Epidemiologie

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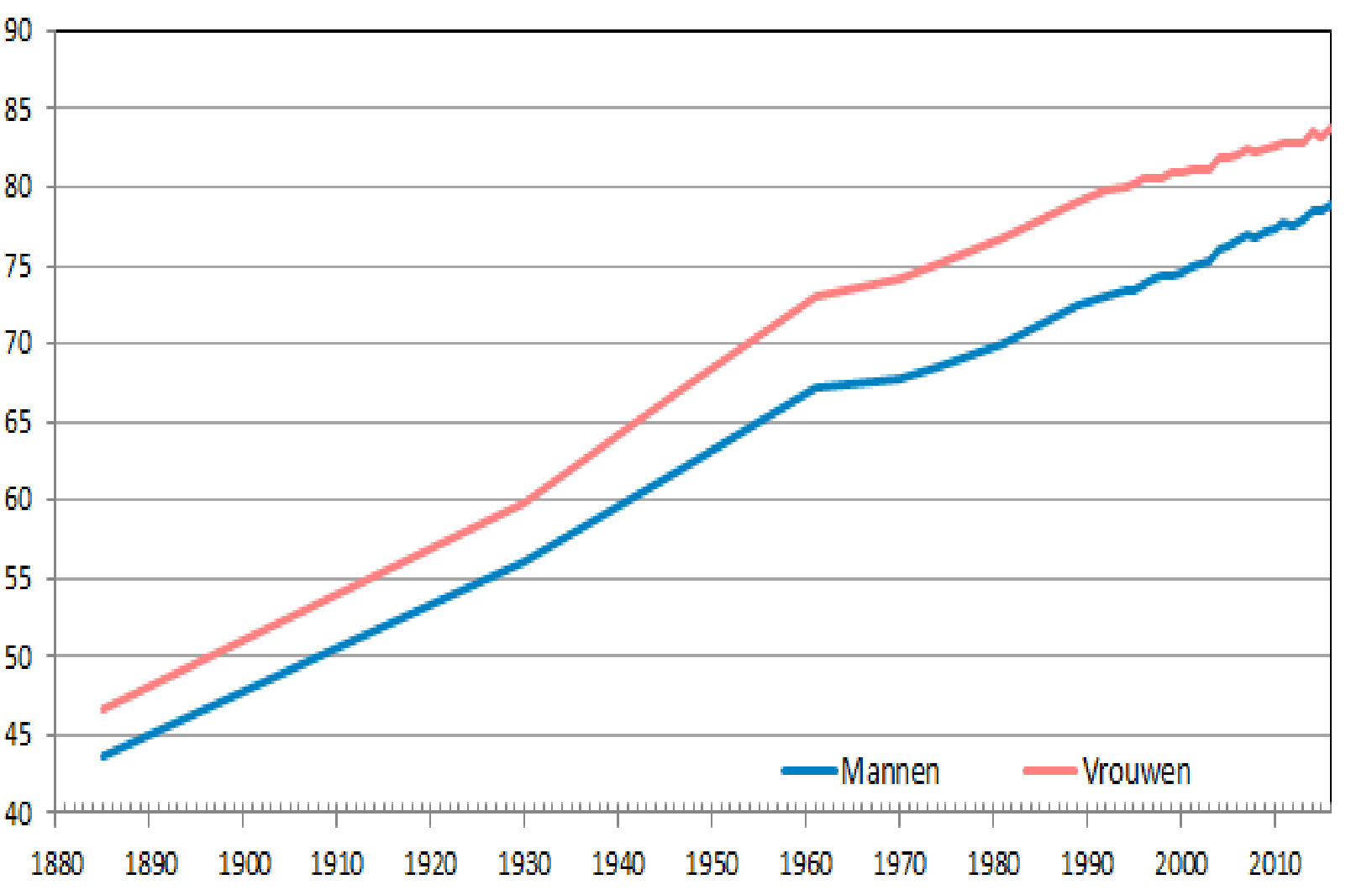
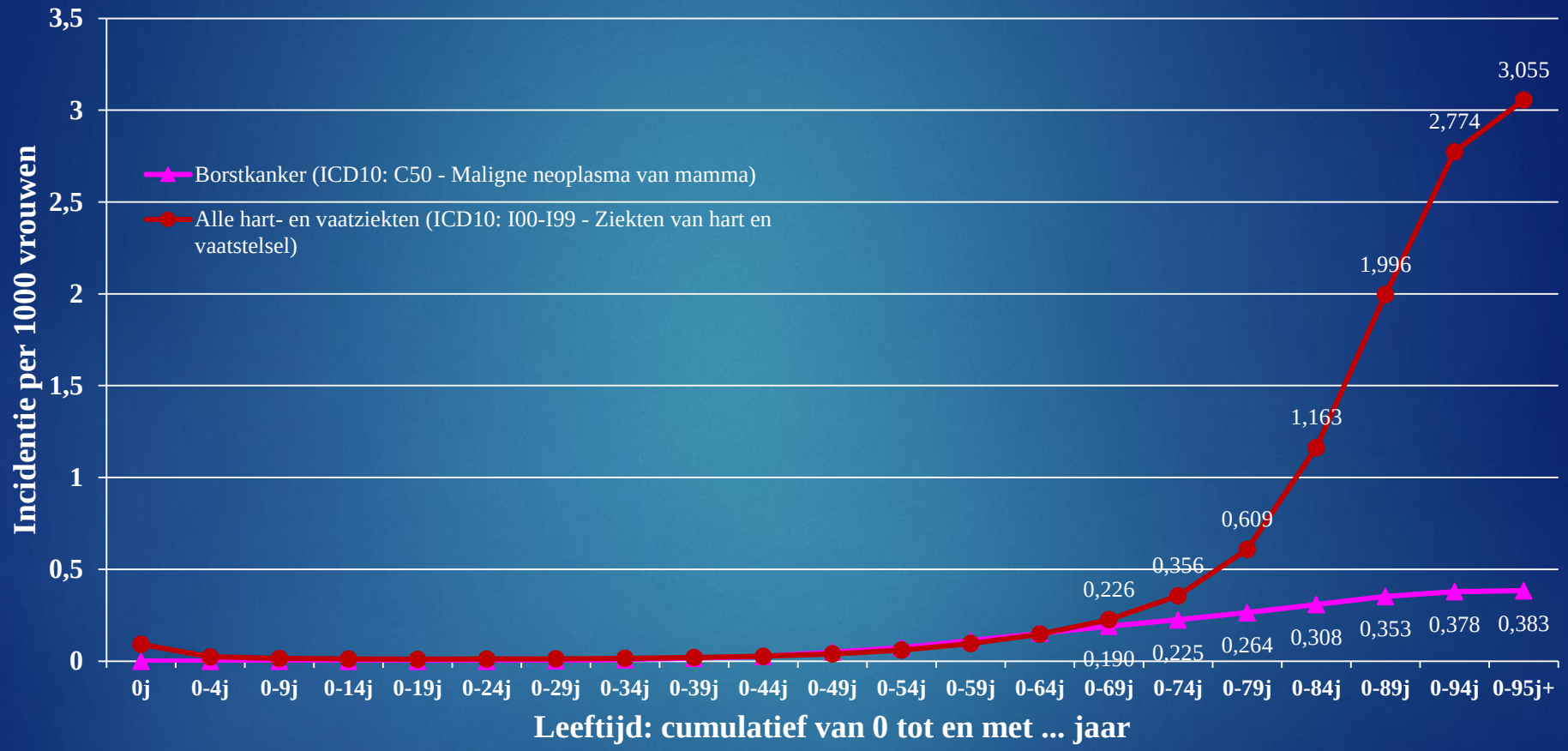
Life expectancy in Belgium
46,6 y in 1880 and 83,8 y in 2014

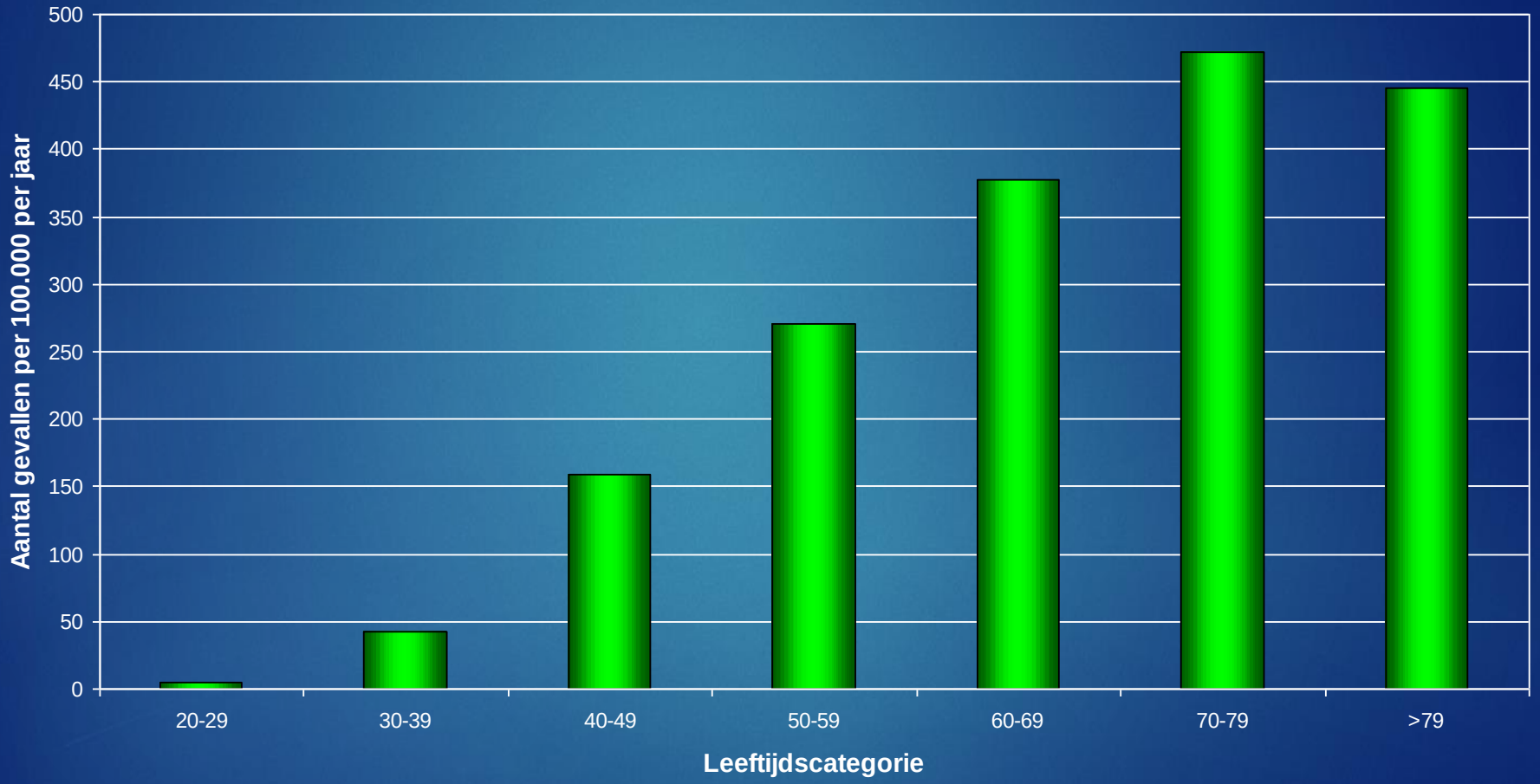


Cumulatieve leeftijdsspecifieke incidentie van sterfte bij vrouwen voor enkele geselecteerde oorzaken, Vlaams Gewest, 2015

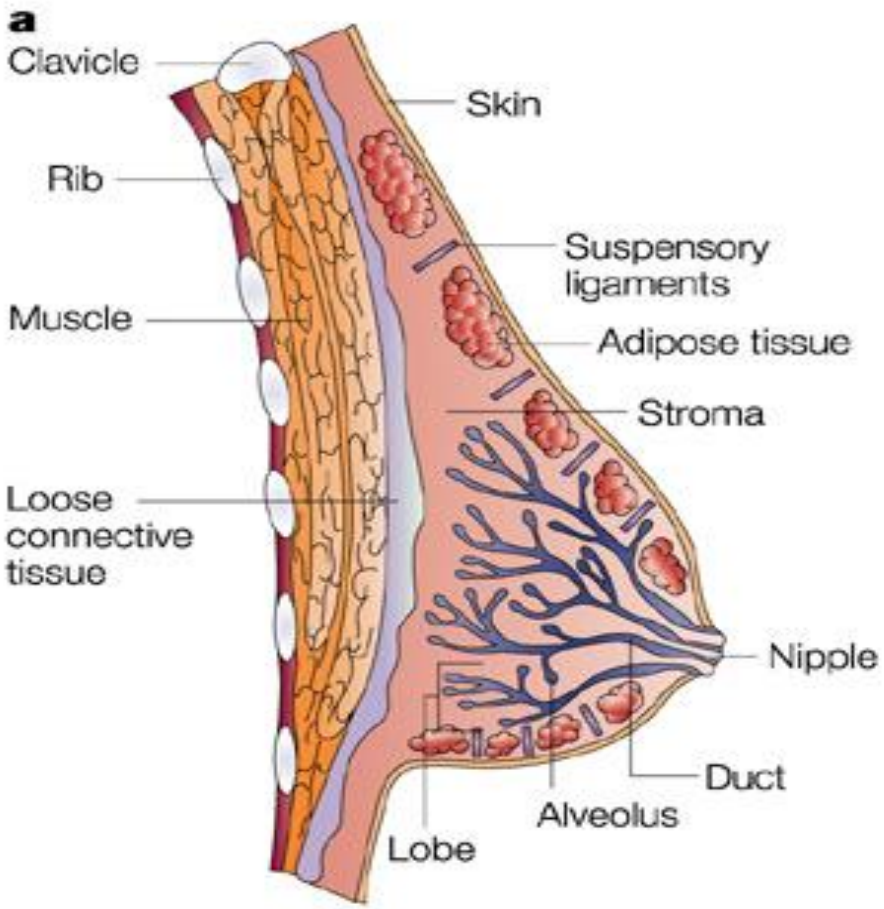


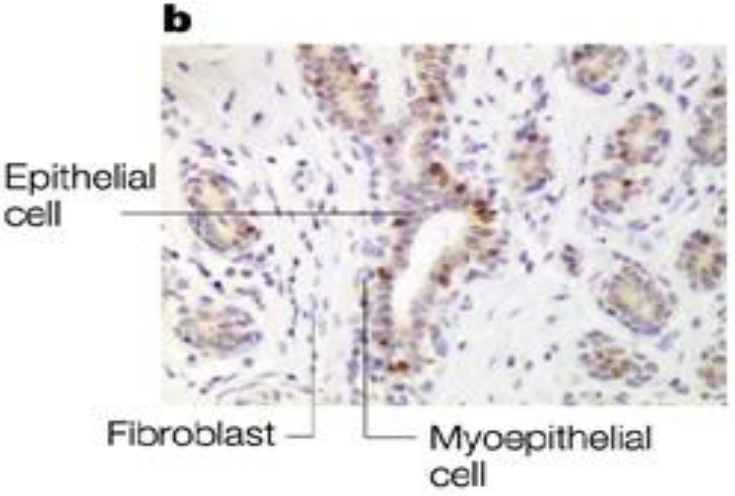
Bron: Agentschap Zorg en Gezondheid. *Cijfers over doodsoorzaken* [Online publicatie]. Brussel, [geraadpleegd op *16/01/2019*]. Beschikbaar op: *http://www.zorg-en-gezondheid.be/cijfers/* *prof Koen Vanherck*

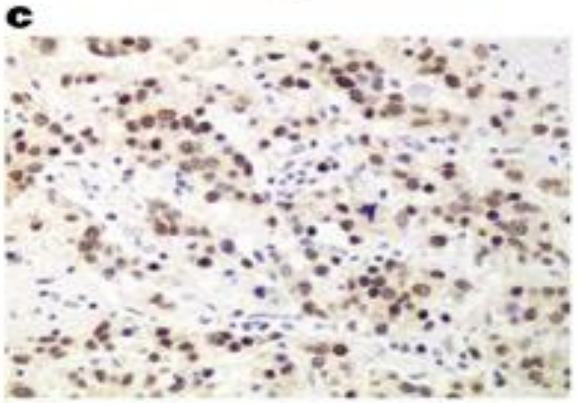
Leeftijdspecifieke incidentie invasief borstcarcinoom (SEER 1991-1995, National Cancer Institute)



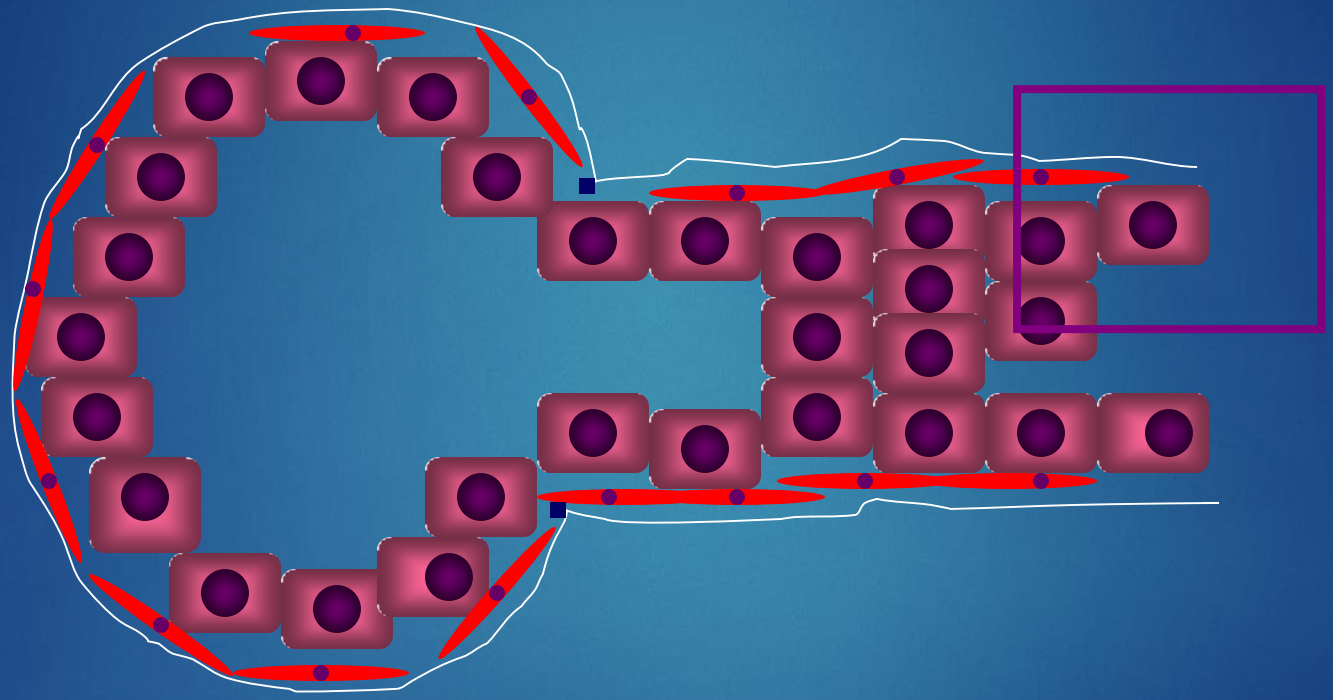
ETIOPATHOGENESE BORSTKANKER

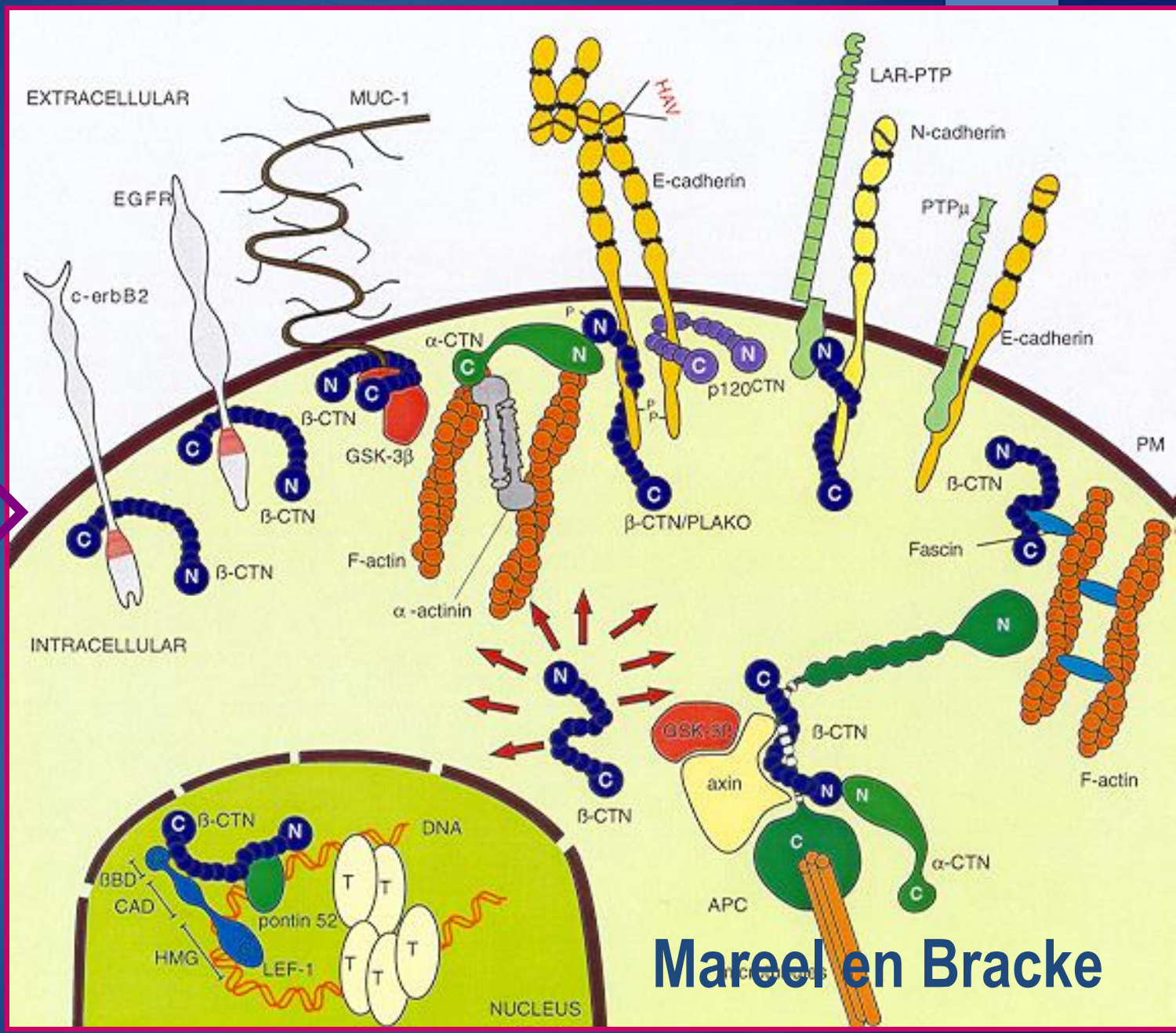




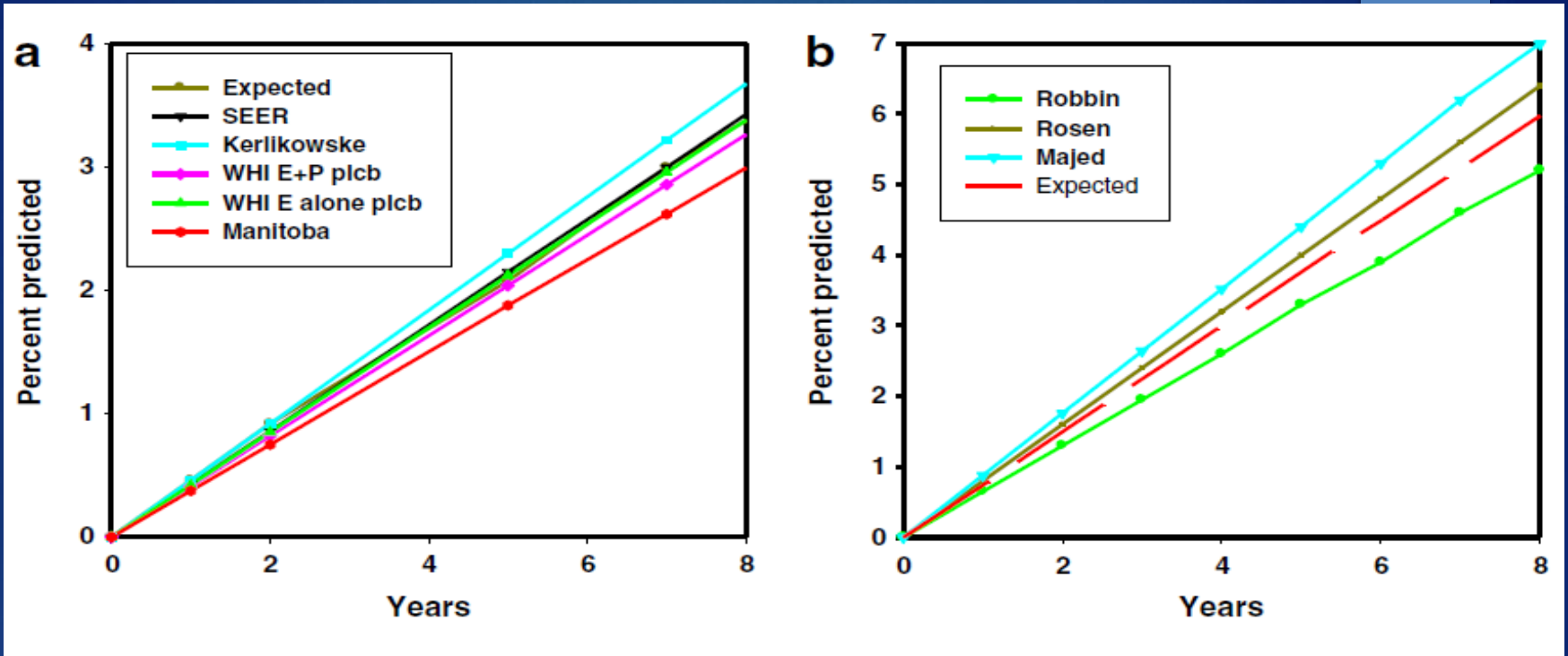


DUCTLOBULAR UNIT





Mareel en Bracke

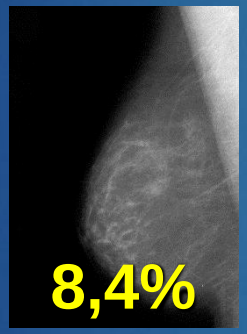


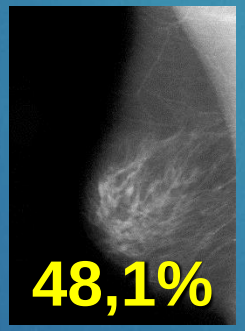
- Occulte borst kanker reservoir
- Santen model (200 dagen ontdubbelings tijd, 1.16 cm detectie)
- 2,5 kankers per 1000 vrouwen per jaar

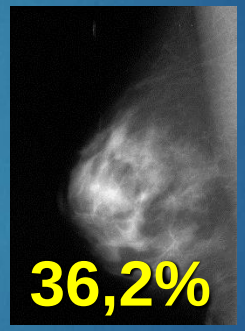
Santen R et al. Horm canc, 2013; Santen R J of steroid biochemistry and molecular biology 2013.

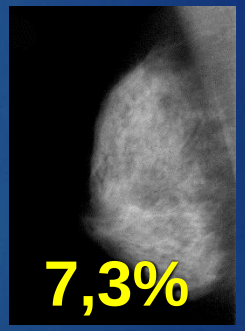
Risico factoren 1: Borst densiteit

Zeer dense borsten (birads 4) zijn geassocieerd met een verhoogde kans op borstkanker. (OR 4,7 tov birads 1).



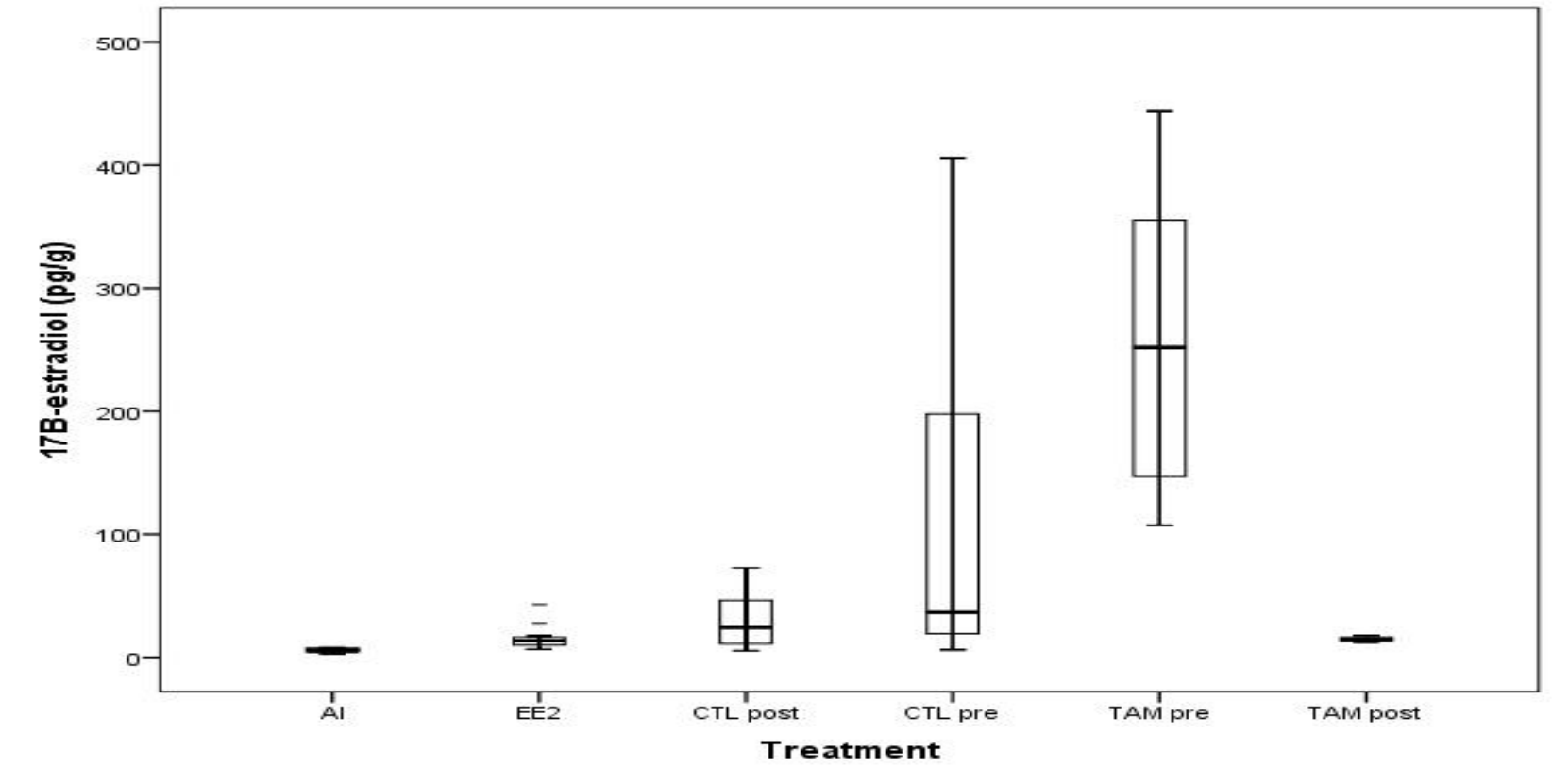






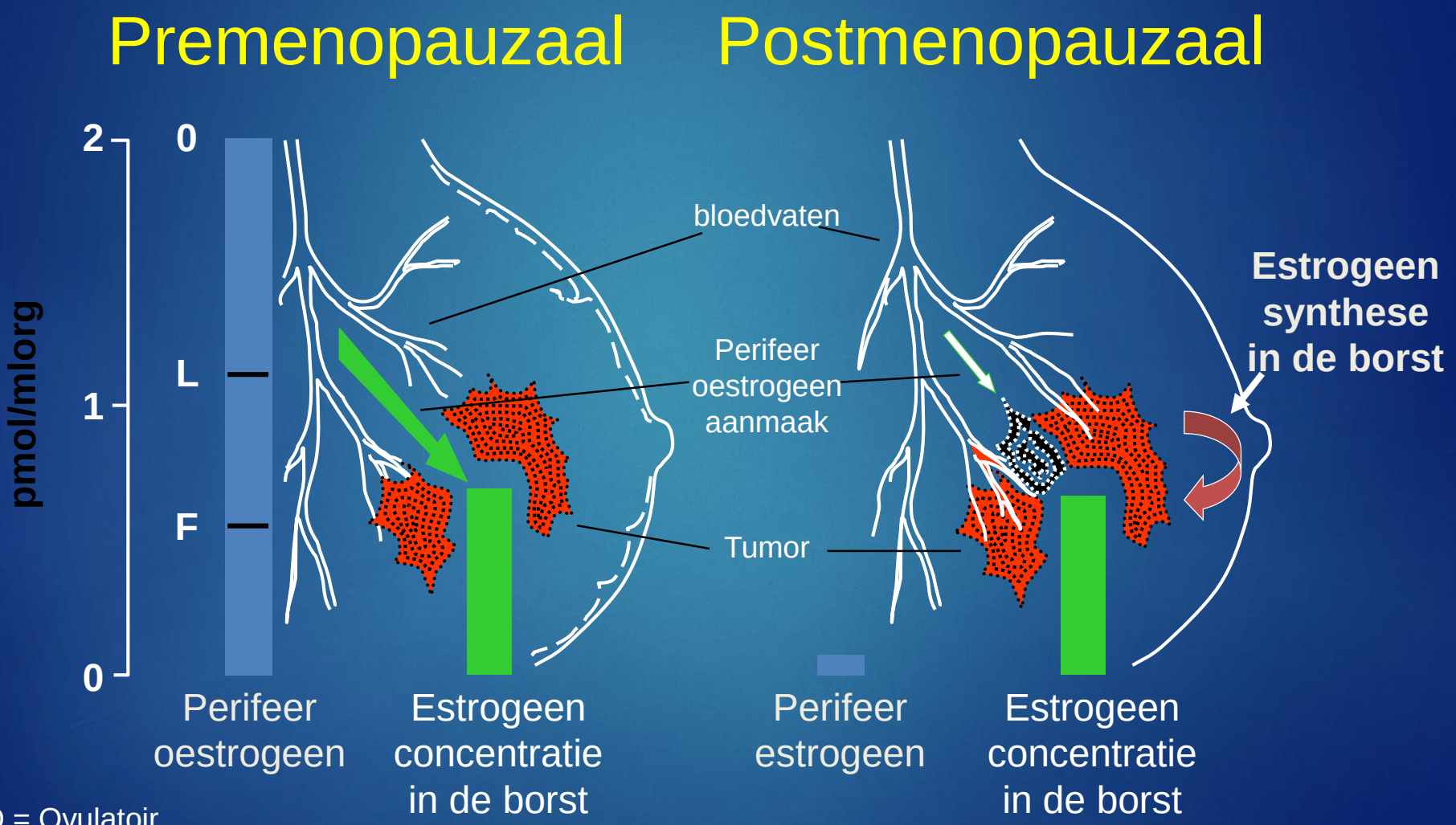
*Rosenberg RD. Radiology 1998;209:511-518
Yankaskas. Am J Roentgenol 2001;177:543
Carney. Ann Intern Med 2003;138:168

Risico factoren 2: Endogeen oestradiol



Box and whiskers plots of the concentration of 17β-estradiol in breast epithelial cells of women taking aromatase inhibitors (AI, n=6), premenopausal women taking oral contraceptives (EE2, n=12), postmenopausal controls (CTL post, n=16), premenopausal controls (CTL pre, n=24), premenopausal women taking tamoxifen (TAM pre, n=6), and postmenopausal women taking tamoxifen (TAM post, n=4). (Depypere et al. Maturitas. 2015 May;81(1):42-5).

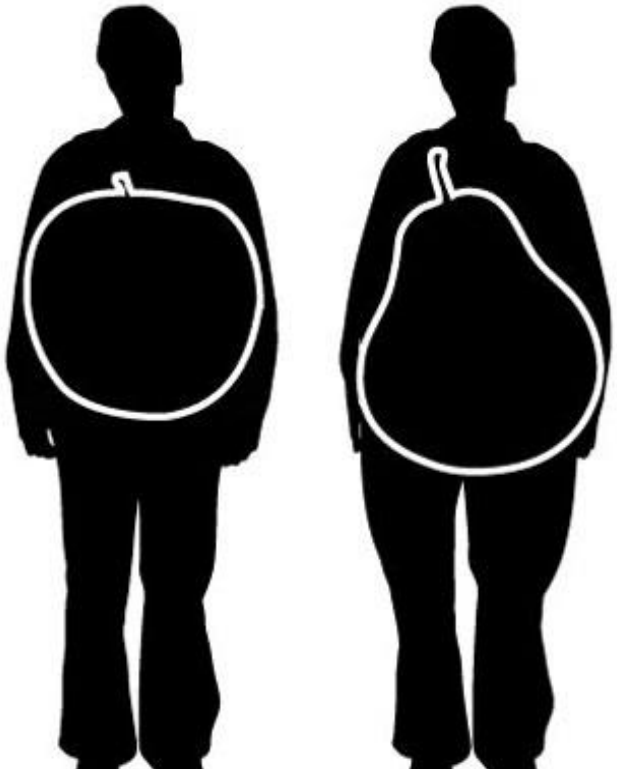
Oestrogeen spiegels in kanker



O = Ovulatoir
L = Luteaal
F = Folliculair

Miller W et al.

Risico factoren 3: BMI, meer specifiek insuline spiegels.



Appelvorm – metabool syndroom

Table 3. Multivariate Analysis of Postmenopausal Breast Cancer in Relation to Weight Change, National Institutes of Health–AARP Study

Weight Change Variable	Weight Change Category, kg[a]									*P* Value for Trend[b]
Weight change in total adulthood (age 18 y to the current age)	≥−7.0	−6.99 to −2.0	−1.9 to 1.9	2.0 to 9.9	10.0 to 19.9	20.0 to 29.9	30.0 to 39.9	40.0 to 49.9	≥50.0	
MHT nonusers										
Cases, No.	19	33	39	182	252	217	113	57	36	
RR (95% CI)[c,d]	1.19 (0.67-2.10)	1.10 (0.69-1.76)	1 [Reference]	1.18 (0.83-1.67)	1.27 (0.90-1.78)	1.56 (1.10-2.21)	1.87 (1.29-2.72)	2.02 (1.33-3.06)	2.15 (1.35-3.42)	<.001
Current MHT users										
Cases, No.	19	70	88	294	389	196	65	31	10	
RR (95% CI)[c,d]	0.81 (0.48-1.37)	1.15 (0.84-1.58)	1 [Reference]	0.86 (0.68-1.10)	1.08 (0.85-1.37)	1.03 (0.79-1.33)	0.98 (0.70-1.36)	1.14 (0.75-1.74)	0.83 (0.43-1.62)	.32
Weight change in the perimenopausal and postmenopausal years (age 50 y to the current age)	≥−7.0	−6.99–−2.0	−1.9–+1.9	2.0-9.9	10.0-19.9	20.0-29.9	≥30.0			
MHT nonusers										
Cases, No.	43	73	165	419	174	52	22			
RR (95% CI)[c,e]	1.38 (0.97-1.98)	1.10 (0.83-1.45)	1 [Reference]	1.32 (1.10-1.59)	1.45 (1.17-1.81)	1.44 (1.04-1.98)	1.89 (1.20-2.97)			<.001
Current MHT users										
Cases, No.	34	105	327	520	137	31	8			
RR (95% CI)[c,e]	1.16 (0.80-1.69)	1.08 (0.87-1.35)	1 [Reference]	1.02 (0.89-1.18)	1.01 (0.82-1.24)	1.06 (0.73-1.54)	0.99 (0.49-2.01)			.66
Weight change in the late reproductive years (ages 35-50 y)	≥−7.0	−6.99–−2.0	−1.9–+1.9	2.0-9.9	10.0-19.9	20.0-29.9	≥30.0			
MHT nonusers										
Cases, No.	25	55	121	493	171	53	30			
RR (95% CI)[c,f]	1.40 (0.89-2.20)	1.14 (0.83-1.57)	1 [Reference]	1.19 (0.98-1.46)	1.41 (1.11-1.79)	1.64 (1.18-2.30)	2.29 (1.51-3.46)			<.001
Current MHT users										
Cases, No.	19	66	218	662	152	34	11			
RR (95% CI)[c,f]	0.93 (0.56-1.53)	0.89 (0.67-1.17)	1 [Reference]	1.10 (0.94-1.28)	1.12 (0.90-1.39)	1.11 (0.76-1.60)	1.08 (0.59-2.01)			.49
Weight change in the early reproductive years (ages 18-35 y)	≥−7.0	−6.99–−2.0	−1.9–+1.9	2.0-9.9	10.0-19.9	20.0-29.9	≥30.0			
MHT nonusers										
Cases, No.	31	75	108	555	138	25	16			
RR (95% CI)[c,d]	1.06 (0.68-1.64)	1.02 (0.75-1.37)	1 [Reference]	1.17 (0.95-1.44)	1.20 (0.93-1.55)	1.11 (0.71-1.72)	1.89 (1.11-3.22)			.06
Current MHT users										
Cases, No.	36	134	161	686	124	14	7			
RR (95% CI)[c,d]	1.06 (0.71-1.58)	1.23 (0.98-1.56)	1 [Reference]	1.15 (0.96-1.36)	1.14 (0.90-1.45)	0.91 (0.52-1.57)	1.12 (0.52-2.41)			.53

Abbreviations: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); CI, confidence interval; MHT, menopausal hormone therapy; RR, relative risk.

[a] The *P* values for tests of trend are based on analyses that exclude women who fell into the 2 weight loss categories.

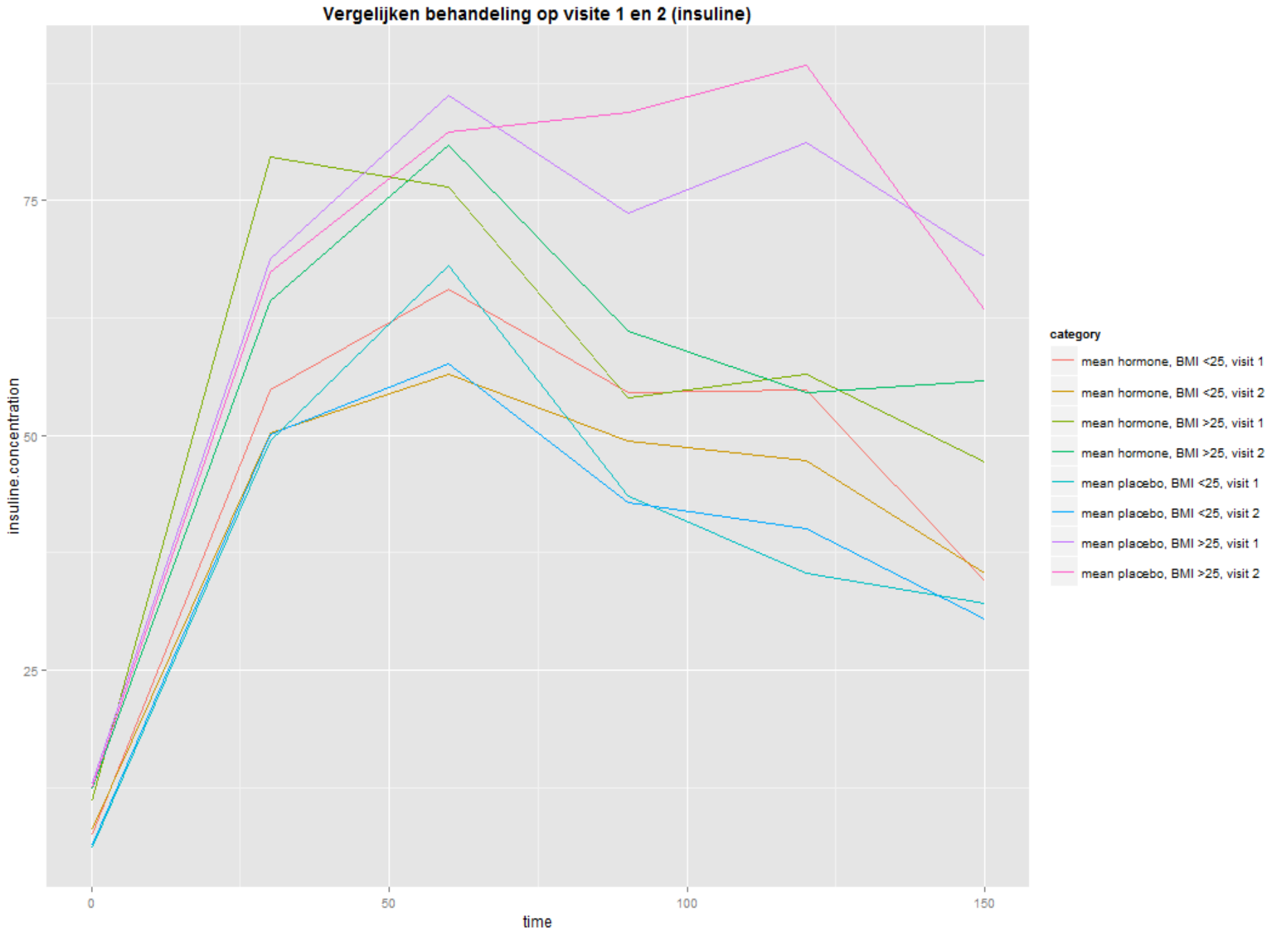
[b] The *P* values for the tests of interaction between weight change and MHT were less than .001 for weight change from age 18 years to the current age, .006 for weight change from age 50 years to the current age, .02 for weight change from ages 35 to 50 years, and .46 for weight change from ages 18 to 35 years.

[c] Adjusted for age, age at menarche, age at menopause, age at first live birth, parity, smoking, educational level, race, family history of breast cancer, fat intake, alcohol consumption, oophorectomy, physical activity, and height.

[d] Additionally adjusted for weight at age 18 years.

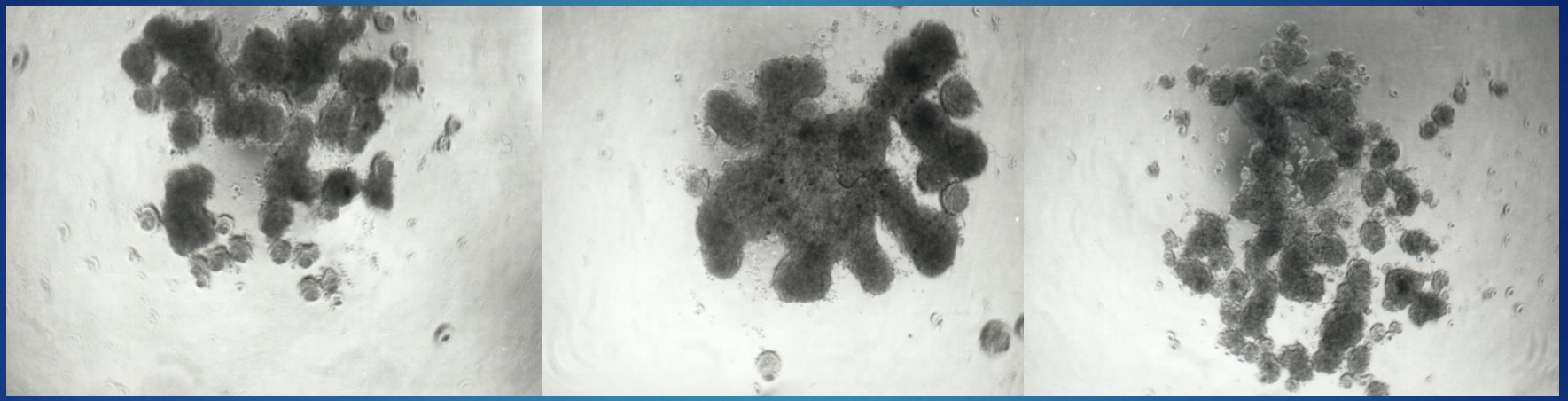
[e] Additionally adjusted for weight at age 50 years.

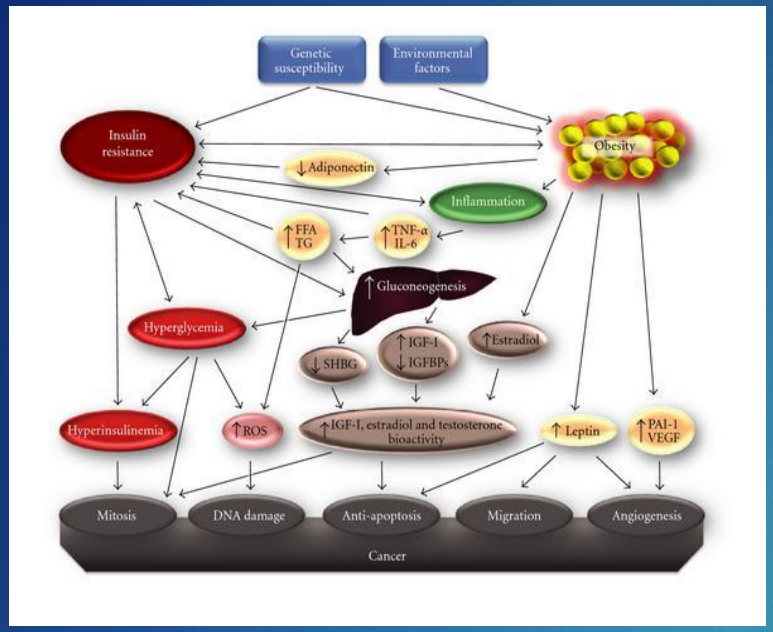
[f] Additionally adjusted for weight at age 35 years.


Vergelijken behandeling op visite 1 en 2 (insuline)
insuline.concentration
75
50
25
0
50
100
150
time
category
mean hormone, BMI <25, visit 1
mean hormone, BMI <25, visit 2
mean hormone, BMI >25, visit 1
mean hormone, BMI >25, visit 2
mean placebo, BMI <25, visit 1
mean placebo, BMI <25, visit 2
mean placebo, BMI >25, visit 1
mean placebo, BMI >25, visit 2

Proliferatie en cel cel adhesie

SLOW AGGREGATION ASSAY





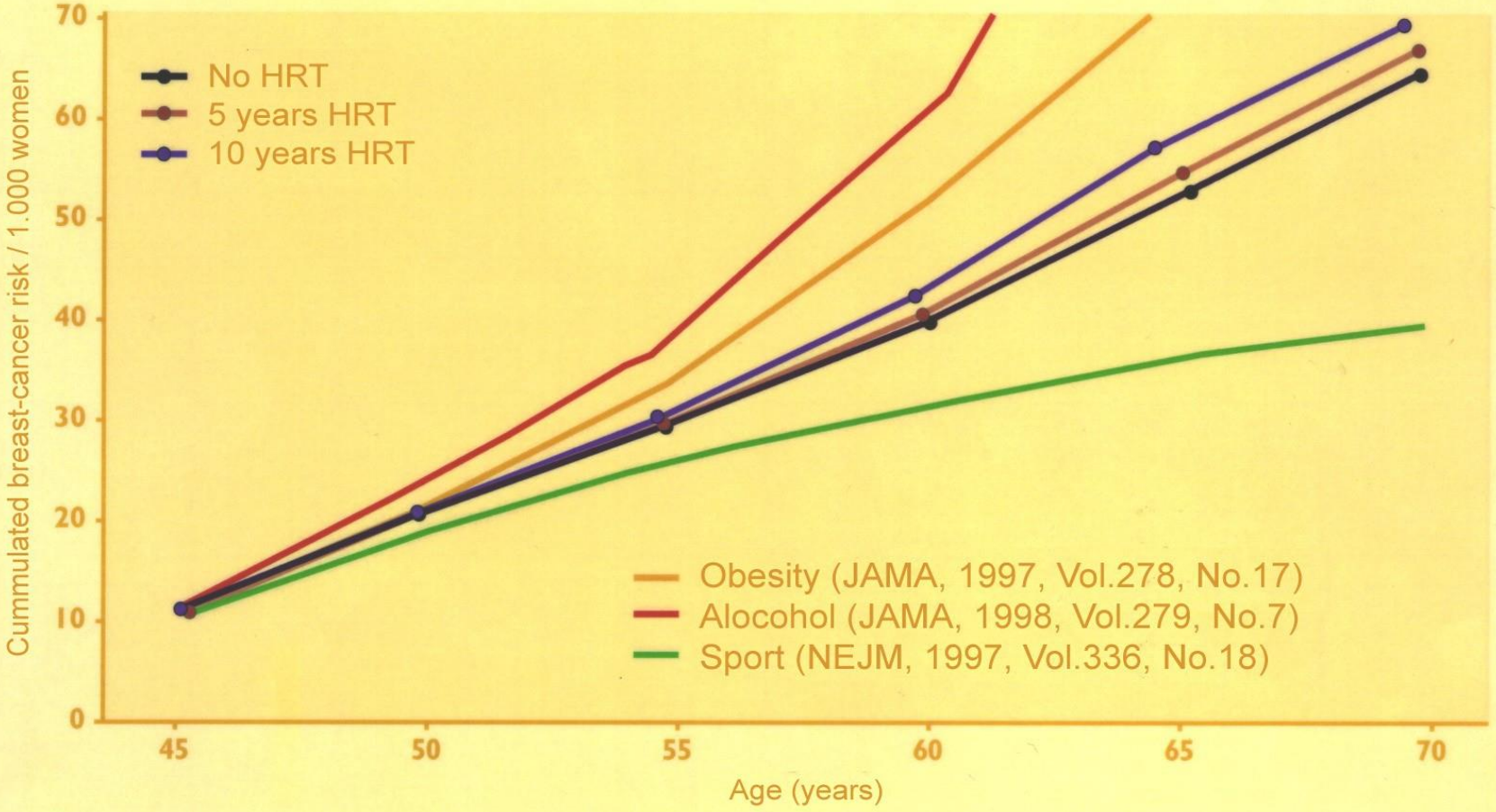
Balans tussen insuline, oestrogenen, endogene productie van hormonen door borstcellen zelf. Welk systeem is dominant ?

Risico factoren 4: Alcohol

7 % toename per consumptie per dag.

BORSTKANKER

Development of breast-cancer risk (HRT) in comparison to other risk factors



Source: Wyeth, Austria

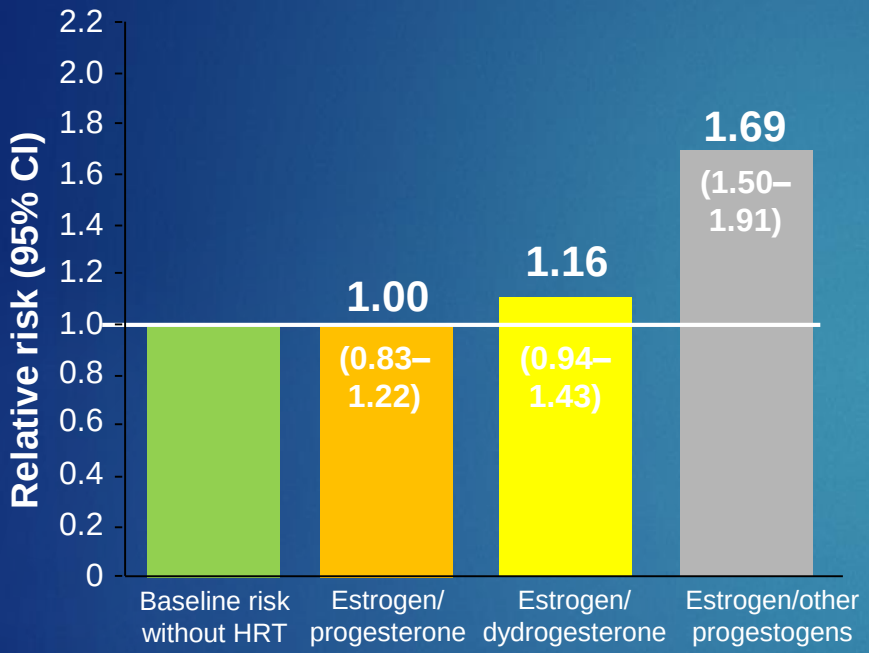
Lancet 350, 1997

Risico factoren 5: exogene hormonen

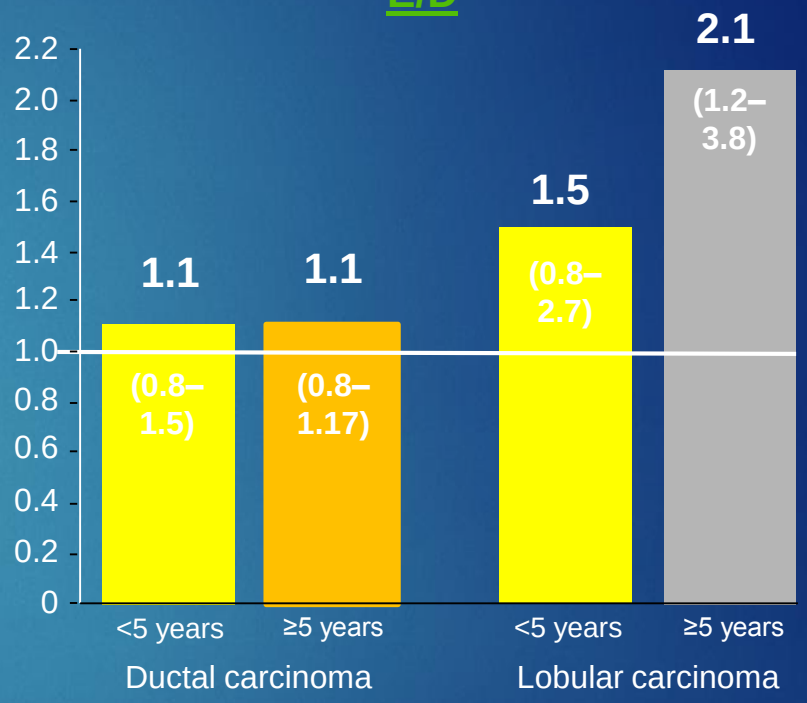
End Points	Hormone Therapy	Placebo	HR (95% CI)	*P* Value
Breast cancer mortality				
CEE plus MPA vs placebo	61 (0.043)	40 (0.030)	1.44 (0.97-2.15)	.07
CEE alone vs placebo	22 (0.025)	41 (0.046)	0.55 (0.33-0.92)	.02

Choice of Progestogen and Breast Cancer Risk: E3N French Cohort Study

Risk of all breast cancer



Risk of breast cancer subtypes with E/D



Not statistically significantly different from risk without HRT

Significantly different from the risk without HRT

N = 80,377 women, for an average treatment duration of 8.1 years

Risk elevation may not be uniform for all progestogens

Fournier A et al. Breast Cancer Res Treat 2008;107:103–11;
Fournier A et al. J Clin Oncol. 2008 ;26:1260–1268.

Risico factoren 5: exogene hormonen

Outcome by Age 50-60 years of age at inclusion

	Hormone Therapy	Placebo	HR (95% CI)	P value
All-cause mortality				
Pooled trials	70 (0.23)	98 (0.34)	0.69 (0.51-0.94)	.01
CEE alone vs placebo	35 (0.28)	50 (0.39)	0.71 (0.46-1.09)	.04
CEE plus MPA vs placebo	35 (0.20)	48 (0.30)	0.67 (0.43-1.04)	.20
CVD mortality				
Pooled trials	18 (0.060)	22 (0.076)	0.79 (0.42-1.47)	.85
CEE alone vs placebo	8 (0.063)	10 (0.077)	0.81 (0.32-2.04)	.34
CEE plus MPA vs placebo	10 (0.058)	12 (0.075)	0.77 (0.33-1.79)	.47
Cancer mortality				
Pooled trials	37 (0.12)	48 (0.17)	0.74 (0.48-1.14)	.05
CEE alone vs placebo	20 (0.16)	26 (0.20)	0.78 (0.43-1.40)	.06
CEE plus MPA vs placebo	17 (0.099)	22 (0.14)	0.71 (0.38-1.33)	.37

Menopausal Hormone Therapy and Long-term All-Cause and Cause-Specific Mortality: TheWomen's Health Initiative Randomized Trials
JoAnn E. Manson, MD, DrPH; Aaron K. Aragaki, MS; Jacques E. Rossouw, MD; Garnet L. Anderson, PhD; Ross L. Prentice, PhD; Andrea Z. LaCroix, PhD; Rowan T. Chlebowski, MD, PhD; Barbara V. Howard, PhD; Cynthia A. Thomson, PhD; Karen L. Margolis, MD, MPH; Cora E. Lewis, MD, MSPH; JAMA 2017

DINGER STUDIE

Type of Cancer			Mirena (%)	Copper IUD (%)
In situ			67 (6.0%)	65 (6.1%)
	of which	in situ ductal	64 (5.9%)	61 (5.6%)
Invasive			1,009 (94.0%)	1,003 (93.9%)
	of which	ductal	826 (81.9%)	793 (79.1%)
		lobular	148 (14.7%)	140 (14.0%)
		ductal & lobular	3 (0.3%)	6 (0.6%)
		other	32 (3.2%)	64 (6.4%)

Tumor size			
		Mirena (%)	Copper IUD (%)
Tumor size (cm)			
	≤2	481 (60.4%)	445 (60.3%)
	2.1-5.0	278 (34.9%)	256 (34.7%)
	>5	37 (4.6%)	36 (4.9%)

Metastasis status		
	Mirena (%)	Copper IUD (%)
Regional metastasis	342 (43.8%)	287 (40.4%)
Distant metastasis	9 (1.5%)	8 (1.5%)

Contraception 100 (2019) 299-301

Contents lists available at ScienceDirect

Contraception

journal homepage: www.elsevier.com/locate/con

Original research article

Breast levonorgestrel concentrations in women using a levonorgestrel-releasing intrauterine system☆,☆☆,☆☆☆

Herman T. Depypere [a,*], Frank Z. Stanczyk [b], Siska Croubels [c], Phillip N. Blondeel [d], Nathalie A. Roche [d], Bernard P. Depypere [d], Lynn Vanhaecke [e]

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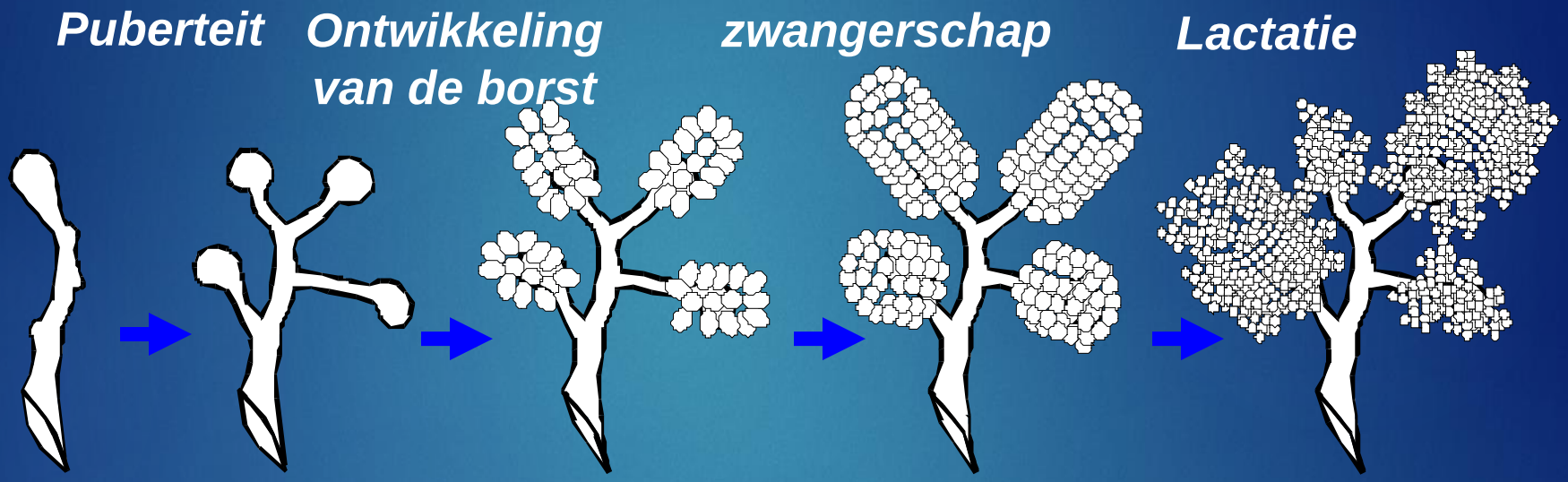
ABSTRACT

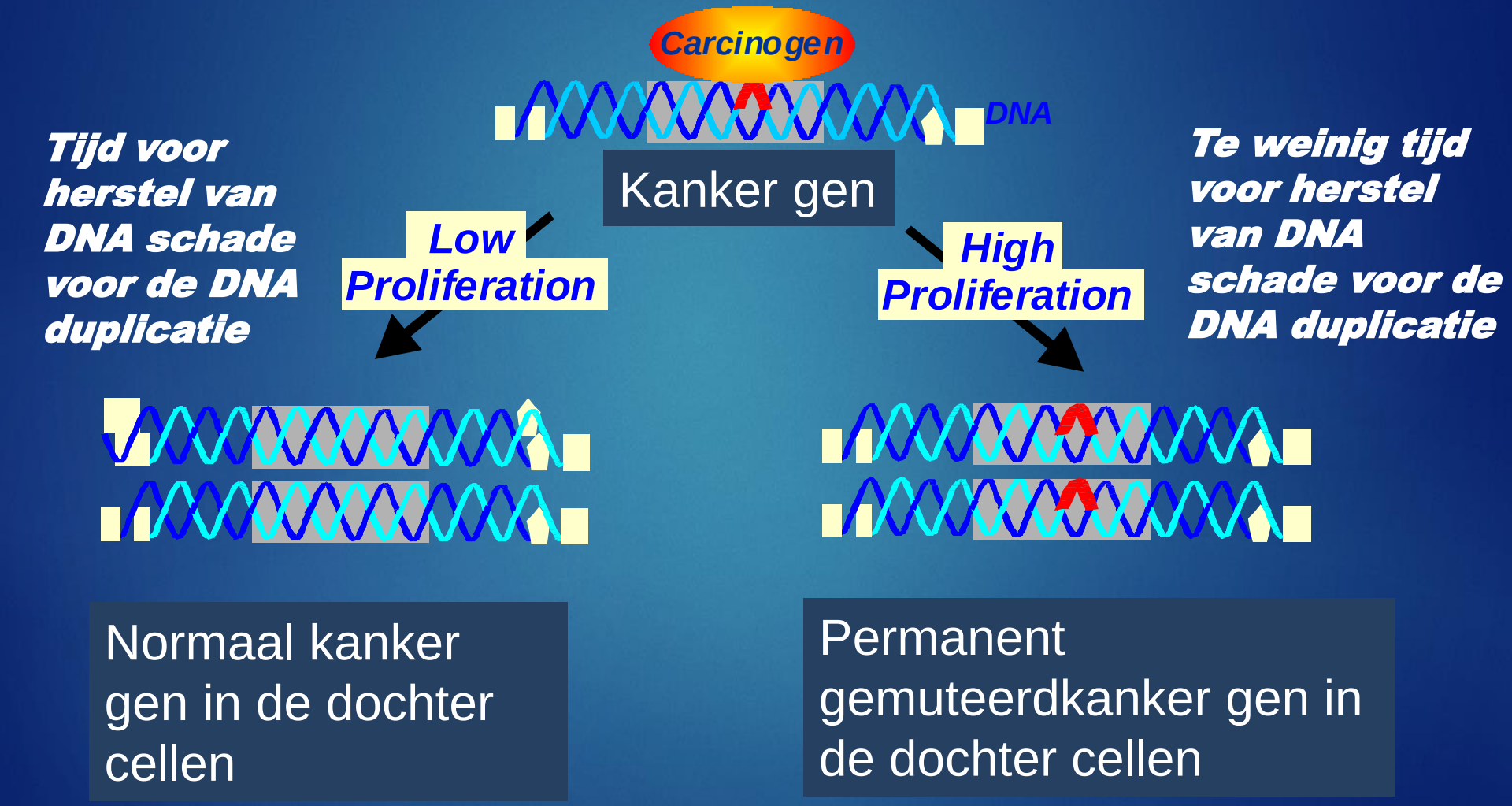
Objective: To measure breast tissue and serum LNG concentrations in women using a LNG-IUS.
Study design: This pilot study was performed in 25 healthy women undergoing breast surgery at the Ghent University hospital. LNG concentrations were measured in serum and microdissected breast tissue samples using a validated ultra-performance liquid chromatography/tandem mass spectrometry assay.
Result(s): The mean LNG concentration in the 18 LNG-IUS users was 0.18±0.16 ng/mL in serum and 0.26±0.28 ng/g in breast tissue. For four women without any form of hormonal contraceptive (the negative controls), the mean concentrations were below the limit of quantification, i.e., 0.15 ng/mL and 0.20 ng/g, for serum and breast tissue, respectively. For the three positive controls the concentrations in the serum (20.5 and 3.4 ng/ml) and the breast (3.74 and 1.24 ng/g) were respectively for the 20 μg EE/100 μg users and 315 pg/ml in the serum and 1.17 ng/g in the breast for the minipill user. The intracellular free fraction of LNG may be as low as 0.008 ng/g.
Conclusion(s): The concentration of LNG in breast epithelium cells in women using the LNG-IUS is very low.
Implications: The relationship between the serum and breast tissue levels of LNG was studied in women using a LNG-IUS or oral LNG-containing contraception. Compared to oral contraception, the tissue levels of LNG in LNG-IUS users are much lower in the breast. It is not known what level of LNG exposure in the breast would stimulate *RANKL* and *WNT4* expression; such information is needed.

Risico factoren 6: NULLIPARITEIT

Pare vrouw 80-100 % type 3 lobules
Nullipare vrouw heeft 50-60 % type 1 lobules



Proliferatie vermindert mutatie herstel

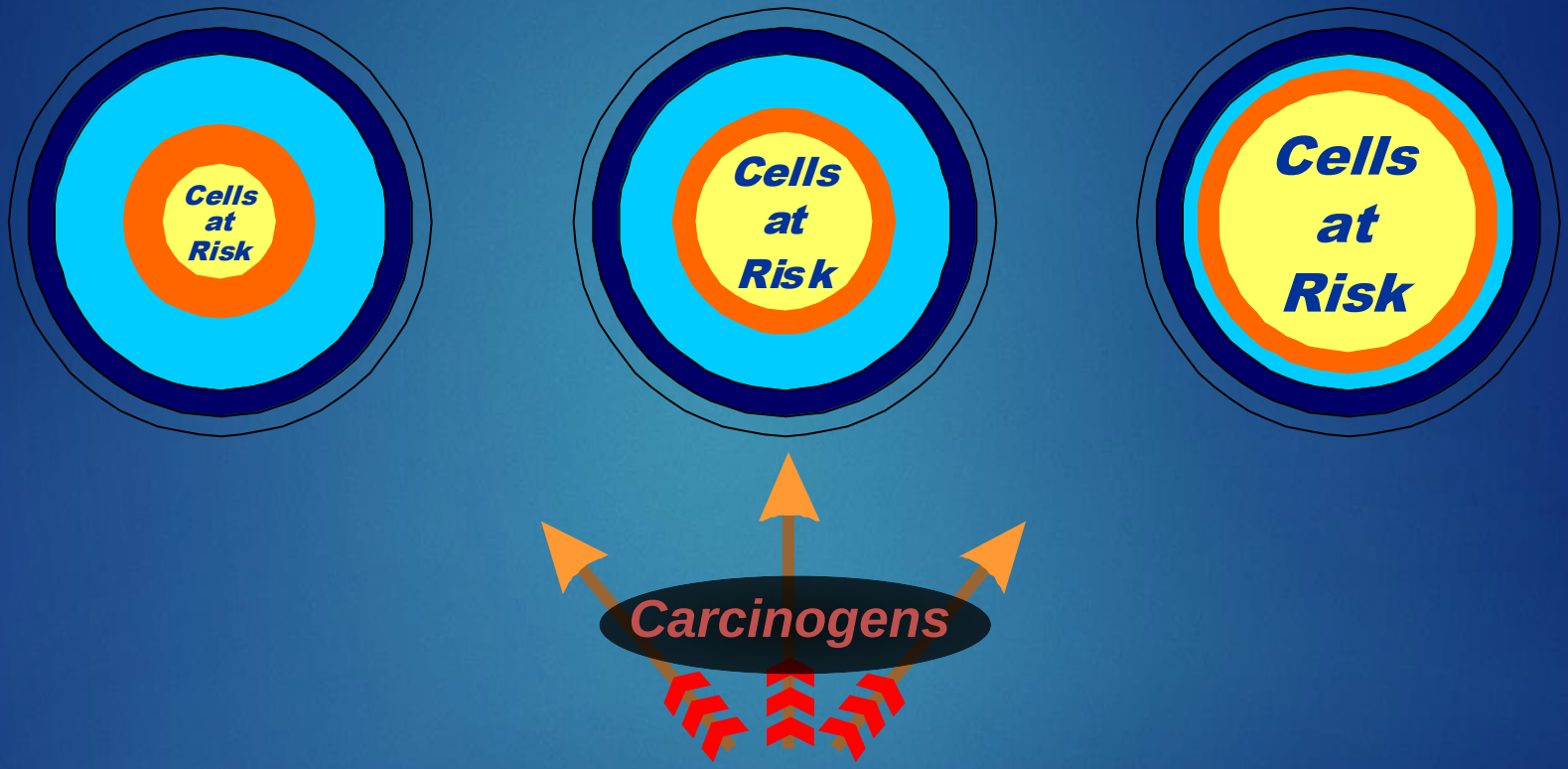


Tijd voor herstel van DNA schade voor de DNA duplicatie

Te weinig tijd voor herstel van DNA schade voor de DNA duplicatie

Normaal kanker gen in de dochter cellen

Permanent gemuteerdkanker gen in de dochter cellen


Cells at Risk
Cells at Risk
Cells at Risk
Carcinogens

Risicofactoren 7 : erfelijkheid

Bewezen mutaties
Familiaal risico

2019 UZ Gent screeningsrichtlijnen borstkanker bij asymptomatische vrouwen

Dr. Pieter De Visschere, MD, PhD

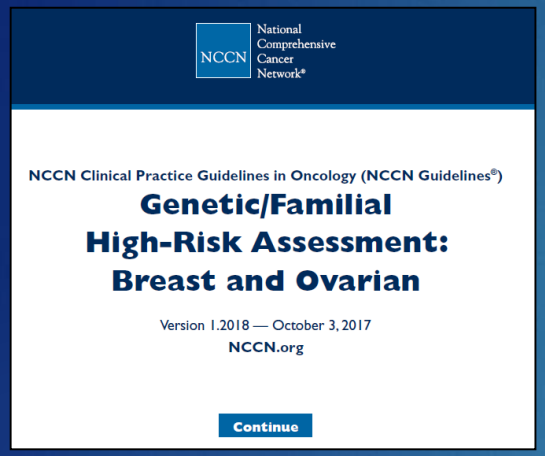
Urogenitale Radiologie en Mammografie

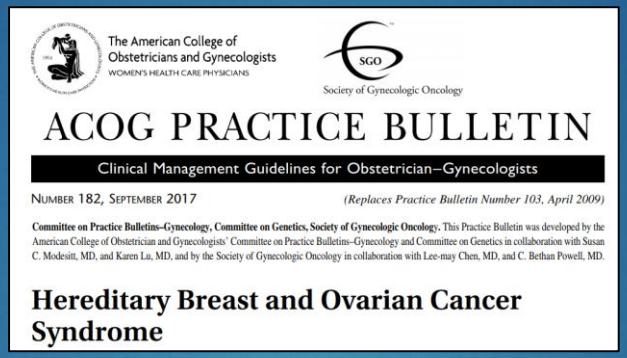
UZ Gent

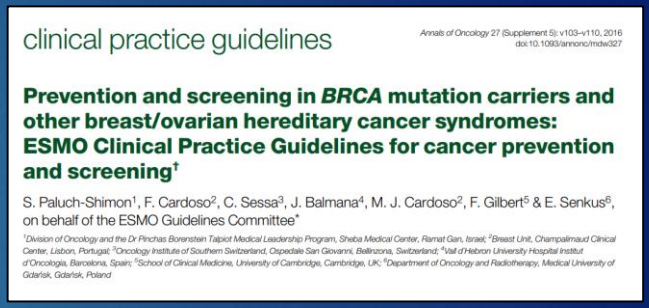
UZ GENT

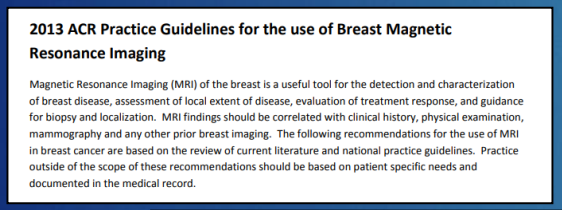
UNIVERSITEIT GENT

Internationale screeningsrichtlijnen borstkanker

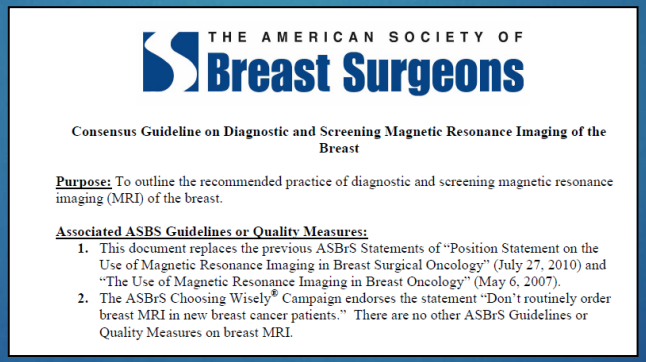


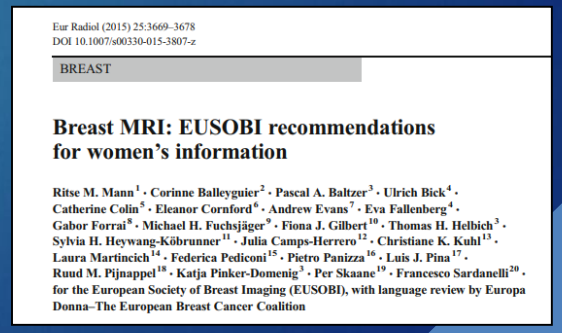






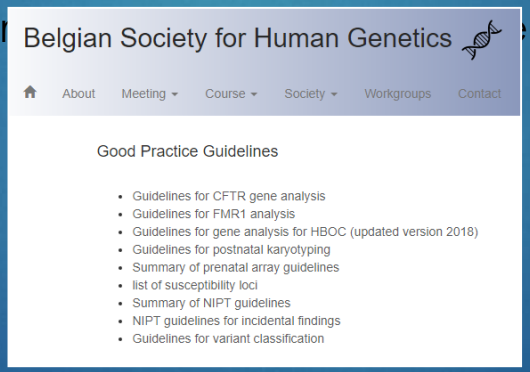
Geen uniformiteit!





2019 screeningsrichtlijnen borstkanker UZ Gent

- Gebaseerd op
  - **KCE rapport 172A 2012**
  - **KCE rapport 235 van 2015**
  - **BeSHG (Belgian Society of Human Genetics) guidelines HBOC van 2018**
  - **College of Genetics Clinical guidelines HBOC management van 2019**



2019 screeningsrichtlijnen borstkanker UZ Gent

	Genetische mutatie	Aantal 1ste or 2de graads familieleden met:					Andere factoren :	
		Borstkanker	Bilateraal borstkanker	Man met borstkanker	Ovarium-carcinoom	Sarcoma op jonge leeftijd, adrenocorticaal carcinoom, patroon van multipele tumoren	Densiteit borstklier-weefsel	Mantelveld radiotherapie op jonge leeftijd
Gemiddeld risico (17%)		Geen (risk mammaca 10%) 1 >40j	Geen	Geen	Geen	Geen	BI-RADS a tot c	Nee
Verhoogd risico (17-30%)		1 <40j 2 gemiddeld >50j 3 gemiddeld >60j	1 >50j	1 >50j	Geen	Geen	BI-RADS d (extreem dens)	Nee
Sterk verhoogd risico (>30%)		2 gemiddeld <50j	1 <50j	1 <50j	2	1	/	Ja
		3 gemiddeld <60j 4 minstens 1 1ste graad 4 gemiddeld <60j aan vaders zijde	1 >50j + 1 1ste of 2de graad borstkanker	1 >50j + 1 1ste of 2de graad borstkanker	1 + 1 1ste or 2de graad borstkanker			
Genetisch bewezen sterk verhoogd risico	BRCA1, BRCA2, TP53, CHEK2, PALB2, ATM, Li Fraumeni, CDH1, NF1, STK11, PTEN							

2019 screeningsrichtlijnen borstkanker UZ Gent

Screeningsaanbeveling gemiddeld risico

Mammografie om de 2 jaar tussen 50 en 69 jaar

- In het kader van de Vlaamse Borstkankerscreening

Screeningsaanbeveling verhoogd risico

Jaarlijks mammografie vanaf 40 jaar

- Tussen 50 en 69 jaar kan deze MX eventueel binnen de Vlaamse borstkankerscreening
- KCE: Screening met echografie wordt niet aanbevolen
- UZ Gent: aanvullende echografie bij eerste presentatie of bij extreem dens borstklierweefsel

2019 screeningsrichtlijnen borstkanker UZ Gent

Screeningsaanbeveling sterk verhoogd risico

Jaarlijks MRI vanaf 25 jaar (of 5 jaar voor leeftijd diagnose jongste familielid)

Én jaarlijks mammografie vanaf 40 jaar

- Telkens 6 maand na de MRI
- Eventueel aangevuld met echografie

2019 screeningsrichtlijnen borstkanker UZ Gent

Screeningsaanbeveling genetisch bewezen sterk verhoogd risico

Screenen volgens HBOC richtlijnen Belgisch College Genetica:

https://www.college-genetics.be

Alternatief: Preventieve mammectomie en adnexectomie

BRCA1

Tumor	Risico	Opmerkingen
Borst	60 – 80 % op 80 j	
Contralateraal borstkanker	Rond 40% na 20 j	Risico tabel[1] kan gebruikt worden voor accuratere inschatting
Mannelijk borstkanker	1%	
Ovarium	Rond 40% op 80 j	
Prostaat	Matig verhoogd risico	
Pancreas	Klein risico, maar verhoogd	
Endometrium	< 5%	
Colorectaal	Gering verhoogd (enkel < 50 j)	(> 50 j geen verschil meer)

Table 2: Aanbevelingen voor BRCA1 draagsters/dragers

Tumor	Interventie	Aanbeveling
Borst	Screening	Vanaf 20_{25} Klinisch onderzoek om de 6 maand EN • 25* – 35 j: Jaarlijks MRI mammae • Op 30 j: éénmalig mammografie → bij aanwezigheid van microcalcificaties: voeg jaarlijkse mammo +/- echo toe (alternerend met MRI) • 35 – 65 j: MRI mammae en mammo +/- echo alternerend om de 6 maanden. • 65 – 75 j: Jaarlijks mammo +/- echo (indien kwalitatief voldoende) • >75 j: overweeg mammografie om de 2 jaar *of start 5 jaar vroeger dan jongste leeftijd bij diagnose (indien diagnose <30j)
	Risico reducerende heelkunde	Bilaterale mastectomie (opmerking: indien in presymptomatische setting, is er nadien geen opvolging met beeldvorming meer noodzakelijk. Geen contra-indicatie voor tepelsparende heelkunde)
	Screening	NIET aangeraden (opmerking: aangezien preventie hier aangeboden wordt voor

BRCA2

Table 3: BRCA2 risico's

Tumor	Risico	Opmerkingen
Borst	60 – 80 % op 80 j	
Contralateraal borstkanker	Rond 25% na 20 j	Risico tabel[1] kan gebruikt worden voor accuratere inschatting
Mannelijk borstkanker	7 %	
Ovarium	Rond 20% op 80 j	
Prostaat	15% vóór 65 j	
Pancreas	Klein risico, maar verhoogd	

Table 4: Aanbevelingen voor BRCA2 draagsters/dragers

Tumor	Interventie	Aanbeveling
Borst	Screening	Vanaf 20[25]: Klinisch onderzoek om de 6 maand EN • 25 – 35 j: Jaarlijks MRI mammae • Op 30 j: éénmalig mammografie → bij aanwezigheid van microcalcificaties: voeg jaarlijkse mammo +/- echo toe (alternerend met MRI) • 35 – 65 j: MRI mammae en mammo +/- echo alternerend om de 6 maanden. • 65 – 75 j: Jaarlijks mammo +/- echo (indien kwalitatief voldoende) • >75 j: overweeg mammografie om de 2 jaar *of start 5 jaar vroeger dan jongste leeftijd bij diagnose (indien diagnose <30j)
	Risico reducerende heelkunde	Bilaterale mastectomie (opmerking: indien in presymptomatische setting, is er nadien geen opvolging met beeldvorming meer noodzakelijk. Geen contra-indicatie voor tepelsparende heelkunde)

PALB2

Table 5: PALB2 risico's

Tumor	Risk	Opmerkingen
Borst	30 – 60 %	Afhankelijk van familiale belasting
Contralateraal borstkanker	Verhoogd	Risico tabel[1] kan gebruikt worden voor accuratere inschatting
Mannelijk borstkanker	1%	
Pancreas	Klein risico, maar verhoogd	

Table 6: Aanbevelingen voor PALB2 draagsters

Tumor	Interventie	Aanbeveling
Borst	Screening	Vanaf 20 i: Klinisch onderzoek om de 6 maand EN • 25[25] 35 j: Jaarlijks MRI mammae • Op 30 j: éénmalig mammografie → bij aanwezigheid van microcalcificaties: voeg jaarlijkse mammo +/- echo toe (alternerend met MRI) • 35 – 65 j: MRI mammae en mammo +/- echo alternerend om de 6 maanden. • 65 – 75 j: Jaarlijks mammo +/- echo (indien kwalitatief voldoende) • >75 j: overweeg mammografie om de 2 jaar *of start 5 jaar vroeger dan jongste leeftijd bij diagnose (indien diagnose <30j)
	Risico reducerende heelkunde	Bilaterale mastectomie (opmerking: indien in presymptomatische setting, is er nadien geen opvolging met beeldvorming meer noodzakelijk. Geen contra-indicatie voor tepelsparende heelkunde)

CHEK2

Table 7: CHEK2 risico's

Tumor	Risico	Opmerking
Borst	20 – 40 % op 80 j	Afhankelijk van familiale belasting. Ook **niet-draagsters** blijven een licht verhoogd risico hebben (+/- 20% risico op 80 j)
Contralateraal borstkanker	30% na 10 j	
Mannelijk borstkanker	0,5 – 1%	
Prostaat	Matig verhoogd	
Colorectaal	8 – 10%	

Table 8: Aanbevelingen voor CHEK2 draagsters/dragers

Tumor	Interventie	Aanbeveling
Borst	Screening	Vanaf 20 j: klinisch onderzoek om de 6 maand EN **Bij <u>positieve</u> familiale anamnese (1ste of 2de graad) voor borstkanker:** • 35 – 65 j: Jaarlijks MRI mammae of mammo +/- echo, alternerend (of start 5 jaar vóór jongste diagnose van borstkanker in de familie) • 65 – 75 j: Jaarlijks mammo +/- echo **Bij <u>negatieve</u> familiale anamnese (1ste or 2de graad) voor borstkanker:** • 40 – 75 j: jaarlijks mammo +/- echo
	Risico reducerende heelkunde	Bij diagnose van borstkanker of bij sterk belaste familiale voorgeschiedenis: overweeg bilaterale mastectomie
Prostaat	Screening	Jaarlijks PSA en rectaal toucher vanaf 40 jaar
Colorectaal	Screening	Coloscopie om de 5 jaar vanaf 40 jaar (of start 10 jaar vóór jongste diagnose van darmkanker in de familie)

ATM

Table 10: ATM risico's

Tumor	Risico	Opmerkingen
Borst	Rond 30%	Vermoedelijk afhankelijk van familiale belasting. Ook **niet-draagsters** blijven een licht verhoogd risico hebben
Contralateraal borstkanker	Onduidelijk	
Mannelijk borstkanker	0,5 – 1%	

Table 11: Aanbevelingen voor ATM draagsters

25

Tumor	Interventie	Aanbevelingen
Borst	Screening	Vanaf 20 j: Klinisch onderzoek om de 6 maand EN • 35 – 40 j: jaarlijks MRI mammae (of start 5 jaar vóór de jongste diagnose van borstkanker in de familie) • 40 – 65 j: jaarlijks MRI mammae of mammo +/- echo, alternerend. • 65 – 75 j: jaarlijks mammo +/- echo
	Risico reducerende heelkunde	Bilaterale mastectomie kan overwogen worden op basis van de voorkeur van de patiënt

- ***ATM* c.7271T>G (V2424G) is a high risk variant: borstkanker screening zoals BRCA.** (van Os et al. Health risks for ataxia-telangiectasia mutated heterozygotes: a systematic review, meta-analysis and evidence-based guideline. Clin Genet. 2016 Aug;90(2):105-17.)

Screening voor mannelijk borstkanker: **Routinematig screenen wordt niet aanbevolen.**

Preventie 1 : bewegen – vermijden van overgewicht

Preventie 2 : vermijden van snelle suikers

Preventie 3 : antihormonale behandeling en TSEC

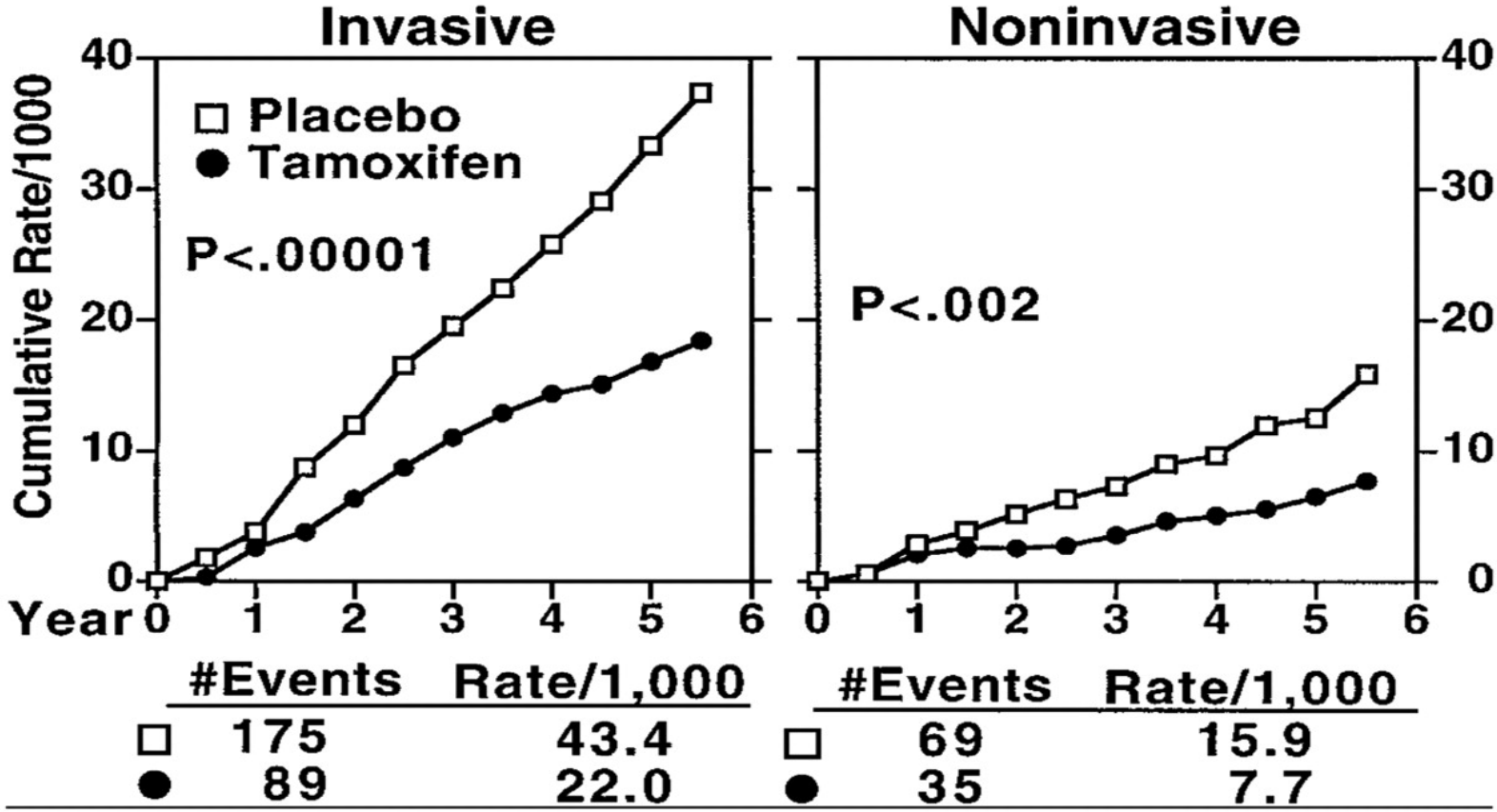
Preventie 2 : antihormonale behandeling

Table 1. Summary of screening, accrual, and follow-up information for the study

Screening, accrual, and follow-up information	Placebo	Tamoxifen	Total
Breast cancer risk assessments	—	—	98 018
Women meeting risk eligibility requirement	—	—	57 641
Medical eligibility assessments	—	—	14 453
Women meeting both risk and medical eligibility requirements	—	—	13 954
Women randomly assigned	6707	6681	13 388
Not at risk for breast cancer*	0	1	1
Without follow-up	108	104	212
Included in analysis	6599	6576	13 175
Average follow-up time, mo	47.7	47.7	47.7
Median follow-up time, mo	54.6	54.5	54.6
% followed for >36 mo	74.0	73.7	73.9
% followed for >48 mo	66.7	67.0	67.0
% followed for >60 mo	37.1	36.4	36.8
Person-years of follow-up†	26 247	26 154	52 401

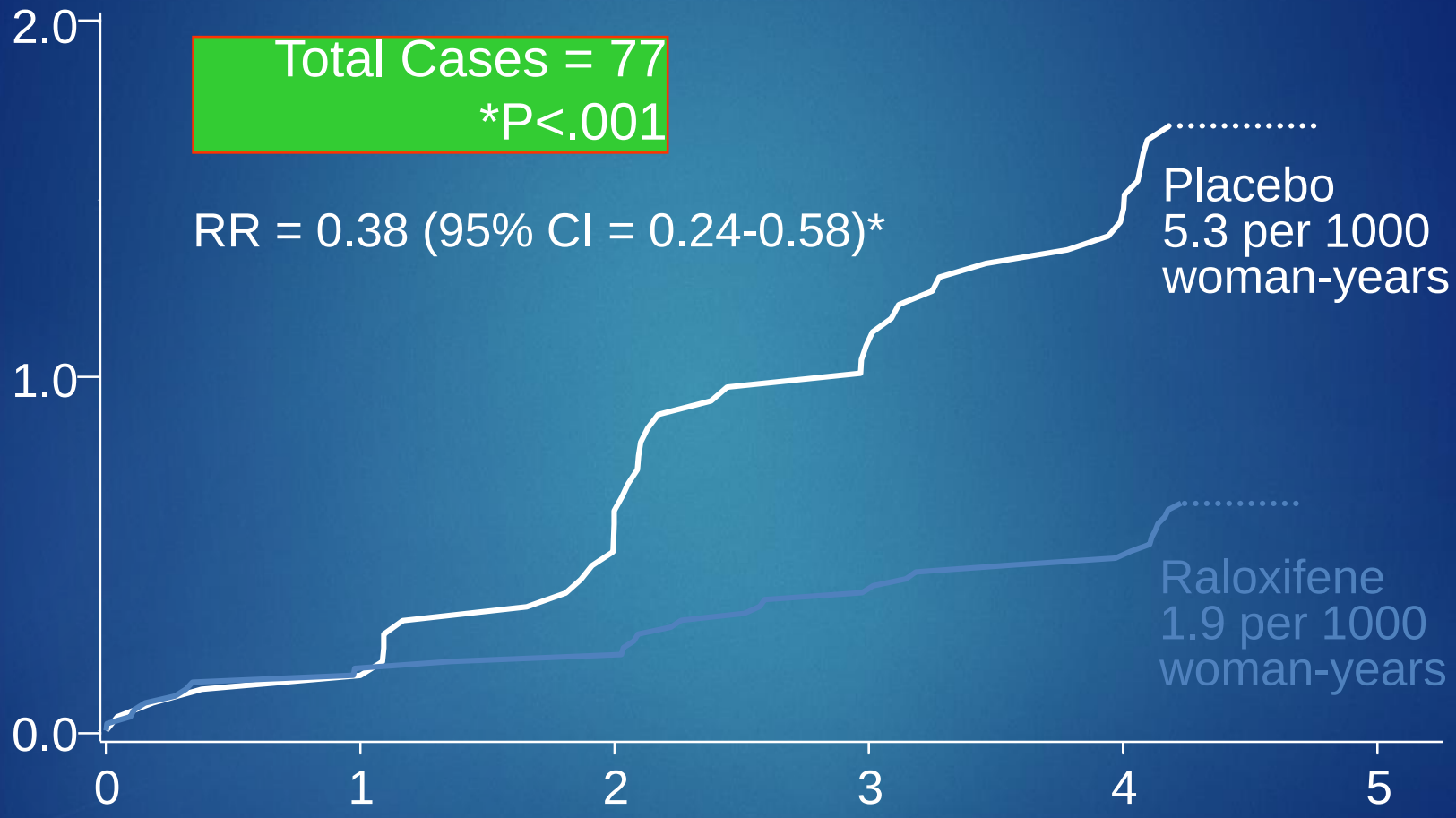
*See text for details.
†Based on time at risk for death.

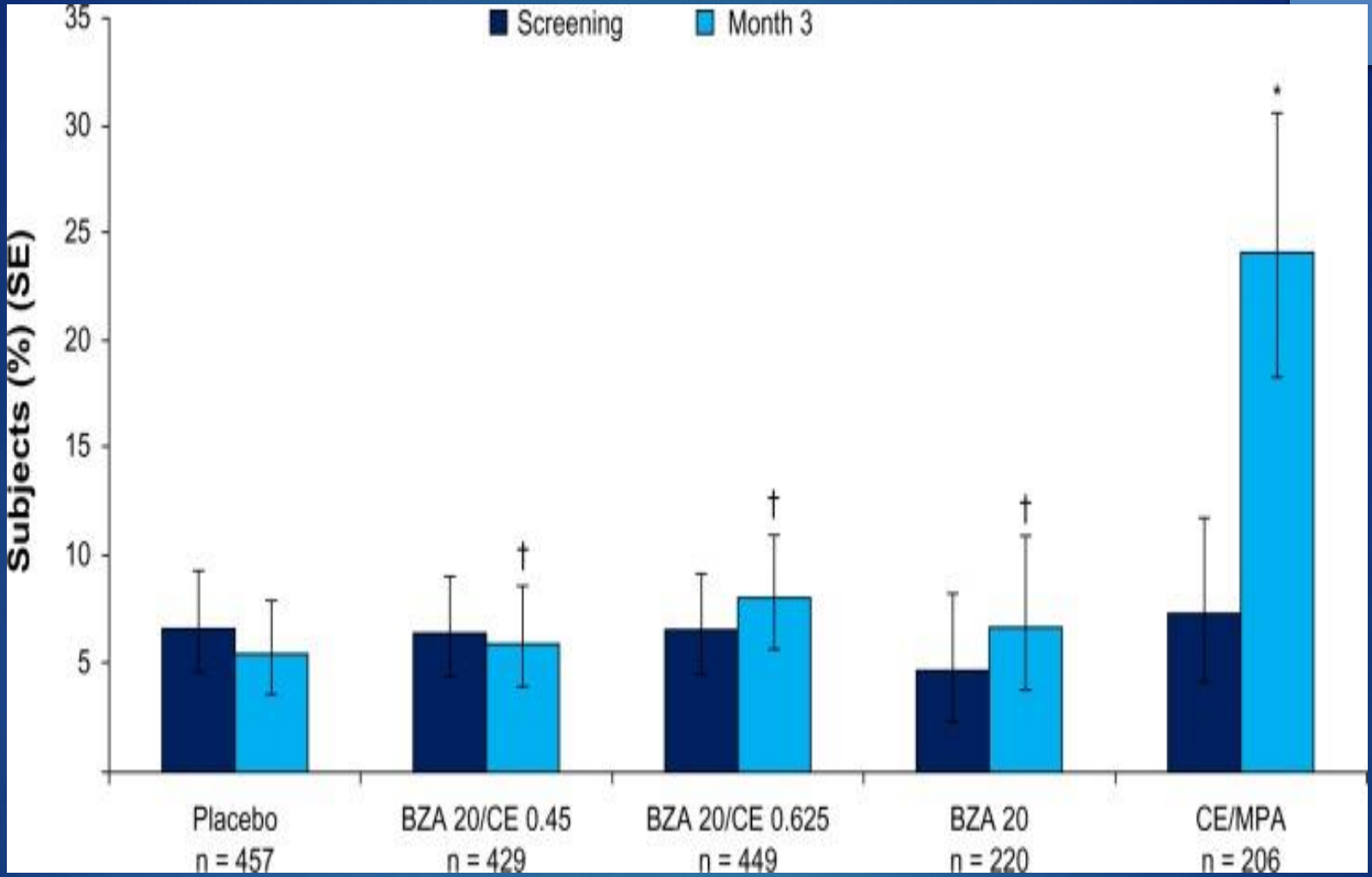
Preventie 2 : antihormonale behandeling



Star trial, Royal marsden, Ibis trials, Italian trial, More and Core trial

More en core studie





Percentage of women reporting one or more days of breast tenderness at week 12. BZA/CE (both doses), BZA, and placebo demonstrated similar incidences of breast tenderness. CE/MPA showed a significantly higher rates ($P < 0.001$ versus all other **...** **Review Mirkin S, Pickar J Intern women health 2013 7 465-75**

conclusie

Menarche	<12 jaar versus ≥ 14 jaar	1,2-1,5
Menopauze	≥55 jaar versus < 55 jaar	1,5-2,0
Partus	>30 versus <20 jaar	1,3-2,0
Ioniserende stralen		1,0-8,7
Biopsie (elke histologische bevinding)		1,5-1,8
Atypische hyperplasie		4,0-4,4
Roken beneden leeftijd 20 jaar		1,3-1,8
Fysieke activiteit		0,68