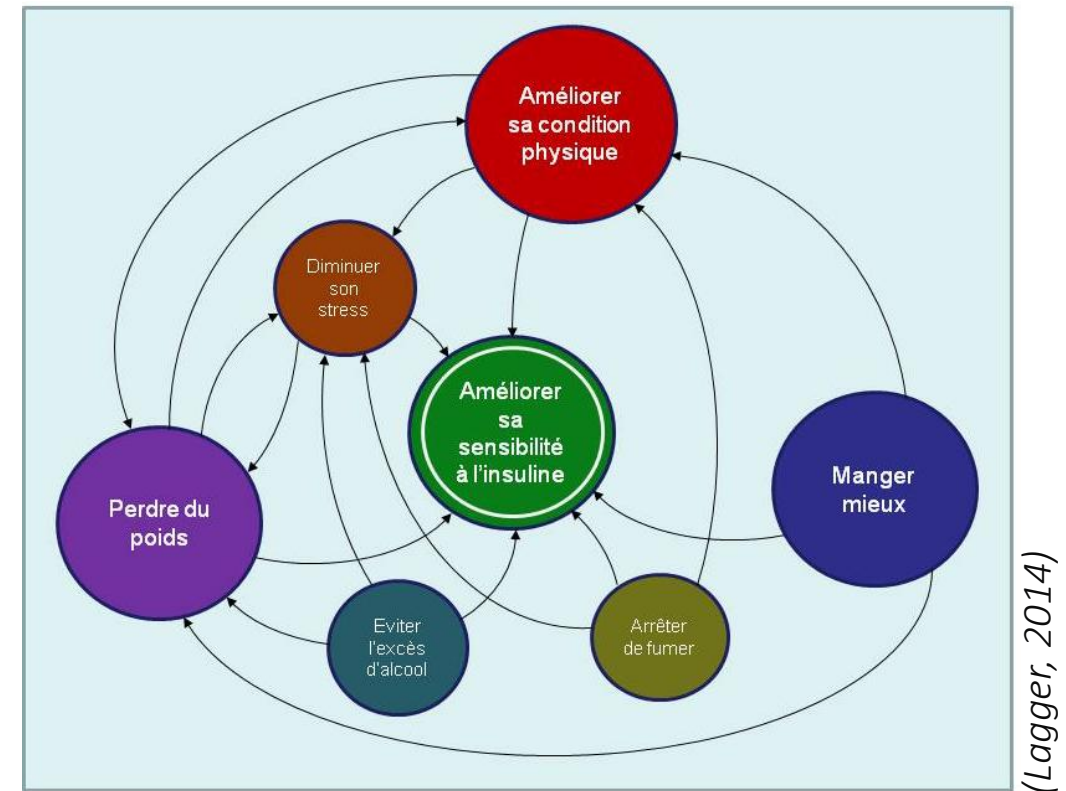


Et en pratique, ça donne quoi?

Rémission du DT2 – En pratique

- On comprend mieux aujourd’hui le rôle du :
 - déconditionnement physique
 - surpoids
- Les clés pour une rémission:
 - endurance musculaire,
 - nutrition,
 - sommeil,
 - baisse du stress

APPRENTISSAGES...



Quelques notions clés



Une alimentation parfaite n'existe pas
L'importance est de découvrir et de trouver du plaisir



Toutes les activités physiques sont intéressantes
Privilégier des intensités plutôt faibles et méditatives

PLAISIR + SENS = Maintien sur la durée

Porter une grande attention à ne pas enfermer les patients dans l'utilité, l'efficacité...



« Nous ne pouvons pas sauver les autres, mais nous pouvons les aimer. »

Anaïs Nin

Changer le message !

a)

« Vous avez une maladie chronique irréversible,
il vous faut la contrôler et éviter les complications... »

Changer le message !

a)

« Vous avez une maladie chronique irréversible,
il vous faut la contrôler et éviter les complications... »

? Ou...

b)

« Vous avez une maladie chronique sérieuse,
potentiellement réversible, désirez-vous tenter l'aventure...? »

Conclusions

- DT2 potentiellement réversible, le dire aux patients
- La place cruciale d'un réentraînement à l'effort
- Une éducation thérapeutique au sens large : apprendre

Avec tous mes remerciements pour votre attention



Rémission du Diabète de Type 2 : perspectives et pratiques



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ISREC - 17 septembre 2026

Vos questions, vos propositions ?

Rémissions du DT2 avec certains traitements médicamenteux

TABLE 1 Efficacy of diabetes remission with major antihyperglycemic drugs and combination therapy.

Drug/regimen	Mechanism of action	Remission outcomes (key data)	References
Short-term intensive insulin therapy	Relieving glucolipotoxicity and restoring β -cell function.	48% of patients maintained glycated hemoglobin (HbA1c) < 6.5% at 48 weeks. Changements nécessaires en parallèle, sinon on aggrave le pb.	(17)
Thiazolidinediones (TZDs)	PPAR γ activation, improving insulin sensitivity in adipose tissue.	In the pioglitazone group, 57.9% of patients had HbA1c $\leq$ 6.5% after discontinuation of the drug; the duration of maintaining HbA1c at < 6.2% was longer than the comparison group. Idem, accroît la masse du tissu adipeux	(21)
Novel PPAR pan- agonist	Multitarget regulation of glucose and lipid metabolism (e.g., Sigenatide).	In the Sigenatide group, HOMA-IR and HOMA- β were significantly improved, with significant potential for remission. Idem, tous tissus (et effet «potentiel»)	(22, 23)
Comprehensive Strategy (Lifestyle, Glargine, Lixisenatide, & Metformin)	Synergistically improve β -cell function and sensitivity.	43% reduction in diabetes relapse risk. Remission rates approximately doubled at 24 weeks (RR: 1.92) and 36 weeks (RR: 1.83) after drug withdrawal. ttt et changements en parallèle, oui	(24)
Dual/triple receptor agonist	Multitarget regulation (GIP/GLP-1/GCGR).	Tirzepatide: In the 15 mg group, HbA1c decreased by 2.07%, and body weight decreased by 9.5 kg; the remission rate of prediabetes was 95.3% vs. 61.9% (placebo). Idem et problème si perte de masse musculaire et force	(25, 26)

CSII, continuous subcutaneous insulin infusion; AMPK, AMP-activated protein kinase; PPAR γ , peroxisome proliferator-activated receptor gamma; HbA1c, glycated hemoglobin; HOMA-IR, Homeostatic Model Assessment for Insulin Resistance; HOMA- β , HOMA for Beta-cell function; GIP, glucose-dependent insulintropic polypeptide; SIIT, short-term intensive insulin therapy; GLP-1, glucagon-like peptide-1; GCGR, glucagon receptor; cAMP, cyclic adenosine monophosphate; PKA, protein kinase A.

Liu Y. et al. *Front. Endocrinol.*, 2025.

