CONGRESSO REGIONALE CALABRIA
SID - AMD 2022

SID Società Italiana di Diabetologia
AMD ASSOCIAZIONE MEDICI DIABETOLOGI 1974

T-HOTEL LAMEZIA TERME
25-26 NOVEMBRE 2022

UNIVERSITÀ DELLA CALABRIA
DIPARTIMENTO DI FARMACIA E SCIENZE DELLA SALUTE E DELLA NUTRIZIONE

CENTRO SANITARIO

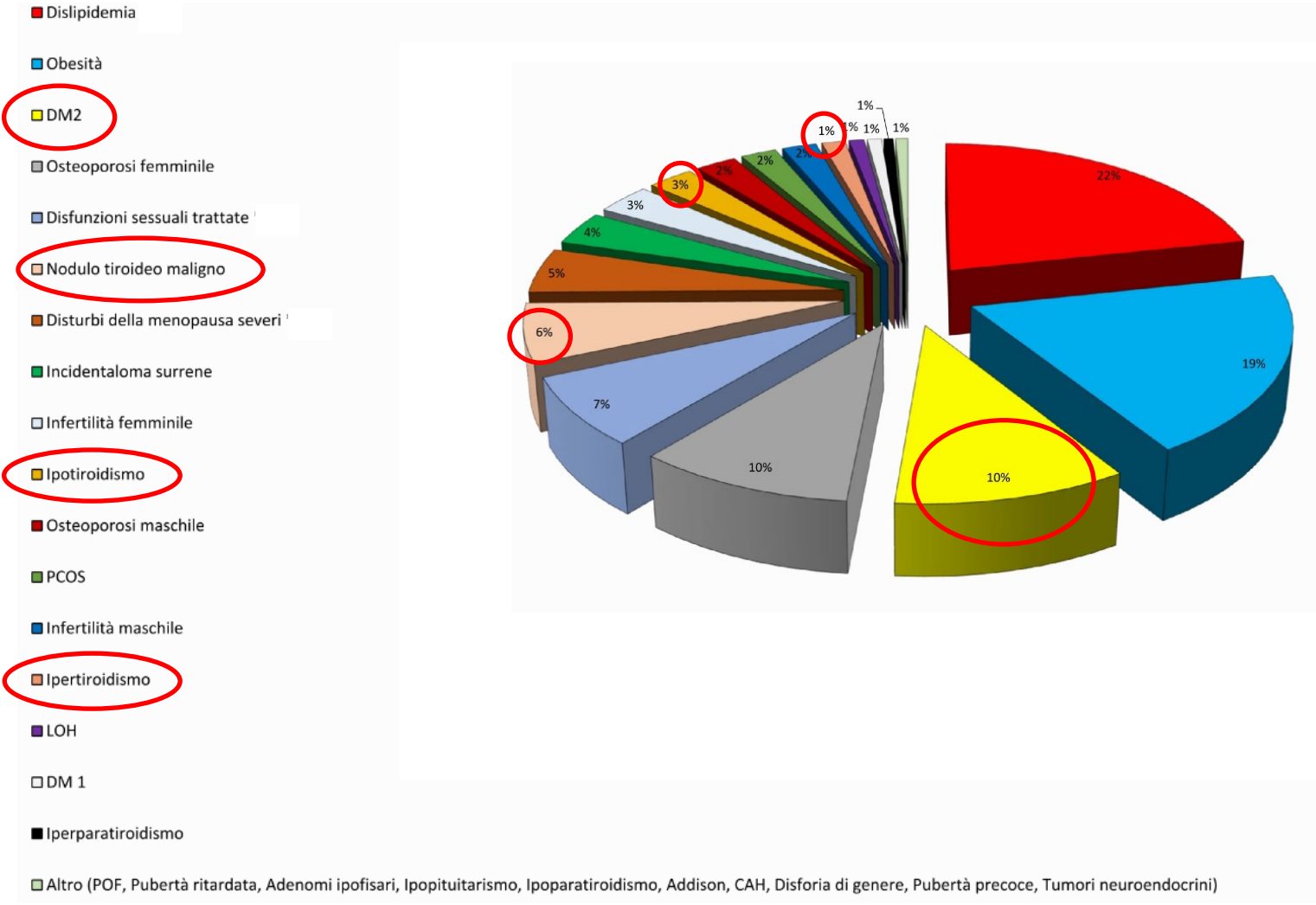
Endocrinopatie di associazione

TIREOPATIE e DIABETE

Daniela Bonofiglio

26 novembre 2022

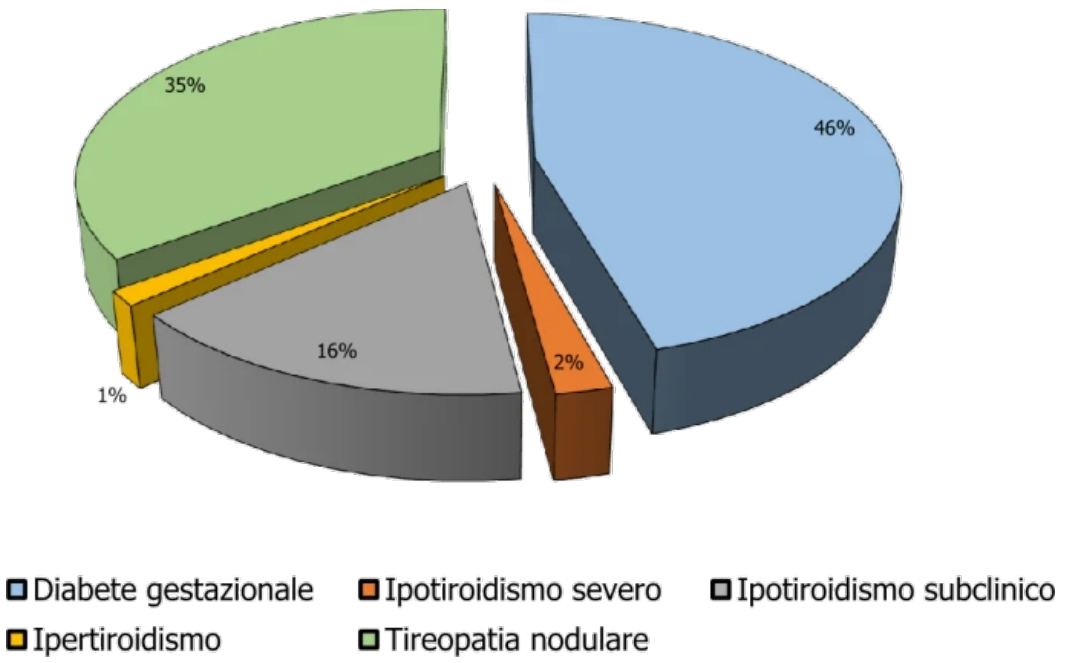
Principali endocrinopatie nella popolazione italiana



Attiva Windows

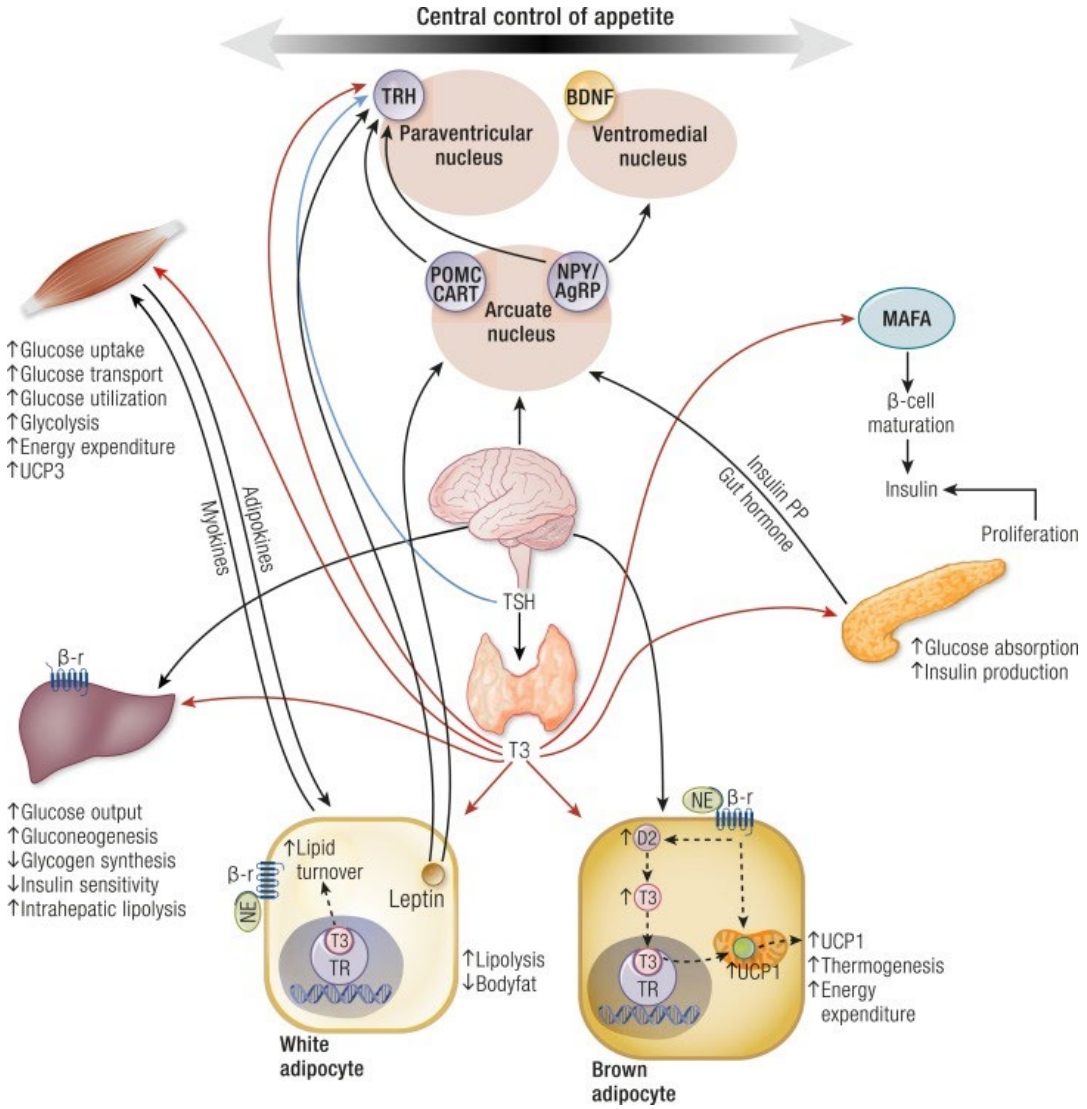
Crafa et al. L'Endocrinologo, 2021 https://doi.org/10.1007/s40619-021-00961-x
Crafa et al. Front. Endocrinol., 2021 https://doi.org/10.3389/fendo.2021.694325

Principali endocrinopatie nelle donne in gravidanza



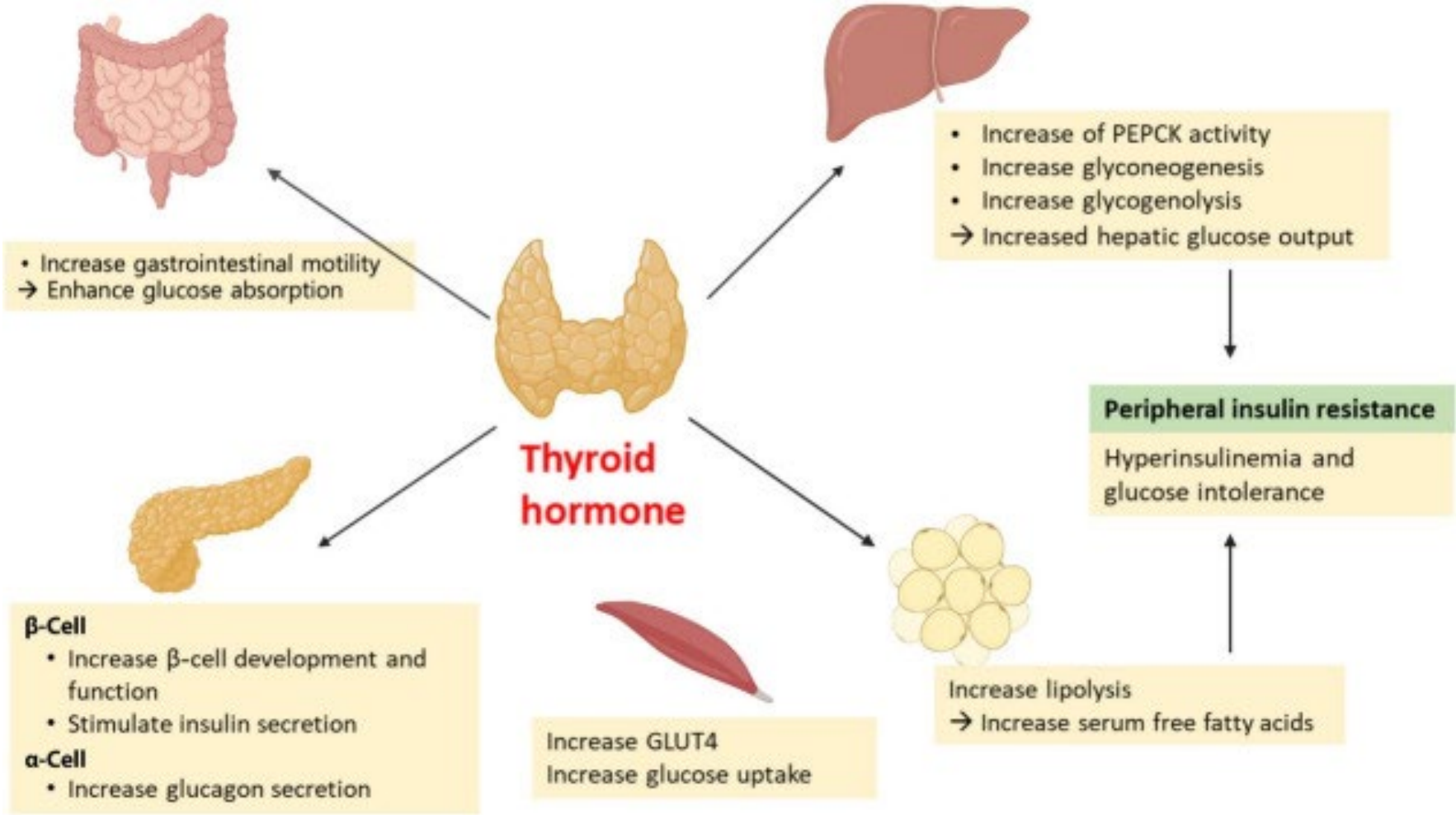
Crafa et al. L'Endocrinologo, 2021 https://doi.org/10.1007/s40619-021-00961-x
Crafa et al. Front. Endocrinol., 2021 https://doi.org/10.3389/fendo.2021.694325

Tiroide e Diabete Mellito:
due disfunzioni strettamente associate



Biondi B, Kahaly GJ, Robertson RP. Endocr Rev. 2019 doi: 10.1210/er.2018-00163

Funzione tiroidea e Omeostasi glicemica



Eom YS, Wilson JR, Bernet VJ. Diabetes Metab J. 2022 https://doi.org/10.4093/dmj.2022.0013

Recommendations for thyroid hormone screening in patient with T1DM

Guideline	Screening recommendation	Comments
2010 Guideline of the ATA for detection of thyroid dysfunction [33]	Patients with diabetes may require more frequent TSH monitoring.	Recommend TSH beginning at age 35 years and every 5 years thereafter, with more frequent monitoring if high risk factors such as diabetes.
BTA, the UK guidelines for the use of thyroid function tests, 2006 [34]	Annually	They note a high frequency of asymptomatic thyroid dysfunction in patients with T1DM and that screening is cost-effective.
ADA, standards of medical care in diabetes, 2008 [35]	Screen for TPO Ab and Tg Ab at diagnosis Check TSH after metabolic control established. If normal, recheck every 1–2 years, or sooner if signs/symptoms. Check FT4 if TSH is abnormal.	
AACE, medical guidelines for clinical practice for the evaluation and treatment of hyperthyroidism and hypothyroidism, 2002 [36]	Examine for goiter. Check TSH regularly, especially if a goiter develops or if evidence is found of other autoimmune disorders.	They note that approximately 10% of patients with T1DM will develop chronic thyroiditis +/– subclinical hypothyroidism.
NICE guideline for type 1 diabetes in adults: diagnosis and management, 2015 [37]	Annually	
ISPAD, 2018 [38]	Check TSH and TPO Abs at diagnosis. If normal and asymptomatic, screen every other year.	
2015 Recommendation statement of USP-STF: screening for thyroid dysfunction [39]	No specific recommendation	They conclude that the current evidence is insufficient to recommend screening for thyroid dysfunction in non-pregnant, asymptomatic adults.

ATA, American Thyroid Association; BTA, British Thyroid Association; UK, United Kingdom; ADA, American Diabetes Association; AACE, American Association of Clinical Endocrinologist; NICE, National Institute for Health and Care Excellence; ISPAD, International Society for Pediatric and Adolescent Diabetes guidelines; USPSTF, United States Preventive Service Task Force.

Eom YS, Wilson JR, Bernet VJ. Diabetes Metab J. 2022 https://doi.org/10.4093/dmj.2022.0013

TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica

Diabete Mellito tipo 1 (DMT1)

Indicazioni

1) Alla diagnosi di DMT1 **raccomandiamo** di eseguire uno screening sierologico che comprenda TPOAb e TgAb. Il successivo follow-up dovrebbe comprendere il controllo annuale della funzione tiroidea con TSH e TPOAb (ogni 1-2 anni). Se i TPOAb sono positivi in presenza di eutiroidismo, eseguire il controllo della funzione tiroidea ogni 6 - 12 mesi.
2) In caso di associazione DMT1-AITD **suggeriamo** lo studio genetico del paziente e lo screening sierologico dei familiari di 1° grado per l'inquadramento nell'ambito delle poliendocrinopatie autoimmuni.

Diabete Mellito tipo 1 (DMT1) e tireopatia autoimmune (AITD) associate nella **sindrome polighiandolare autoimmune di tipo 3 (PGA-3)**

Recommendations for thyroid hormone screening in patient with T2DM

Guideline	Screening recommendation	Comments
2010 Guideline of the ATA for detection of thyroid dysfunction [33]	Patients with diabetes may require more frequent TSH measurement.	Recommend TSH beginning at age 35 years and every 5 years thereafter, with more frequent monitoring if high risk factors such as diabetes (does not distinguish between T1DM and T2DM)
BTA, the UK guidelines for the use of thyroid function tests, 2006 [34]	Check TSH at diagnosis.	They do not recommend routine annual screening.
2015 Recommendation statement of USP-STF: screening for thyroid dysfunction [39]	No specific recommendation	They conclude that the current evidence is insufficient to recommend screening for thyroid dysfunction in non-pregnant, asymptomatic adults.
NICE guideline for type 2 diabetes in adults: management, 2015 [58]	No specific recommendation	
ADA, guideline 2018 [59]	No specific recommendation	
ATA/AACE, clinical practice guidelines for hypothyroidism in adults, 2012 [60]	No specific recommendation	
ISPAD, 2009 [61,62]	No specific recommendation	

ATA, American Thyroid Association; BTA, British Thyroid Association; UK, United Kingdom; USPSTF, United States Preventive Service Task Force; NICE, National Institute for Health and Care Excellence; ADA, American Diabetes Association; AACE, American Association of Clinical Endocrinologist; ISPAD, International Society for Pediatric and Adolescent Diabetes guidelines.

Eom YS, Wilson JR, Bernet VJ. Diabetes Metab J. 2022 https://doi.org/10.4093/dmj.2022.0013

TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica

Diabete Mellito tipo 2 (DMT2)

Indicazioni

Pur essendo riportata la presenza di ipotiroidismo nei pazienti con DMT2 di età superiore a 65 anni, specialmente in presenza di macroangiopatia o trattamento con metformina, non vi è evidenza che sia necessaria la determinazione del TSH per escludere una coesistente condizione di ipotiroidismo.

TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica

Ipertiroidismo e Diabete

Indicazioni

1) **Suggeriamo** la valutazione della funzionalità tiroidea in corso di chetoacidosi al fine di escludere un ipertiroidismo.
2) **Suggeriamo** un adeguamento della terapia in relazione al maggior fabbisogno insulinico in corso di ipertiroidismo.
3) **Suggeriamo** di considerare i diabetici ipertiroidei con fibrillazione atriale, soprattutto se anziani o con precedenti CV, come un gruppo a rischio più elevato.
4) **Raccomandiamo** di rivalutare l'iperglicemia di nuovo riscontro in un soggetto ipertiroideo dopo un'adeguata correzione della disfunzione tiroidea.

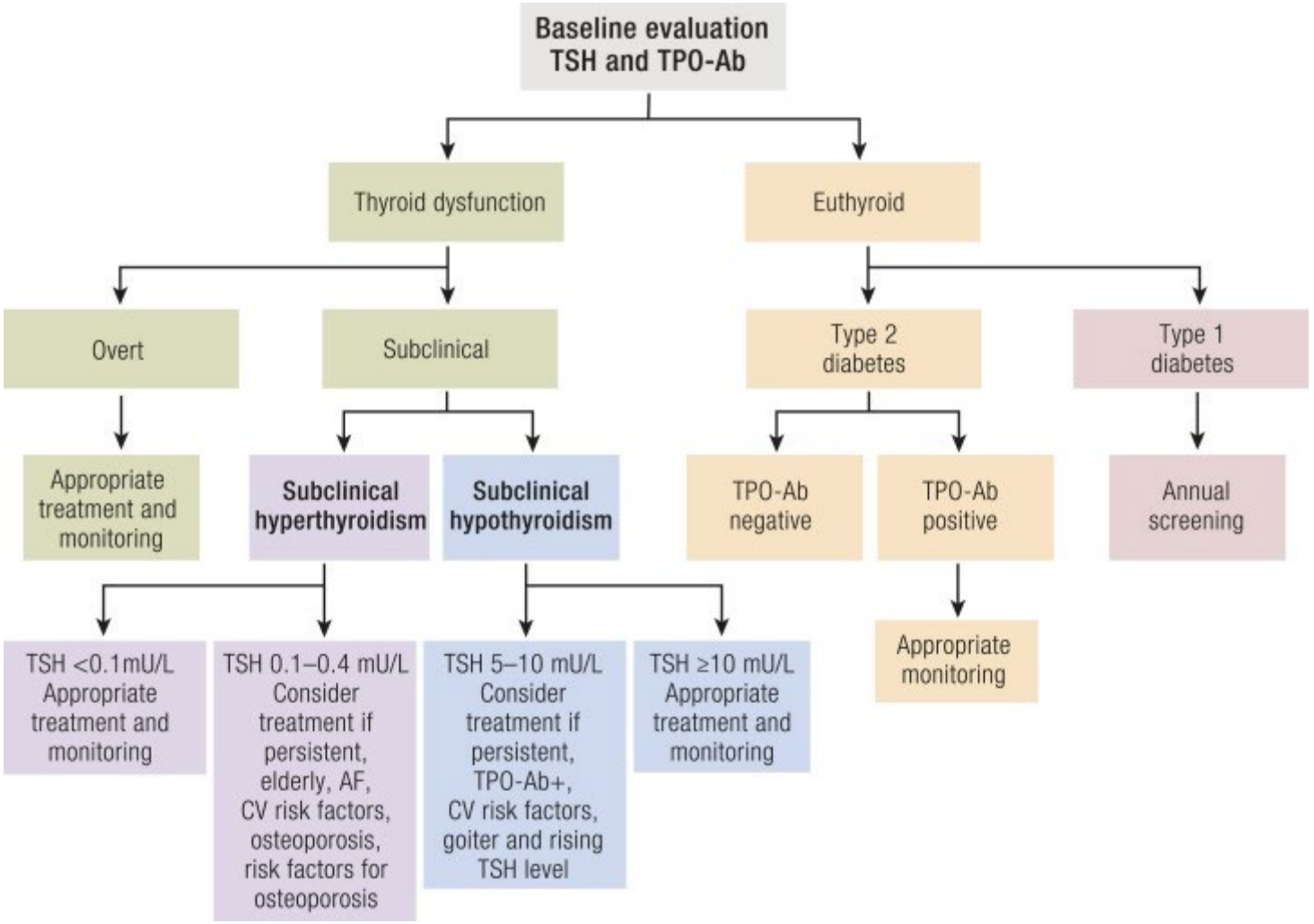
TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica

Ipotiroidismo e Diabete

Indicazioni

1) In caso di ipoglicemia ripetuta, particolarmente nel DMT1, **suggeriamo** di escludere con la determinazione del TSH sierico l'insorgenza di ipotiroidismo.
2) In presenza di dislipidemia, **raccomandiamo** di introdurre le statine solo dopo aver corretto l'ipotiroidismo, per ridurre il rischio di miopatia.
3) **Suggeriamo** di controllare ogni 6-12 mesi i valori del TSH nel diabetico con ipotiroidismo subclinico, per la possibile progressione verso l'ipotiroidismo manifesto.
4) **Suggeriamo** la correzione dell'ipotiroidismo subclinico in corso di diabete mellito se il TSH è maggiore di 10 mUI/L o se è associato a sintomi, a gozzo nodulare o a desiderio di gravidanza.
5) **Suggeriamo** lo screening e il trattamento precoce delle complicanze microangiopatiche in soggetti diabetici con ipotiroidismo.
6) **Suggeriamo** la determinazione del TSH nei soggetti con insulino-resistenza, IGT o franco diabete all'OGTT.

Algoritmo per la diagnosi e il trattamento delle patologie tiroidee in pazienti con diabete mellito di tipo 1 e 2



Biondi B, Kahaly GJ, Robertson RP. Endocr Rev. 2019 Jun 1;40(3):789-824. doi: 10.1210/er.2018-00163

Recommendations for thyroid screening in pregnant diabetic patients

Guideline	Screening recommendation	Comment
2017 Guidelines of the ATA for the diagnosis and management of thyroid disease during pregnancy and the postpartum [66]	Check TSH in pregnant women with T1DM or other autoimmune disorders.	They do not recommend universal screening for patients who are pregnant or are planning pregnancy. Screening is recommended if one of the following risk factors: (1) A history of or current symptoms/signs of thyroid dysfunction, (2) thyroid antibody positivity or goiter, (3) prior head and neck radiation or thyroid surgery, (4) age >30 years, (5) T1DM or other autoimmune disorders, (6) prior pregnancy loss, preterm delivery, or infertility, (7) prior pregnancies (≥2), (8) family history of AITD or thyroid dysfunction, (9) morbid obesity (BMI ≥40 kg/m^2), (10) use of amiodarone or lithium, or recent administration of iodinated radiologic contrast, (11) residing in an area of known iodine insufficiency.
BTA, 2006 UK guidelines for the use of thyroid function test [34]	Check TSH, FT4, and TPO Abs in women with T1DM prior to conception. Monitor thyroid function during pregnancy and 3 months post-partum.	They note that women with T1DM are three times more likely to develop post-partum thyroid dysfunction.
2014 Endocrine Society Recommendation [91]	Check TSH in pregnant women with T1DM.	T1DM is considered a significant risk factor as are: current thyroid therapy, family history of AITD, goiter, history of autoimmune disorder, high-dose neck radiation, postpartum thyroid dysfunction, and previous delivery of infant with thyroid disease.
ATA/AACE, clinical practice guidelines for hypothyroidism in adults, 2012 [60]		They do not recommend universal screening for patients who are pregnant or are planning pregnancy.
2014 KTA guideline for the diagnosis and management of thyroid disease during pregnancy and postpartum [92]	Check TSH in pregnant women with T1DM.	They recommend screening early in pregnancy in the setting of T1DM or if other high risk factors.
ACOG practice bulletin, clinical management guideline for obstetrician-gynecologists: thyroid disease in pregnancy [93]	Check TSH in pregnant women with T1DM.	They do not recommend universal screening for thyroid disease in pregnancy. Indications include personal or family history of thyroid disease, T1DM, or clinical suspicion of thyroid disease.

ATA, American Thyroid Association; BTA, British Thyroid Association; UK, United Kingdom; AACE, American Association of Clinical Endocrinologist; KTA, Korean Thyroid Association; ACOG, American College of Obstetricians and Gynecologists.

Eom YS, Wilson JR, Bernet VJ. Diabetes Metab J. 2022 https://doi.org/10.4093/dmj.2022.0013

TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica

Associazione tra diabete e alterazioni della funzione tiroidea in gravidanza e nel post-partum

Indicazioni

1) **Raccomandiamo** il dosaggio del TSH nelle donne con DMT1, specie se TPOAb positive, dopo 6-8 settimane dal parto.
2) **Raccomandiamo** il trattamento con L-tiroxina nella DPPT con valori di TSH che si confermino superiori alla norma (a un secondo controllo dopo 4-8 settimane), soprattutto in caso di programmazione di nuova gravidanza.
3) **Suggeriamo** lo screening per diabete gestazionale in caso di valori di TSH superiori alla norma nella prima parte della gravidanza.

Effects of antidiabetic agents on thyroid disorders

Metformin
Metformin administration in diabetic patients is associated with a reduction in serum TSH levels without change of plasma FT4 and FT3 concentration.
TSH level monitoring may be necessary after the use of metformin in diabetic patients with overt and subclinical hypothyroidism.
Metformin may reduce thyroid nodule size and reduce thyroid cancer cell growth.
Sulfonylureas
Hypothyroidism occurred more frequently in diabetic patients taking first-generation sulfonylurea.
The second-generation sulfonylurea, glibenclamide and gliclazide have little influence on thyroid hormone metabolism.
Thiazolidinediones
TZDs may exacerbate TED.
TZDs should be used carefully in patients with T2DM with clinically active TED.
Incretin mimetics
GLP-1RAs increase medullary thyroid cancer in rats, but not in monkeys and humans.
Monitoring for the occurrence of MTC in patients taking GLP-1RAs is not recommended.
Use of GLP-1RAs in patients with a personal of family history of MTC or MEN type 2 is not recommended.
Colesevelam
BASs can sequester T4 in the intestine and increase its fecal excretion, thus, restricting the enterohepatic reabsorption into the systemic circulation.
Colesevelam binds levothyroxine and decreases its absorption.
Caution may be required when using colesevelam and levothyroxine together.

TZD, thiazolidinedione; TED, thyroid eye disease; GLP-1RA, glucagon-like peptide-1 receptor agonist; MTC, medullary thyroid cancer; MEN, multiple endocrine neoplasia.

Eom YS, Wilson JR, Bernet VJ. Diabetes Metab J. 2022 https://doi.org/10.4093/dmj.2022.0013

TIREOPATIE e DIABETE
Raccomandazioni per la pratica clinica
Terapia delle tireopatie e diabete

Indicazioni

1) **Suggeriamo** di rivalutare il profilo tiroideo a 6-12 mesi dall'inizio del trattamento con metformina nei soggetti diabetici affetti da ipotiroidismo primitivo trattato con L-tiroxina.
2) Mancano evidenze tali da suggerire di controllare nel tempo TSH ed FT4 e di eseguire un'ecografia tiroidea nei pazienti in trattamento con sulfaniluree.
3) **Suggeriamo** di non somministrare pioglitazone a diabetici affetti da oftalmopatia di Graves.
4) **Raccomandiamo** di tenere in attenta considerazione gli effetti negativi sul controllo metabolico che potrebbero derivare dalla necessità di ricorrere a terapia corticosteroidea in caso di insorgenza/esacerbazione dell'oftalmopatia.
5) **Raccomandiamo** di non somministrare analoghi del GLP1 a soggetti con anamnesi personale o familiare di carcinoma midollare tiroideo o MEN-2.
6) **Raccomandiamo** di rivalutare la posologia della terapia insulinica alla luce del maggiore rischio di ipoglicemia nei pazienti ipotiroidei e all'aumentato rischio di scompenso glicemico e chetoacidosi diabetica nella tireotossicosi, con possibili effetti inversi determinati dal ripristino della condizione di eutiroidismo.
7) **Raccomandiamo** di usare speciali precauzioni nel diabetico per la terapia con ß-bloccanti (tireotossicosi) per l'aumento del rischio di ipoglicemia non avvertita.

SUGIHARASEKI, M; SKALAK, R. IODINE IN DIABETES MELLITUS. The Lancet, 25(638), 319-(1835). doi:10.1016/S0140-6736(02)84662-1

MEDICAL REFORM ESSAYS.

To the Editor of THE LANCET.

SIR,—After a patient perusal of the various essays forwarded to the Medical Reform Association, the Committee of Examination* have decided that there are not any three deserving of the prizes, although many deserve considerable praise, from the talent and research displayed in them.

It is my duty therefore to inform the essayists that they can obtain their essays by sending a note, with the motto, when any more specific communication that it may be necessary to make, will be made.

I am further directed to communicate the fact that the 100*l.* will still remain in the hands of the Treasurer, Joseph Hume, Esq., M.P., and that the Association will be happy to receive any essays on the question originally propounded, which must be delivered in, on or before the end of December, 1836. Further particulars I shall take the liberty of requesting the insertion of in the pages of your journal in the course of a fortnight or three weeks. I have the honour to remain, Sir, your obedient servant,

JOHN EPPS, M.D.,
Hon. Sec. to the Med. Reform Assoc.

89, Great Russell-street,
Nov. 17, 1835.

CLINICAL LECTURES IN LONDON.—*To the Editor.*—Sir,—It is stated in your Number for November 7, that 12 years ago there was not a clinical lecture given in London. As regards the *Hospitals*, to which the statement *appears* to refer, this may be correct; but as the fact is not stated with such limitation, I beg to observe that Clinical Surgical Lectures were given regularly at the Finsbury Dispensary by myself in the October of 1821, subsequently to my election in the preceding April, and these were (I *believe*) the first clinical lectures delivered in London. Leaving it to you to make any use of this note you may think proper, I remain, Sir, your obedient servant,

GEORGE MACILWAIN.

Argyll-place, Nov. 17, 1835.

IODINE IN DIABETES MELLITUS.—*To the Editor.*—Sir,—The perusal in your excellent journal, of a paper on the discovery of sugar in the blood of a diabetic patient, has induced me to forward to you a notice of a case which I have treated successfully with iodine. The patient, a young man, of about twenty years of age, had laboured under diabetes mellitus for upwards of two years, and had taken successively the mineral acid, tinct. ferri mur., et potassæ sulphas, but without effect. In the month of May last I commenced exhibiting *iodine*, in the different forms of the ioduret of iron, and of potassa, and, lastly, in the form of tincture. Shortly after the commencement of this treatment a good deal of expectoration took place, and mucus was thrown up regularly every morning. By degrees the urgency of the case subsided, and now, although the weather has become cold, very little tendency to diabetes remains. I hope that others may try the effects of this drug in this generally uncontrollable complaint, and watch its action and result. I remain, Sir, your obedient servant,

C. A. D.

Goswell-street-road, Nov. 17, 1835.

*** Our correspondent should have added his name.

DISTRIBUTION OF SUBJECTS.—*To the Editor.*—Sir,—I shall feel obliged if some explanation is given in the next Number of your valuable periodical, of the cause of the present very unequal distribution of subjects for dissection; one of the west-end schools having as many, or more than they can dissect, whilst in the Borough we can get very few indeed, bearing no comparison to the demand, and proving a very serious inconvenience to the students in general.

I am, Sir, your constant reader,

A WEBB-STREET PUPIL.

Nov. 16, 1835.

*** We much doubt if the "*distribution*" is unequal. Does our correspondent know the proportions on authentic information?

To the Editor.—Sir,—I throw myself on your justice, in transmitting the following reply to an article in a late Number of THE LANCET, Aug. 29, on the subject of "Dr. Wright's Pearl Ointment for Cutaneous Diseases," of which I am (by purchase) the proprietor. The writer of the article, without qualifying doubt, asserts that the active principles of this ointment are arsenic and bichloride of mercury,—yet it does not contain an atom of either of those substances! It is not surely too much, therefore, to expect that his pathological deductions are equally fallacious; and that the symptoms, which he describes as having succeeded to the use of the ointment, had no reference, in the connection of cause and effect, with the application. The writer of course is too honourable a man to ascribe effects to this ointment which he does not conscien-

* The names of the "Committee of Examination" ought to be made public, if they are not already known to the competitors.—ED. L.

IODINE IN DIABETES MELLITUS.—*To the Editor.*—Sir,—The perusal in your excellent journal, of a paper on the discovery of sugar in the blood of a diabetic patient, has induced me to forward to you a notice of a case which I have treated successfully with iodine. The patient, a young man, of about twenty years of age, had laboured under diabetes mellitus for upwards of two years, and had taken successively the mineral acid, tinct. ferri mur., et potassæ sulphas, but without effect. In the month of May last I commenced exhibiting *iodine*, in the different forms of the ioduret of iron, and of potassa, and, lastly, in the form of tincture. Shortly after the commencement of this treatment a good deal of expectoration took place, and mucus was thrown up regularly every morning. By degrees the urgency of the case subsided, and now, although the weather has become cold, very little tendency to diabetes remains. I hope that others may try the effects of this drug in this generally uncontrollable complaint, and watch its action and result. I remain, Sir, your obedient servant,

C. A. D.

Goswell-street-road, Nov. 17, 1835.

Iodio è Salute

"Iodoprofilassi"

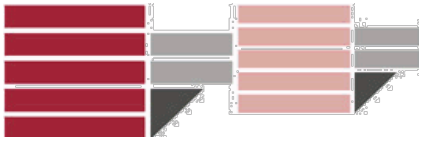
Integrazione dello iodio nella dieta

Iodoprofilassi nella Regione Calabria

UNIVERSITA' DELLA CALABRIA
Centro Sanitario

Osservatorio Epidemiologico
REGIONE CALABRIA
SEZIONE GOZZO ENDEMICO E IODOPROFILASSI

Regione Calabria
Dipartimento di Sanità



UNIVERSITÀ DELLA CALABRIA

CENTRO SANITARIO

REGIONE CALABRIA

Dipartimento Sanità

Osservatorio Regionale
Gozzo Endemico e Iodoprofilassi

DR n. 755 del 30/09/2003

I. PERIODICI RILEVAMENTI EPIDEMIOLOGICI SULLA POPOLAZIONE GIOVANILE DI COMUNI O LOCALITÀ PILOTA PER VALUTARE L'APPORTO IODICO E LA PREVALENZA DEL GOZZO NELLE NUOVE GENERAZIONI.

II. VERIFICA DELL'ANDAMENTO DELL'INCIDENZA DI PATOLOGIA TIROIDEA NELLA POPOLAZIONE ADULTA.

III. PROMOZIONE ED INFORMAZIONE SUI VANTAGGI DELLA IODOPROFILASSI.

IV. CONTROLLO DEL CONSUMO DI SALE FORTIFICATO CON IODIO RISPETTO AL SALE COMUNE DA CUCINA.

Intesa Governo - Regioni del 26/02/2009

Osservatorio Nazionale per il Monitoraggio della Iodoprofilassi

Istituto Superiore Sanità

13° CONGRESSO
ASSOCIAZIONE ITALIANA DELLA TIROIDE
XXXVII Giornate Italiane della Tiroide
Genova 5-7 Dicembre 2019
Porto Antico - Centro Congressi

Stato nutrizionale iodico della popolazione italiana: risultati della seconda sorveglianza (2015-2019) dell'Osservatorio Nazionale per il Monitoraggio della Iodoprofilassi-OSNAMI (179/200)

Simona De Angelis[1], Marcello Bagnasco[2], Massimo Tonacchera[3], Mariacarla Moleti[4], Francesco Vermiglio[4], Concetto Regalbuto[5], Efisio Puxeddu[6], Salvatore Ulisse[7], Augusto Taccaliti[8], Domenico Meringolo[9], Bartolomeo Bellanova[10], Sebastiano Andò[11], Daniela Bonofiglio[11], Caterina Mian[12], Antonio Dimida[3], Giampaola Pesce[2], Mara Schiavo[2], Elena Nazzari[2], Silvia Morelli[6], Giacomo Sturniolo[4], Maria Di Mauro[4], Teresa Rago[3], Caterina Di Cosmo[3], Daniela Rotondi[1], Augusto Pastorelli[1], Paolo Stacchini[1], Antonella Olivieri[1]

[1]Istituto Superiore di Sanità Roma; [2]Università di Genova; [3]Università di Pisa; [4]Università di Messina; [5]Università di Catania; [6]Università di Perugia; [7]Università La Sapienza Roma; [8]Università degli Studi di Ancona; [9]Istituto Ramazzini Bologna; [10]Ospedale S. Orsola Malpighi Bologna, Università della Calabria[11], Università di Padova[12].

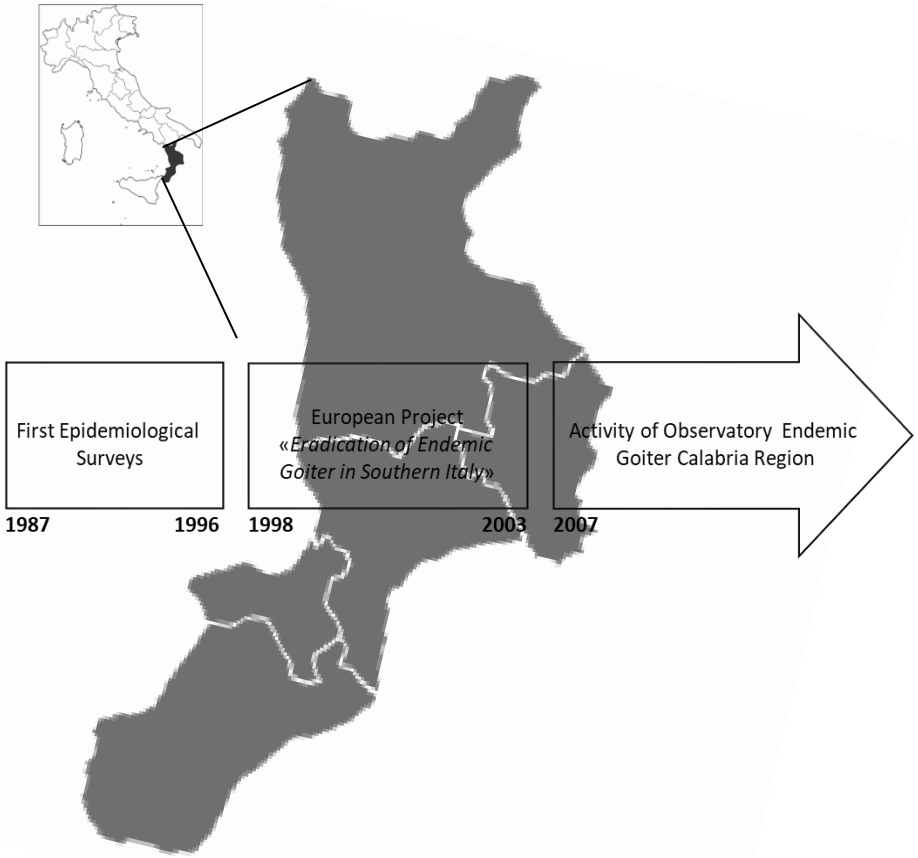
nutrients

MDPI

Endemic Goiter and Iodine Prophylaxis in Calabria, a Region of Southern Italy: Past and Present

Cinzia Giordano [1,2], Ines Barone [1], Stefania Marsico [1,2], Rosalinda Bruno [1,2], Daniela Bonofiglio [1,2,*], Stefania Catalano [1,2,*] and Sebastiano Andò [1,2,*]

Received: 11 September 2019; Accepted: 8 October 2019; Published: 11 October 2019

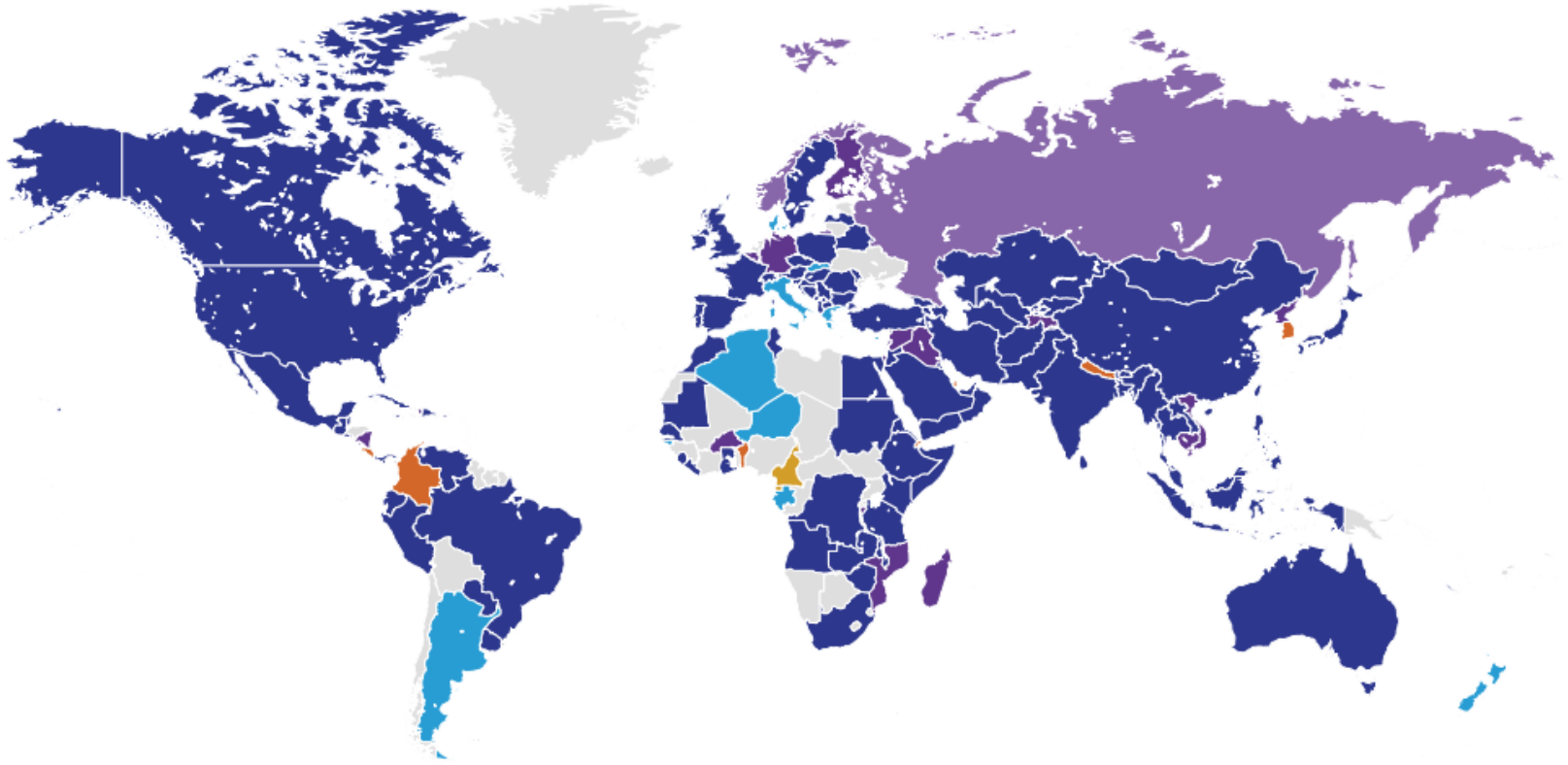


IODINE-SUFFICIENT REGION

Special Issue "Effects of Iodine Intake on Human Health" Guest Editors: D. Bonofiglio, S. Catalano

Iodine Global Network
Annual Report

STATO IODICO NEL MONDO
(dati del 2021 in 194 paesi del WHO)



Median UIC	<100 µg/L	100-299 µg/L	≥300 µg/L
Legend	Insufficient	Adequate	Excessive
National data	17	101	8
Sub-national data	2	10	3
No data	53		

Estimated iodine nutrition in 194 WHO Member States in 2021 based on national median UIC in school-age children obtained from studies conducted between 2007 - 2021.
UIC, Urinary iodine concentration


Grazie
per
l'attenzione