

Goutte : quelles recommandations nutritionnelles actuelles ?

Eva Benillouche

Symposium de nutrition - 19.09.2023



Plan

- Epidémiologie
- Physiopathologie
- Présentation clinique
- Diagnostic
- Prise en charge
 - Médicamenteuse
 - Nutritionnelle

Epidémiologie

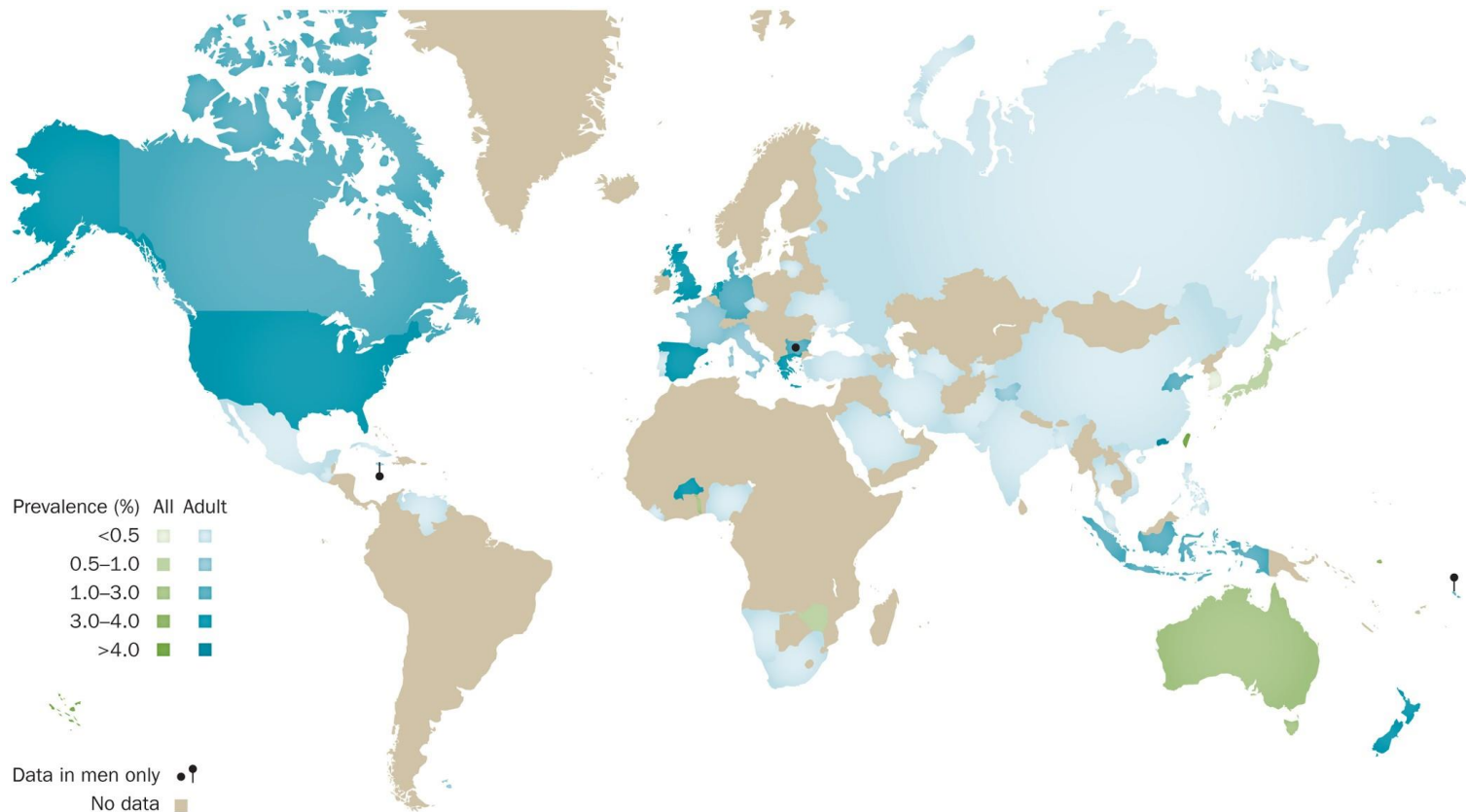
Prévalence de 4%

Incidence 2.9 pour 1000 personnes /année

8 H / 2 F

- 1^{ère} crise 40-45 ans
- F après ménopause

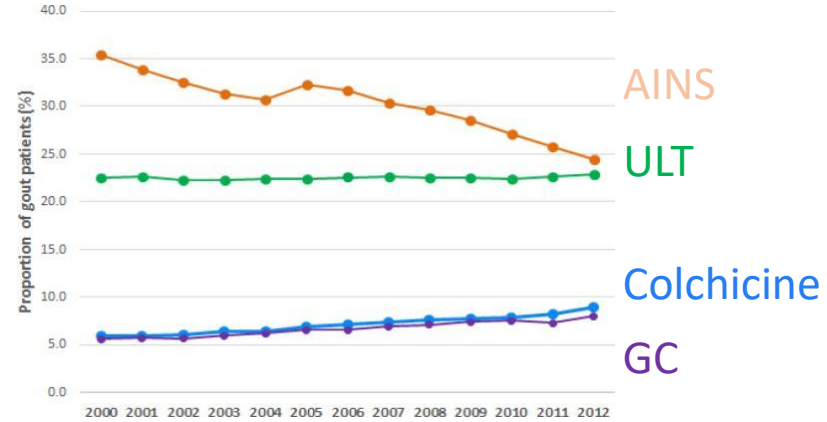
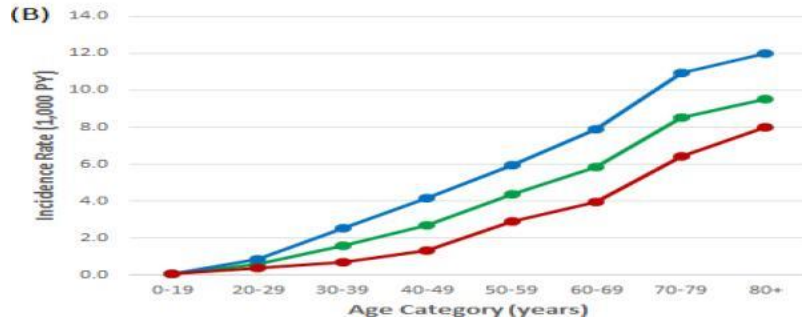
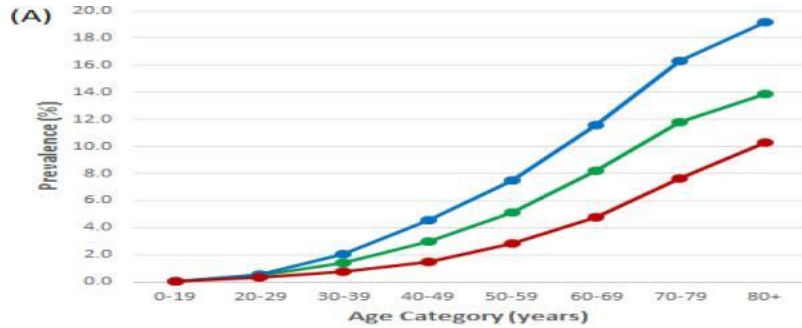
1^{ère} maladie inflammatoire chez l'homme > 40 ans



Kuo, CF., Grainge, M., Zhang, W. *et al.* Global epidemiology of gout: prevalence, incidence and risk factors. *Nat Rev Rheumatol* **11**, 649–662 (2015).

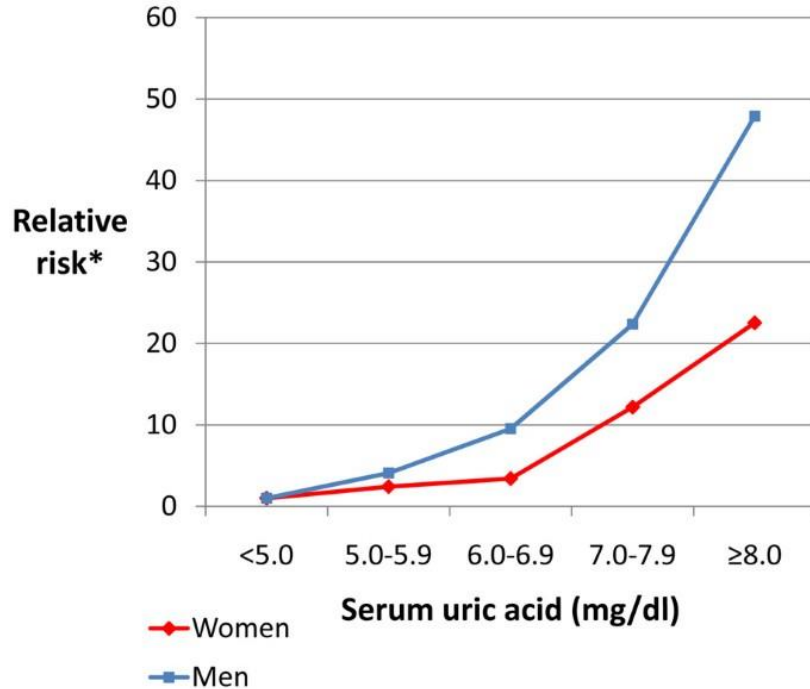
Nature Reviews | **Rheumatology**

Augmentation prévalence et incidence en 10 ans



The Rising Prevalence and Incidence of Gout in British Columbia, Canada: Population Based Trends from 2000-2012. Sharan K. Rai, MSc

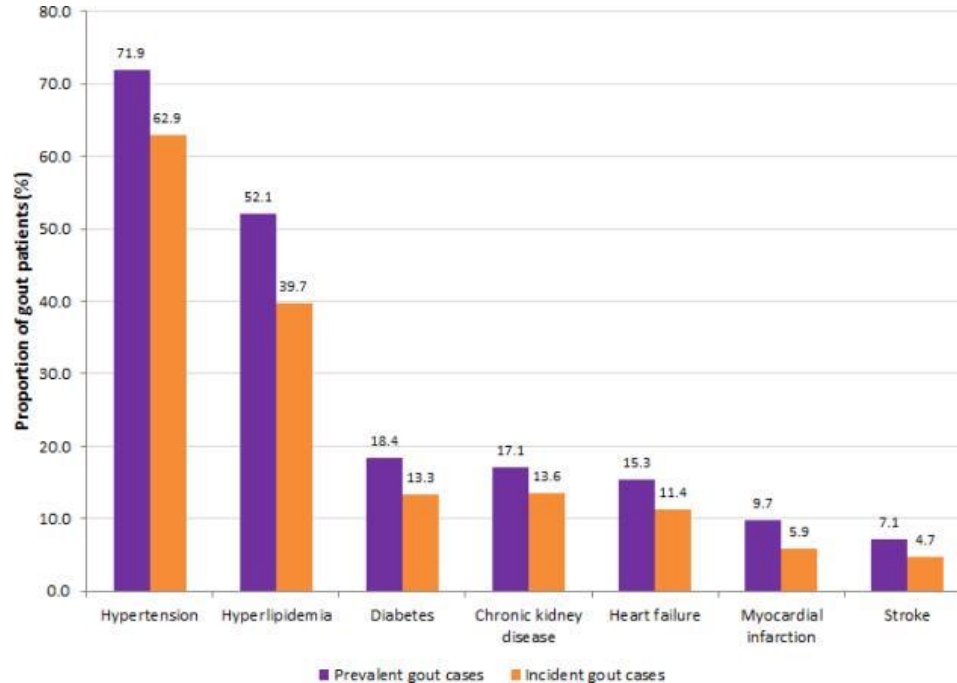
Hyperuricémie



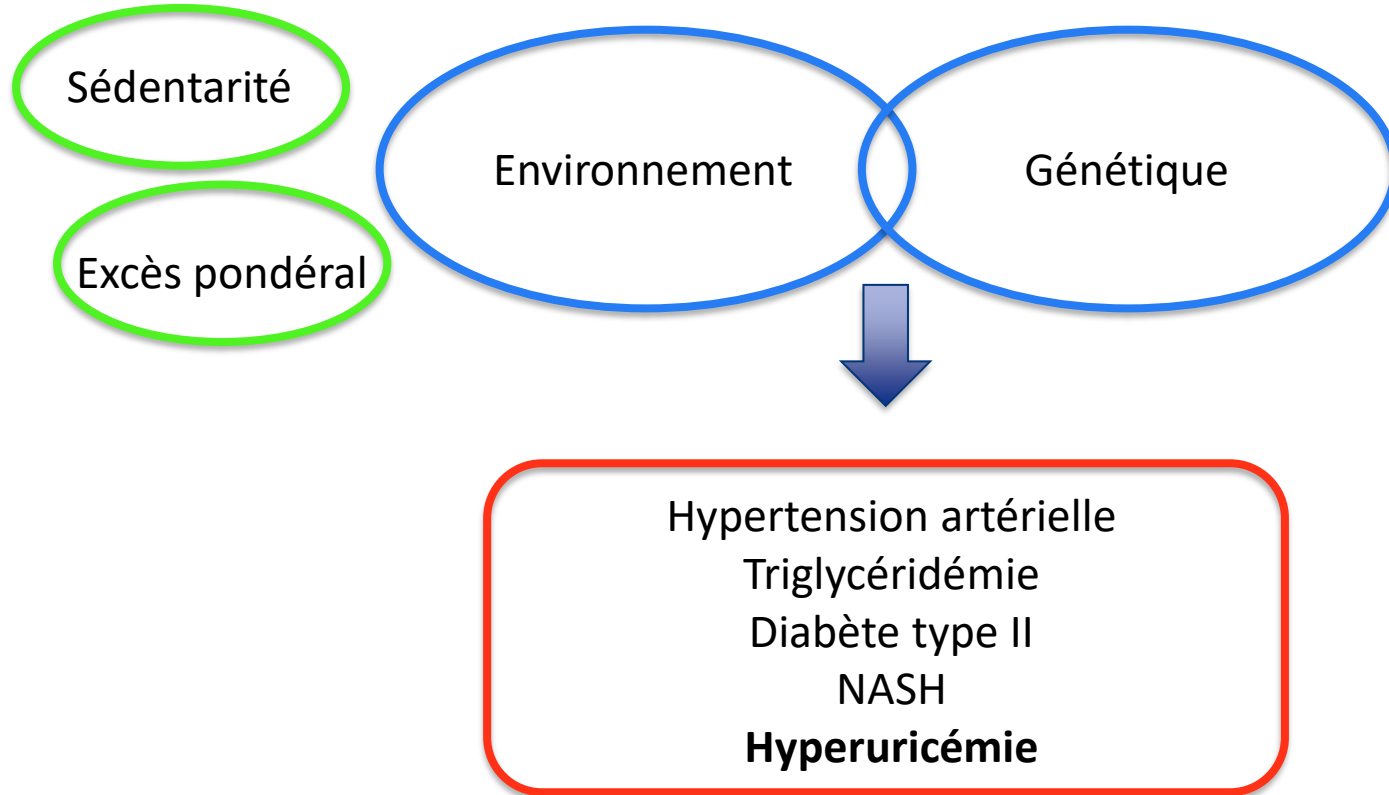
5 mg/dl = 300 μ mol/L
6 mg/dl = 360 μ mol/L

Comorbidités

Association avec les facteurs de risque CV

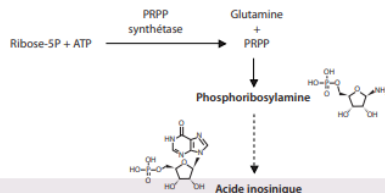


Insulinorésistance

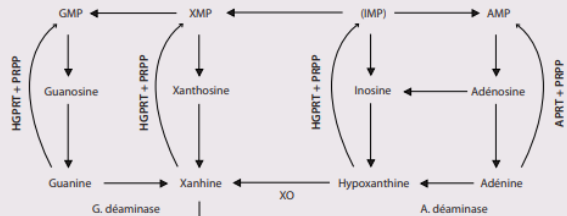


Physiopathologie

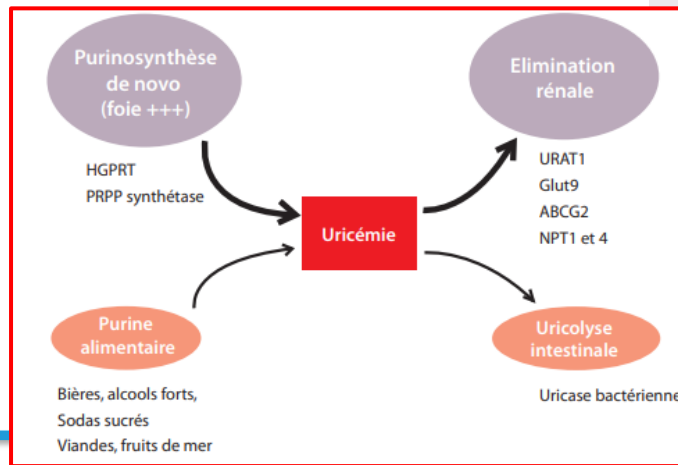
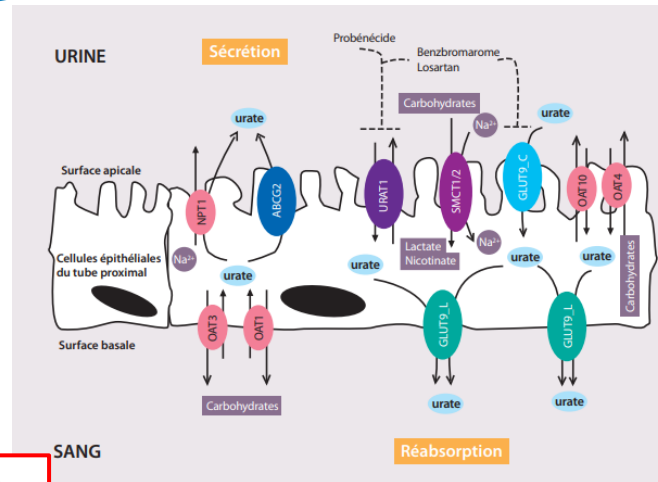
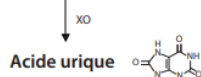
Purinosynthèse de novo



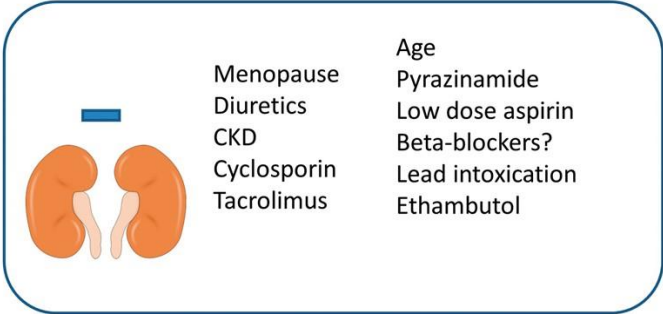
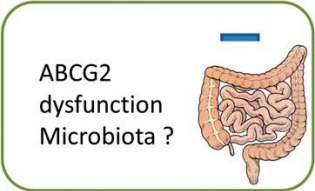
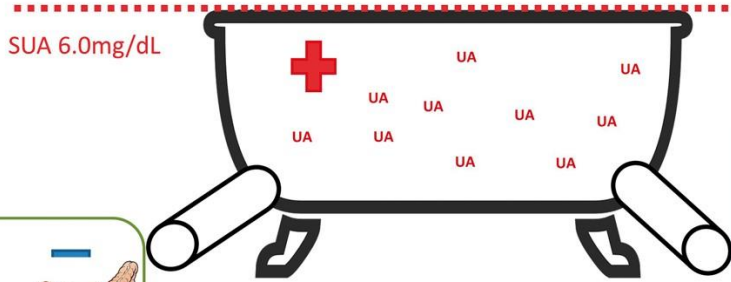
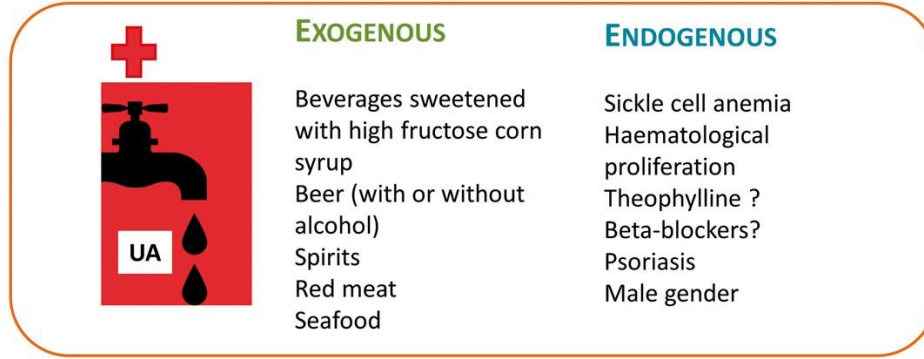
Voie de sauvetage



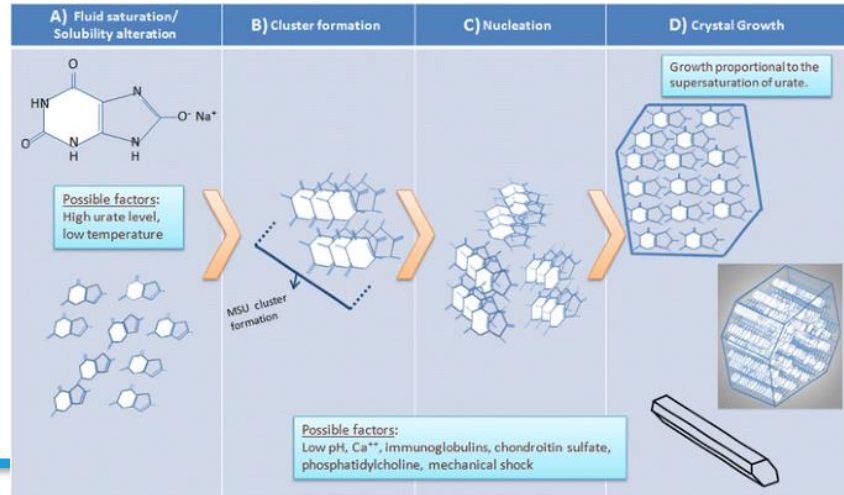
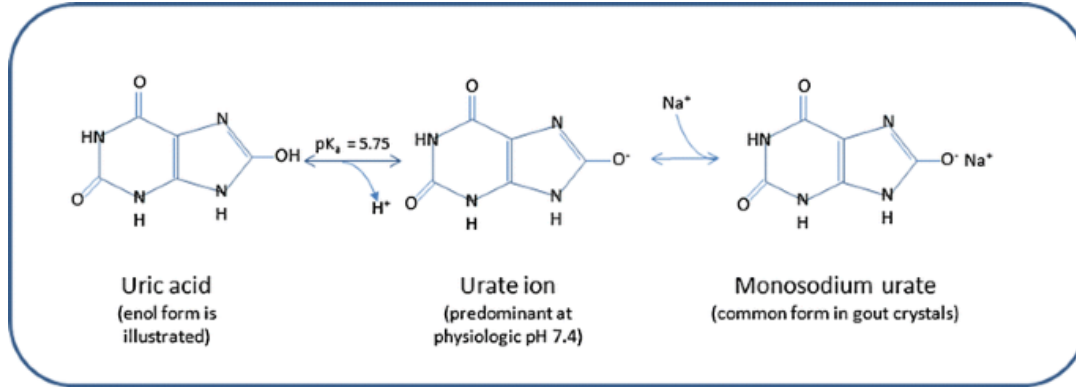
Voie finale



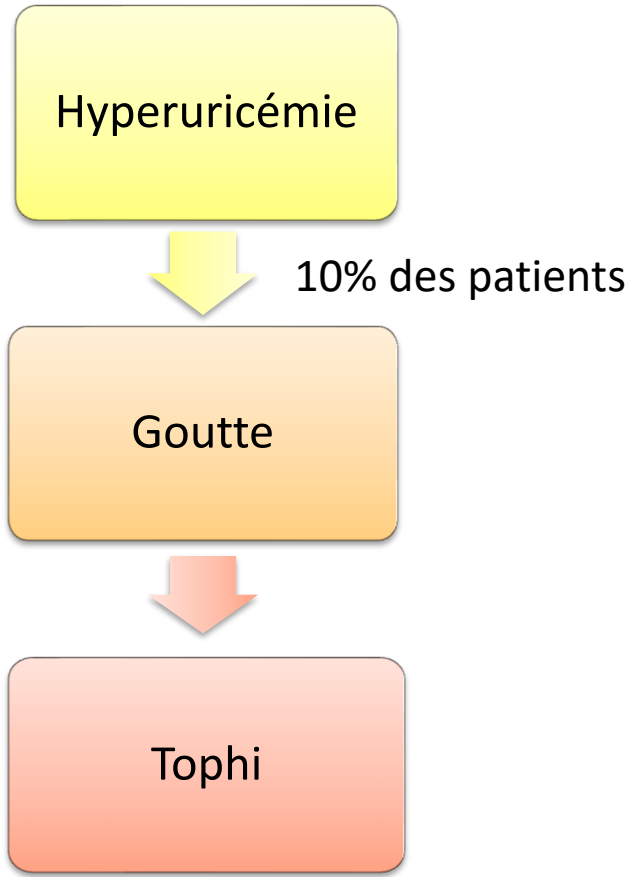
Facteurs de risque



Cristaux d'urate de sodium



Clinique



Crise de goutte :

- Arthrite, Ténosynovite, Tuméfaction parties molles
- Signes généraux : fièvre
- Inflammation (CRP > 50mg/L)

Risques long terme :

- Destruction articulaire, déformation, arthrose, handicap
- Plaie (tophi) et surinfection

Crise de goutte

Fin de nuit, en quelques heures

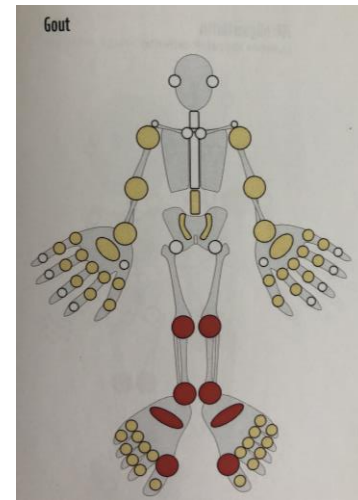
Inflammation locale

Hyperesthésie drap, impotence

Spontanément résolutive 5-7 jours

MTP > Tarse > Cheville > Genou > Coude > Main

10% oligo-articulaire



Nombre d'articulations (MS) et
fréquence des crises
augmentent avec le temps



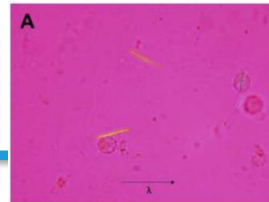
Diagnostic

Contexte : Facteurs de risque

Clinique : Tophi

Gold standard : Ponction articulaire

- Cellularité inflammatoire > 1000 G/L
- Cristaux MSU +
- Culture stérile



Diagnostic

TABLE 1 Symptoms and respective weights according to classification or diagnostic criteria

Features	ACR/EULAR 2015 [75]	2010 'Nijmegen score' [72]	1977 ACR[74]
Localization of flare			
→ Ankle or midfoot joint	12.5	0	16.7
→ First MTP joint	25	31.2	16.7
Clinical features of flare			
Erythema of the joint	12.5	12.5	16.7
Cannot bear light touch or pressure to affected joints	12.5	0	0
Inability to walk or use the affected joint	12.5	0	0
Time course of episodes: time to maximal pain <24 h; flare resolution <15 days; complete resolution between two episodes (2/3 characteristics)			
→ One typical episode	12.5	N/A	16.7
→ Recurrent typical episodes	25	25	16.7
→ Clinical tophus	50	0	16.7
Hyperuricaemia			
→ 6–8 mg/dl	25	43.7	0 or 16.7
→ 8–10 mg/dl	37.5	43.7	16.7
→ ≥10 mg/dl	50	43.7	16.7
Imaging			
→ Radiographic erosion	50	0	16.7
→ US double-contour sign	50	0	0
→ DECT demonstrating urate deposition	50	0	0
Negative features			
→ MSU negative SF analysis	–25	0	0
→ SUA <4 mg/dl	–50	0	0

Values given as percentages. MTP: metatarsophalangeal; US: ultrasonography; DECT: dual energy CT; MSU: monosodium urate crystals; SUA: serum uric acid level.

Imagerie : Rx

Erosions :

- Extra-marginale, articulaire, intra-osseuse
- A l'emporte pièce

Ostéophytose marginale,
aspect hérissé

Espace inter-articulaire et
minéralité préservée

Tuméfaction parties molles

Tophi non visible



Imagerie : US

Synovite

Ténosynovite

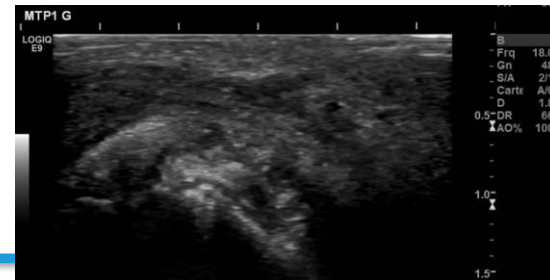
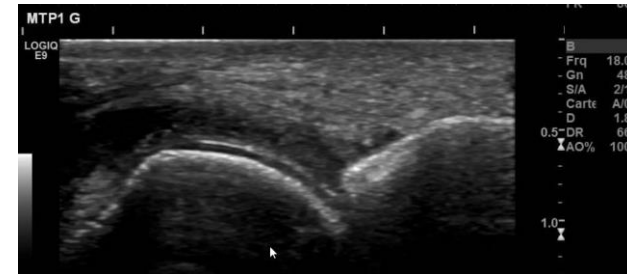
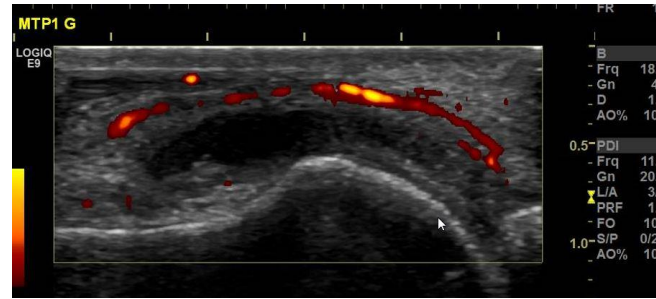
Œdème sous-cutané

Erosion

Double contour

Tophi «tempête de neige»

Doppler



Imagerie : DECT

Scanner double énergie

- CT conventionnel
- Analyse spectrale



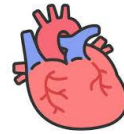
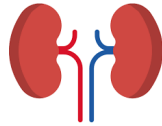
Prise en charge

Crise de goutte :

Le plus rapidement possible



Selon comorbidités



Combinaisons possibles

Ne pas arrêter hypouricémiant !

Général

Analgésique (paracétamol, tramadol)

Cryothérapie

Élévation du membre

Repos

2016 EULAR RECOMMENDATION FOR THE MANAGEMENT OF FLARES
IN PATIENTS WITH GOUT

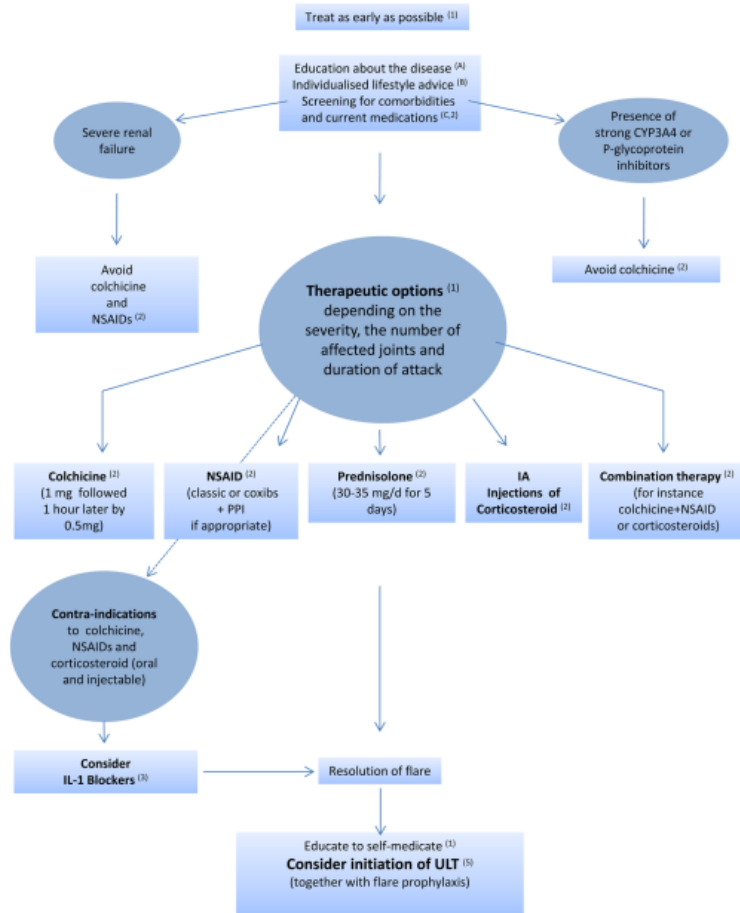


Figure 1 Management of acute flare according to the European League Against Rheumatism recommendations. Letters and numbers in parentheses indicate the items of the recommendations presented in table 1. Strong P-glycoprotein or CYP3A4 inhibitors are cyclosporin, clarithromycin, ketoconazole and ritonavir. IL, interleukin; NSAID, non-steroidal anti-inflammatory drug; PPI, proton pump inhibitor; ULT, urate-lowering therapy.

Colchicine



Colctab®

- Spécifique
- 1mg +0.5mg J1, puis 1mg/j



Diarrhée = surdosage

Interaction médicamenteuse

- inhibiteurs P-gp ou CYP3A4

TABLE 1 Common drugs that interact with colchicine

Strong CYP3A4 inhibitors	Moderate CYP3A4 inhibitors	P-glyco protein inhibitors
Clarithromycin	Cimetidine	Amiodarone
Cobicistat	Ciprofloxacin	Carvedilol
Diltiazem	Cyclosporine	Clarithromycin
Itraconazole	Erythromycin	Itraconazole
Ketoconazole	Fluconazole	Quinidine
Ritonavir	Fluvoxamine	Ranolazine
Telithromycin	Imatinib	Ritonavir
Voriconazole	Verapamil	Verapamil

AINS

Dose anti-inflammatoires
Si intolérance colchicine



Fonction rénale

Glucocorticoïdes



Per os

- 30-35mg/j pour 5 jours



Intra-articulaire

- Ponction + infiltration
- Monoarthrite

Anti IL-1



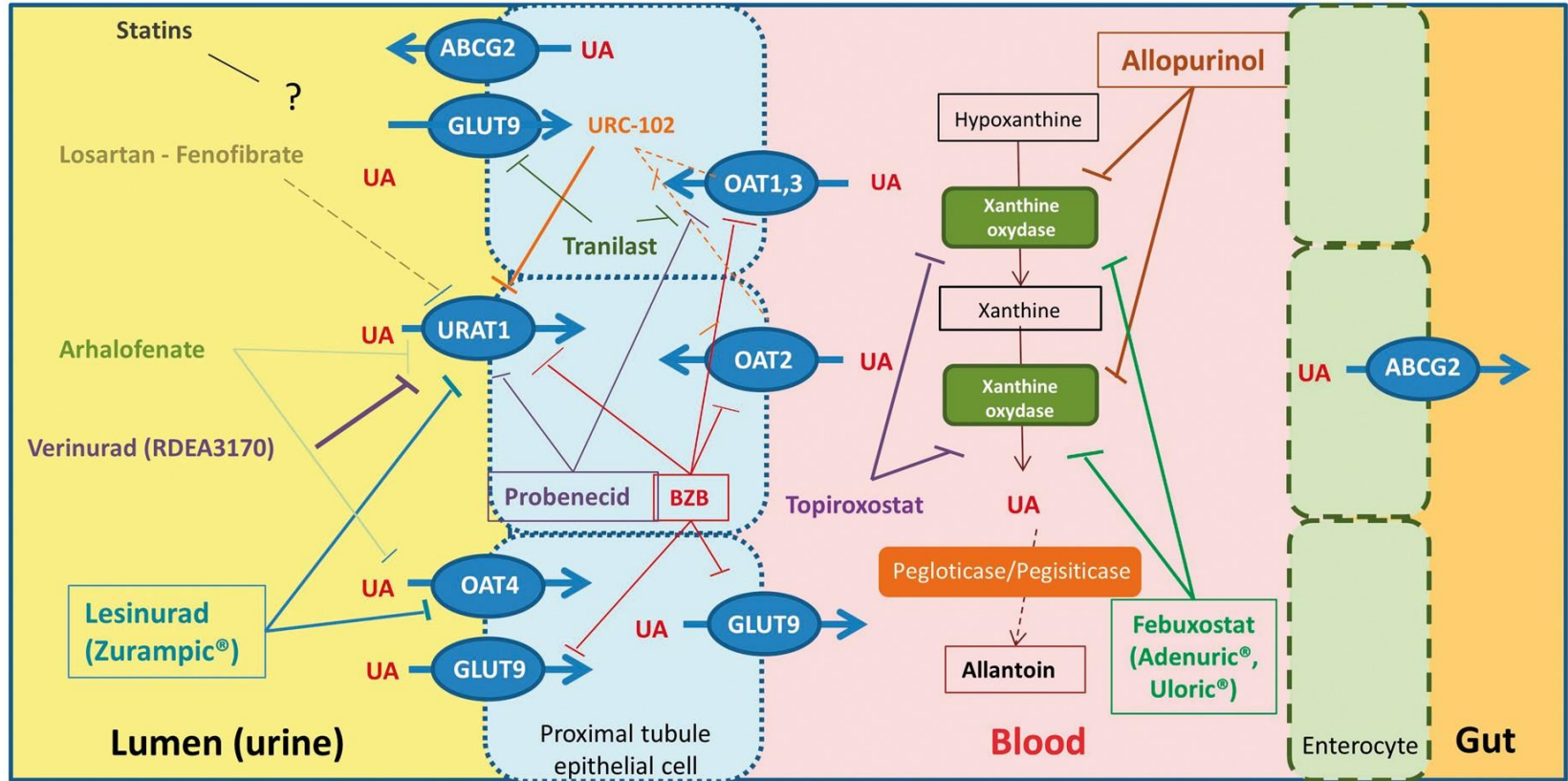
Anakinra (Kineret®)

- 100mg 1 injection SC 1x/j pendant 3-5 jours
- Off label : contre-indication et crises fréquentes
- Recommandations EULAR

Canakinumab (Ilaris®)

- Autorisation EMA
- 150 mg SC en DU au cours d'une crise
- /12 semaines

Traitement de fond



Traitement de fond

Indications :

- Goutte symptomatique ≥ 1 crise
 - Si : Age < 40 ans, comorbidités, uricémie élevée
- Crises récidivantes, tophi, arthropathie goutteuse, lithiases rénales

Traitement de fond

Objectifs :

- **Uricémie < 360 $\mu\text{mol/L}$**
- Uricémie < 300 $\mu\text{mol/L}$ si tophi, comorbidités, crises fréquentes





Recommandations SFR 2020

- Uricémie < 300 $\mu\text{mol/L}$





Allopurinol (Zyloric®)

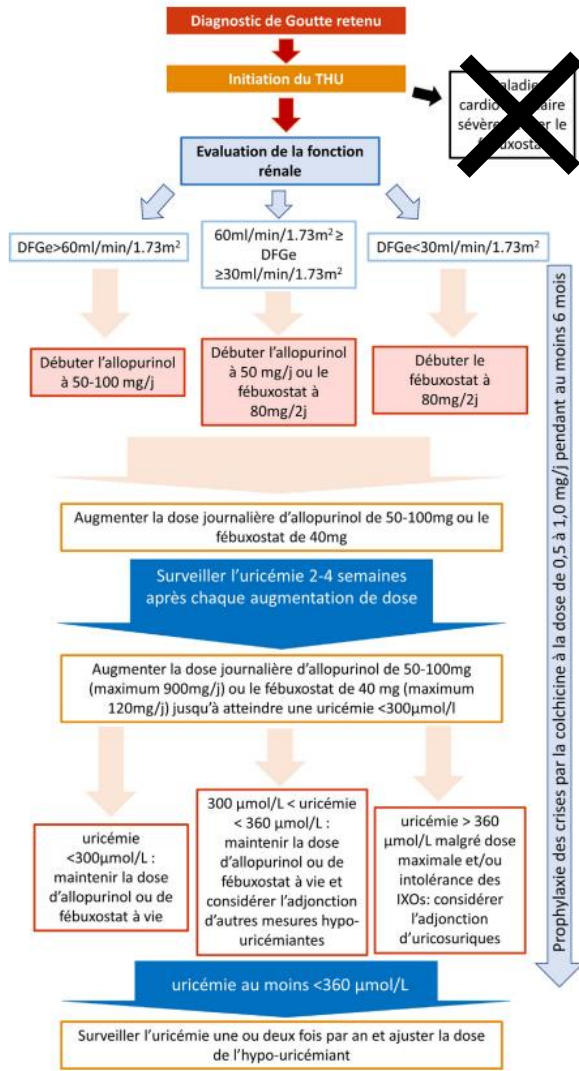
Febuxostat (Adenuric®)

- Echec ou intolérance allopurinol
- Imurek 
- Cardio-vasculaire 

Research Article

Febuxostat and Cardiovascular Events: A Systematic Review and Meta-Analysis

John A. Cuenca ¹, Javier Balda,¹ Ana Palacio,^{2,3} Larry Young,^{3,4} Michael H. Pillinger,^{5,6} and Leonardo Tamariz ^{2,3}



Traitement hypouricémiant

Palier mensuel

Surveillance biologique

- Efficacité
- Tolérance

TABLE 2 Dose of allopurinol required to achieve target urate based on pretreatment serum urate concentration

Pretreatment plasma urate (mmol/l)	Predicted allopurinol dose (mg/day) to achieve urate 0.36 mmol/l	Predicted allopurinol dose (mg/day) to achieve urate 0.30 mmol/l
0.65	405	775
0.6	335	665
0.55	265	554
0.5	195	443
0.45	126	332

Adapted with permission from John Wiley and Sons from Graham *et al.* Understanding the dose-response relationship of allopurinol: predicting the optimal dosage. *Br J Clin Pharmacol* 2013;76:932-8 [45].

Traitement de fond

Prophylaxie des crises

- Colchicine 0.5 - 1mg /j 6 mois
 - Si IRC (eGFR 30-60 ml/min) 0.5mg/j
 - Si IRC (eGFR 10-30 ml/min) 0.5mg /2-3j
- AINS faible dose
- Prednisone < 10mg/j

Traitement de fond

241 patients

12 semaines

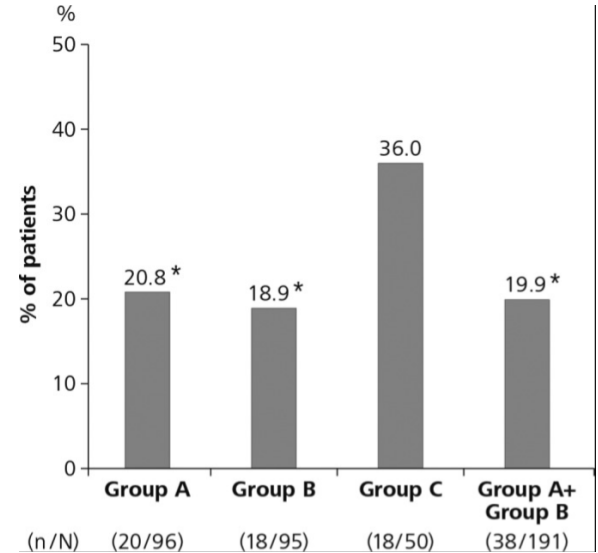
A : FBX 10 à 40mg/j

B : FBX 40 + Colchicine 0.5mg/j

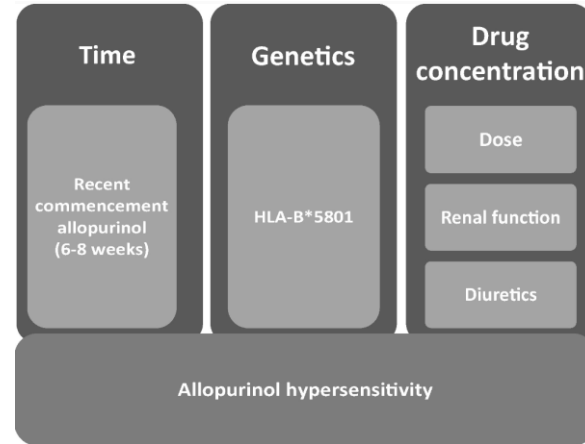
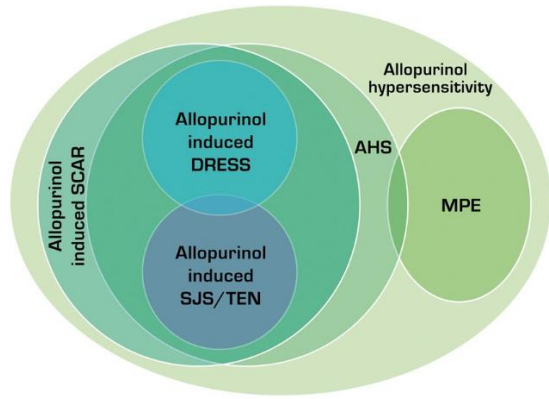
C : FBX 40

Nb de crises

Pas de DS après ajustement



Toxicité



Patient

Education +++

Crise versus fond

Règles hygiéno-diététiques



Eviction

- Alcool : bière (y compris sans alcool), spiritueux
- Boissons sucrées riche en fructose : soda, jus de fruits
- Viandes rouges/abats
- Fruits de mer



A préconiser

- Perte pondérale
- Hydratation orale $\geq 2L$
- Produits laitiers

Adaptation ordonnance si possible (Losartan :  30% excrétion)

Facteurs de risque modifiable

Table 1. Multivariable serum urate level differences and prevalence ratios for hyperuricemia, according to modifiable risk factors in the NHANES-III*

Risk factor	No. (%) of subjects	No. of hyperuricemia cases	Multivariable prevalence ratio for hyperuricemia (95% CI)†	Multivariable serum urate level difference, mg/dl (95% CI)†
BMI, kg/m²				
<25.0	5,789 (40)	607	1.0	0.0
25.0–29.9	5,133 (35)	1,090	1.85 (1.69, 2.03)	0.48 (0.44, 0.53)
30.0–34.9	2,378 (16)	729	2.72 (2.48, 3.00)	0.84 (0.78, 0.89)
≥35.0	1,324 (9)	508	3.53 (3.19, 3.91)	1.11 (1.04, 1.19)
DASH diet score				
1st quintile	2,602 (18)	544	1.0	0.0
2nd quintile	2,908 (20)	612	1.08 (0.98, 1.19)	0.01 (-0.06, 0.07)
3rd quintile	3,499 (24)	706	1.11 (1.00, 1.22)	0.04 (-0.02, 0.10)
4th quintile	3,075 (21)	593	1.16 (1.05, 1.29)	0.07 (0.01, 0.14)
5th quintile	2,540 (17)	544	1.22 (1.09, 1.37)	0.13 (0.05, 0.20)
Alcohol use, servings/day				
0	7,564 (52)	1,555	1.0	0.0
0.01–0.09	1,428 (10)	237	0.95 (0.85, 1.07)	0.00 (-0.07, 0.07)
0.1–0.49	3,398 (23)	637	1.18 (1.09, 1.28)	0.16 (0.11, 0.21)
0.5–0.99	1,313 (9)	284	1.37 (1.23, 1.53)	0.32 (0.25, 0.40)
≥1	921 (6)	221	1.40 (1.23, 1.58)	0.37 (0.29, 0.46)
Diuretic use				
No	13,388 (92)	2,280	1.0	0.0
Yes	1,236 (8)	654	2.24 (2.08, 2.41)	1.07 (1.00, 1.15)

* NHANES-III = Third National Health and Nutrition Survey; 95% CI = 95% confidence interval; BMI = body mass index; DASH = Dietary Approaches to Stop Hypertension.

† Mutually adjusted for the other risk factors in the table.

Régimes



HHS Public Access

Author manuscript

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Published in final edited form as:

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The Role of Diet in Hyperuricemia and Gout

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³Arthritis Research Canada, Richmond, British Columbia, Canada

Régime pauvre en purines

⊘ Viandes rouges, abats, fruits de mer

⚠ Eviction avec risque de compensation :
carbohydrates, graisses

👍 Purines végétales sans sur-risque

Gout Risk and a Healthy Eating Pyramid

Symbols for Gout & Hyperuricemia Risk

Red = ↑ risk

Green = ↓ risk

Black = Neutral



Purines

<i>Aliment 100g</i>	<i>Purines en mg</i>	<i>Aliment 100g</i>	<i>Purines en mg</i>
Sardine	360	Thé	2.800
Morue	285	Café	1.169
Anchois	465	Chocolat	820
Saumon	130	Lentilles	142
Truite, carpe	165	Pois verts	71
Sole	136	Levure alimentaire	70
Ris de veau	990	Épinards	70
Foie et rognon de veau	280	Asperge	50
Bœuf	110	Haricots	45
Veau	115	Pain complet	37
Porc	125	Chou-fleur	50
Lièvre	100	Champignons	70
Poulet	100	Légumineuses	50
Mouton	80	Salades	8
Jambon	75	Carottes	5
Homard	58	Pommes de terre	3
Fromages	58	Lait de vache	0.4

Réduction insulino-résistance

Régime méditerranéen

- Acides gras monoinsaturés, protéines végétales, céréales complètes, poissons
- Consommation modérée en alcool
- Consommation faible en viande rouge, céréales raffinées et sucres.
- Diminution risque CV, incidence DT2
- Adhérence 85%
- Diminution hyperuricémie : essai PREDIMED

Réduction insulino-résistance

Régime DASH

- Céréales complètes, fruits, légumes, produits laitiers faible en MG
- Protéines végétales, oléagineux
- Diminution PAS et PAD
- Diminution cholestérol LDL et total
- Diminution uricémie
- Diminution risque CV, DT2 et mortalité

Régime végétarien / vegan

- Diminution incidence risque de goutte
 - OR 0.4 vs 0.61

Réduction insulino-résistance

Régime hypocalorique

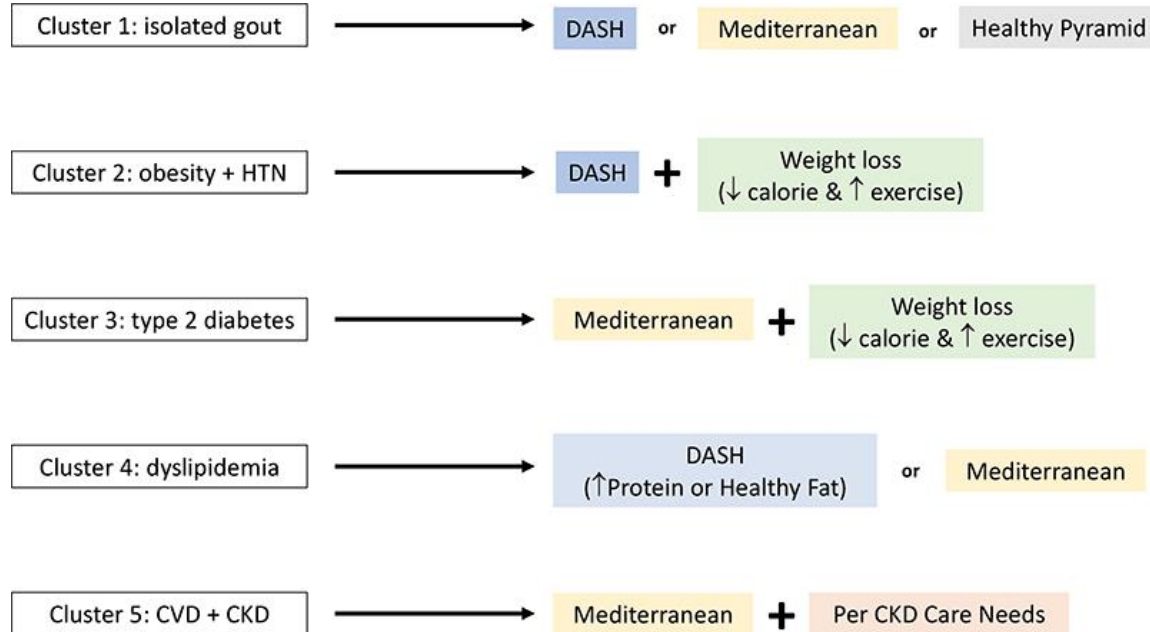
- Etude DIRECT
 - Restriction calorique, faible en graisse
 - Restriction calorique, régime Méditerranéen
 - Pas de restriction, faible en glucides
 - Perte 5-7kg à 6 mois
 - Diminution 0.8mg/dl de l'acide urique
 - Si hyperuricémie > 7 mg/dl : diminution 1.9 à 2.4 mg/dl

Régime protéiné

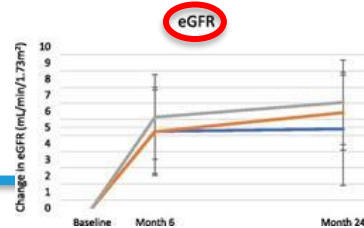
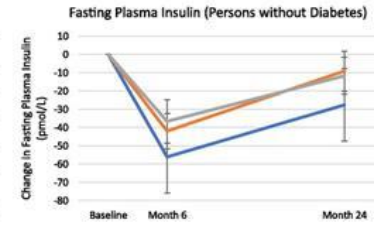
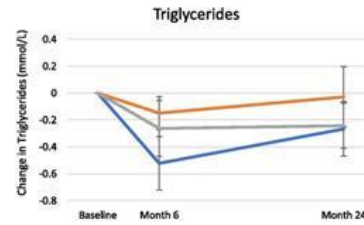
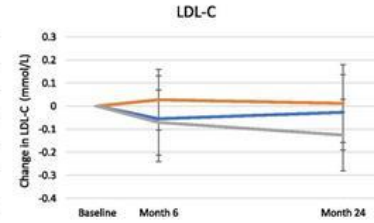
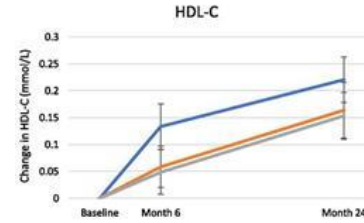
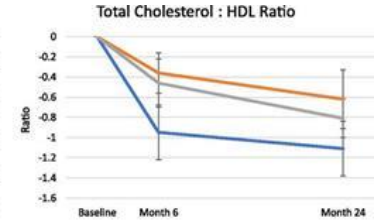
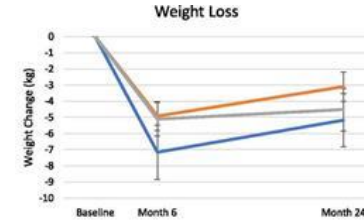
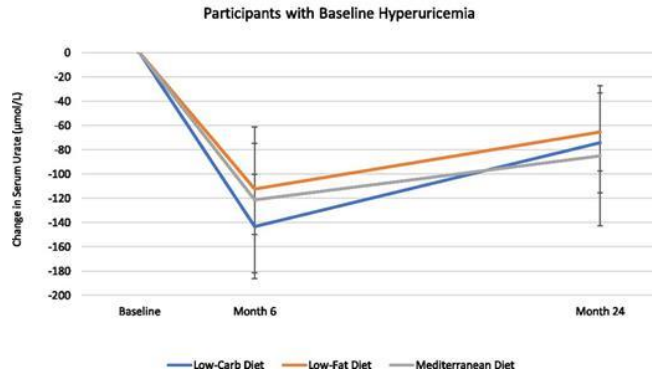
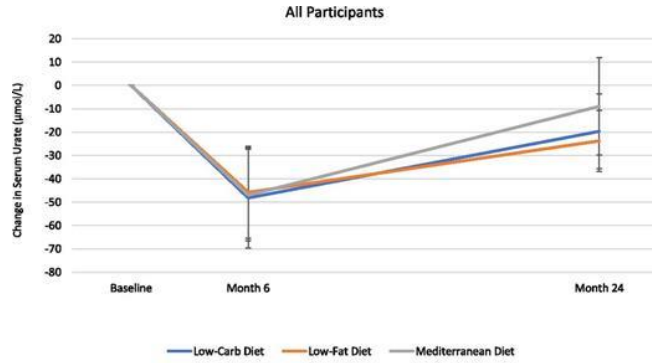
- Hypocalorique avec régime riche en protéines et faible en glucides et aliments saturés (13 patients, 2000)
- Acide urique : 9.6 à 7.9 mg/dl
- Fréquence des crises : 2.1 à 0.6 /mois
- Amélioration bilan lipidique

Régime adapté

Hydratation orale > 1.5-2L/j

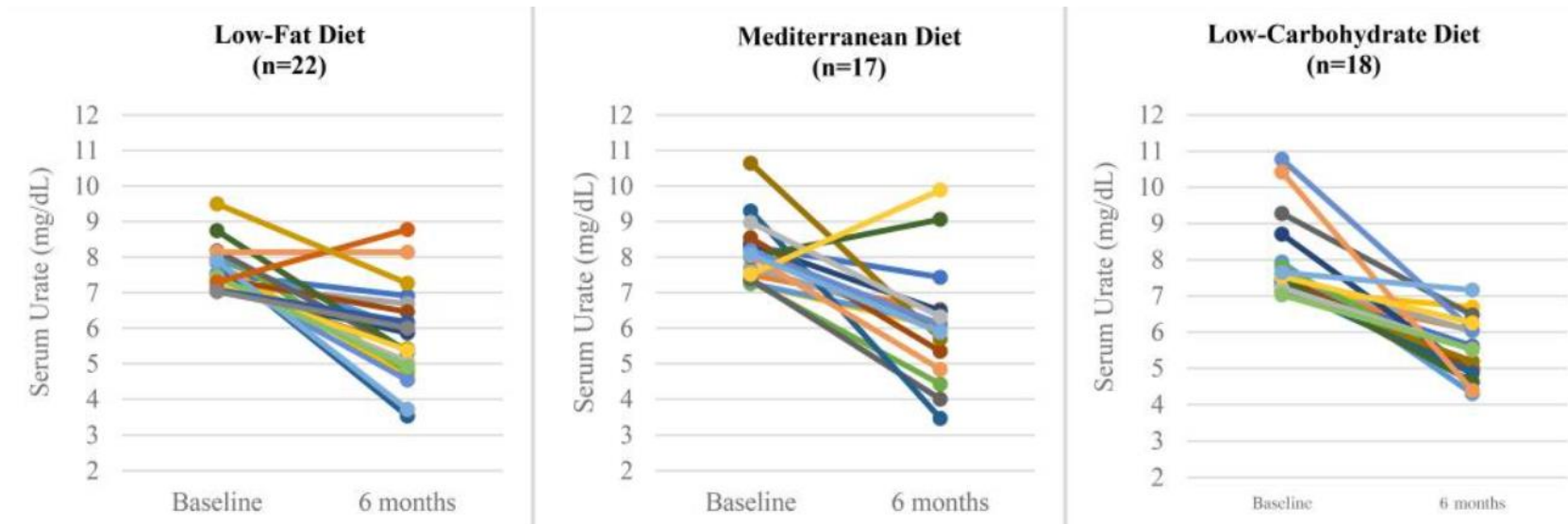


Etude DIRECT



Yokose C, Effects of Low-Fat, Mediterranean, or Low-Carbohydrate Weight Loss Diets on Serum Urate and Cardiometabolic Risk Factors: A Secondary Analysis of the Dietary Intervention Randomized Controlled Trial (DIRECT). Diabetes Care. 2020 Nov

Régime adapté



Internet et fausses croyances

Vérifier les sources
d'informations des patients

Jeûne déconseillé :
hypercatabolisme

Exemple recommandations sur internet :

- Les viandes grasses : le boeuf (entrecôte, côte de boeuf, steak haché, boeuf de Kobe,...), le porc (notamment côtelette, échine et travers), les gibiers (y compris bécasse, pigeon, oie, canard)
- Les viandes jeunes : le veau, l'agneau (notamment côtelette, gigot, épaule entière), le coquelet, le dindonneau
- Les abats (foie, cervelle, rognons, ris de veau, tripes, langue, cœur)
- La charcuterie sauf celle issue de la dinde et du poulet
- Les extraits de viande (bouillons de viande, jus, gelée)
- L'anchois, la sardine, le hareng, mais également la carpe, le brochet, la truite, le saumon, la morue (cabillaud), et les œufs de poissons
- Les coquillages, moules, crustacés et autres fruits de mer
- Les légumes secs et légumineuses : lentilles, haricots blancs, pois chiches, lupins, fèves, haricots rouges et pois secs
- Certains légumes riches en purines comme l'épinard, le chou, le chou-fleur, le chou chinois, le radis, la rhubarbe, le champignon, le poireau, la tomate et l'asperge
- L'ail, le piment, le poivron rouge
- Les fruits contenant beaucoup de fructose : pomme, dattes, figue, raisin sec, raisin, goyave, mangue, melon, pastèque, poire, kaki, coing, carambole, et banane mûre
- Les agrumes
- Les fruits secs
- La crème et le saindoux
- Les condiments : mayonnaise, aioli, ketchup, sauces industrielles (fondues, cocktails...), sauces vietnamiennes fermentées (Nuoc Man...)
- Les fromages gras, c'est-à-dire ceux qui contiennent plus de 50% de matières grasses, et tous les fromages fermentés
- Les pâtisseries
- Le pain blanc
- Le cacao et le chocolat

Crises et alimentation



Excès d'apport d'acide urique

- Repas copieux, gras, riche en purines

Défaut d'hydratation

Aliments déclencheurs «individuel»

Vins : risque lié aux apports glucidiques

Poissons : effet bénéfique cardio-vasculaire, à limiter pendant phase initiale

- 1 Weight gain and obesity can lead to an increase in SUA levels and gout. In the case of adiposity, gradual weight loss (at least in men) can help lower SUA levels and thus protect against gout
Evidence: 2b (Grade B) Level of agreement: 10
- 2 Both gout and hyperuricemia are associated with cardiometabolic and renal comorbidities. Therefore, regular physical exercise/cardiovascular training (150-300) min/week of moderate intensity) is recommended in addition to weight control and dietary measures
Evidence: 2a (Grade B) Level of agreement: 10
- 3 A healthy diet such as the dietary approaches to stop hypertension (DASH) diet, in combination with weight reduction if the patient is overweight, can positively influence gout incidence, elevated SUA levels and cardiometabolic risk
Evidence: 2b (Grade B) Level of agreement: 9.B
- 4 Red meat, offal and sausage products can increase SUA levels and thereby increase the risk of gout. For this reason, red meat and associated products should be eaten less frequently (2 x /week) and only in small quantities. The consumption of purine-rich vegetables is explicitly recommended
Evidence: 2b (Grade B) Level of agreement: 10
- 5 Seafood (especially crustaceans and mussels) can increase SUA levels and therefore the risk of gout and should therefore be consumed sparingly. Fish is recommended for consumption on a regular basis (1-2 x /per week) as part of a generally healthy diet and also to help avoid cardiovascular disease
Evidence: 3 (Grade B) Level of agreement: 10
- 6 Drinking alcohol increases the risk of gout in a dose-dependent manner. Beer and spirits in particular should be avoided, while red wine has the least potential for increasing the risk of gout
Evidence: 2a (Grade B) Level of agreement: 10
- 7 Sugary soft drinks, fruit juices and high-fructose foods (fruit sugars) can increase SUA levels and should therefore be avoided. Fresh fruit and fructose-free "light drinks" do not increase the risk of gout
Evidence: 3 (Grade B) Level of agreement: 9.B
- 8 Regular consumption of (low-fat) milk/dairy products can lower SUA levels and is recommended for all gout patients
Evidence: 1b (Grade A) Level of agreement: 9.B
- 9 Regular consumption of coffee can help to lower SUA levels—in combination with proper diet and medication and is therefore to be advocated
Evidence: 2b (Grade B) Level of agreement: 9.6
- 10 Cherries (especially the Montmorency variety) can lower SUA levels by promoting urinary excretion. However, it is still unclear at what dose the different products (juice, concentrate, extract) yield the most desirable effect. It is possible that sour cherries in combination with allopurinol have a complementary effect
Evidence: 2b (Grade B) Level of agreement: 9.0



2022 update of the Austrian Society of Rheumatology and Rehabilitation nutrition and lifestyle recommendations for patients with gout and hyperuricemia.

Recommendations EULAR 2016

Table 1 Overarching principles and final set of 11 recommendations for the treatment of gout

Overarching principles

- A Every person with gout should be fully informed about the pathophysiology of the disease, the existence of effective treatments, associated comorbidities and the principles of managing acute attacks and eliminating urate crystals through lifelong lowering of SUA level below a target level.
- B Every person with gout should receive advice regarding lifestyle: weight loss if appropriate and avoidance of alcohol (especially beer and spirits) and sugar-sweetened drinks, heavy meals and excessive intake of meat and seafood. Low-fat dairy products should be encouraged. Regular exercise should be advised.
- C Every person with gout should be systematically screened for associated comorbidities and cardiovascular risk factors, including renal impairment, coronary heart disease, heart failure, stroke, peripheral arterial disease, obesity, hyperlipidaemia, hypertension, diabetes and smoking, which should be addressed as an integral part of the management of gout.

Final set of 11 recommendations

- 1 Acute flares of gout should be treated as early as possible. Fully informed patients should be educated to self-medicate at the first warning symptoms. The choice of drug (s) should be based on the presence of contraindications, the patient's previous experience with treatments, time of initiation after flare onset and the number and type of joint(s) involved.
- 2 Recommended first-line options for acute flares are colchicine (within 12 hours of flare onset) at a loading dose of 1 mg followed 1 hour later by 0.5 mg on day 1 and/or an NSAID (plus proton pump inhibitors if appropriate), oral corticosteroid (30–35 mg/day of equivalent prednisolone for 3–5 days) or articular aspiration and injection of corticosteroids. Colchicine and NSAIDs should be avoided in patients with severe renal impairment. Colchicine should not be given to patients receiving strong P-glycoprotein and/or CYP3A4 inhibitors such as cyclosporin or clarithromycin.
- 3 In patients with frequent flares and contraindications to colchicine, NSAIDs and corticosteroid (oral and injectable), IL-1 blockers should be considered for treating flares. Current infection is a contraindication to the use of IL-1 blockers. ULT should be adjusted to achieve the uricaemia target following an IL-1 blocker treatment for flare.
- 4 Prophylaxis against flares should be fully explained and discussed with the patient. Prophylaxis is recommended during the first 6 months of ULT. Recommended prophylactic treatment is colchicine, 0.5–1 mg/day, a dose that should be reduced in patients with renal impairment. In cases of renal impairment or statin treatment, patients and physicians should be aware of potential neurotoxicity and/or muscular toxicity with prophylactic colchicine. Co-prescription of colchicine with strong P-glycoprotein and/or CYP3A4 inhibitors should be avoided. If colchicine is not tolerated or is contraindicated, prophylaxis with NSAIDs at low dosage, if not contraindicated, should be considered.
- 5 ULT should be considered and discussed with every patient with a definite diagnosis of gout from the first presentation. ULT is indicated in all patients with recurrent flares, tophi, urate arthropathy and/or renal stones. Initiation of ULT is recommended close to the time of first diagnosis in patients presenting at a young age (<40 years) or with a very high SUA level (>8.0 mg/dL; 480 μmol/L) and/or comorbidities (renal impairment, hypertension, ischaemic heart disease, heart failure). Patients with gout should receive full information and be fully involved in decision-making concerning the use of ULT.
- 6 For patients on ULT, SUA level should be monitored and maintained to <6 mg/dL (360 μmol/L). A lower SUA target (<5 mg/dL; 300 μmol/L) to facilitate faster dissolution of crystals is recommended for patients with severe gout (tophi, chronic arthropathy, frequent attacks) until total crystal dissolution and resolution of gout. SUA level <3 mg/dL is not recommended in the long term.
- 7 All ULTs should be started at a low dose and then titrated upwards until the SUA target is reached. SUA <6 mg/dL (360 μmol/L) should be maintained lifelong.
- 8 In patients with normal kidney function, allopurinol is recommended for first-line ULT, starting at a low dose (100 mg/day) and increasing by 100 mg increments every 2–4 weeks if required, to reach the uricaemia target. If the SUA target cannot be reached by an appropriate dose of allopurinol, allopurinol should be switched to febuxostat or a uricosuric or combined with a uricosuric. Febuxostat or a uricosuric are also indicated if allopurinol cannot be tolerated.
- 9 In patients with renal impairment, the allopurinol maximum dosage should be adjusted to creatinine clearance. If the SUA target cannot be achieved at this dose, the patient should be switched to febuxostat or given benzbromarone with or without allopurinol, except in patients with estimated glomerular filtration rate <30 mL/min.
- 10 In patients with crystal-proven, severe debilitating chronic tophaceous gout and poor quality of life, in whom the SUA target cannot be reached with any other available drug at the maximal dosage (including combinations), pegloticase is indicated.
- 11 When gout occurs in a patient receiving loop or thiazide diuretics, substitute the diuretic if possible; for hypertension consider losartan or calcium channel blockers; for hyperlipidaemia consider a statin or fenofibrate



Intérêts du régime

- **Eviter les crises**
- **Retarder l'introduction d'un traitement hypouricémiant** (surtout si patient jeune et nombreux facteurs de risque modifiable)
- **Dose d'hypouricémiant nécessaire moindre**
 - ➔ Diminution uricémie $\approx 1\text{mg/dl} = 100\text{mg}$ d'allopurinol
- Important mais parfois insuffisant
 - Hyperuricémie lié à un défaut d'élimination rénale (et non excès d'apport)

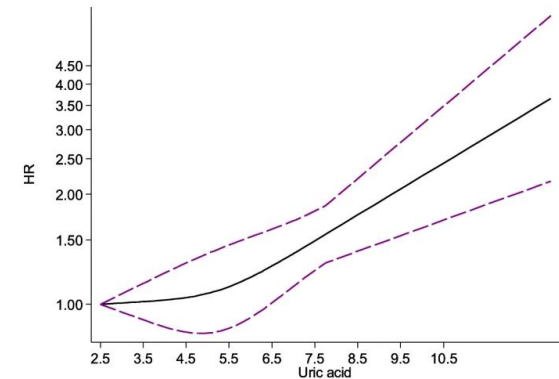
Comorbidités

Goutte associée morbi-mortalité CV

Dépister les autres FdRCV

- HTA
- Dyslipidémie
- Diabète
- Obésité

Fig. 4



Dose-response association between serum uric acid (mg/dL) and cardiovascular disease mortality (HR)

Conclusion

- Maladie chronique et systémique
- Traitement crise ≠ fond
- Education patient
- Régime adapté global

