



VAR-DDM

Variabilidad de la densidad mamográfica en mujeres españolas: asociación con hábitos, factores reproductivos y determinantes genéticos

Densidad mamográfica: factor de riesgo o fenotipo intermedio

Factors that increase breast cancer risk	
Breast Cancer Risk Factors	Magnitude of risk
Increasing age	++
Geographical region (USA and western countries)	++
Family history of breast cancer	++
Mutations in BRCA1 and BRCA2 genes	++
Mutations in other high-penetrance genes (p53, ATM, NBS1, LKB1)	++
Ionizing radiation exposure (in childhood)	++
History of benign breast disease	++
Late age of menopause (>54)	++
Early age of menarche (<12)	++
Nulliparity and older age at first birth	++
High mammographic breast density	++
Hormonal replacement therapy	+
Oral contraceptives recent use	+
Obesity in postmenopausal women	+
Tall stature	+
Alcohol consumption (~1 drink/day)	+

Well-confirmed factors



Pero... DM cambia en tiempo



Hipótesis biológicas

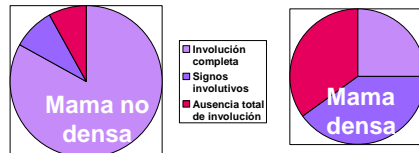
■ Involución mamaria y cáncer de mama (Henson y Tarone, 90s):

- Reducción en número y tamaño de los lóbulos mamarios con la edad

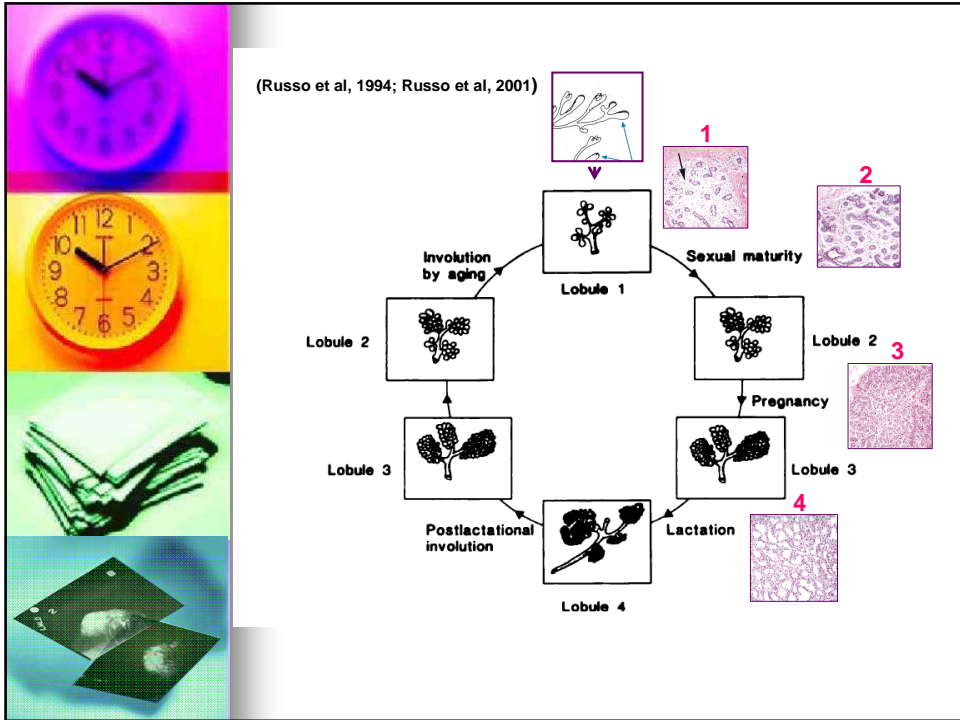
¿ papel relevante en la etiología del cáncer de mama?

No involución en las biopsias → mayor riesgo de cáncer de mama.

- Cambios histológicos ~ variación con edad en DM



¿Paridad ? Menor involución y menor densidad¡¡!



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Age-specific Trends in Mammographic Density

The Minnesota Breast Cancer Family Study

Linda E. Kelemen¹, V. Shane Pankratz¹, Thomas A. Sellers², Kathy R. Brandt³, Alice Wang¹, Carol Janney¹, Zachary S. Fredericksen¹, James R. Cerhan¹, and Celine M. Vachon¹

TABLE 1. Distribution of number of mammograms per woman, Minnesota Breast Cancer Family cohort, 1990–2003

No. of mammograms per woman	Corresponding no. of women	Total mammograms*	
		No.	%†
1	197	197	3
2	435	870	15
3	403	1,209	21
4	270	1,080	19
5	161	805	14
6	98	588	10
7	74	518	9
8	31	248	4
9	17	153	3
10	3	30	1
Total	1,689	5,698	100



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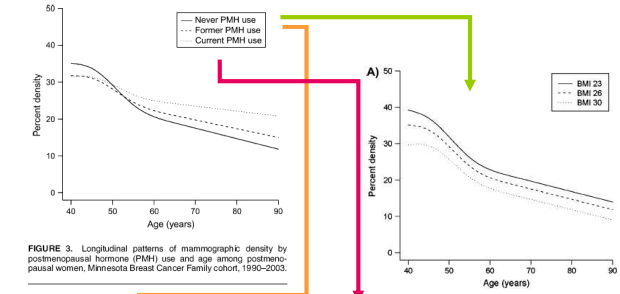
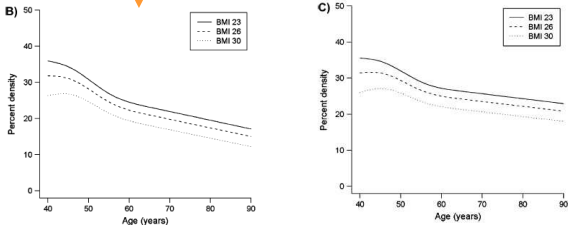


FIGURE 3. Longitudinal patterns of mammographic density by postmenopausal hormone (PMH) use and age among postmenopausal women, Minnesota Breast Cancer Family cohort, 1990–2003.



Uso de THS

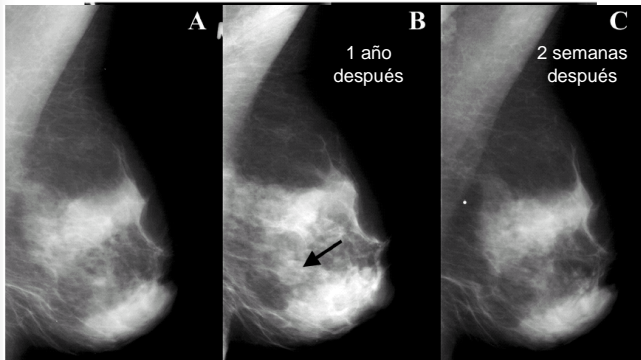


Figure 3. Mammograms obtained in a 65-year-old woman taking 1 mg estradiol daily. A, Right mediolateral oblique view from a baseline mammogram shows heterogeneously moderate breast density. B, One year later, the right mediolateral oblique view from a screening mammogram shows that the breast density has undergone mild diffuse increase with development of a focal density (arrow). C, Right mediolateral oblique view from a diagnostic mammogram obtained after stopping estrogen for 2 weeks shows that the focal density has resolved and the appearance is similar to that at baseline. Metallic marker identifies an incidental skin lesion.

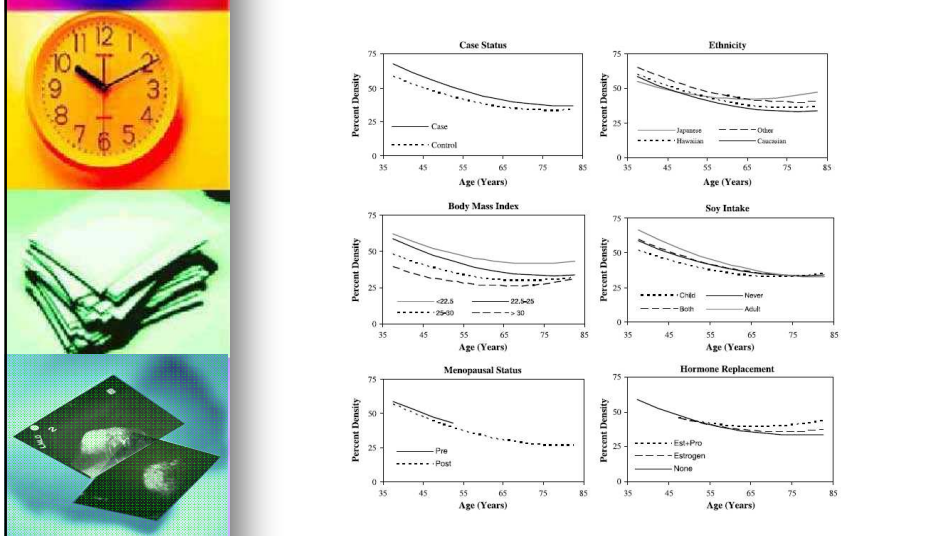
Jennifer A. Harvey,

Radiology • January 2004

A Longitudinal Investigation of Mammographic Density: The Multiethnic Cohort

Gertraud Maskarinec, Ian Pagano, Galina Lurie, and Laurence N. Kolonel

Cancer Epidemiol Biomarkers Prev 2006;15(4). April 2006



Cambios en densidad: importancia creciente

Longitudinal Measurement of Clinical Mammographic Breast Density to Improve Estimation of Breast Cancer Risk

Karla Kerlikowske, Laura Ichikawa, Diana L. Miglioretti, Diana S. M. Buist, Pamela M. Vacek, Rebecca Smith-Bindman, Bonnie Yankaskas, Patricia A. Carney, Rachel Ballard-Barbash

Conclusion An increase in BI-RADS breast density category within 3 years may be associated with an increase in breast cancer risk and a decrease in density category with a decrease in risk compared to breast cancer risk in women in whom breast density category remains unchanged. Two longitudinal measures of BI-RADS breast density may better predict a woman's risk of breast cancer than a single measure.

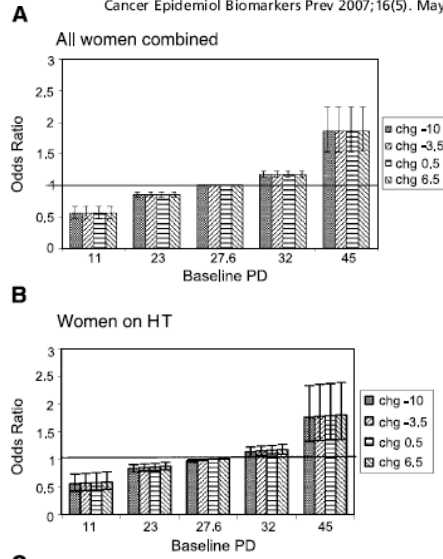
J Natl Cancer Inst 2007;99:386-95



Longitudinal Trends in Mammographic Percent Density and Breast Cancer Risk

Celine M. Vachon,¹ V. Shane Pankratz,¹ Christopher G. Scott,¹ Shaun D. Maloney,¹ Karthik Ghosh,¹ Kathleen R. Brandt,¹ Tia Milanese,¹ Michael J. Carston,¹ and Thomas A. Sellers²

Cancer Epidemiol Biomarkers Prev 2007;16(5). May 2007



De DDM-Spain a Var-DDM

Estudiar los **determinantes del cambio en el patrón mamográfico**


- factores de riesgo clásicos:**
(edad, menarquia, paridad, historia familiar, menopausia)
- Variables antropométricas**
- Dieta, alcohol y tabaco** en los dos últimos años
- Tratamiento hormonal sustitutivo.**

Identificar las variables que se asocian específicamente a

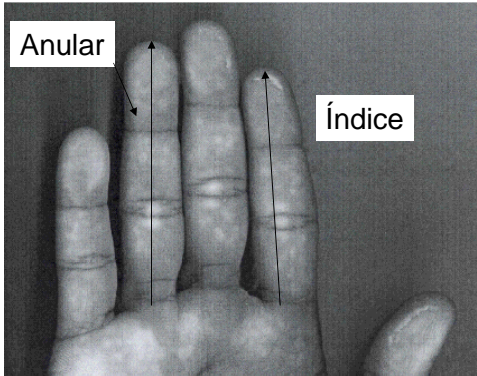
- cambios --** en patrón mamográfico.
- cambios ++** en mujeres con mamas densas en DDM

Investigar relación **polimorfismos** DM con la variación en el tiempo

- Evaluar la asociación entre la **exposición prenatal a andrógenos** ratio entre dedo índice y anular (2D:4D)



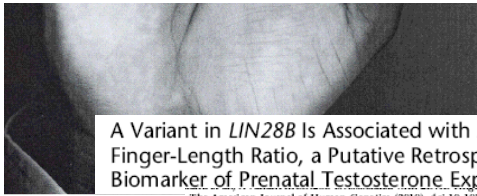
PNAS



Anular Índice

Second-to-fourth digit ratio predicts success among high-frequency financial traders

John M. Coates^{a,b,1}, Mark Gumell^{c,1}, and Aldo Rustichini^{d,1}



A Variant in *LIN28B* Is Associated with 2D:4D Finger-Length Ratio, a Putative Retrospective Biomarker of Prenatal Testosterone Exposure

The American Journal of Human Genetics (2010), doi:10.1016/j.ajhg.2010.02.017

