

# Better cosmetic outcome and less fibrosis after breast IORT ?

**Peter Koper**



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For patients aged 60 years or older  
breast cancer with tumour stage Tis, T1 or  
T2 less than 3 cm in the greatest diameter.

Adoption of ELIOT protocol Milan

Pilot phase

Phase 2 ( phase 4) APBI/IORT study (since 2011)

1.IORT 23.3 Gy (=21 Gy at 90% isodose); loc. MCH

2.APBI ext. Beam 10 times 3.85 Gy; loc. Haga



## **A lot of criticism .....**

### **CRITICS**

**Show me your 5 or 10 year tumor control data  
(randomised phase 3 study; mature results)**

**And .....**

**1 fraction instead of 5-6 weeks (or 3 - 4 weeks)???**  
**That is bound to give a lot of problems**  
**Bad Cosmesis and severe fibrosis**

I am sorry, but we have no 5 year tumor control data yet

As we started our study in 2011

Today.....

Focus on patiënt questionnaires (PRO;subjective)  
and BCCT software (objective) to grade cosmetic result

1.IORT 23.3 Gy (=21 Gy at 90% isodose) > 200 study pat.

2.APBI ext. Beam 10 times 3.85 Gy, still accruing patients

# Subjective (patient) assessment of cosmesis

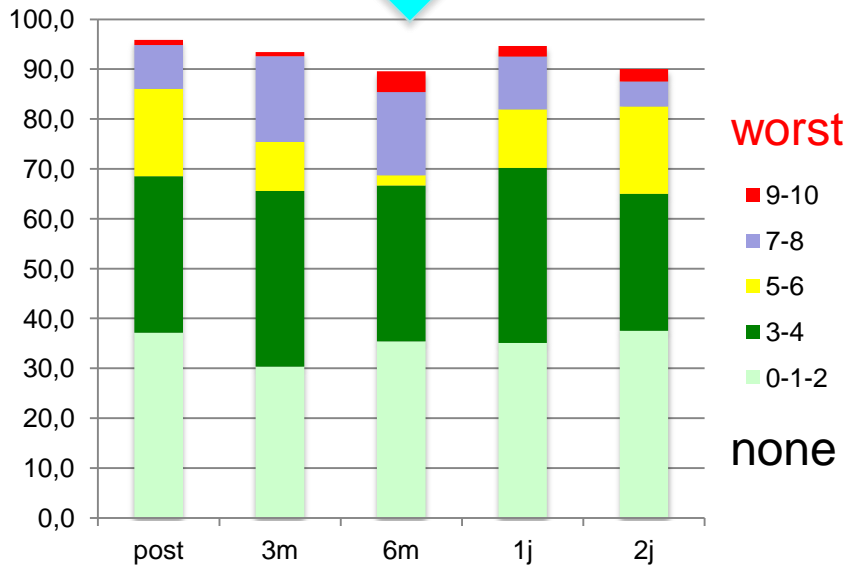
“Young Boost Trial” questionnaire (score 1 to 10)

- Scar visibility
- Size differences
- Contour differences
- consistency
- Colour
- Position of nipple
- Cosmesis (graded)
- Satisfaction (graded)
- Pain / tiredness

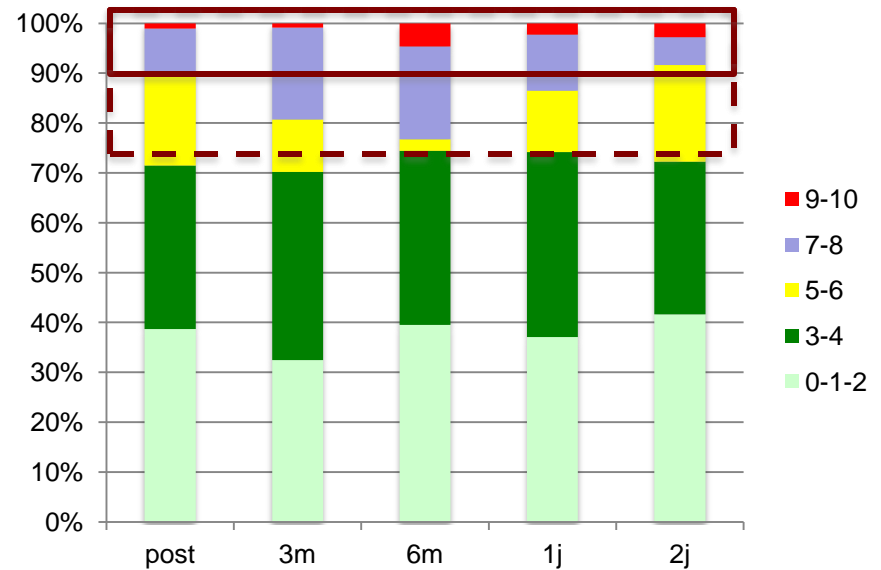
# PRO patient questionnaire data

## Change in appearance of the breast

90% response QOL Q



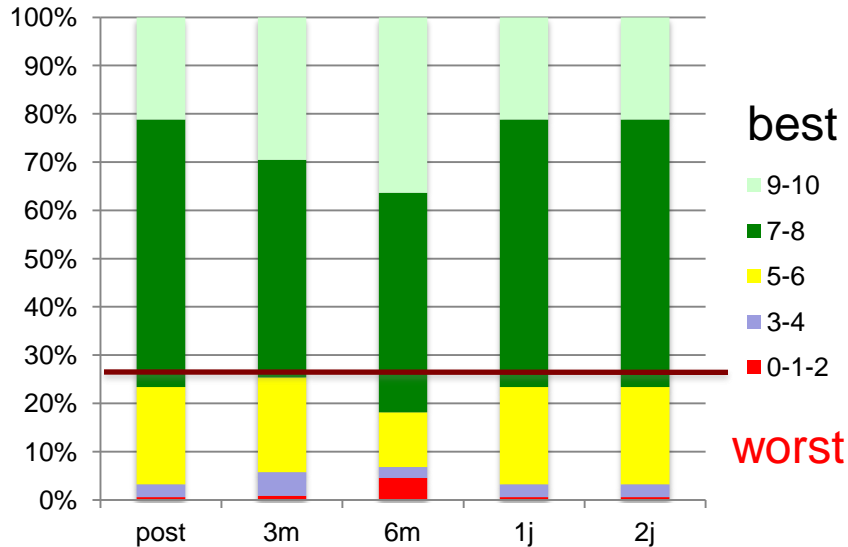
Corrected for missing data



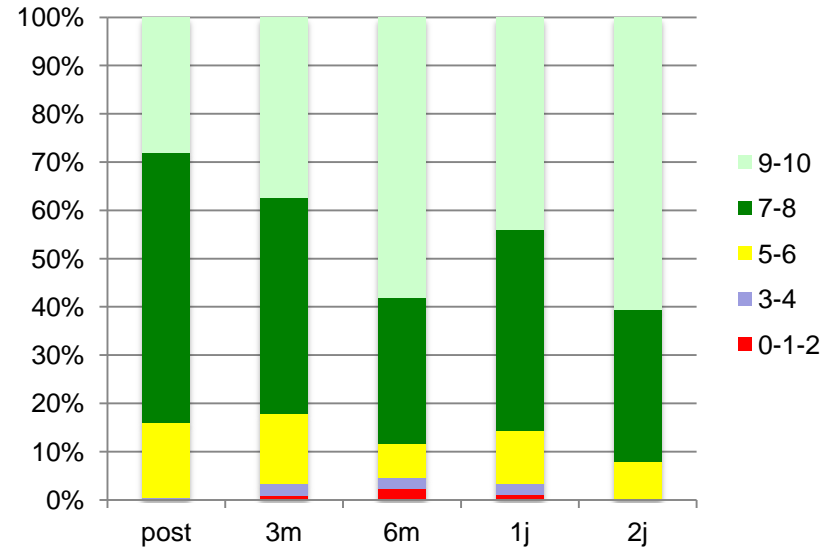
Cosmesis after breast conserving therapy =  
Surgery + radiotherapy effect

# PRO patiënt questionnaire data

**Grade cosmesis**



**Grade satisfaction**



Cosmesis after breast conserving therapy =  
Surgery + radiotherapy effect

**Would you expect any other result??**



**You offer them a one stop treatment  
(*breast conserving therapy in one day*)**

**and tumorcontrol identical with the standard  
treatment**

**You'r bound to have high patiënt satisfaction**

**CRITICS**



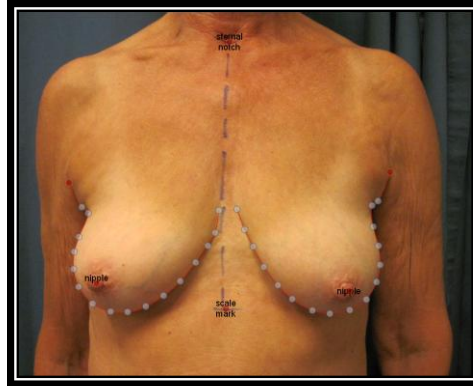
# asses cosmesis objectively using BCCT software

(Cardoso et al.)

Patients from 3 local hospitals

- 3 year after breast conserving treatment
- Same inclusion or exclusion cf study protocol
  
- 25 patients IORT, mean follow up 36.3 mnths
- 47 patients WBI, mean follow up 41.3 mnths

	IORT n=25	WBRT n= 47	P value
Age	68.8	64.1	0.001
Comorb (no)	64%	51%	0.293
Tumor size	1.01 cm	1.12 cm	0.419
Excision volume	117.84 cc	108.68 cc	0.566
chemotherapy	4%	2%	1.00
Hormonal therapy	40%	17%	0.032
Complications haem/ inf.	4%	6.4% - 8.5%	0.330



objective assessment of cosmesis  
using BCCT software

# Objective assesment of cosmesis using BCCT.core “assuming the breast are symmetrical”

7 objective parameters

pBRCA= the relative breast retraction assesment

pLBC= the relative lower breast contour

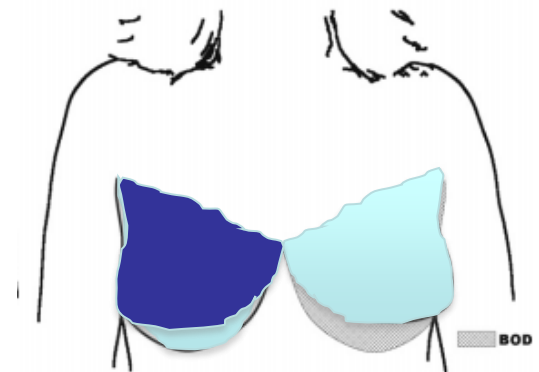
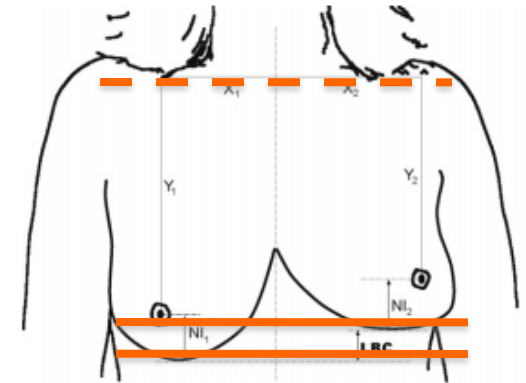
pUNR=the relative upward nipple retraction

pBCE= the relative breast compliance evaluation

pBCD=the relative breast contour difference

pBAD=the relative breast area difference

pBOD=the relative breast overlap difference



- BCCT.core combines different parameters (Cardoso et al.)
- In total score, subdivided in 4 categories

○ **Excellent;**

almost identical

○ **Good;**

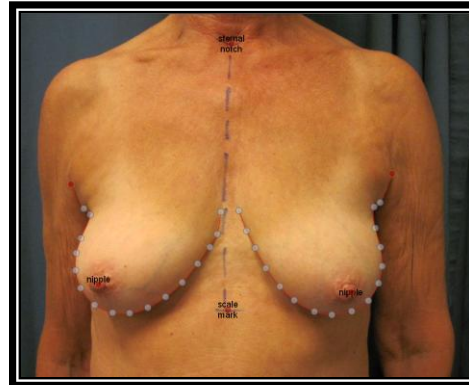
slight difference

○ **Fair;**

clear difference

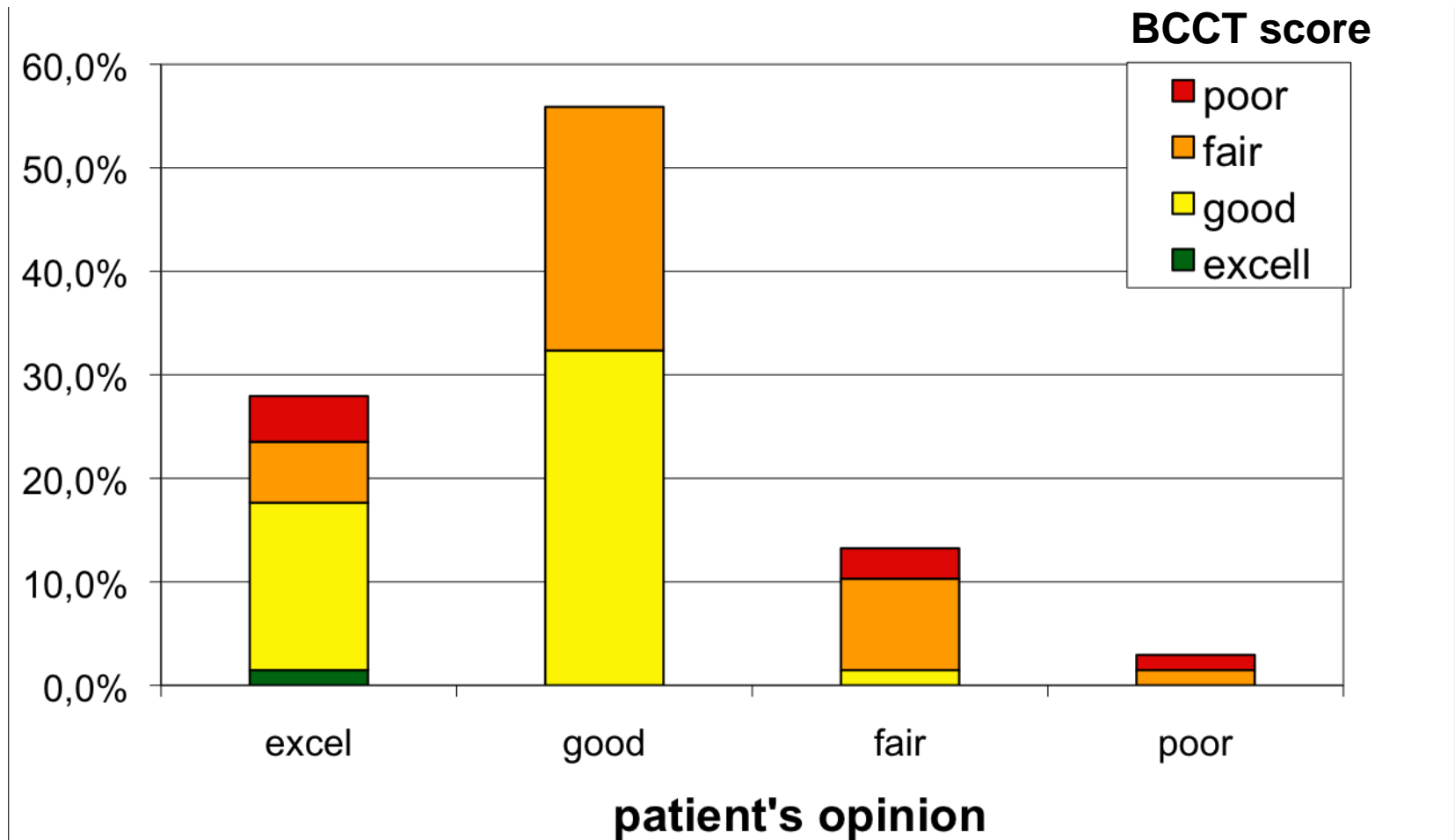
○ **Poor;**

disfigured

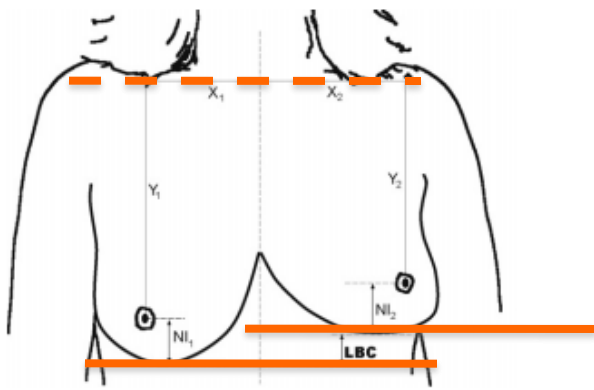


objective assesment of cosmesis  
using BCCT software

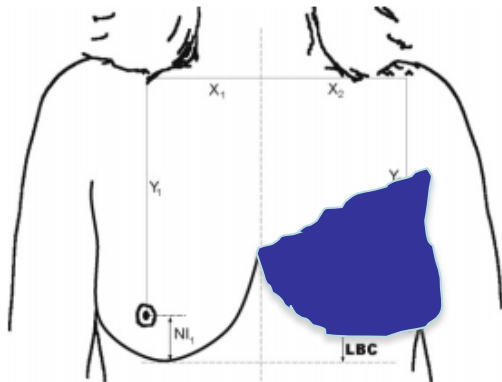
# (dis)agreement BCCT and patient score of cosmetic result



# Results objective BCCT assesment



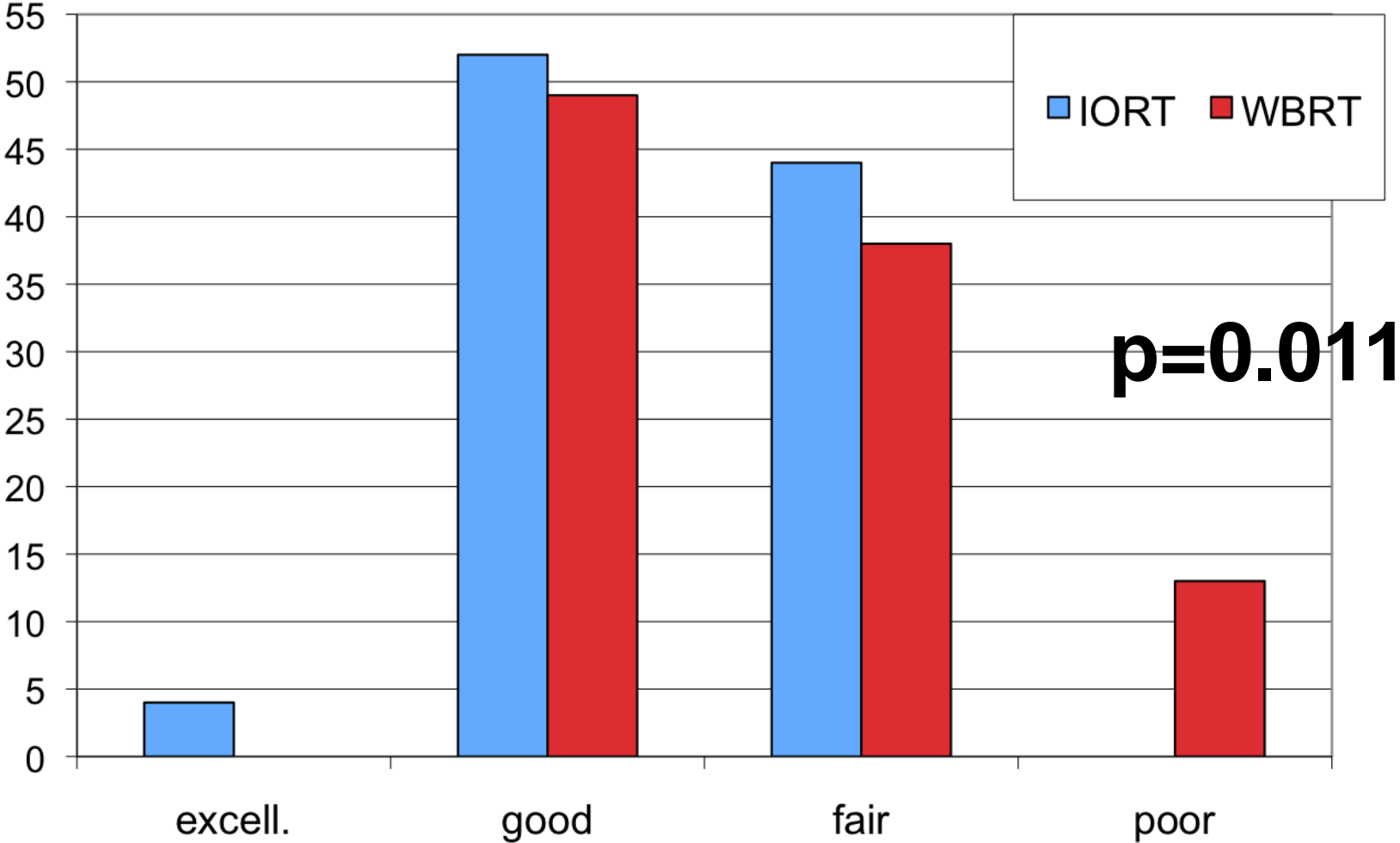
	IORT		WBRT	P-value
pBRA	0.098	↓	0.114	0.247
<b>pLBC</b>	0.043	↑	0.067	<b>0.043</b>
pUNR	0.078	↑	0.106	0.084
pBCE	0.343		0.321	0.761
<b>pBCD</b>	0.070	↑	0.111	<b>0.044</b>
<b>pBAD</b>	0.132	↑	0.206	0.058
<b>pBOD</b>	0.246	↑	0.339	<b>0.022</b>



Corrected for eg

Excision volume	n.s.	↓ 0.026	n.s.	n.s.	↓ 0.026	↓ 0.042	↓ 0.019
		<b>pLBC</b>			<b>pBCD</b>	<b>pBAD</b>	<b>pBOD</b>

# BCCT objective cosmetic assessment





## Conclusions:

### 1.a. Early Q results; cosmetic result favourable (subjective)

80% score 7-10 = identical with postoperative score

### 1.b. cosmetic result = lumpectomy + minor IORT changes

### 2. High patient satisfaction 95% score 7-10

### 3. 3 to 4 out of 7 BCCT (objective) parameters better

for IORT when compared with WBRT patients;  
highly significant better in composite score

**Instead of more fibrosis and bad cosmetics  
ELIOT type of IORT results (although short fu)**

**Better cosmetic outcome and less fibrosis**