

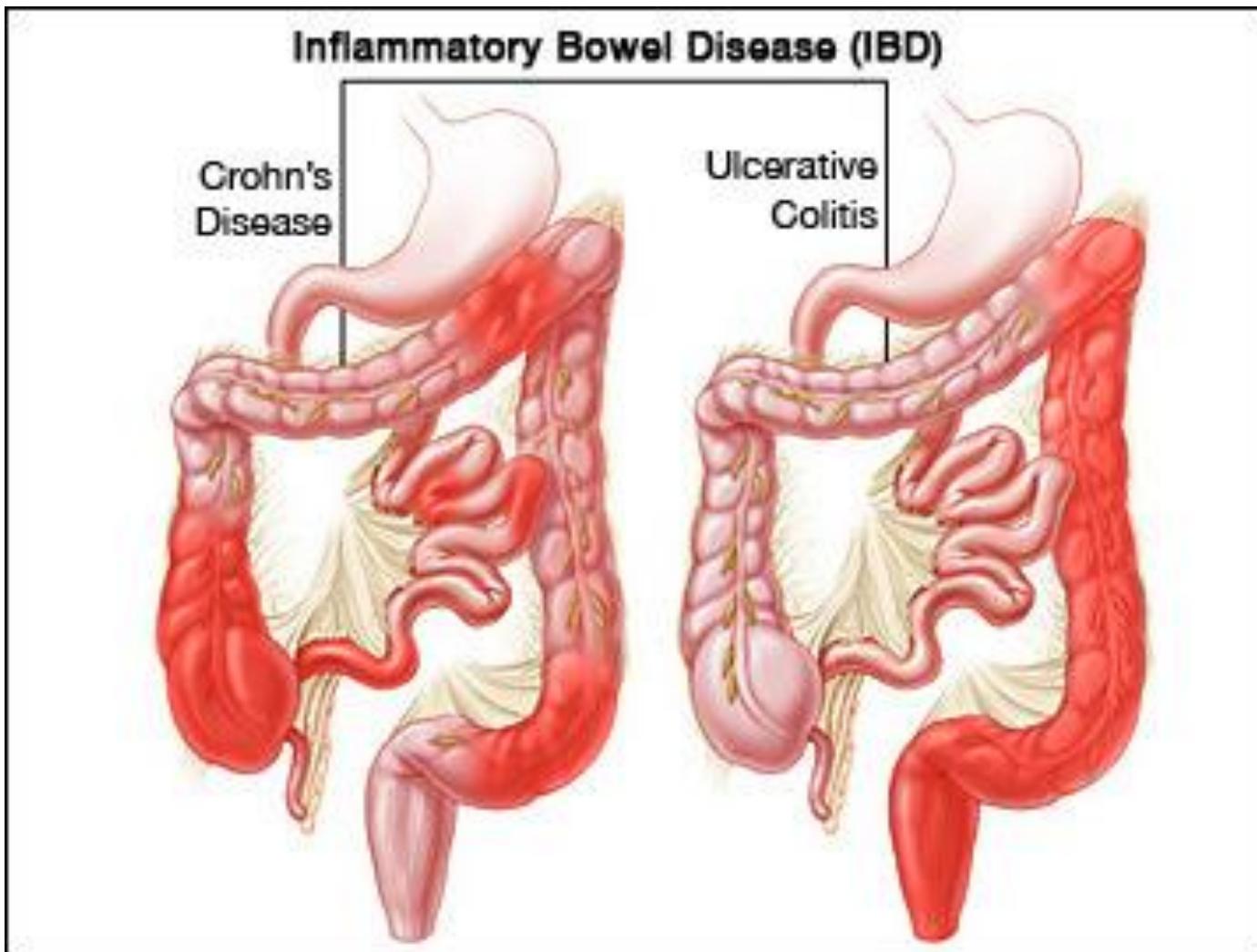
Soirée d'information aux patients



Impact de l'environnement pour les MICI

Nurullah ASLAN,
Chef de clinique adjoint, GLG, CHUV

MICI: maladies inflammatoires chroniques intestinales



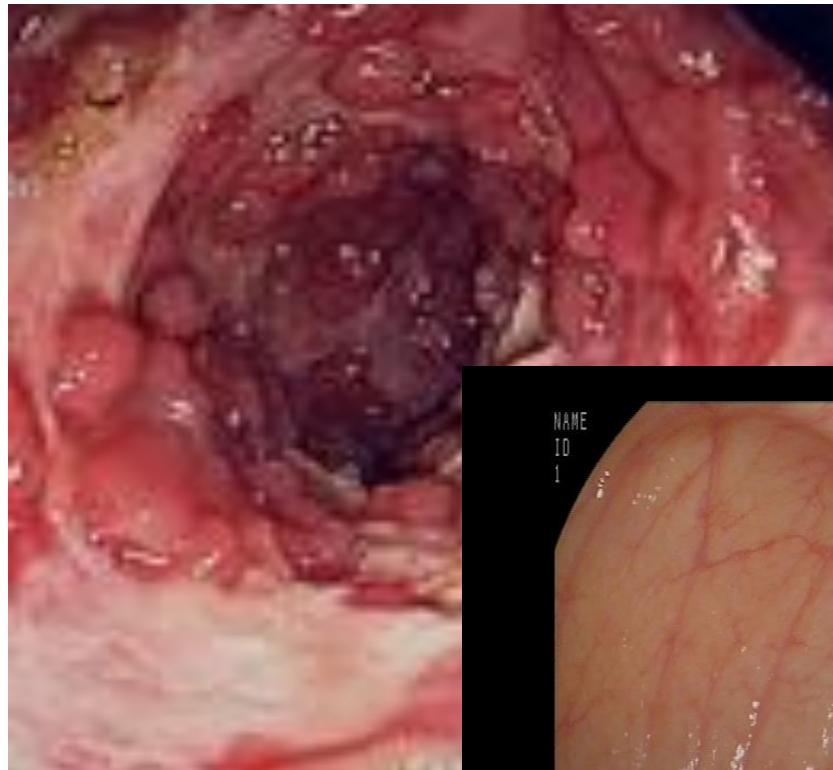
Maladie de Crohn



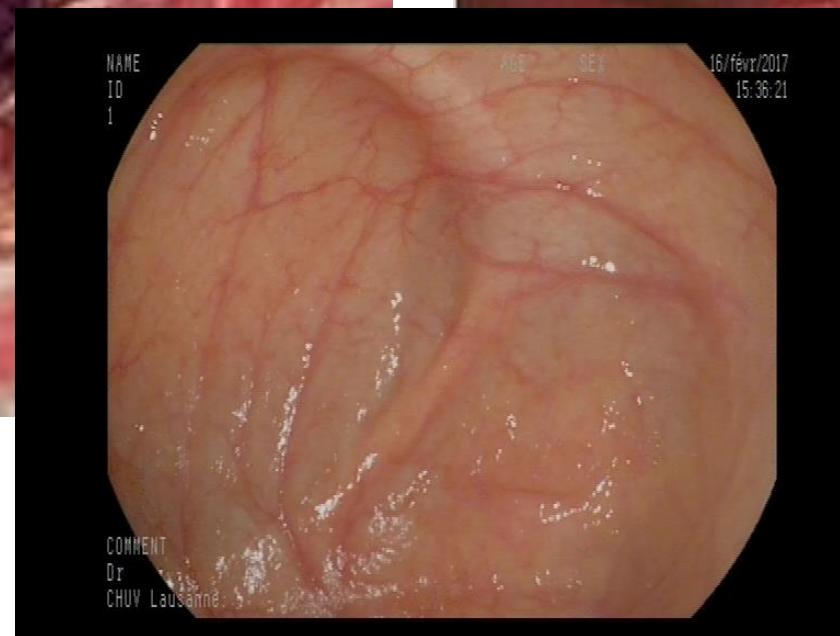
Colite ulcéreuse



Maladie de Crohn

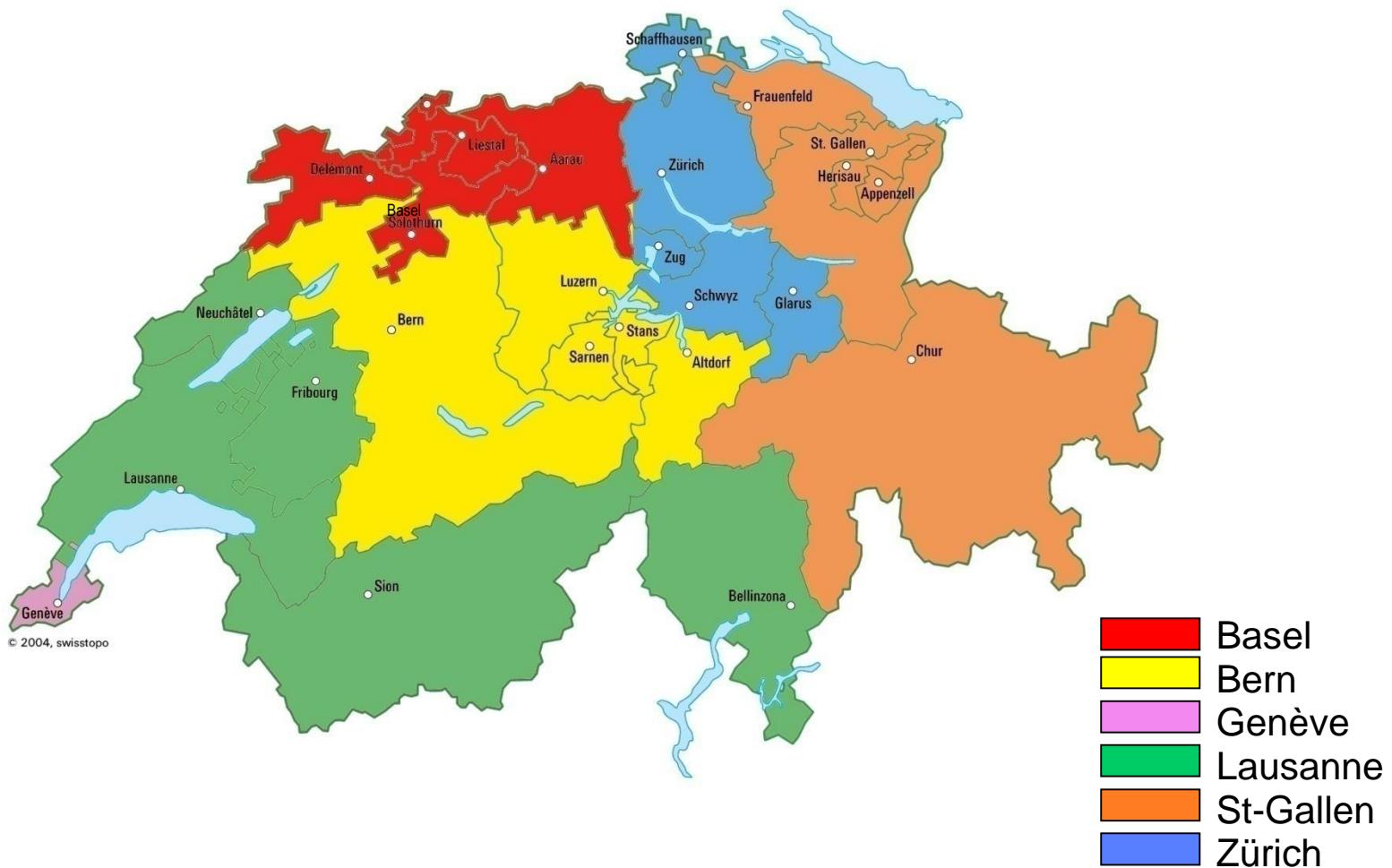


Colite ulcéreuse



Muqueuse saine

SWISSIBD cohort study



SWISSIBDcohort study

Fréquence:

M. de Crohn: 1/1000

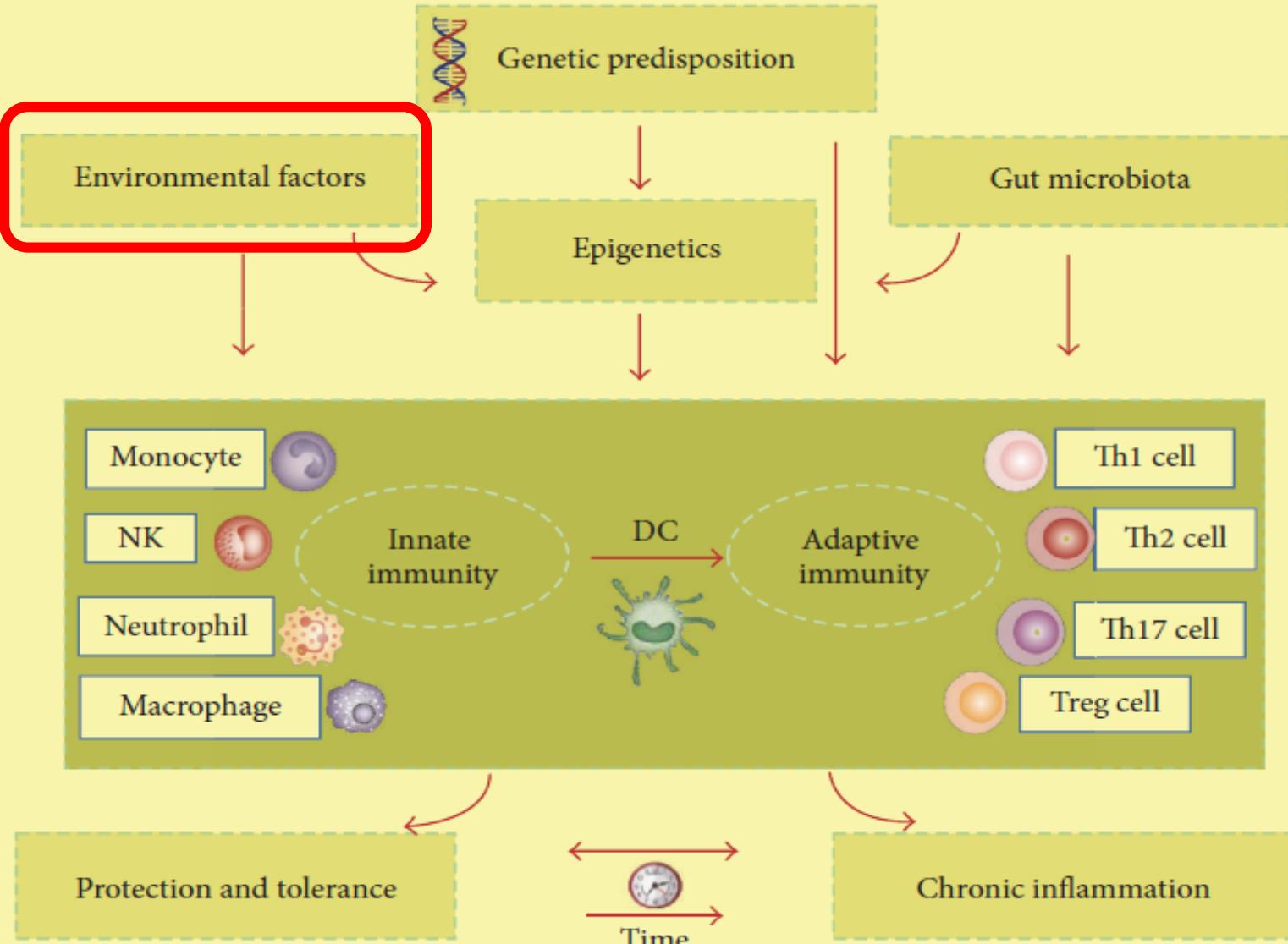
Colite ulcéreuse: 1/1000

MICL: 1/500

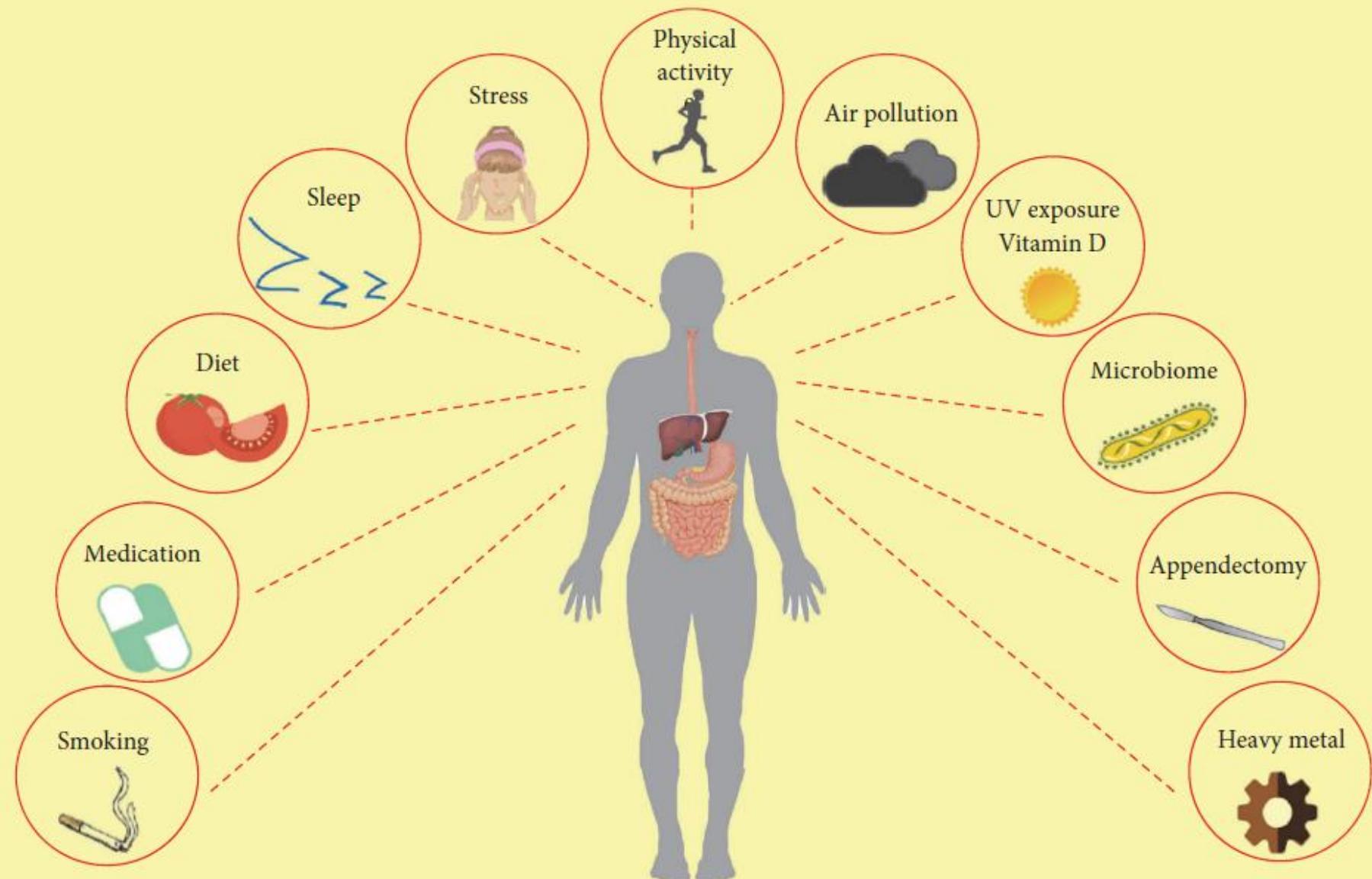
Au niveau Suisse: 16'000 patients



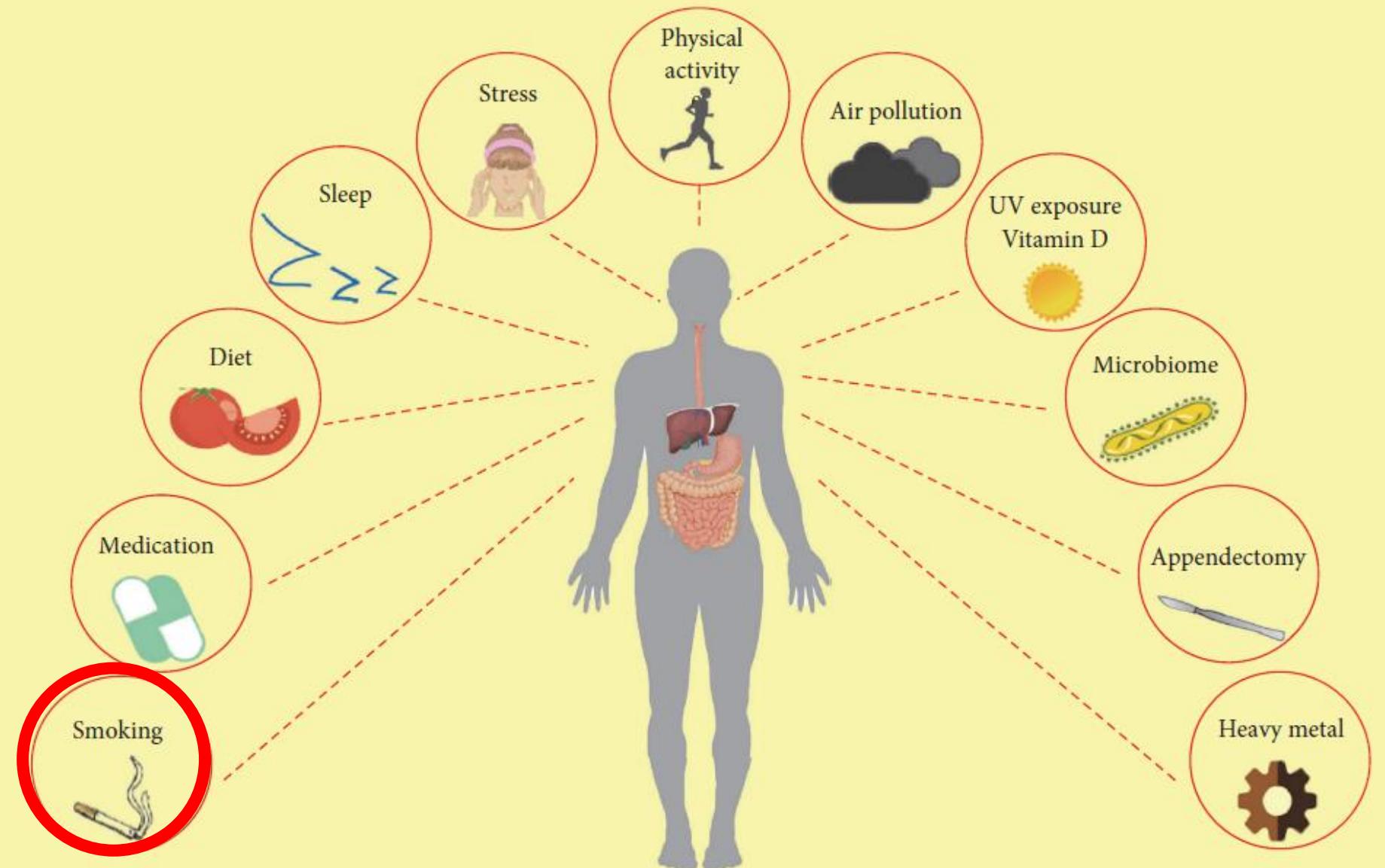
■	Bern
■	Genève
■	Lausanne
■	St-Gallen
■	Zürich



Environmental risk factors



Environmental risk factors





RCUH

M. Crohn

cigarettes arrêt ‡*

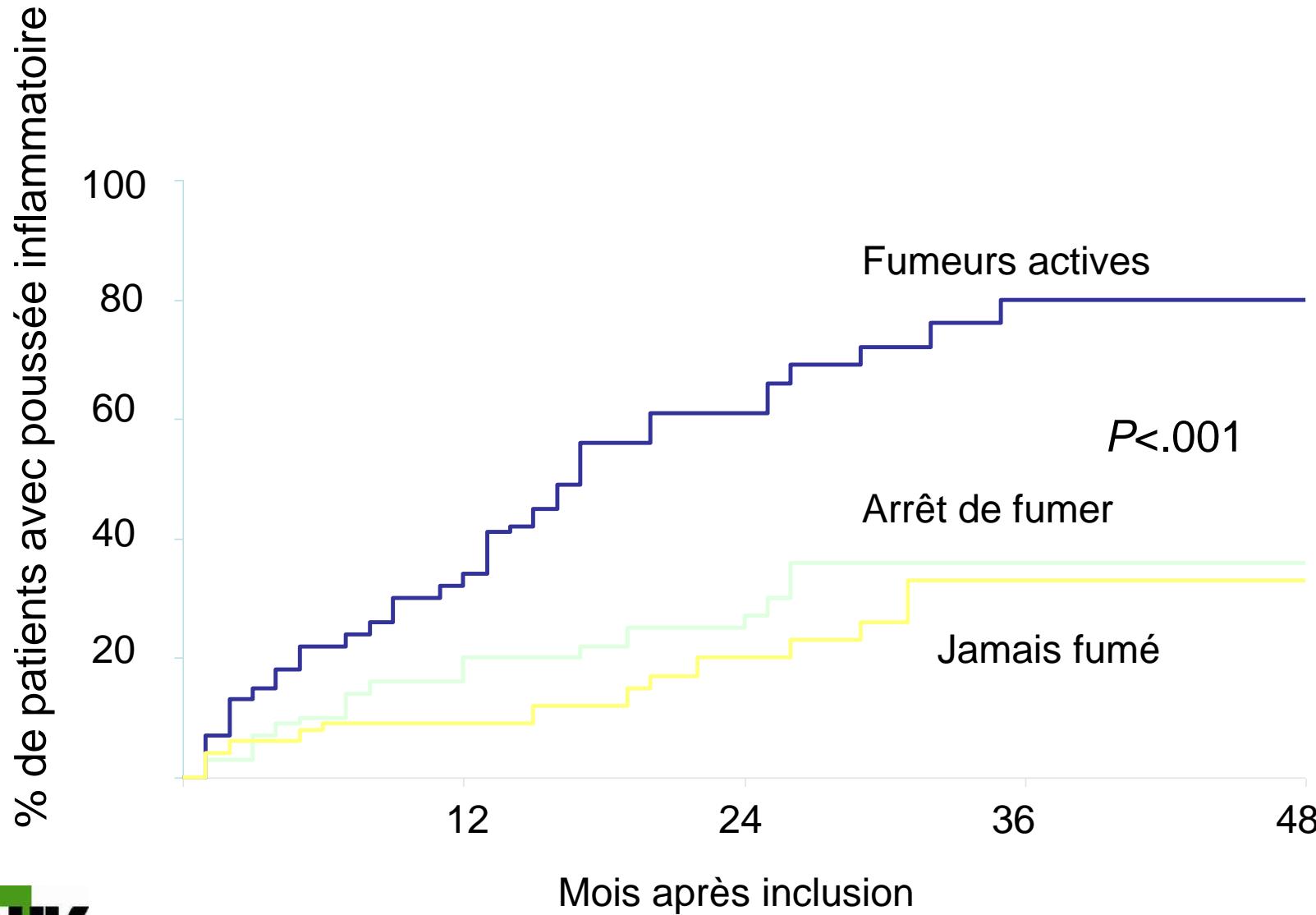
cigarettes arrêt ‡*

Développement	↓	↑	↑	±
Poussées	↓	↑	↑	↓
Chirurgie	↓	-	↑	↓

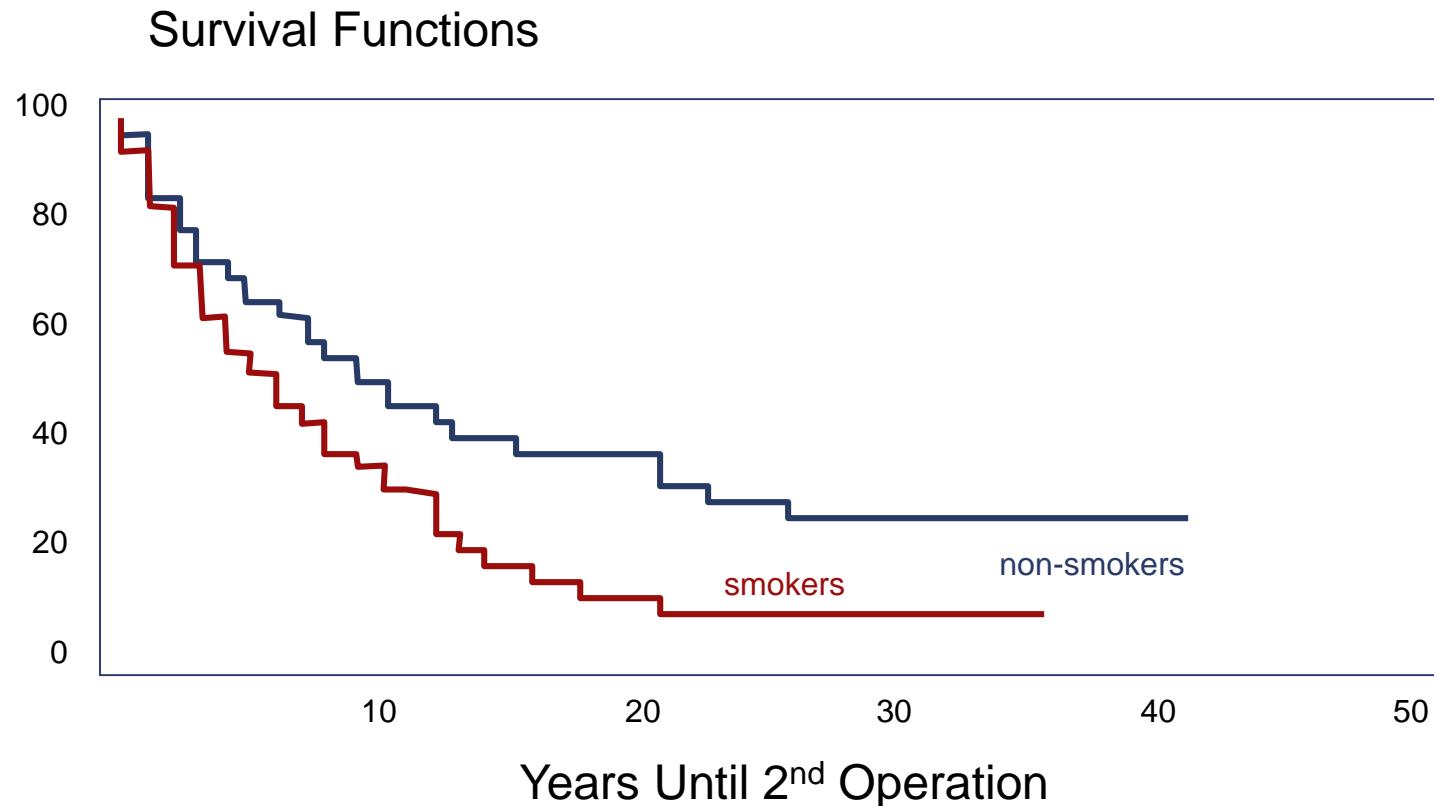
* Current smoking compared to non-smoking.

‡ Smoking cessation compared to continuing smoking.

Effet des cigarettes sur l'évolution de la M. Crohn



Le risque pour 2ème opération dans la M. Crohn



Smokers vs Non-smokers

Log Rank
5.76

Degrees of Freedom
1

P
.0164

Cigarette «classique»



Mécanisme d'action

- Combustion
- goudron,
- beaucoup de substances cancérogènes

Cigarette électronique

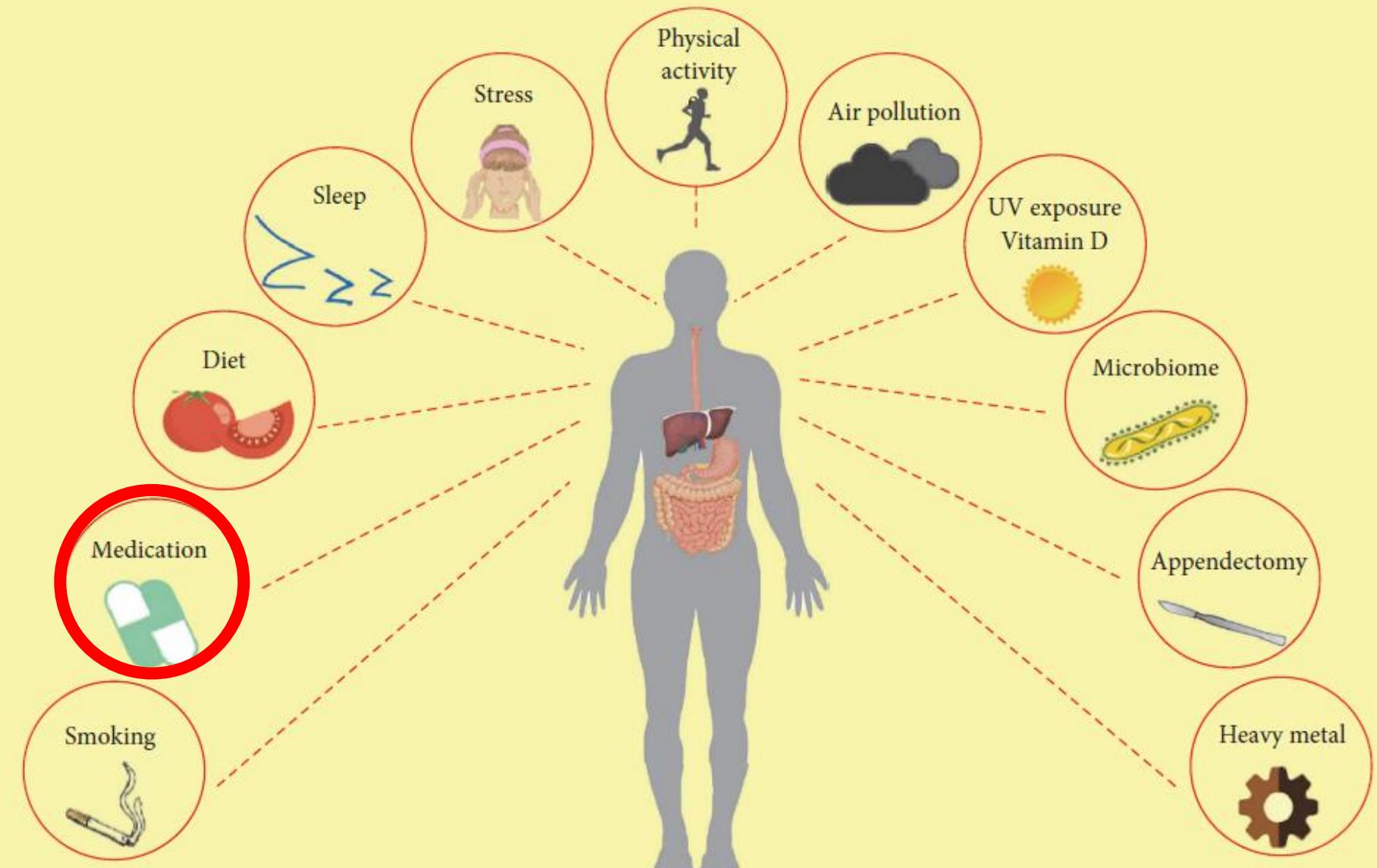


Effet sur les MICI

- Beaucoup de données

??

Environmental risk factors



Médicaments, pilule contraceptive



Médicaments, pilule (anticonceptive)

	Crohn's Disease (CD)	UC	Controls (Ct)	Odds Ratio (95%CI); <i>p</i> Value
Ever smoking	54.7%	54.4%	45.7%	1.78 (1.32–2.41); <i>p</i> = 0.0002 CD vs Ct 1.66 (1.17–2.35); <i>p</i> = 0.004 UC vs Ct
Smoking now	29.0%	15.7%	19.0%	1.96 (1.38–2.78); <i>p</i> = 0.0001 CD vs Ct 2.27 (1.47–3.50); <i>p</i> = 0.0002 CD vs UC
User of ASA regularly* ever (Y/N)	12.0%	14.3%	13.4%	0.91 (0.58, 1.43); <i>p</i> = 0.69 CD vs Ct 0.89 (0.54, 1.46); <i>p</i> = 0.76 UC vs Ct
User of acetaminophen regularly* ever (Y/N)	47.5%	33.3%	31.4%	2.27 (1.67, 3.11); <i>p</i> < 0.0001 CD vs Ct 1.18 (0.82, 1.70); <i>p</i> = 0.38 UC vs Ct
User of any other pain killer regularly* ever (Y/N)	29.7%	18.7%	18.5%	2.18 (1.53, 3.11); <i>p</i> < 0.0001 CD vs Ct 1.08 (0.70, 1.68); <i>p</i> = 0.71 UC vs Ct
User ever of OCP**	88%	90%	86%	0.98 (0.56, 1.72); <i>p</i> = 0.95 CD vs Ct 1.06 (0.53, 2.13); <i>p</i> = 0.86 UC vs Ct
Number of years of OCP use between:				
15–19	2.8 (1.4)	2.5 (1.3)	2.3 (1.6)	1.21 (1.04, 1.42) <i>p</i> =0.02 CD vs Ct
20–24	3.7 (1.4)	3.2 (1.2)	3.3 (1.2)	1.28 (1.08, 1.51); <i>p</i> = 0.004 CD vs Ct
25–29	3.5 (1.4)	3.0 (1.4)	3.0 (1.3)	1.33 (1.10, 1.61); <i>p</i> = 0.004 CD vs Ct
30–34	3.2 (1.6)	2.4 (1.3)	2.5 (1.4)	1.44 (1.11, 1.88); <i>p</i> = 0.006 CD vs Ct
35–39	2.8 (1.6)	2.0 (1.2)	2.3 (1.4)	1.26 (0.84, 1.88); <i>p</i> = 0.26 CD vs Ct
15–39	8.0 (4.9)	6.7 (3.9)	6.6 (4.6)	1.07 (1.03, 1.11); <i>p</i> = 0.0009 CD vs Ct 1.06 (0.89, 1.26); <i>p</i> = 0.52 UC vs Ct

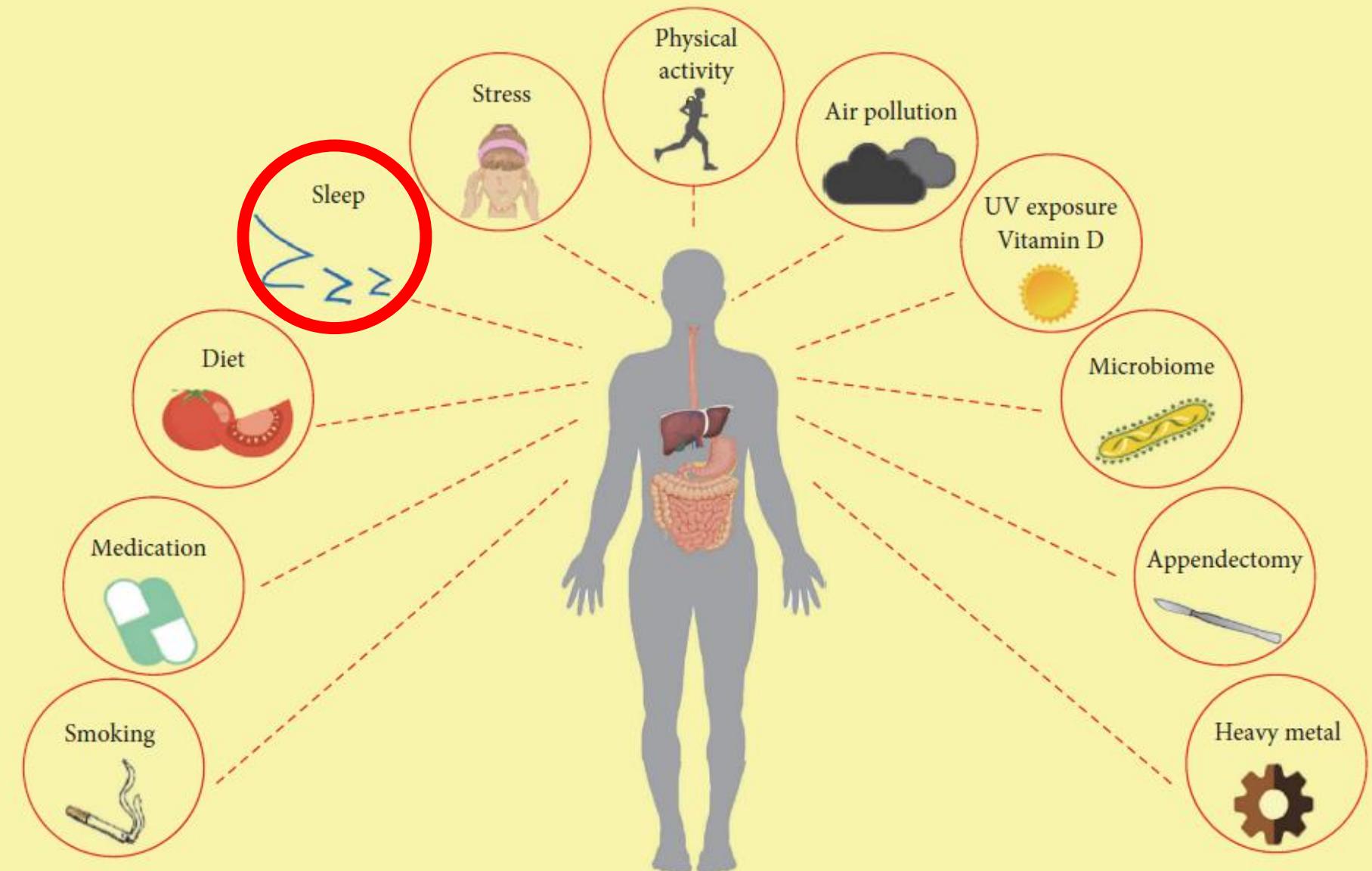
*Regular use of ASA and acetaminophen referred to at least twice per week.

** OCP refers to oral contraceptive pill. Questions about OCP were only asked of females.

Médicaments, pilule (anticonceptive)

Crohn's Disease (CD)	UC	Controls (Ct)	Odds Ratio (95%CI); <i>p</i> Value
Médicaments anti-inflammatoires (par ex. Voltaren) sont un facteur de risque pour M. Crohn et RCUH			
La pilule est un facteur de risque pour la M. Crohn			
Aspirine cardio (100mg/j): pas de facteur de risque			

Environmental risk factors



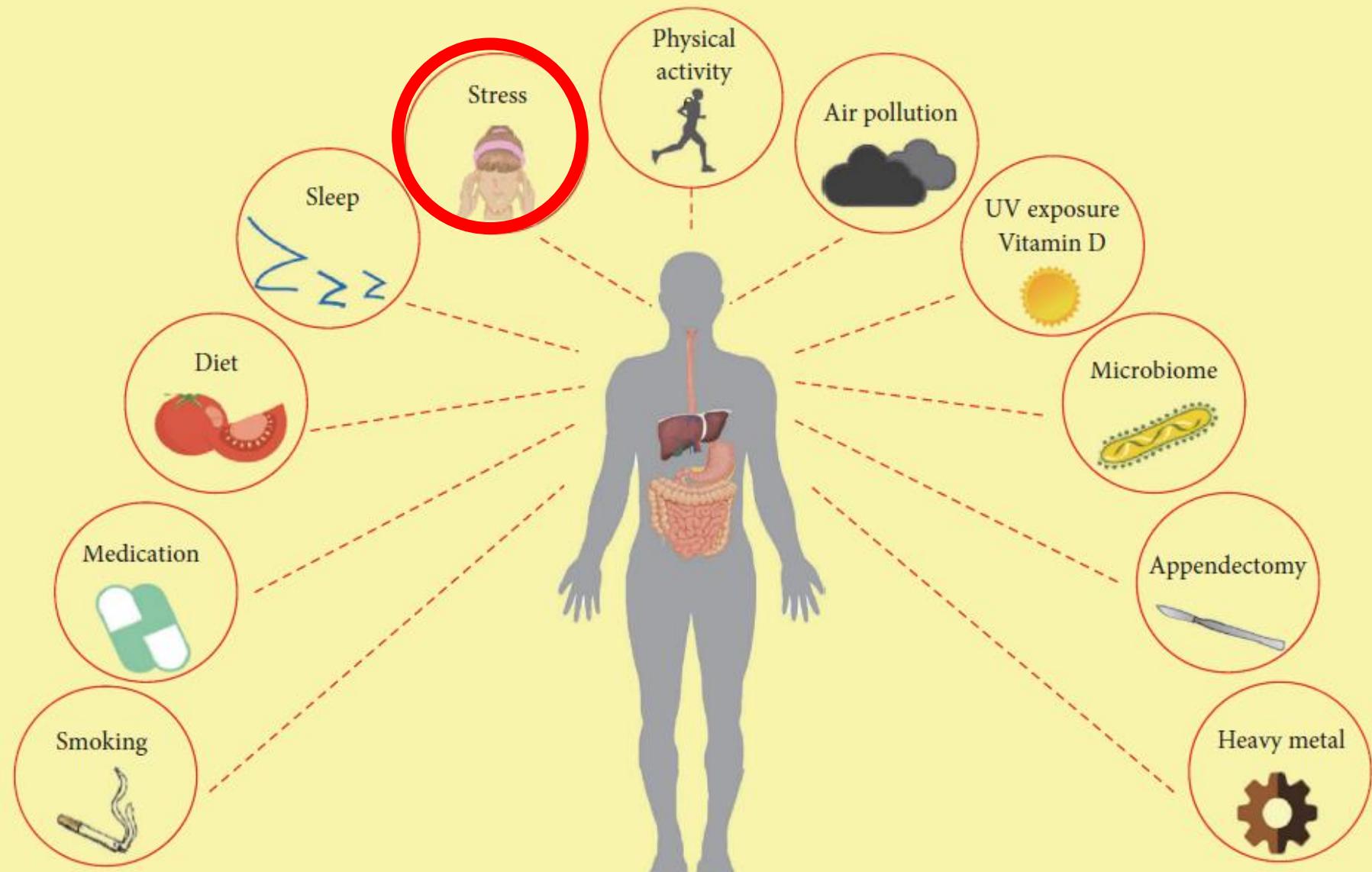
Sommeil et MICI



- Plus fréquemment des troubles du sommeil
- Manque de sommeil peut déclencher des poussées inflammatoires
- Implications pratiques:
 - discuter du problème
 - chercher les conditions qui peuvent y contribuer (syndrome d'apnée du sommeil, restless legs syndrome, etc).

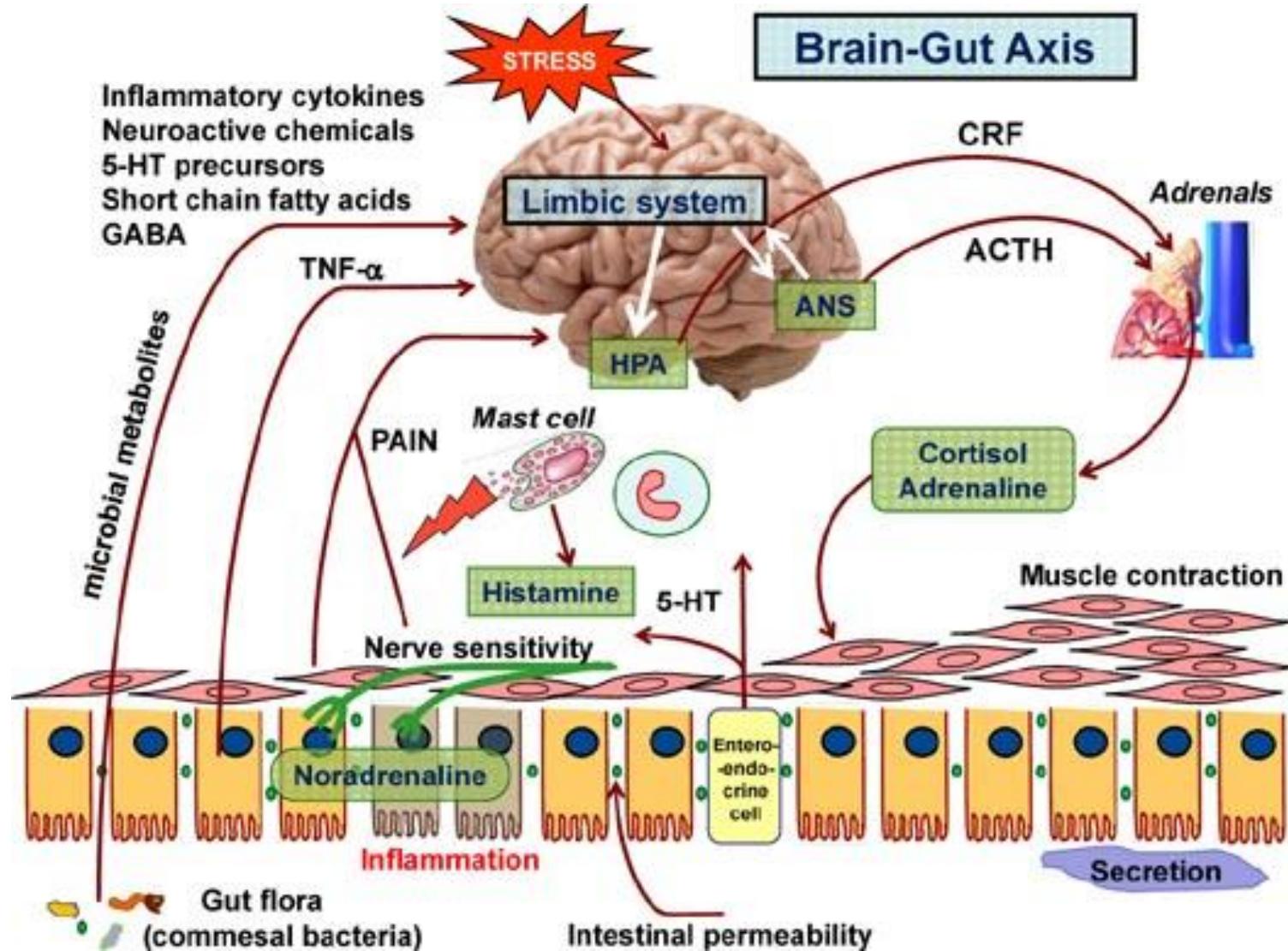
Kinnucan AM, et al. Gastroenterology and Hepatology 2013;9:719-27

Environmental risk factors

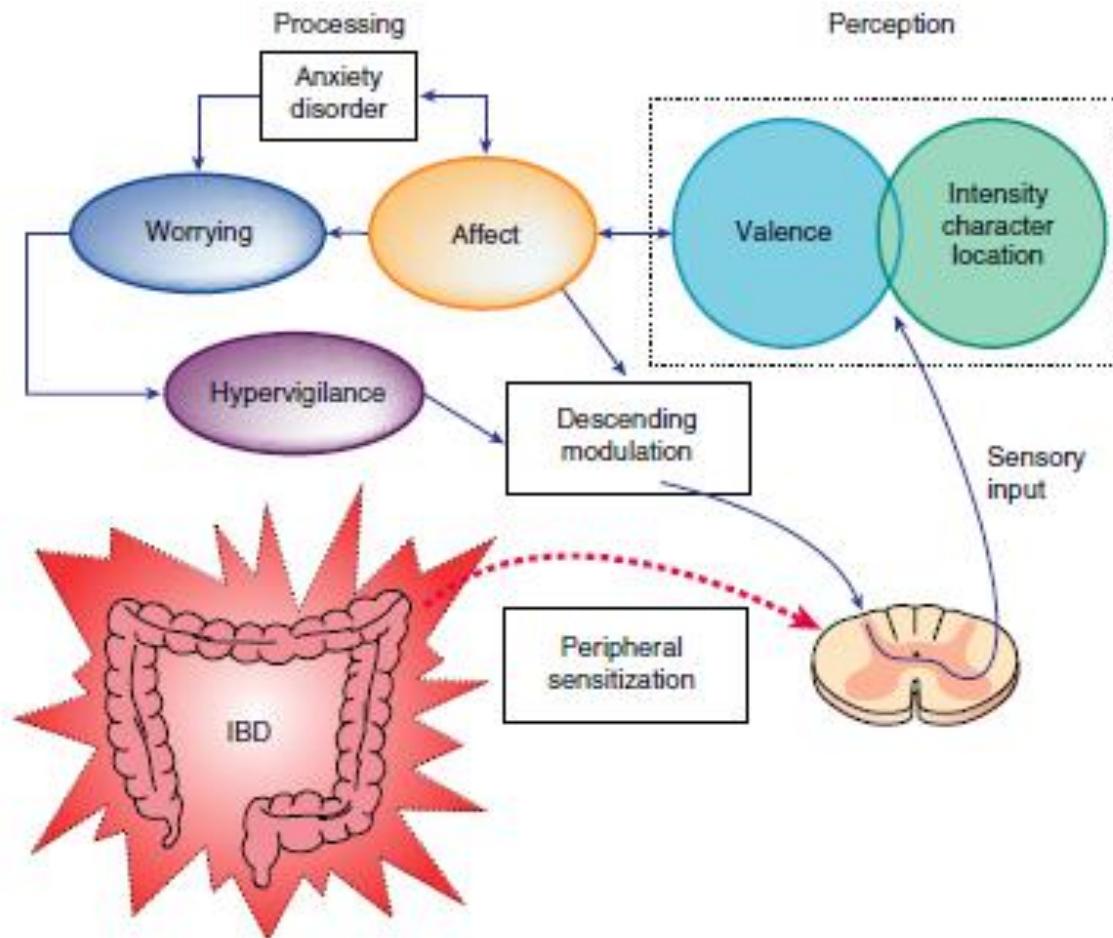


Stress et MCl: relation compliquée



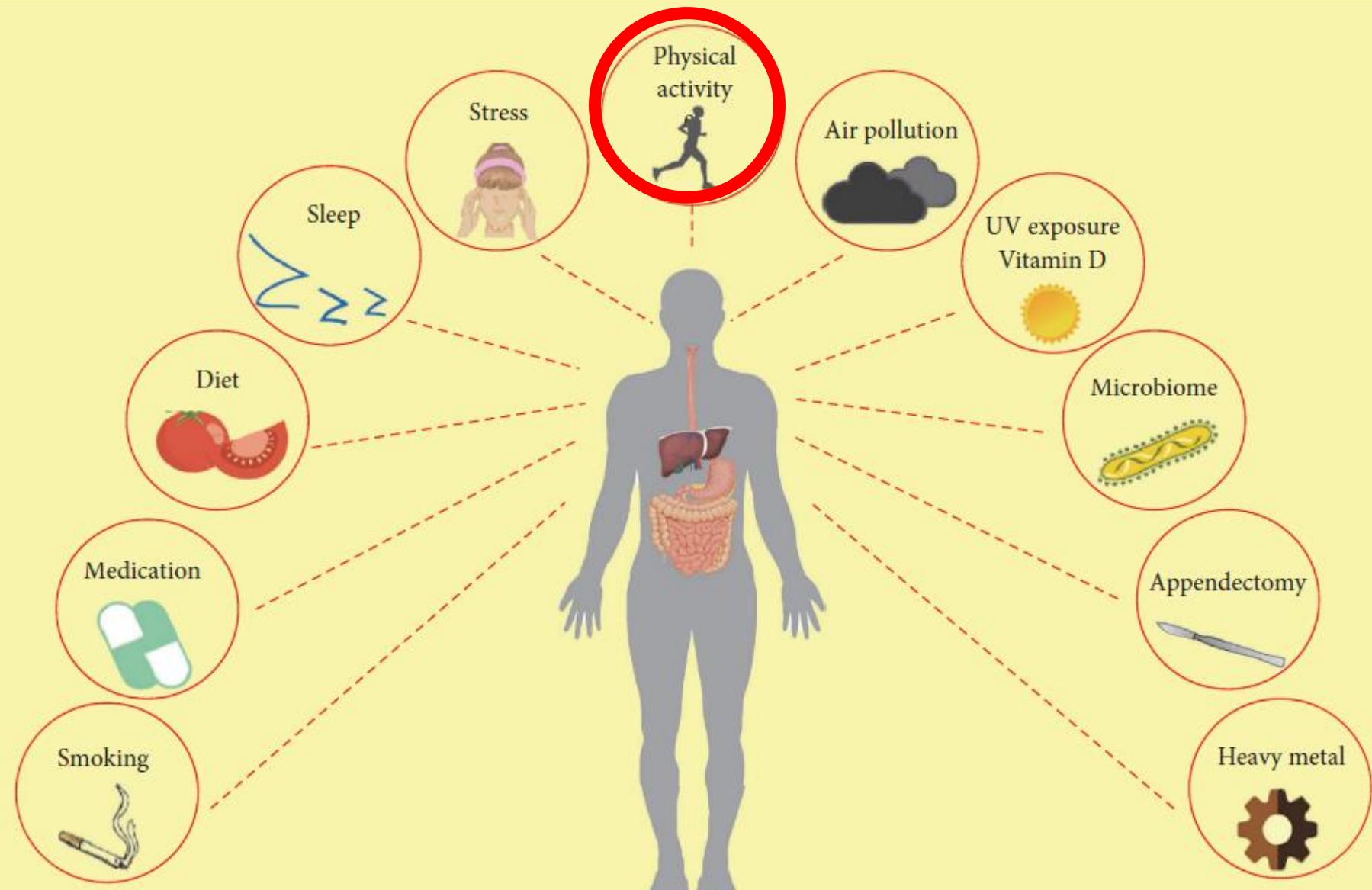


Stress peut intensifier la douleur



Sweeney L, et al, APT 2018;47:715-29

Environmental risk factors



Activité physique



Activité physique: études interventionnelles avec patients MC

- Intervention pendant 3 mois (low-intensity walking program)^{1,2}
 - Perte pondérale
 - État psychologique amélioré
 - Qualité de vie améliorée
 - Pas d'effet défavorable sur la M. Crohn
- Intervention pendant 12 mois (home-based low-impact exercise)³
 - Masse osseuse légèrement augmentée (trend)
 - Pas d'effet défavorable sur la M. Crohn

1. Loudon CP et al. *Am J Gastroenterol.* 1999;94:697-703.

2. Ng V et al. *Clin J Sport Med.* 2007;17:384-388.

3. Robinson RJ et al. *Gastroenterology.* 1998;115:36-41.

Activité physique: études interventionnelles avec patients MC

- Intervention pendant 3 mois (low-intensity walking program)^{1,2}

Activité physique légère, mais régulière, peut améliorer la qualité de vie et l'état psychologique

Intervention pendant 12 mois (modèle basé sur impact exercise³

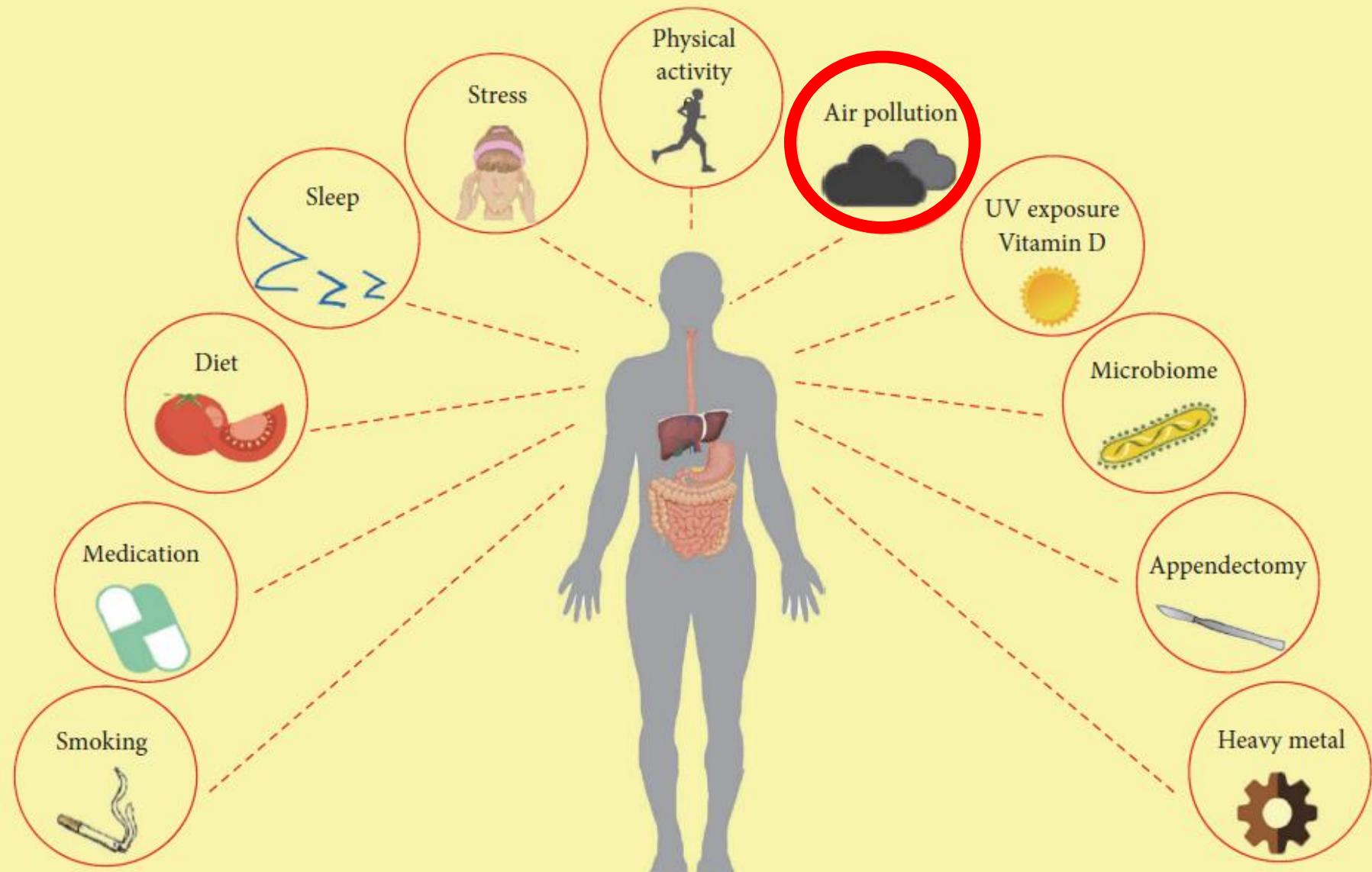
- Masse osseuse légèrement augmentée (trend)
- Pas d'effet défavorable sur la M. Crohn

1. Loudon CP et al. *Am J Gastroenterol.* 1999;94:697-703.

2. Ng V et al. *Clin J Sport Med.* 2007;17:384-388.

3. Robinson RJ et al. *Gastroenterology.* 1998;115:36-41.

Environmental risk factors





Association des MICI avec...

- Milieu urbain
- Pollution aérienne (NO₂, SO₂, CO)

Ananthkrishnan AN, et al. Nature Rev Gastroenterol Hepatol 2018;15:39-39

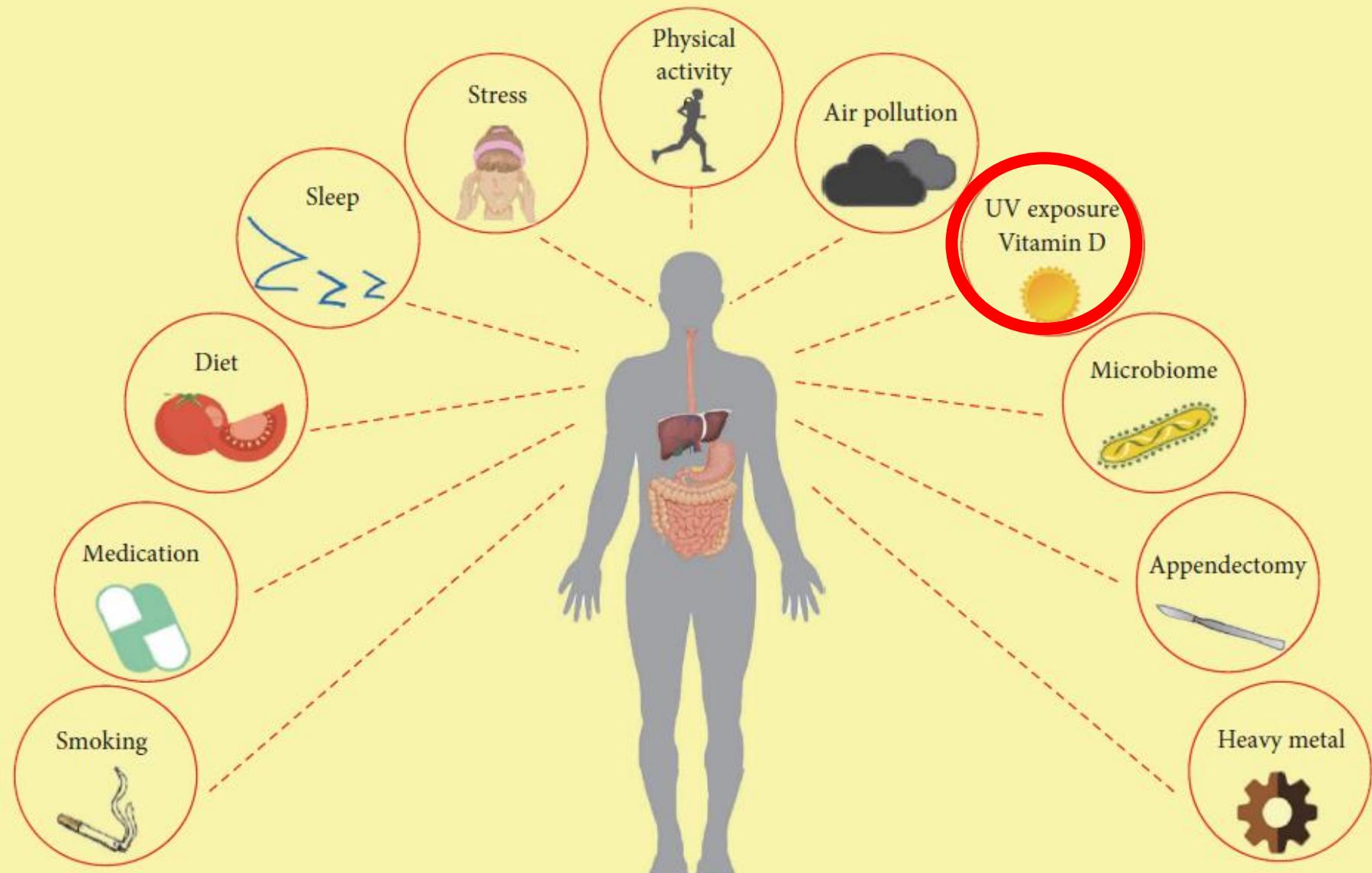
Association des MICI avec...

- Milieu urbain
- Pollution aérienne (NO₂, SO₂, CO)

Ananthkrishnan AN, et al. Nature Rev Gastroenterol Hepatol 2018;15:39-39



Environmental risk factors



Vitamine D

SUNLIGHT
The body itself makes
vitamin D when it is
exposed to the sun

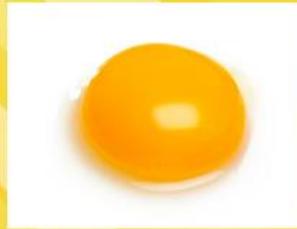
10 Best Vitamin D Rich Foods



Fortified Cereals



Orange Juice



Egg Yolk



Mushroom



Ricotta Cheese



Fatty Fish



COD Liver Oil

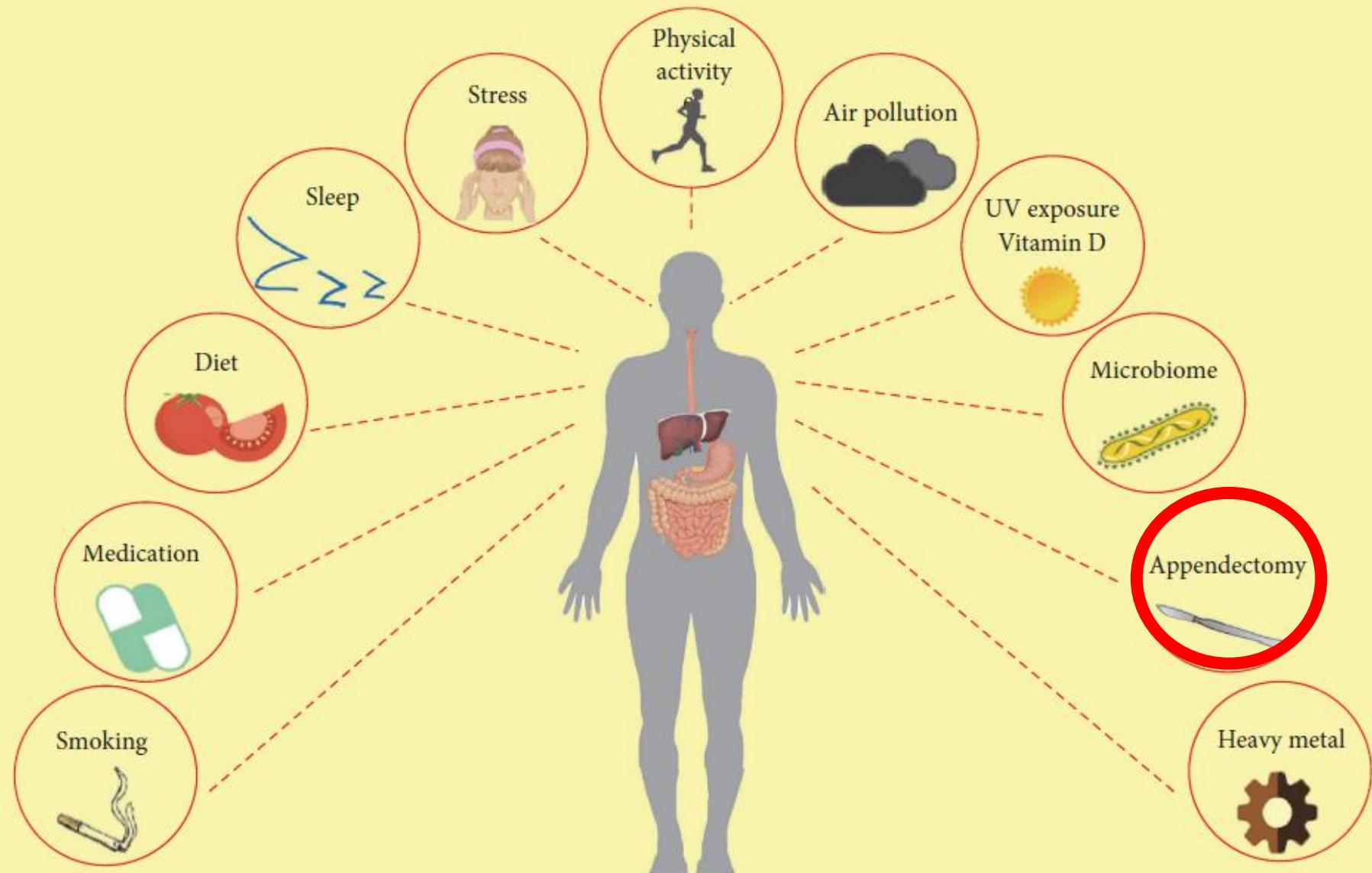


Cavier (Fish eggs)

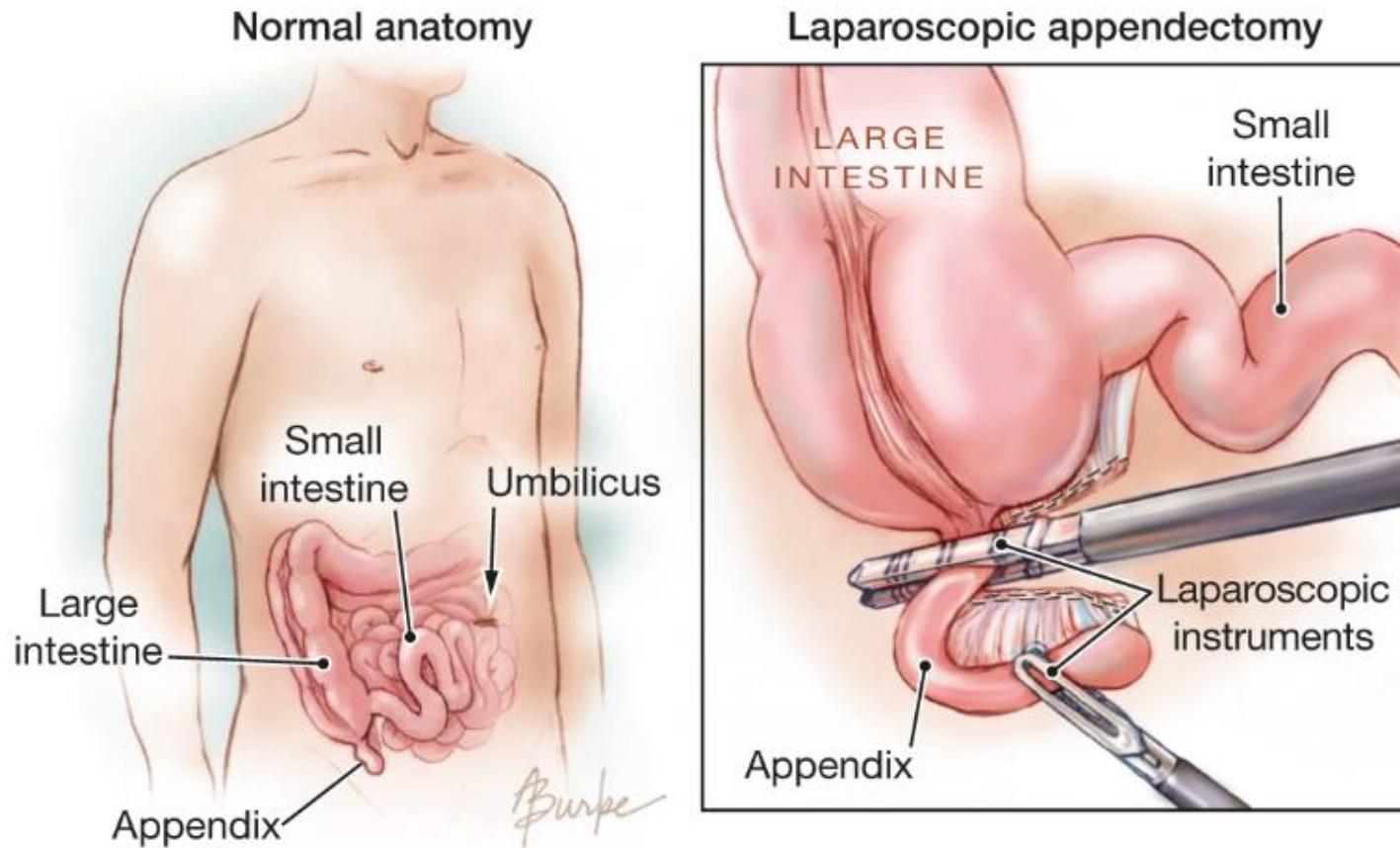
Vitamine D

- Population normales: manque de vitamine D dans env. 20%
- Effet anti-inflammatoire
- Manque de vitamine D dans env. 40% des patients MCI
- Impact clinique: chercher manque de Vit D et substituer si nécessaire

Environmental risk factors



Appendectomy



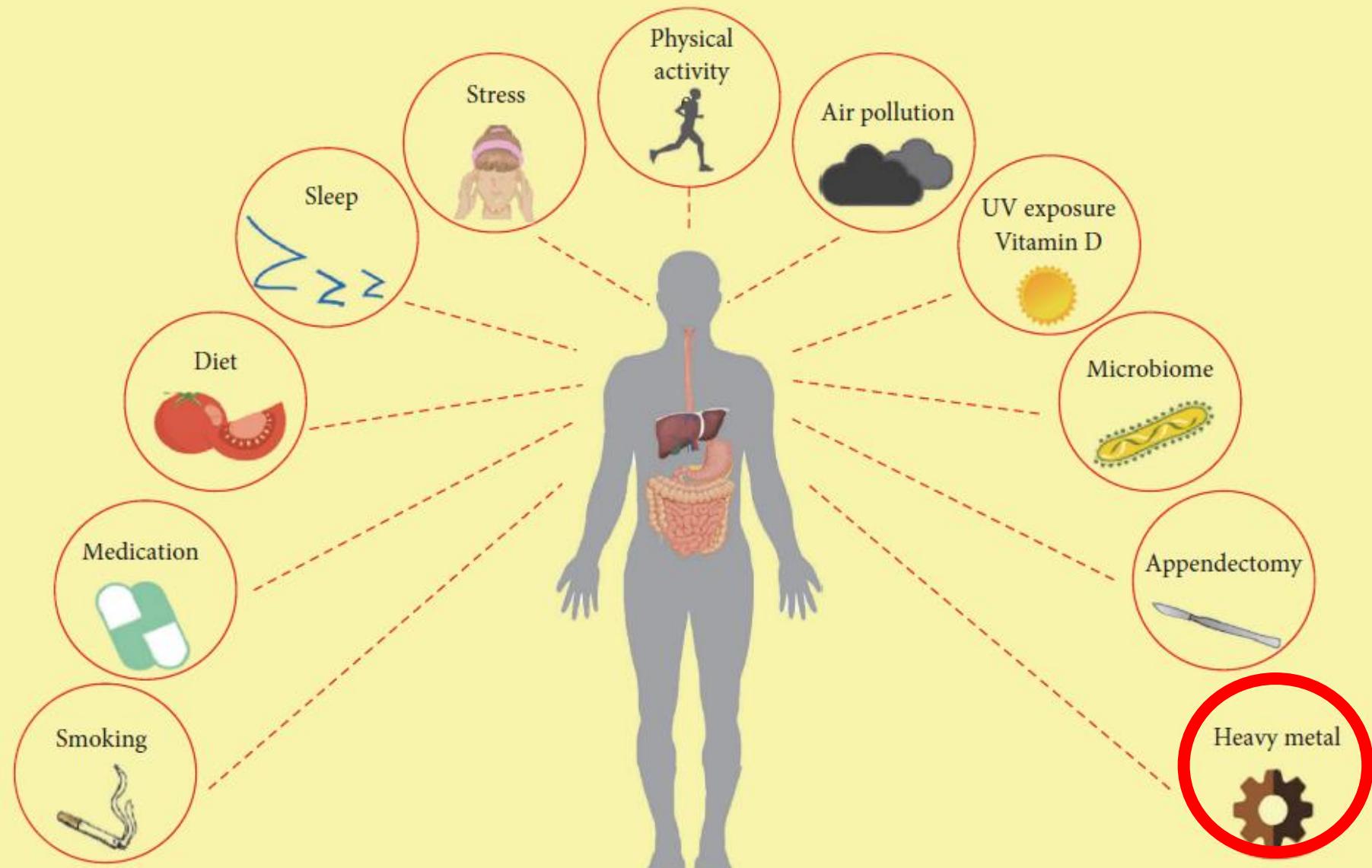
L'appendice est un organe immunologique

Appendectomie et MICI

WHAT IS CURRENT KNOWLEDGE

- ✓ Appendectomy early in life due to an inflammatory condition is associated with a lower risk of developing ulcerative colitis (UC).

Environmental risk factors



Micro-particles (TiO_2 , SiO_2)

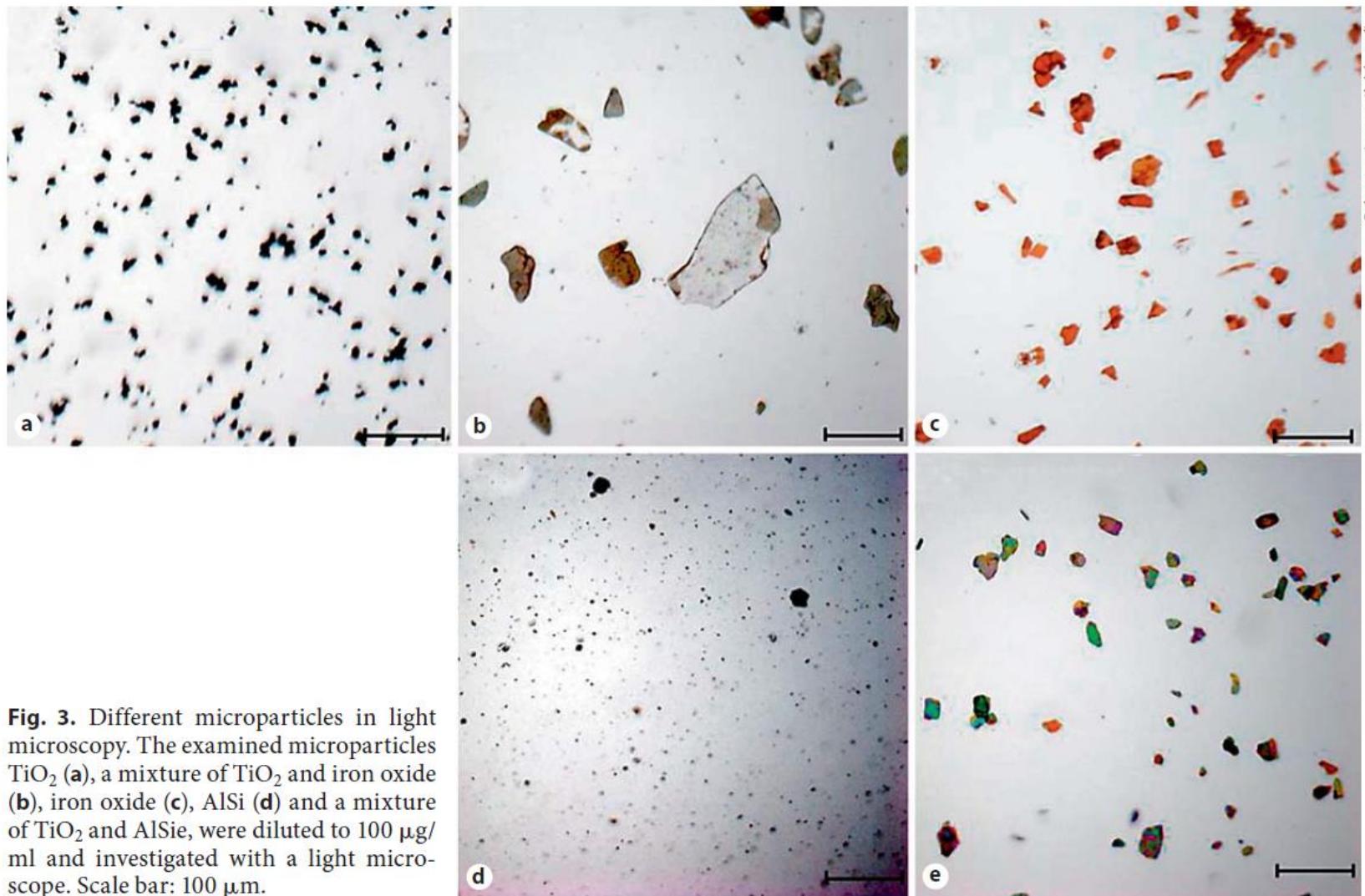


Fig. 3. Different microparticles in light microscopy. The examined microparticles TiO_2 (a), a mixture of TiO_2 and iron oxide (b), iron oxide (c), AlSi (d) and a mixture of TiO_2 and AlSie, were diluted to 100 $\mu\text{g}/\text{ml}$ and investigated with a light microscope. Scale bar: 100 μm .

Table 2. Sources of microparticles in food products and estimated daily intake

Source	mg/person/day
TiO ₂	
Food supplement tablet	37.5
Confectionary	24.4
Medicinal product tablet	15.0
Coffee whitener	0.52
Hard coated candies	0.32
Chewing gum	0.28
Marshmallows	0.27
Low-fat or fat-free dressings	0.22
AlSi	
Salt	1.30
Drinking chocolate powder	1.26
Chewing gum	0.92
Sugar, icing	0.30



Titanium dioxide nanoparticles exacerbate DSS-induced colitis: role of the NLRP3 inflammasome

Pedro A Ruiz,¹ Belen Morón,¹ Helen M Becker,¹ Silvia Lang,¹ Kirstin Atrott,¹ Marianne R Spalinger,¹ Michael Scharl,^{1,2} Kacper A Wojtal,¹ Anne Fischbeck-Terhalle,¹ Isabelle Frey-Wagner,¹ Martin Hausmann,¹ Thomas Kraemer,³ Gerhard Rogler^{1,2}

What is already known on this subject?

- ▶ Titanium dioxide induces reactive oxygen species (ROS) formation as well as inflammation in vitro and in vivo.
- ▶ The nucleotide-binding oligomerisation domain receptor, pyrin domain containing (NLRP)3 inflammasome is activated in the presence of titanium dioxide.
- ▶ Polymorphisms in the *Nlrp3* gene have been linked to the development of Crohn's Disease.

What are the new findings?

- ▶ Oral administration of titanium dioxide nanoparticles worsens intestinal inflammation in the dextran sodium sulfate (DSS) mouse model of colitis.
- ▶ Titanium dioxide crystals accumulate in the spleen of DSS-treated mice following oral gavage.
- ▶ Titanium dioxide particles accumulate and activate the NLRP3 inflammasome in human intestinal epithelial cells and macrophages.
- ▶ Levels of titanium are increased in the blood of patients with IBD.

How might it impact on clinical practice in the foreseeable future?

- ▶ Components of the inflammasome may represent novel therapeutic targets for the treatment of IBD.
- ▶ Our results suggest a cautionary use of titanium dioxide in pharmaceutical formulations and support a therapeutic benefit from low inorganic particle diet in patients with IBD.



Canabinoïde - CBD

- Efficacité sur la douleur
 - comme d'autres produits
- PAS de donnée sur les maladies inflammatoires chroniques des intestins
- Cannabis peut rendre schizophrène 1

1- Vaucher J, Mol Psychiatry 2018

High Altitude Journeys and Flights are Associated with the Increased Risk of Flares in IBD Patients



Stephan R. Vavricka^{1,2},
Gerhard Rogler², Sandra
Maetzler², Benjamin
Misselwitz², Christine
Manser², Kacper Wojtal²,
Alain M. Schoepfer³

Municipal Hospital Triemli, Zurich¹
University Hospital Zurich², University
Hospital CHUV, Lausanne³ Switzerland



Stadt Zürich
Stadtspital Triemli



UniversitätsSpital
Zürich

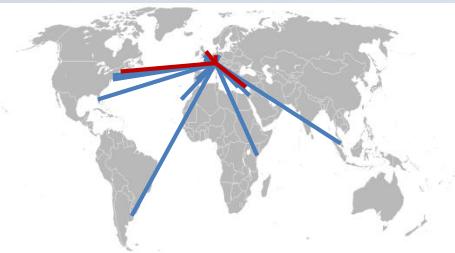
Résultats

Total	103 IBD patients	
	43 M. Crohn	60 RCUH
	65% femmes	47% femmes
	39.3 ± 14.6 ans	43.1 ± 14.2 ans

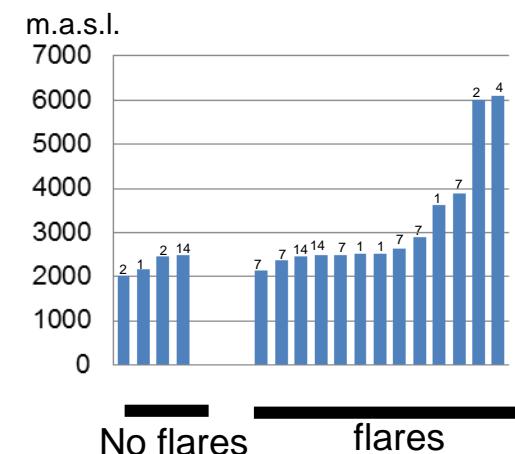
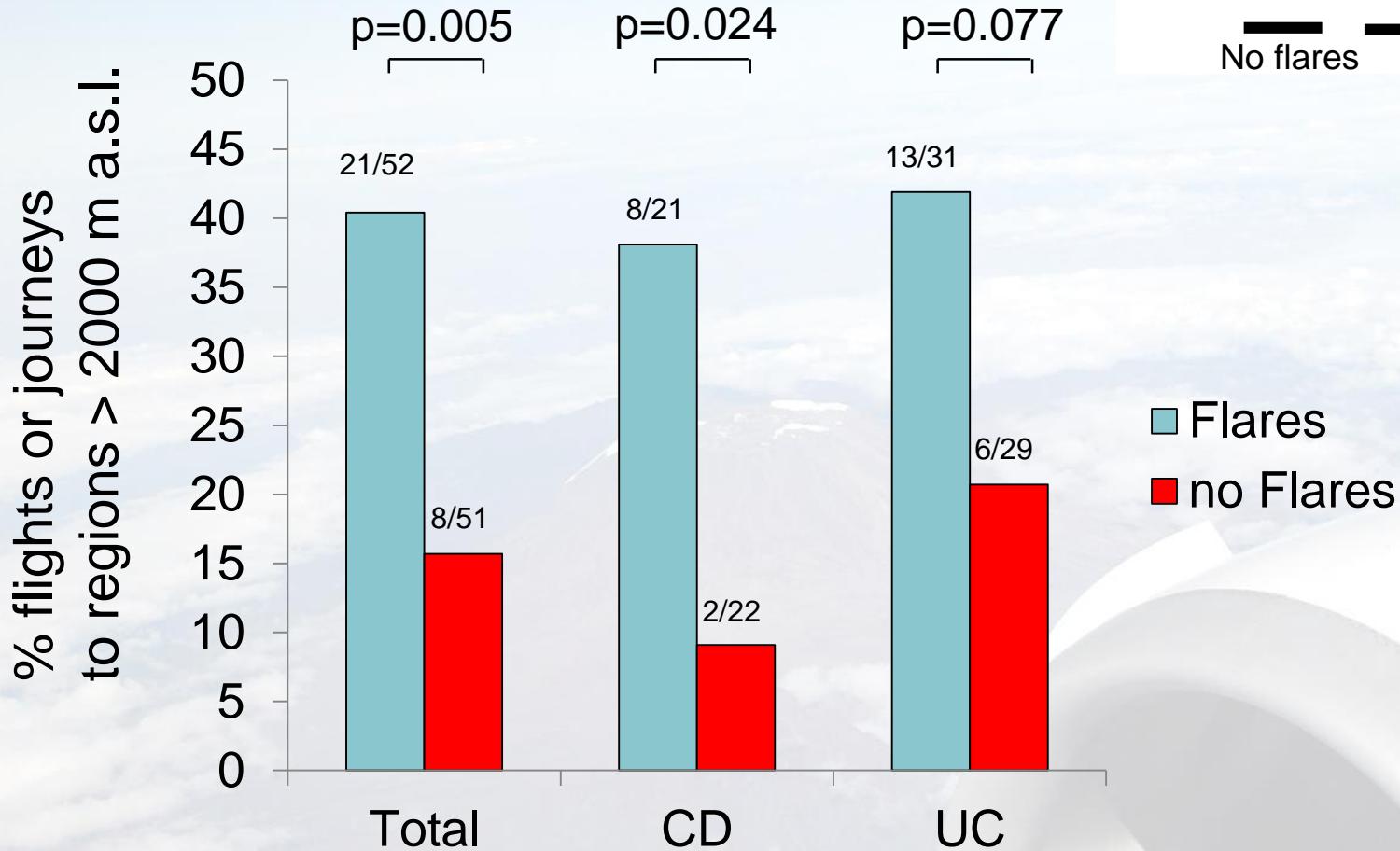


**52 patients
Avec poussée
inflammatoire**

**51 patients
sans poussée
inflammatoire**

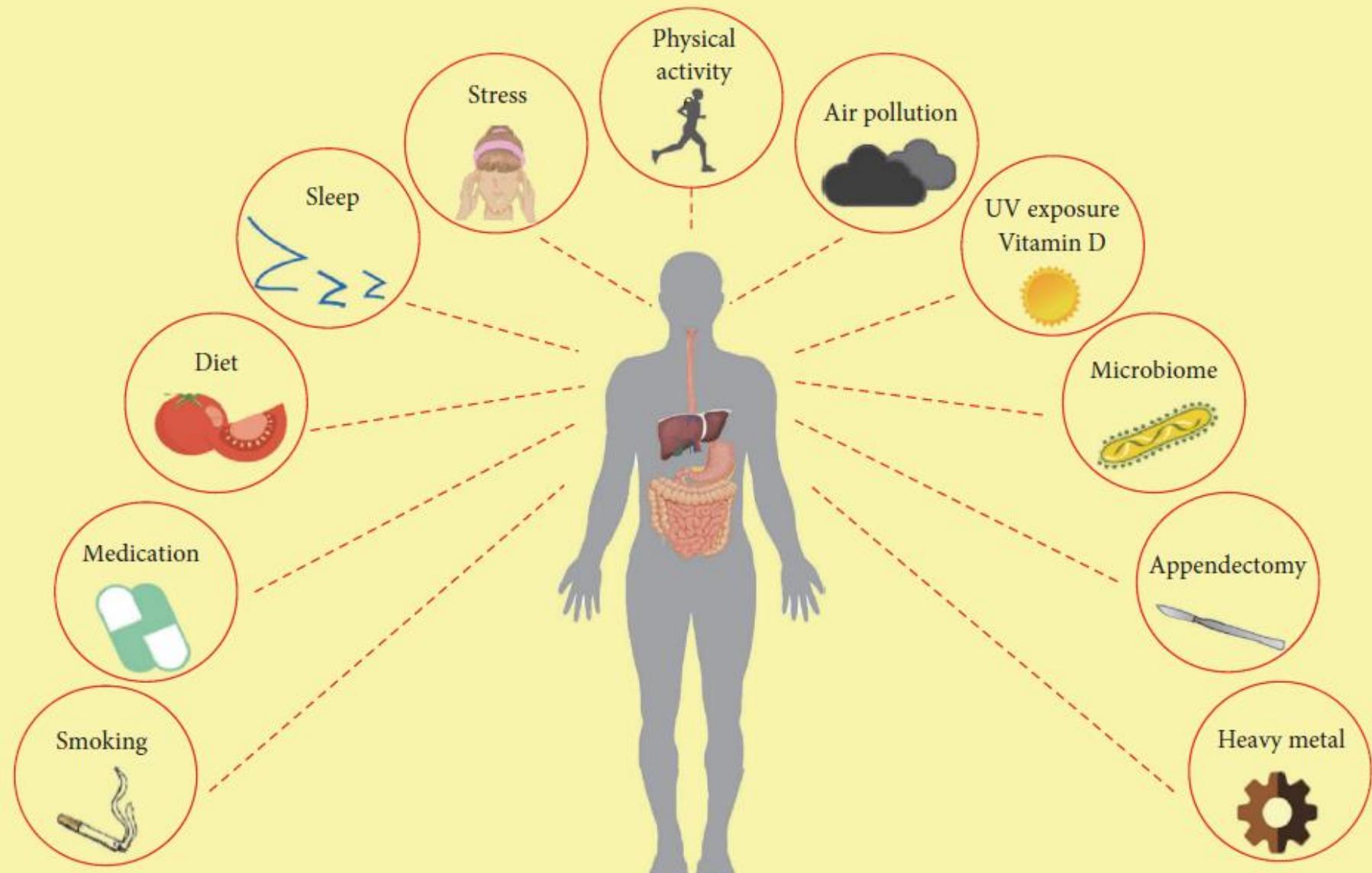


Résultats





Environmental risk factors



Vaccinations



Vaccination

History	Crohn's Disease	UC	All IBD
Ever vaccinated			
MMR	0.40 (0.08-2.00)	0.80 (0.18-3.56)	0.59 (0.21-1.69)
MCV	1.11 (0.26-4.69)	1.05 (0.20-5.42)	0.97 (0.34-2.79)
Unvaccinated	Reference	Reference	Reference

*All estimates shown are from conditional logistic regression, matched on health maintenance organization, sex, and birth year, and adjusted for race.



Vaccination

History

Crohn's Disease

UC

All IBD

Les vaccins ne sont pas de facteur de risque pour le développement des MICI

health maintenance organization, sex, and birth year, and adjusted for race.

