

Tyreotoxikos hos barn och ungdomar

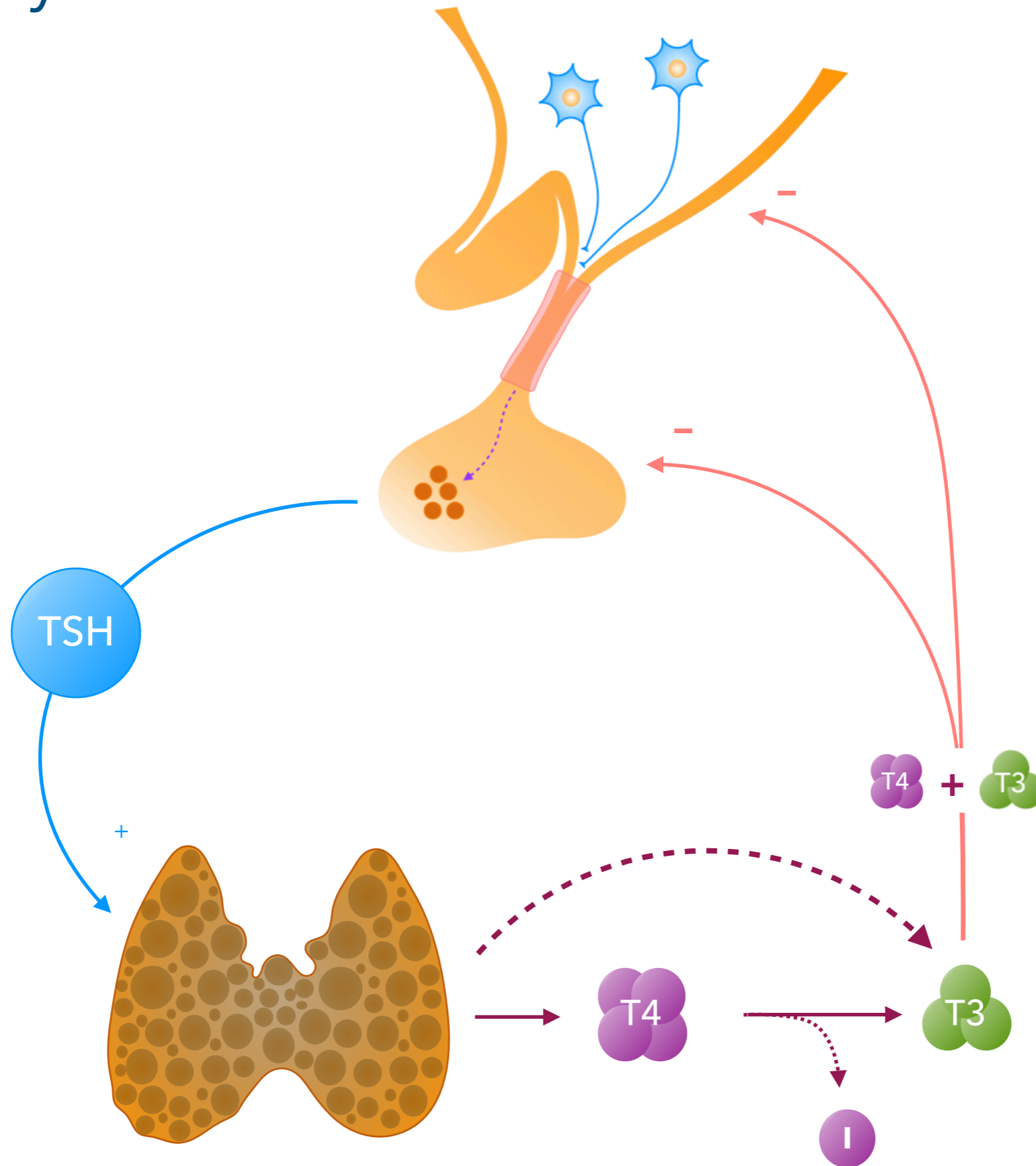
Johan Svensson

Endokrinologi och metabolism

Astrid Lindgrens Barnsjukhus

bild 1 - 24

Hyperthyroidism



Incidens

■ $\approx 1/100000$

■ Ökande?

Country	No. of cases	Population 0–15 years ^{10,11}	Incidence (cases/100,000)	95% CI (cases/100,000)
Scotland	12	865,100	1·4	0·7–2·4
Ireland	3	853,400	0·4	0·1–1·0
Northern Ireland	2	355,000	0·6	0·1–2·0
England	85	9,055,900	0·9	0·7–1·2
Wales	8	526,400	1·5	0·7–3
Total	110	11,655,800	0·9	0·8–1·1

Age (y)	Mean annual incidence			Prevalence
	1990–1994	1995–1999	1990–1999	1999
Girls				
0–4.9	0.5	1.1	0.8	
5–9.9	0.5	3.2	1.9	
10–14.9	3.6	5.8	4.7	
<16	1.5	4.3	2.9	0.13
Boys				
0–4.9	0.0	0.0	0.0	
5–9.9	0.0	0.9	0.5	
10–14.9	0.0	2.5	1.3	
<16	0.0	1.1	0.5	0.03
Boys and girls				
<16	0.7	2.7	1.7	0.08

Aktiva recept på Thacapzol

	Age-group				Total Pat	Pat/10000 0-18
	00 - 05 Pat	06 - 10 Pat	10-15 Pat	16 - 17 Pat		
Stockholms län	0	3	28	21	52	1,2
Uppsala län	2	2	5	3	12	1,8
Södermanlands län	2	2	4	3	11	1,9
Östergötlands län	0	0	6	4	10	1,1
Jönköpings län	0	4	3	4	11	1,5
Kronobergs län	0	2	0	4	6	1,6
Kalmar län	0	0	4	2	6	1,2
Gotlands län	0	0	0	3	3	2,5
Blekinge län	2	0	0	4	6	2
Skåne län	0	6	23	10	39	1,6
Hallands län	0	3	4	4	11	1,7
Västra Götalands län	0	8	13	12	33	1
Värmlands län	0	4	2	4	10	1,8
Örebro län	0	3	2	3	8	1,4
Västmanlands län	2	2	7	4	15	2,7
Dalarnas län	0	0	4	5	9	1,6
Gävleborgs län	0	2	2	3	7	1,2
Västernorrlands län	0	0	2	4	6	1,2
Jämtlands län	0	0	2	2	4	1,5
Västerbottens län	0	0	7	6	13	2,4
Norrbottnens län	0	0	2	3	5	1
	8	41	120	108	277	1,4

Increasing Incidence of Juvenile Thyrotoxicosis in Denmark: A Nationwide Study, 1998–2012

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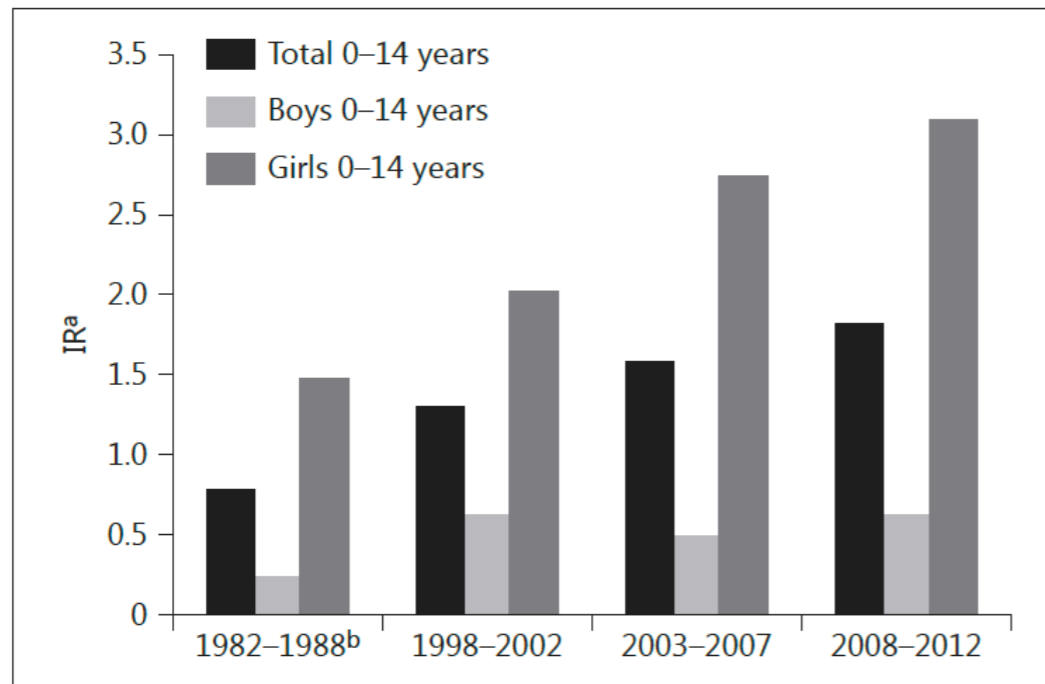


Fig. 2. IRs for 1982–1988 and 1998–2012. ^a Number of cases per 100,000 person-years. ^b IR based on previously published data [6].

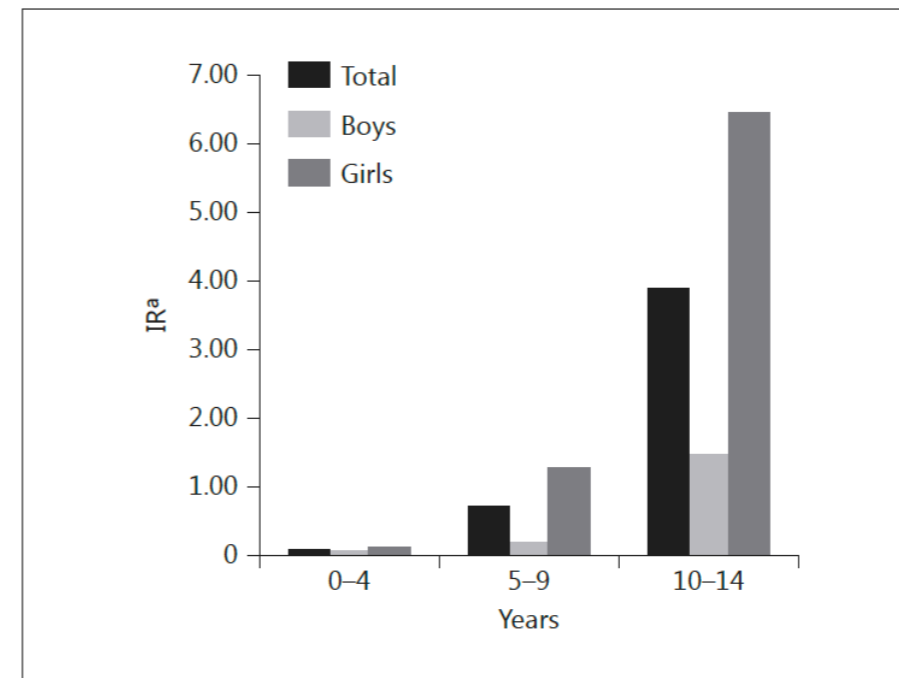


Fig. 3. IRs in age groups. ^a Number of cases per 100,000 person-years.

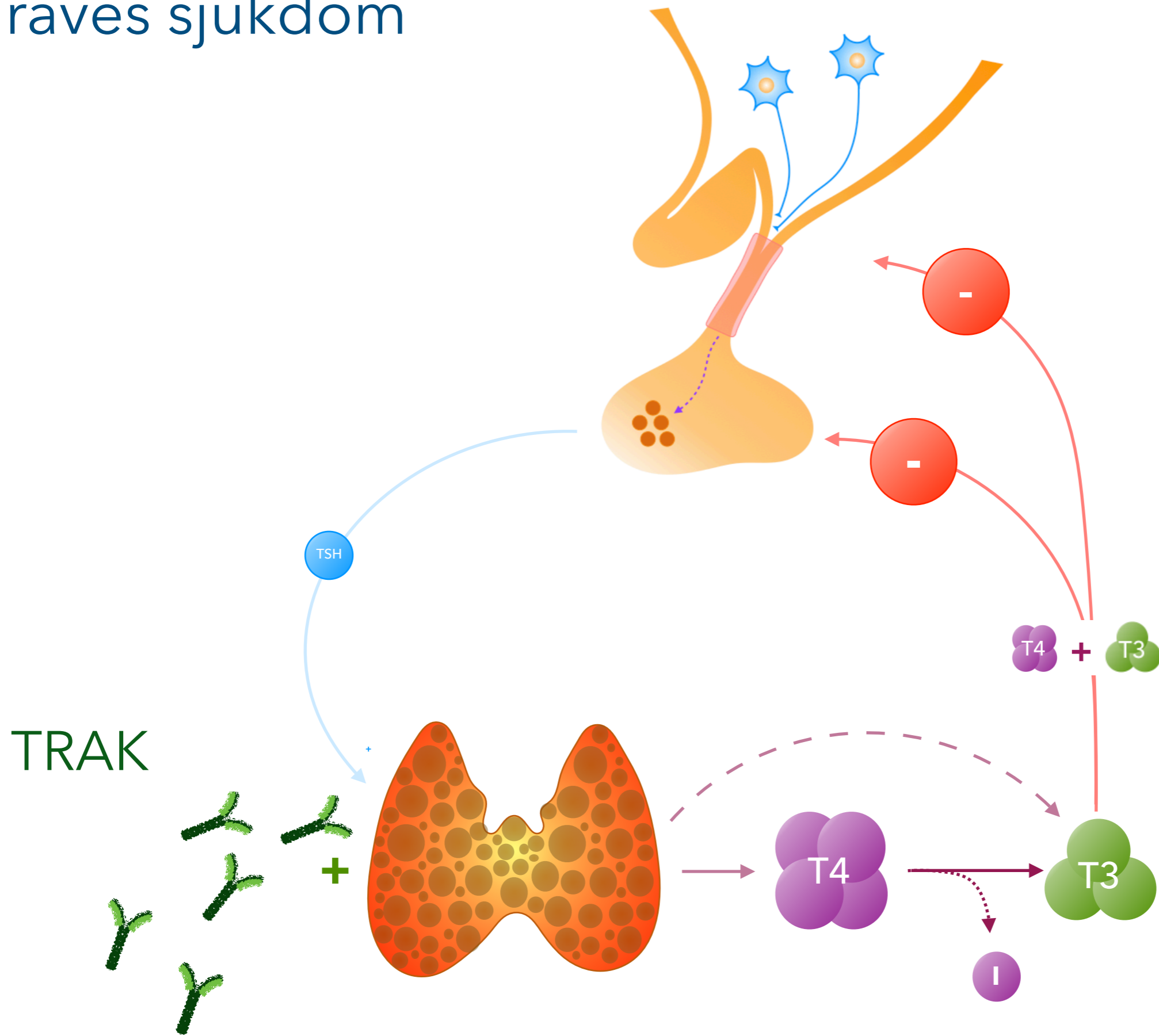
Etiologi till tyreotoxikos hos barn och ungdomar

	Berlin 1999	UK 2010
■ Graves sjukdom	83 %	84 %
■ Toxic tyreoidit	8 %	12 %
■ Toxiskt adenom	2 %	2 %
■ Nonautoimmune tyreotoxikos	6 %	
■ Annan orsak	1 %	2 %

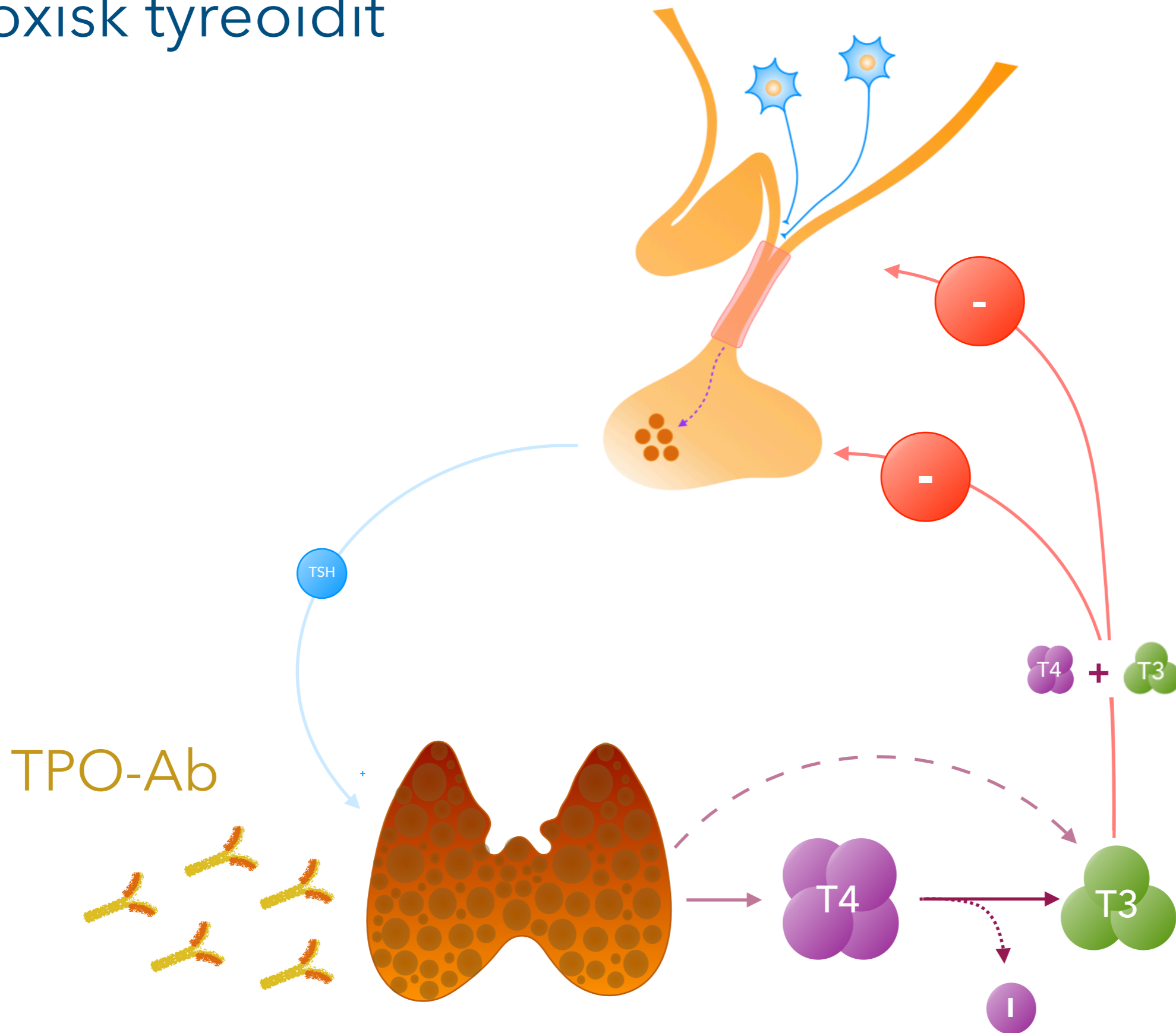
TSH ↓ - FT4 ↑ - FT3 ↑

- Vanliga orsaker
 - Graves sjukdom
 - Övergående del i autoimmun tyreoidit (Toxisk tyreoidit)
- Relativt vanliga orsaker
 - Toxiska noduli
 - Multinodulär struma
- Sällsynta orsaker
 - Factitia
 - Aktiverande TSH-receptormutation
 - Neonatal hypertyreos

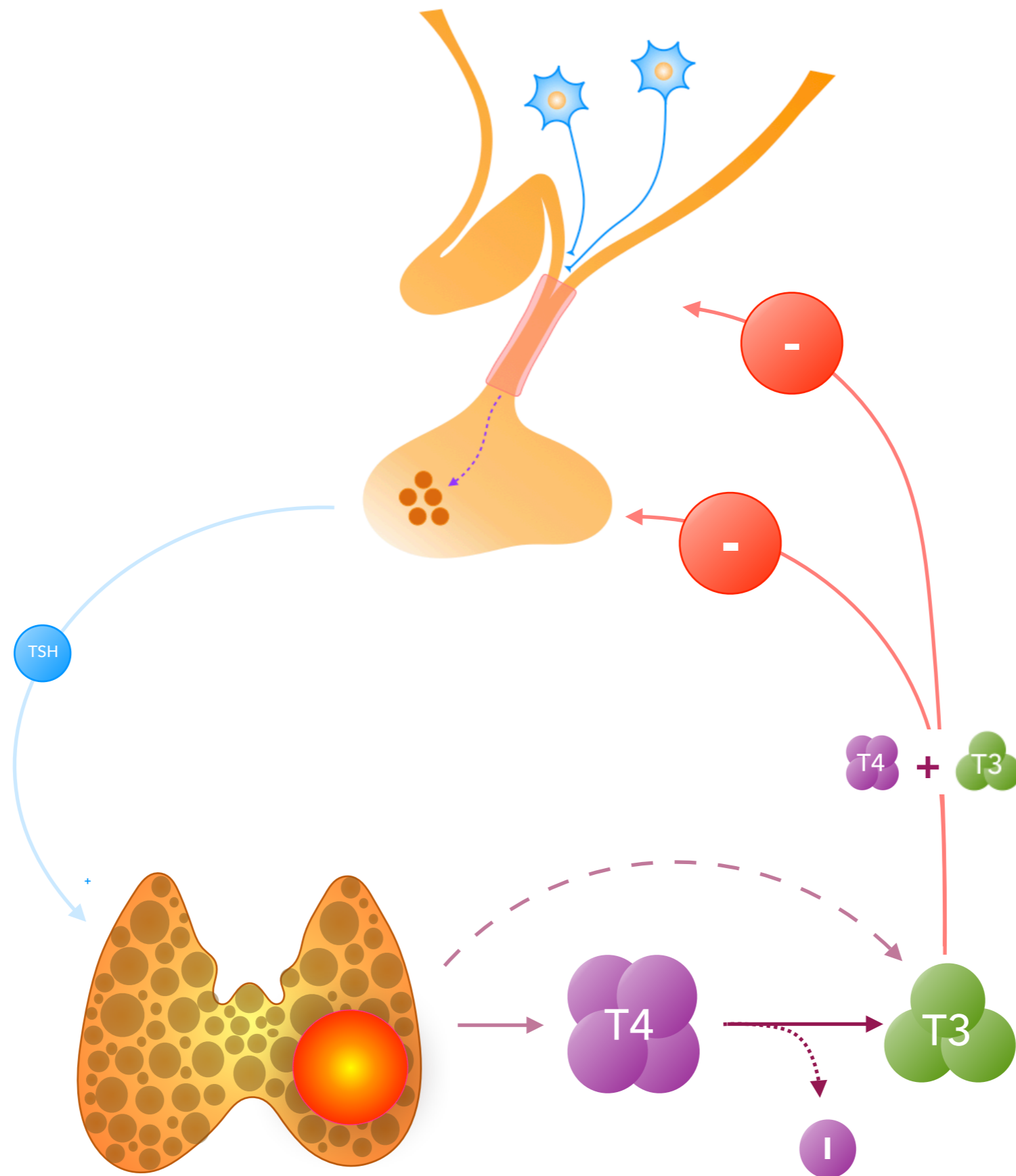
Graves sjukdom



Toxisk tyreoidit



Toxiskt adenom



Symtom

■ Exoftalmus (Graves)

■ Struma

■ Takykardi

■ Högt pulstryck

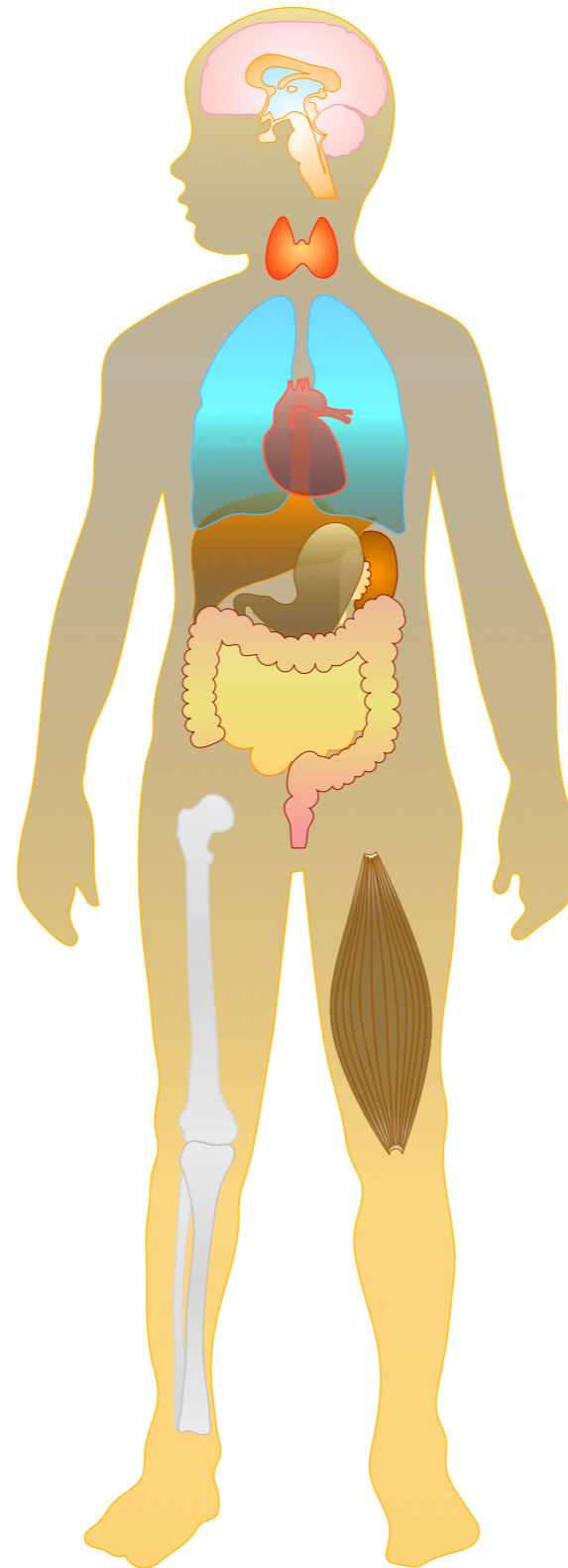
■ Diarré

■ Ökad aptit

■ Viktnedgång

■ Osteoporos

■ Ökad längdtillväxt



■ Nervositet

■ Irritabilitet

■ Försämrade skolresultat

■ Värmeintolerans

■ Enures

■ Proximal muskelsvaghet

■ Tremor

Utredning

- Verifiera patientens tyreotoxikos

 - TSH, fT_4 , fT_3 ,

- Bestäm etiologi

 - TRAK och TPO-Ak

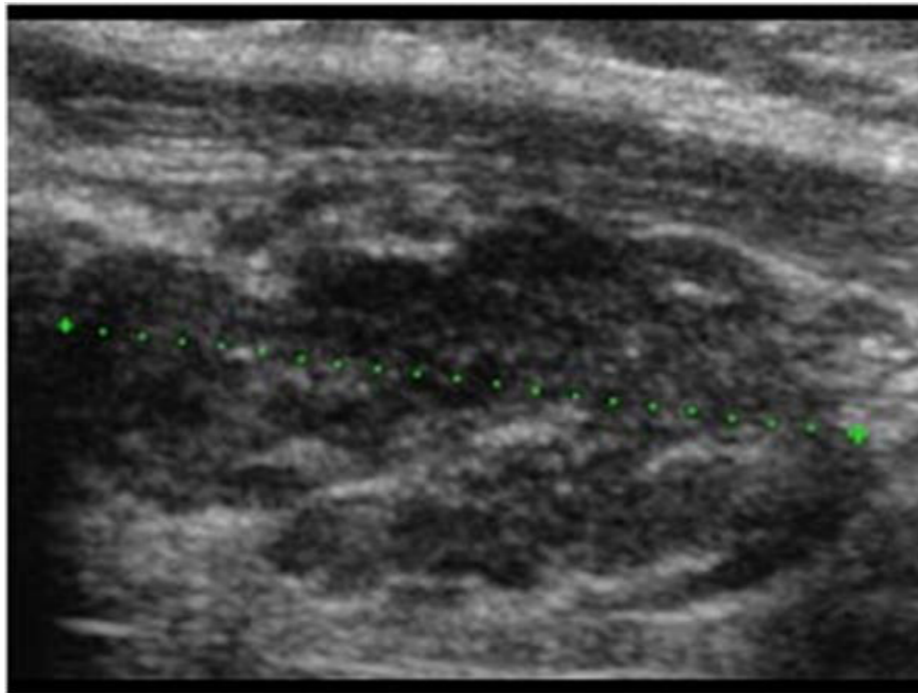
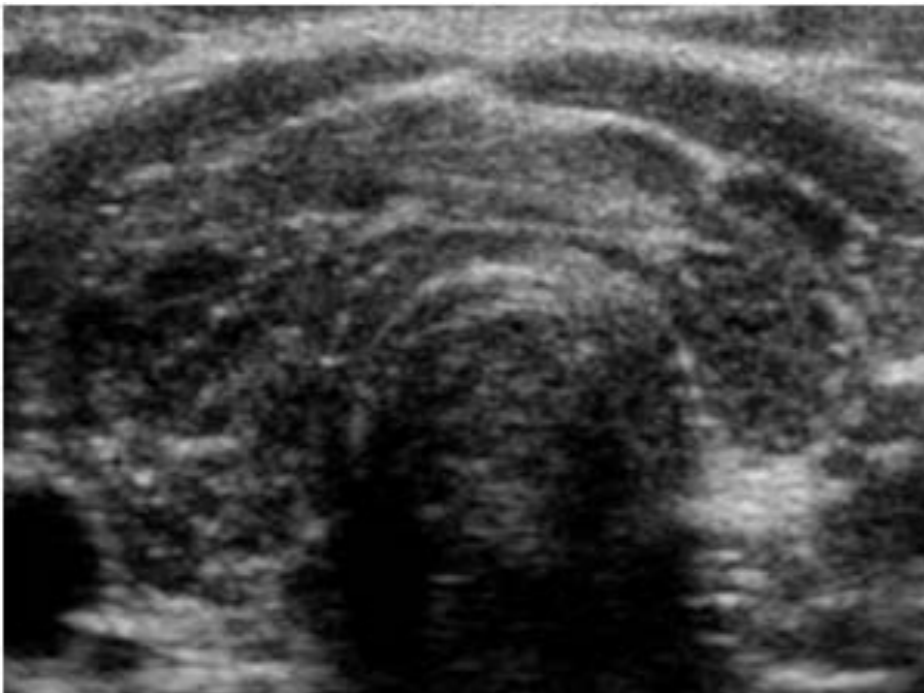
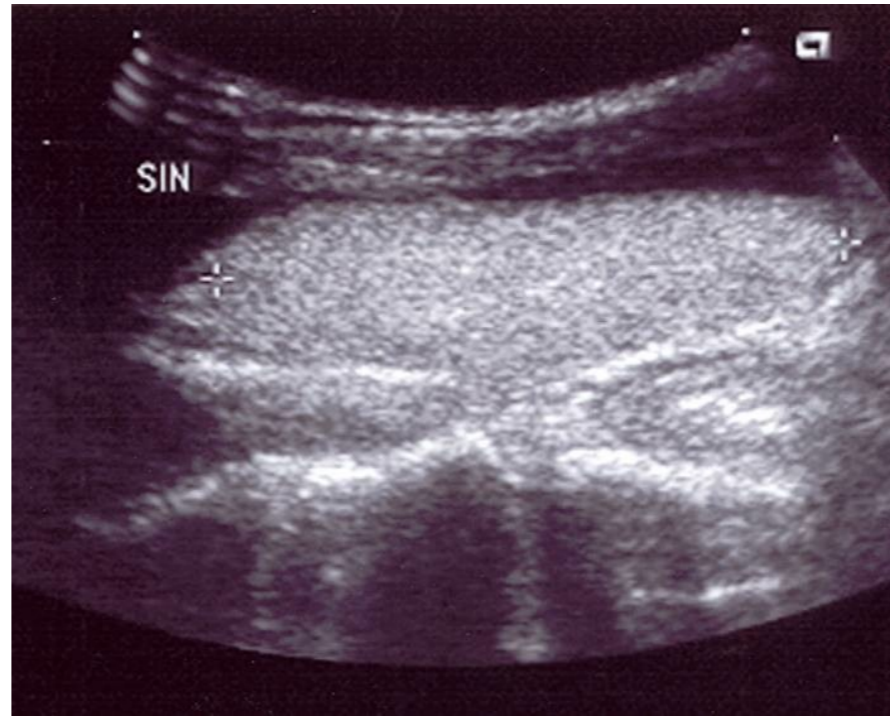
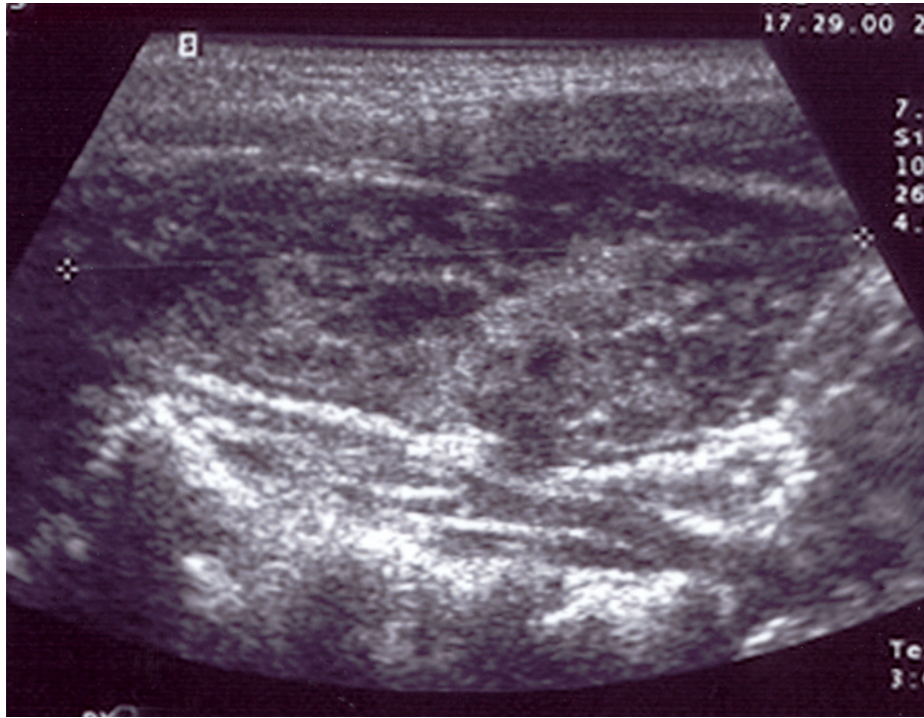
 - Utraljud tyreoida

 - Scintigrafi

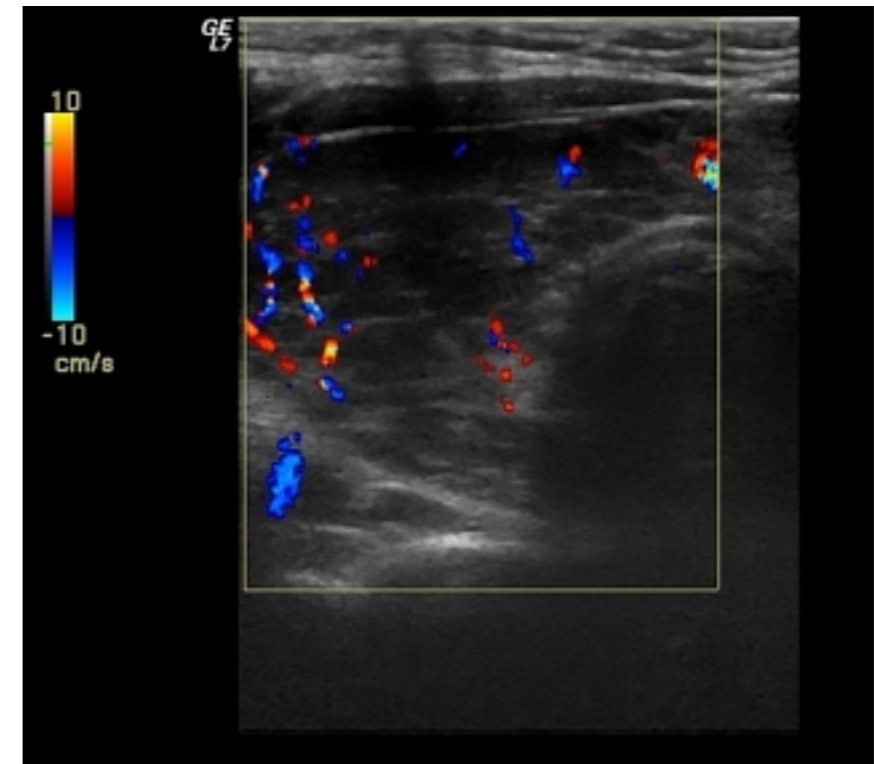
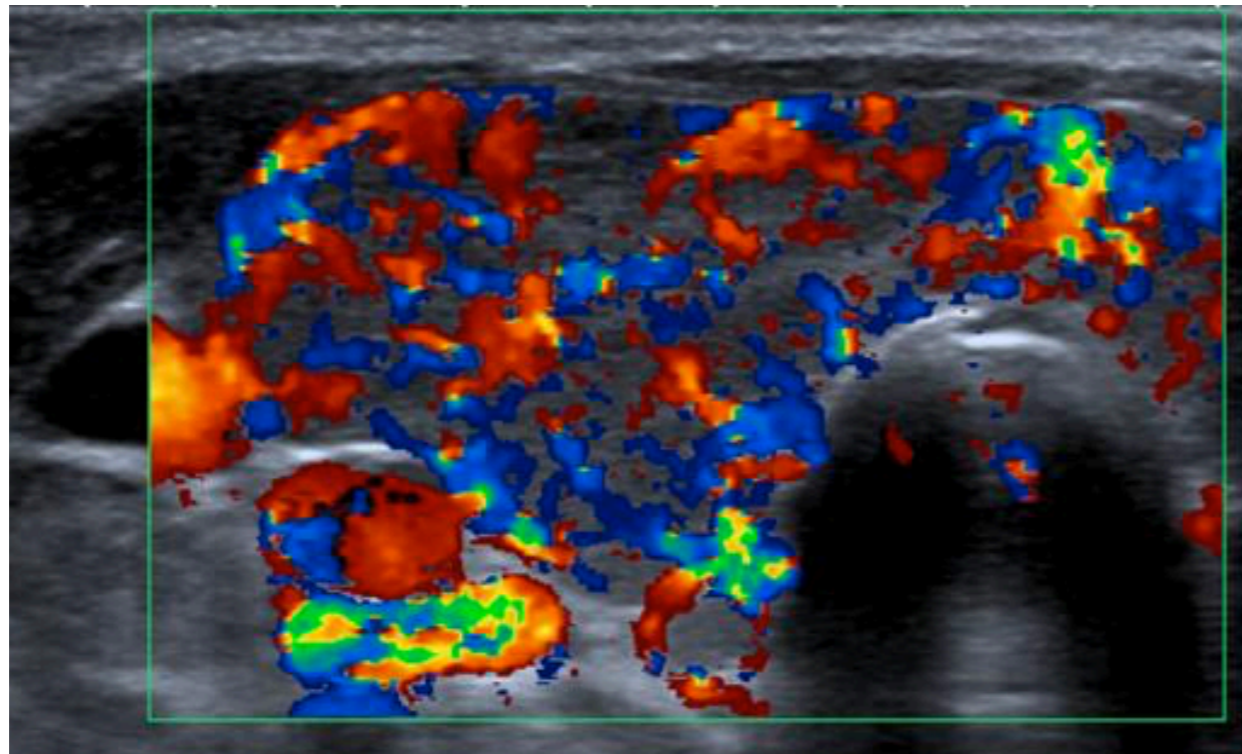
Ultraljud tyreoida

- Undersöka tyreoidaparenkymets utseende
- Undersöka tyreoidas aktivitet
- Bestämma tyreoidas storlek

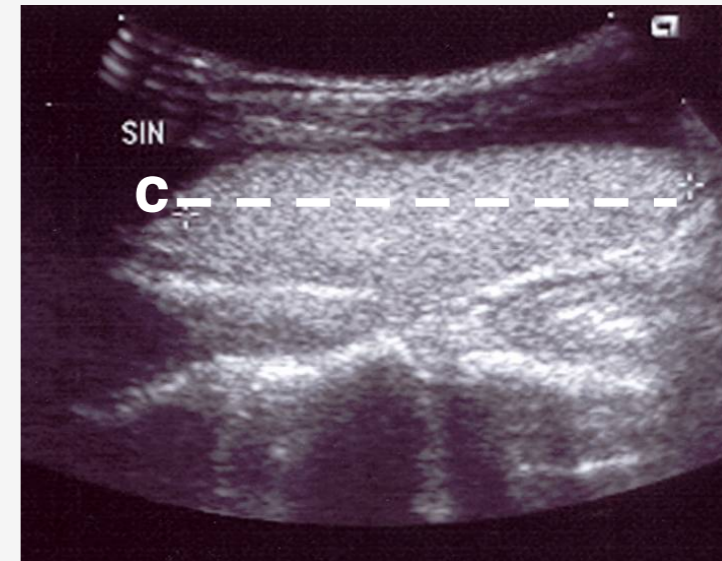
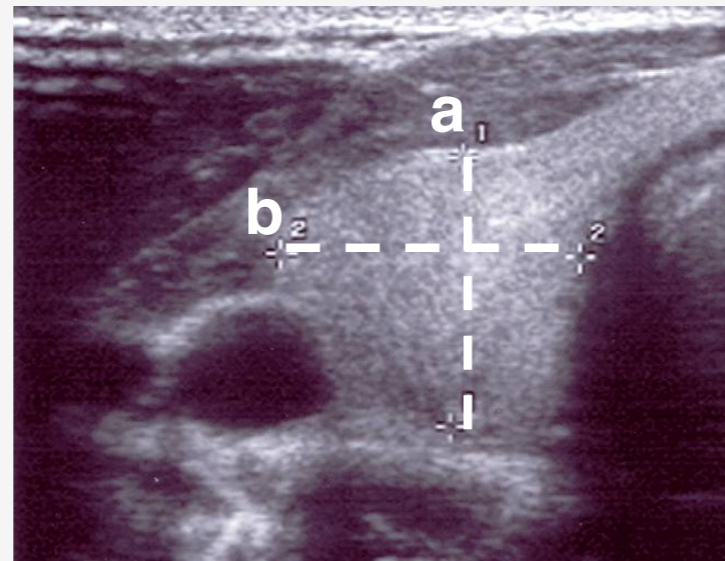
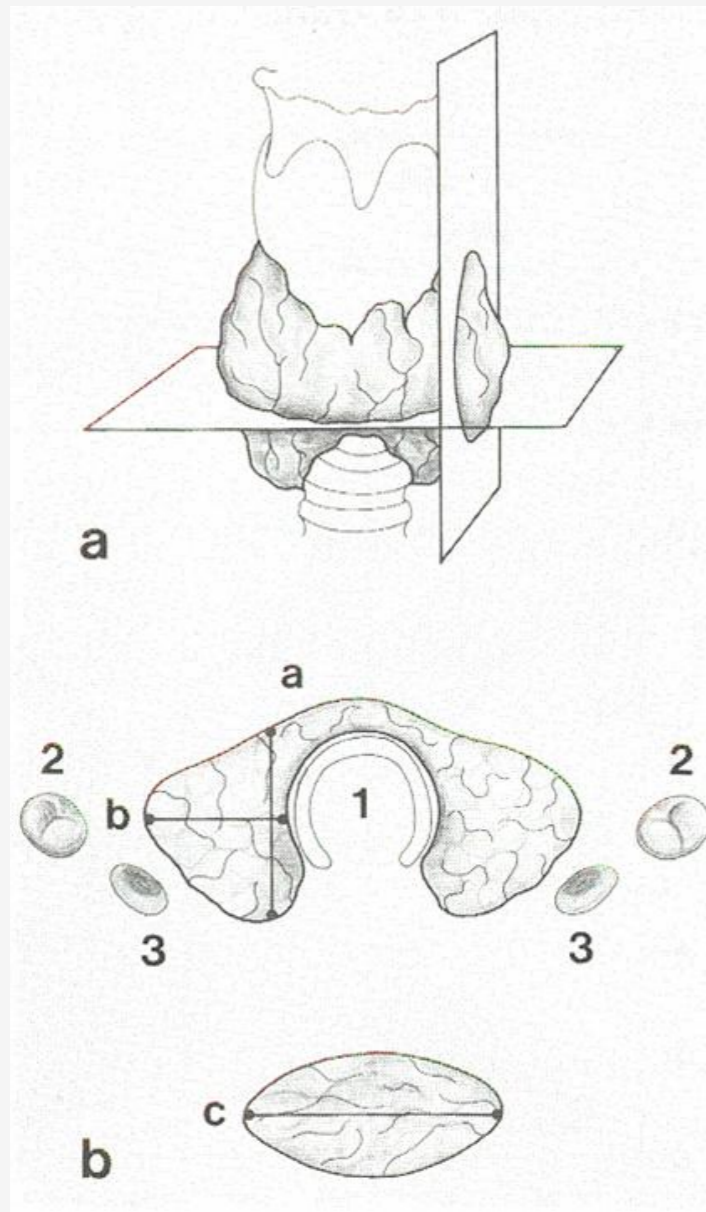
Undersöka tyreoidaparenkymets utseende



Undersöka tyreoidens aktivitet



Bestämma tyreoidneas storlek



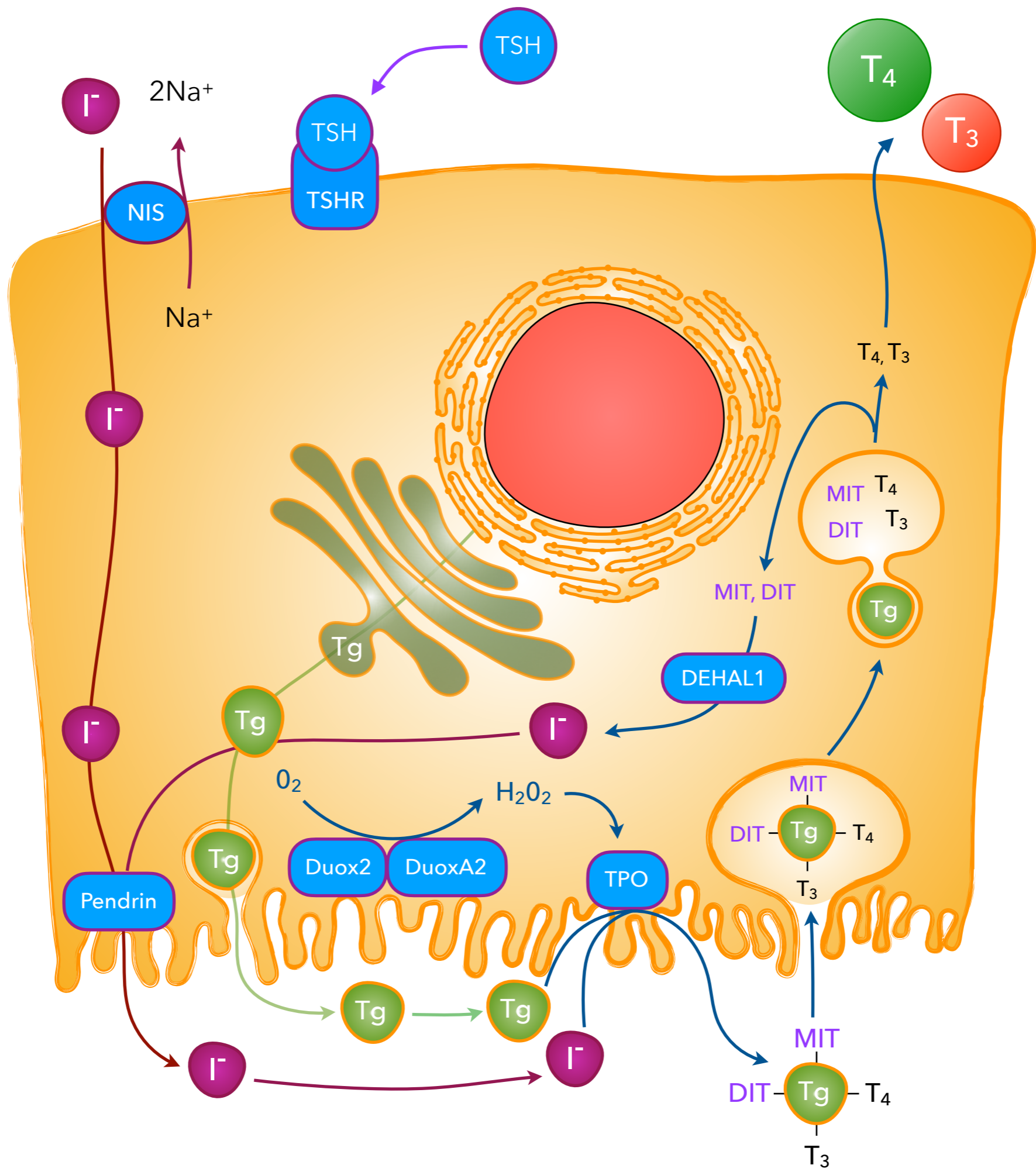
$$\text{Volym lob (ml)} = a \times b \times c \times 0.479$$

Referensområde tyreoidavolym flickor

BSA m2	Age Years											
	7	8	9	10	11	12	13	14	15	16	17	18
0,8	1.1 - 3.9											
0,9	1.2 - 4.3	1.3 - 4.5	1.4 - 4.7									
1	1.4 - 4.7	1.4 - 4.9	1.5 - 5.2									
1,1	1.5 - 5.2	1.6 - 5.4	1.6 - 5.7	1.7 - 6.0	1.8 - 6.3	1.9 - 6.6						
1,2	1.6 - 5.6	1.7 - 5.9	1.8 - 6.2	1.9 - 6.6	2.0 - 6.9	2.1 - 7.2	2.2 - 7.6					
1,3		1.9 - 6.5	2.0 - 6.8	2.1 - 7.2	2.2 - 7.5	2.3 - 7.9	2.4 - 8.3	2.5 - 8.7	2.6 - 9.2			
1,4			2.2 - 7.5	2.3 - 7.9	2.4 - 8.3	2.5 - 8.7	2.6 - 9.1	2.8 - 9.6	2.9 - 10.1	3.0 - 10.6	3.2 - 11.1	4.4 - 11.7
1,5				2.5 - 8.6	2.6 - 9.1	2.7 - 9.5	2.9 - 10.0	3.0 - 10.5	3.2 - 11.0	3.3 - 11.6	3.5 - 12.2	3.7 - 12.8
1,6					2.7 - 9.9	3.0 - 10.4	3.2 - 11.0	3.3 - 11.5	3.5 - 12.1	3.6 - 12.7	3.8 - 13.3	4.0 - 14.0
1,7					3.1 - 10.9	3.3 - 11.4	3.5 - 12.0	3.6 - 12.6	3.8 - 13.2	4.0 - 13.9	4.2 - 14.6	4.4 - 15.4
1,8						3.6 - 12.5	3.8 - 13.2	4.0 - 13.8	4.2 - 14.5	4.4 - 15.2	4.6 - 16.0	4.8 - 16.8
1,9						4.0 - 13.7	4.2 - 14.4	4.4 - 15.2	4.6 - 15.9	4.8 - 16.7	5.0 - 17.6	5.3 - 18.4
2											5.5 - 19.2	5.8 - 20.2

Tyreoidescintigrafi

- Vid TRAK och TPO-negativ tyreotoxikos
- Bedöma tyreoides aktivitet
 - Diffust ökat upptag
 - Lokalt ökat upptag
 - Minskat upptag



Graves sjukdom

