

Humanae Vitae:
la audacia de una
encíclica sobre la
sexualidad y
la procreación

¿Qué es la contracepción? Métodos, fines y consecuencias.

Dra. Pilar Vigil *MD, PhD, FACOG*
Roma, Mayo 2023

Pilar Vigil declara no tener conflictos de interés



Universidad
Francisco de Vitoria
UFV Madrid
Instituto de Bioética



Universidad
Francisco de Vitoria
UFV Madrid
Centro de Estudios
de la Familia



FONDATION
Jérôme Lejeune
chercher, soigner, défendre

Génétique
Premier site d'actualité bioéthique



FAFCE
Families are Europe's Treasure



CEU
Universidad
San Pablo

UCA
Pontificia Universidad Católica Argentina

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가톨릭대학교 생명대학원
Notre Dame Catholic University Graduate School of Life
The Catholic University of Korea

SCIENZA & VITA
ALLEATE PER IL FUTURO DELL'UOMO



RHI

REPRODUCTIVE
HEALTH RESEARCH
INSTITUTE

Una Historia de Profetas y Hobbits...



1950

1960

1968

1972

Carl Djerassi
sintetiza una
progestina
sintética.

1950





Carl Djerassi sintetiza
una progestina sintética

1950

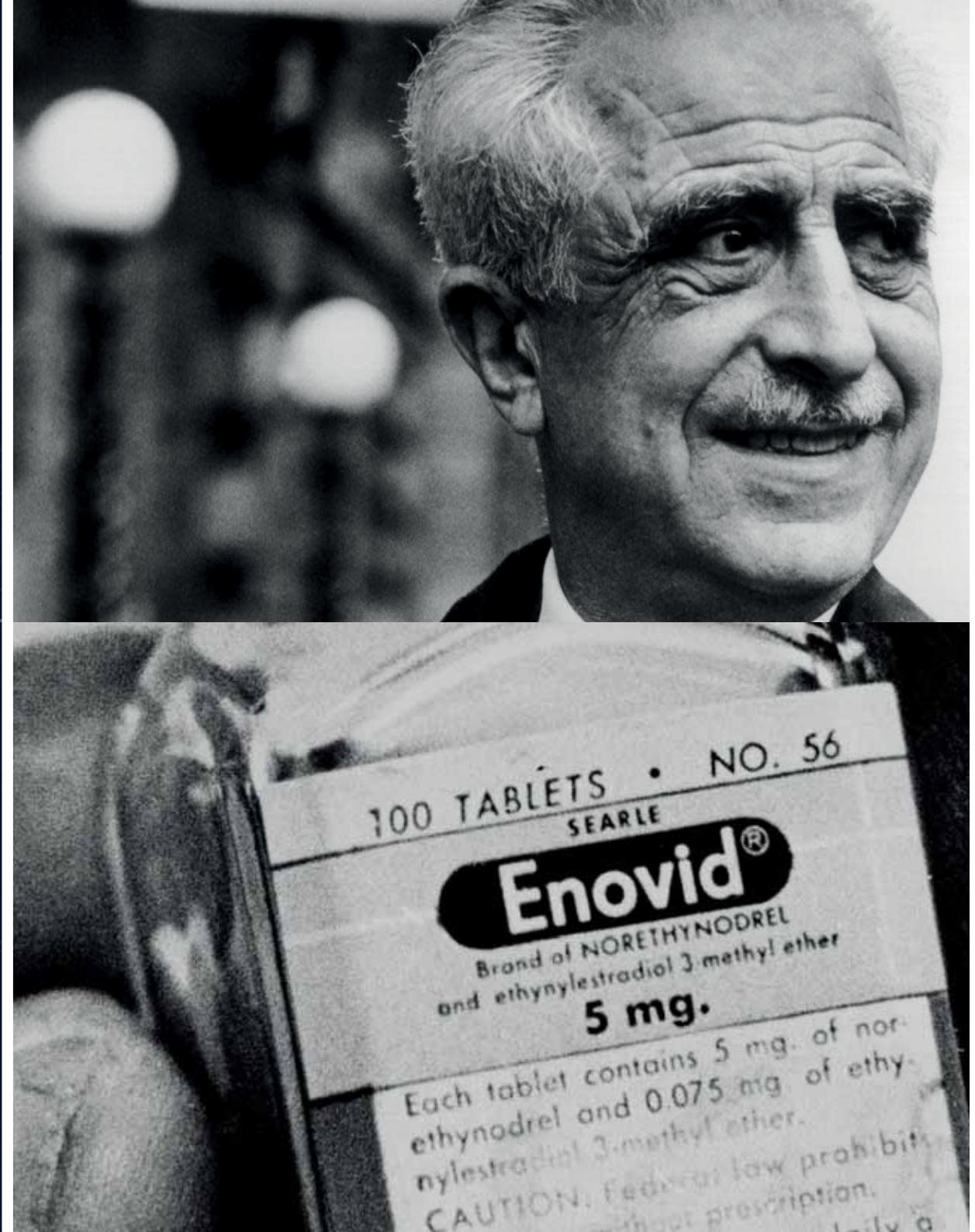
1960

1968

1972

1960

Gregory Pincus
logra que se
comercialice el
primer
anticonceptivo
hormonal.



Gregory Pincus comercializa
el primer AC hormonal



1960



1950



Carl Djerassi sintetiza
una progestina sintética

1968

1972



HUMANAE VITAE

Encyclical Letter of His Holiness
Pope Paul VI

Pablo VI
promulga la
encíclica
Humane Vitae.

1968

Carl Djerassi sintetiza
una progestina sintética



1950

Gregory Pincus comercializa
el primer AC hormonal



1960



Pablo VI promulga
Encíclica *Humane Vitae*



1968

1972



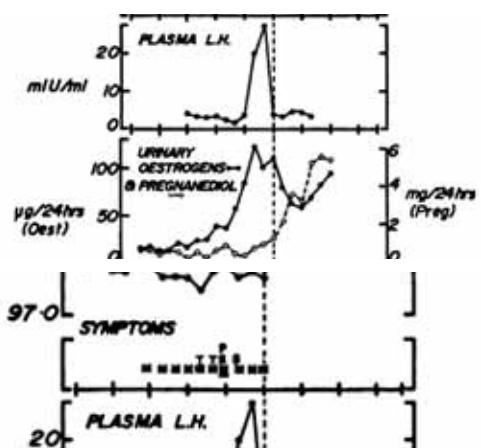


SYMPTOMS AND HORMONAL CHANGES ACCOMPANYING OVULATION

E. L. BILLINGS, J. J. BILLINGS, J. B. BROWN AND H. G. BURGER

*Medical Research Centre, Prince Henry's Hospital, Melbourne University
Department of Obstetrics and Gynaecology, Royal Women's Hospital, and Catholic Family Planning Centre,
Melbourne, Australia*

Lancet 1: 282, 1972



1972

Billings, Billings,
Brown y Burger dan
a conocer el Método
de la Ovulación /
Billings.

Carl Djerassi sintetiza una progestina sintética



1950

Gregory Pincus
logra que se
comercialice
el primer AC hormonal



1960



John, Evelyn Billings y su grupo
desarrollan el método
de la ovulación



1972



Pablo VI promulga
Encíclica *Humane Vitae*



1968

Una Historia de Profetas y Hobbits...

Gregory Pincus
logra que se
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el primer AC hormonal



1950



Carl Djerassi sintetiza
una progestina sintética



1960



1968

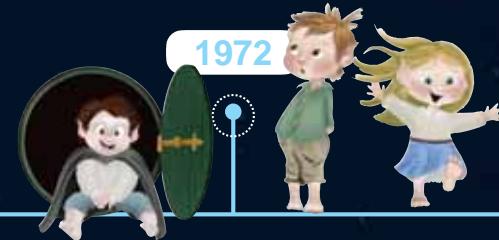


Pablo VI promulga
Encíclica *Humane Vitae*

John, Evelyn Billings y su grupo
desarrollan el método
de la ovulación



1972



1972

Tasa Global de Fecundidad

1950

Promedio 5,3 hijos/mujer



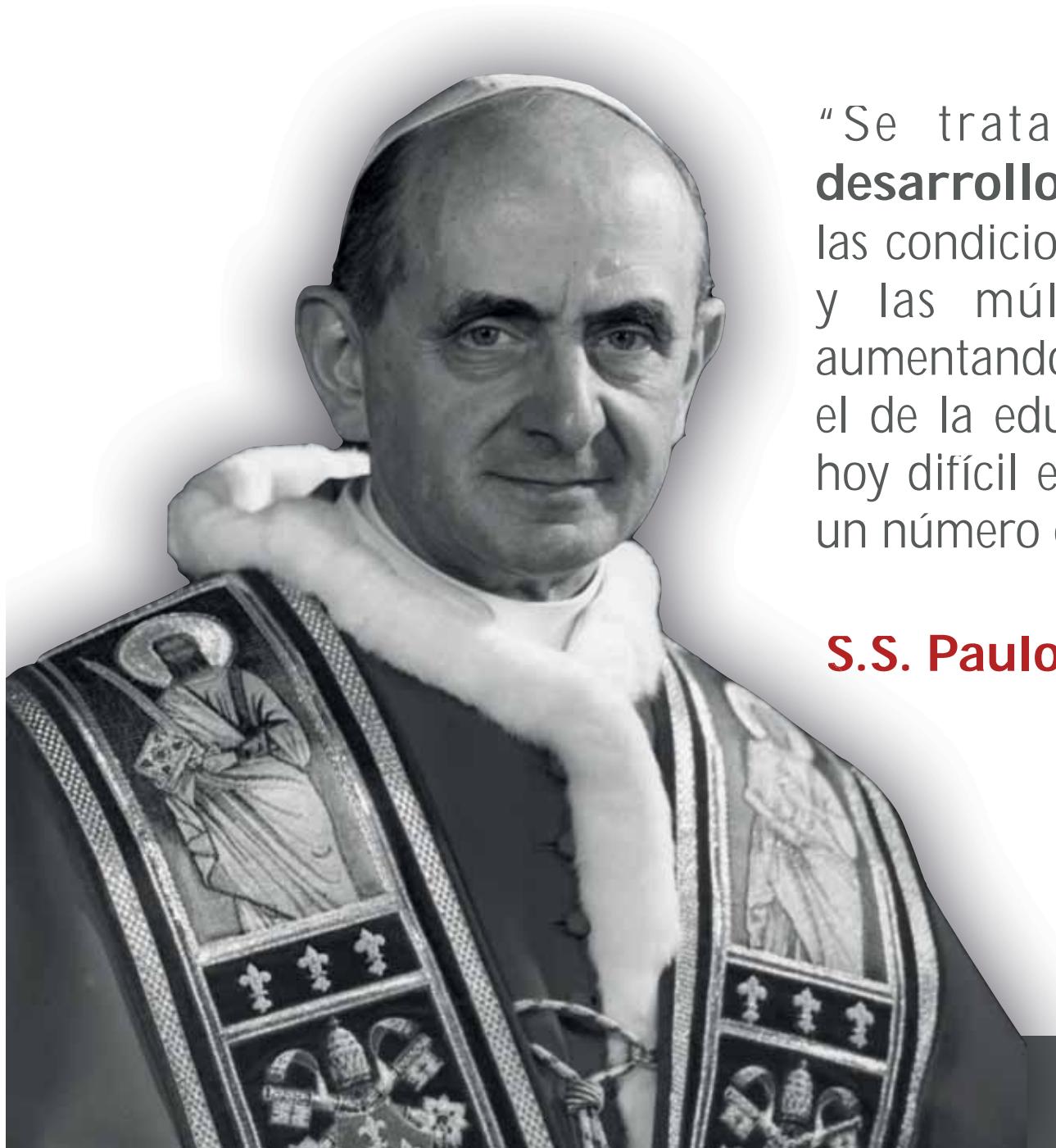


YOU CAN DECIDE HOW MANY CHILDREN YOU WANT

PLANNED PARENTHOOD CAN HELP
**...with information on birth control
and infertility services**

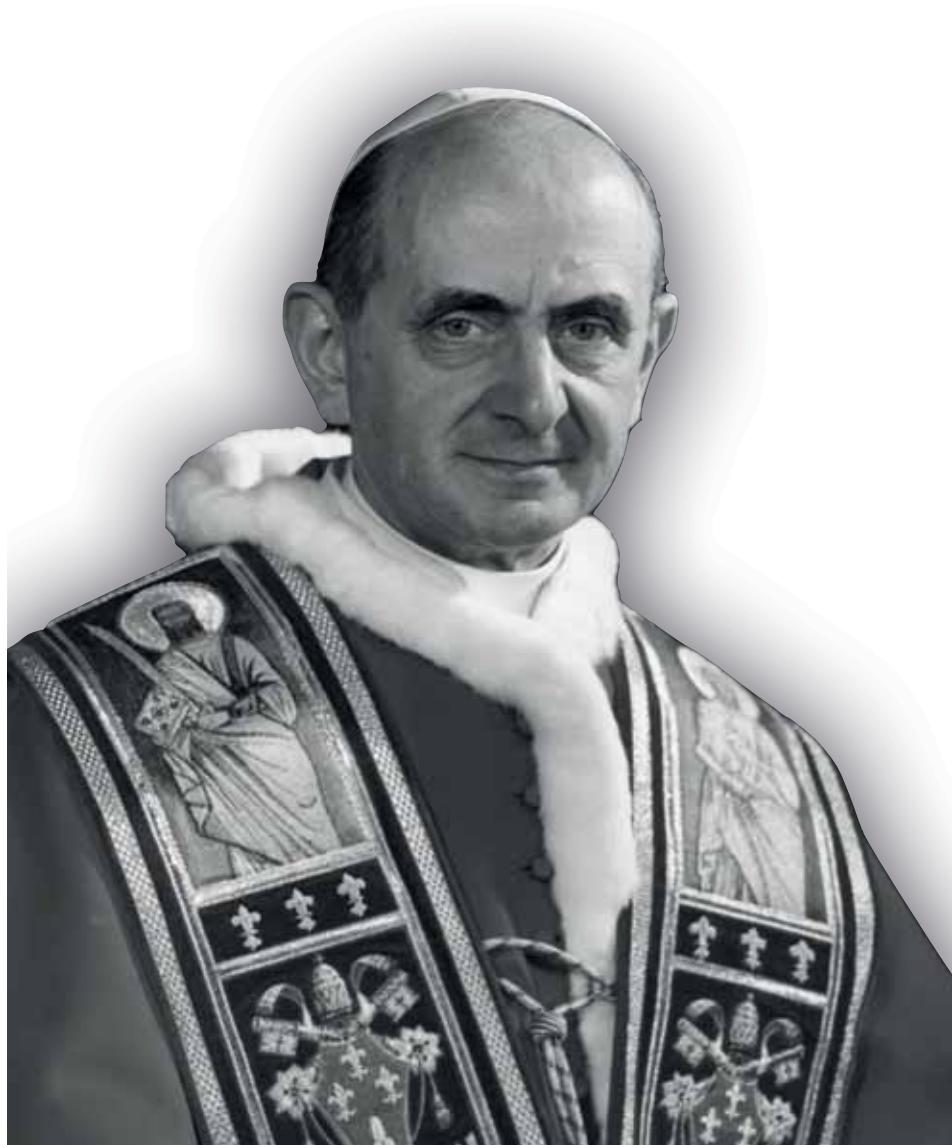
CALL 421-2290

PLANNED PARENTHOOD OF NEW YORK CITY 29 WEST 57 ST. NEW YORK, 10019



“Se trata, ante todo, del rápido **desarrollo demográfico** (...) Además, las condiciones de **trabajo** y de vivienda y las múltiples exigencias que van aumentando en el campo económico y en el de la educación, con frecuencia hacen hoy difícil el mantenimiento adecuado de un número elevado de hijos.”

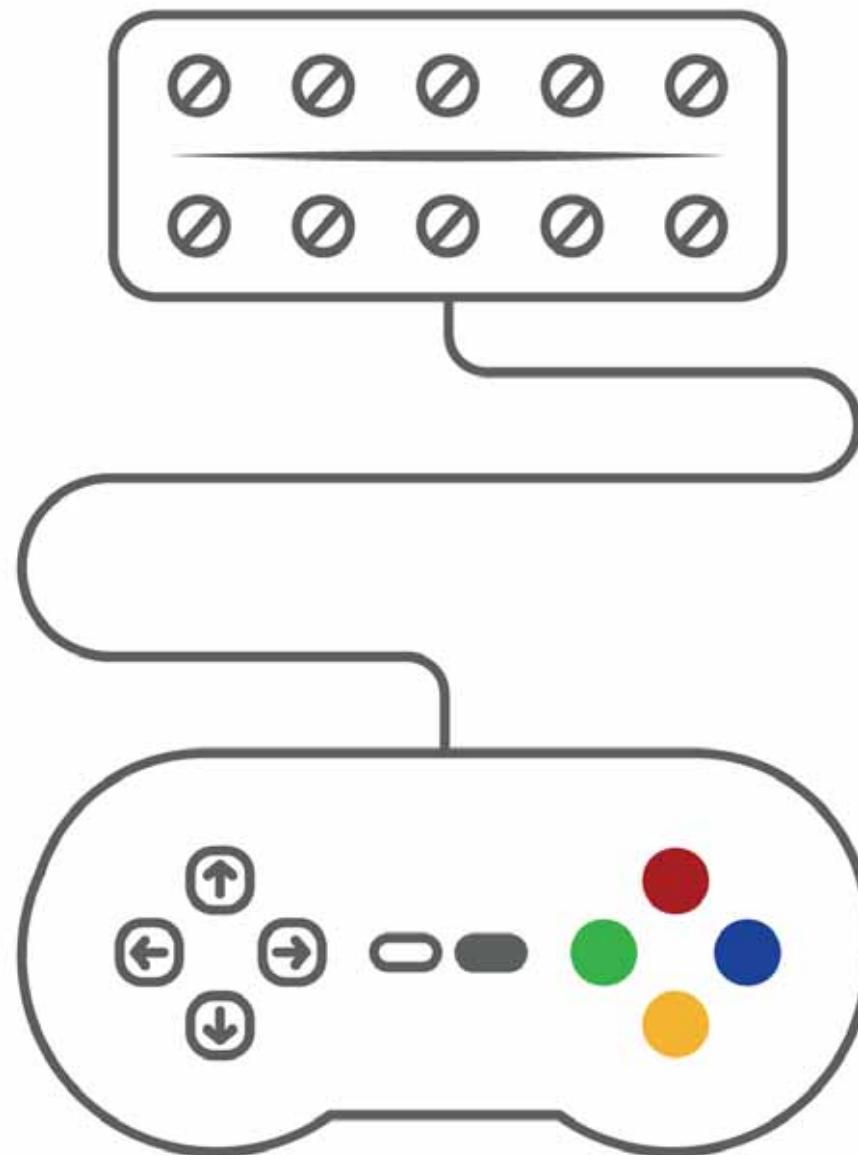
S.S. Paulo VI



“No puede haber contradicción entre las leyes divinas que regulan la transmisión de la vida y aquellas que favorecen un auténtico amor conyugal.”

S.S. Paulo VI - *Gaudium et spes*

The Game Changer



Tasa Global de Fecundidad

1950

Promedio 5,3 hijos/mujer



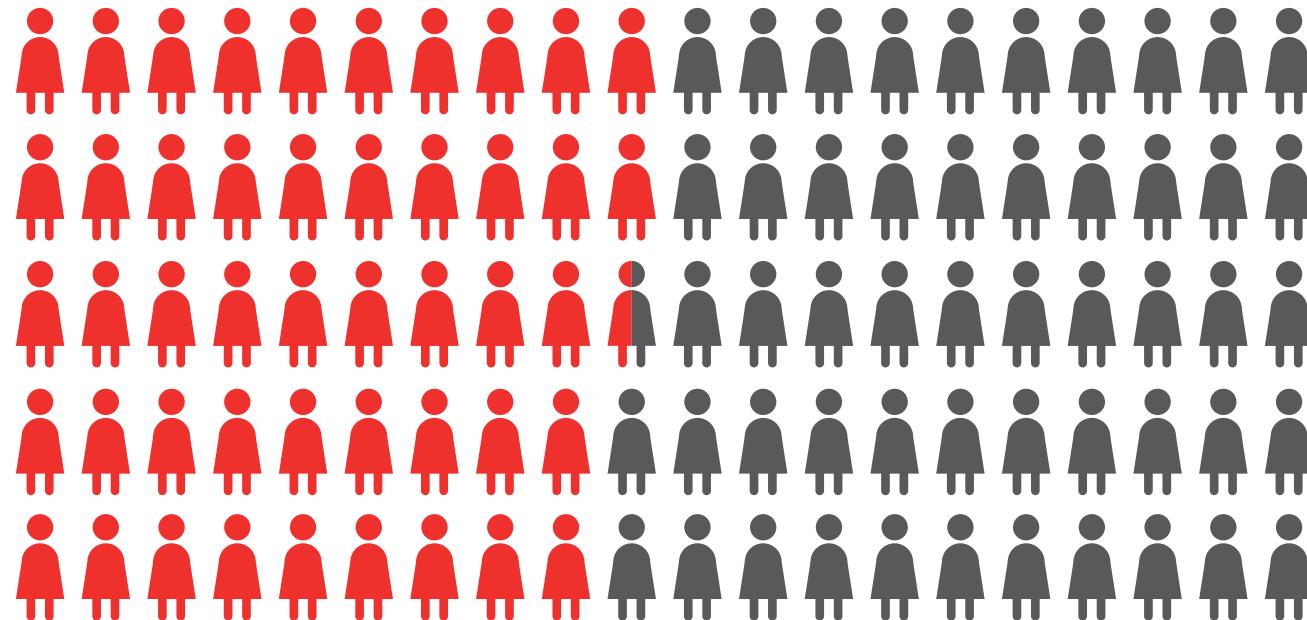
2022

Promedio 1,7 -2,3 hijos/mujer



Población total
de mujeres entre
15-49 años
(2023)

1.900
MILLONES



Usuarias
de MAC

51%

969 millones

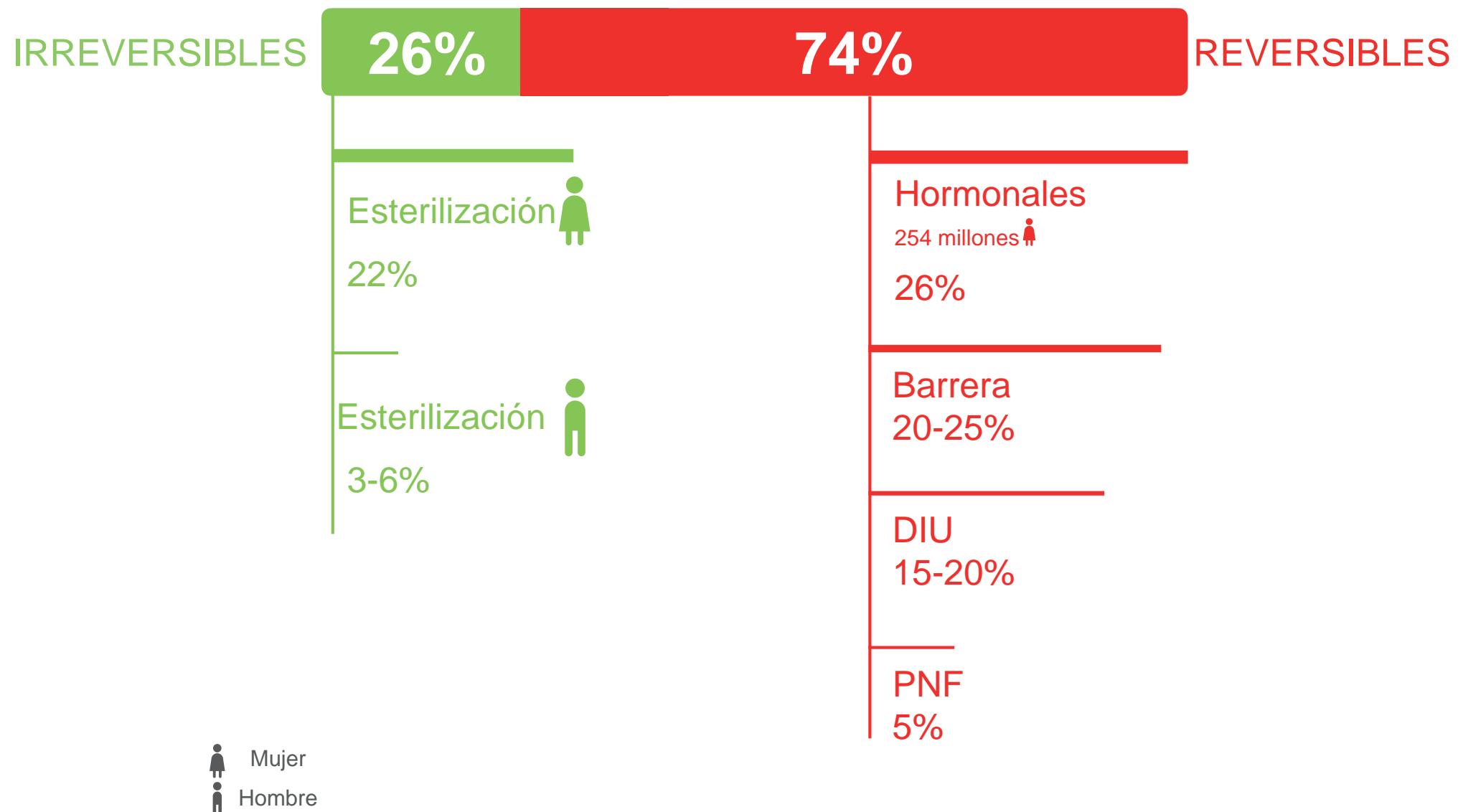
No usuarias
de MAC

49%

931 millones

PopulationPyramid.net (2023)

ANTICONCEPTIVOS



Zapata LB, Pazol K, Curtis KM, et al. Need for Contraceptive Services Among Women of Reproductive Age — 45 Jurisdictions, United States, 2017–2019. MMWR Morb Mortal Wkly Rep 2021;70:910–915. DOI: <http://dx.doi.org/10.15585/mmwr.mm7025a2>

Anticonceptivos Hormonales

Orales

Píldora anticonceptiva

 Combinada

 Progestina sola

Contracepción de emergencia

 Píldora del día después

 RU-486

LARCS

Dispositivo intrauterino hormonal



Implante

Inyectable

Combinado

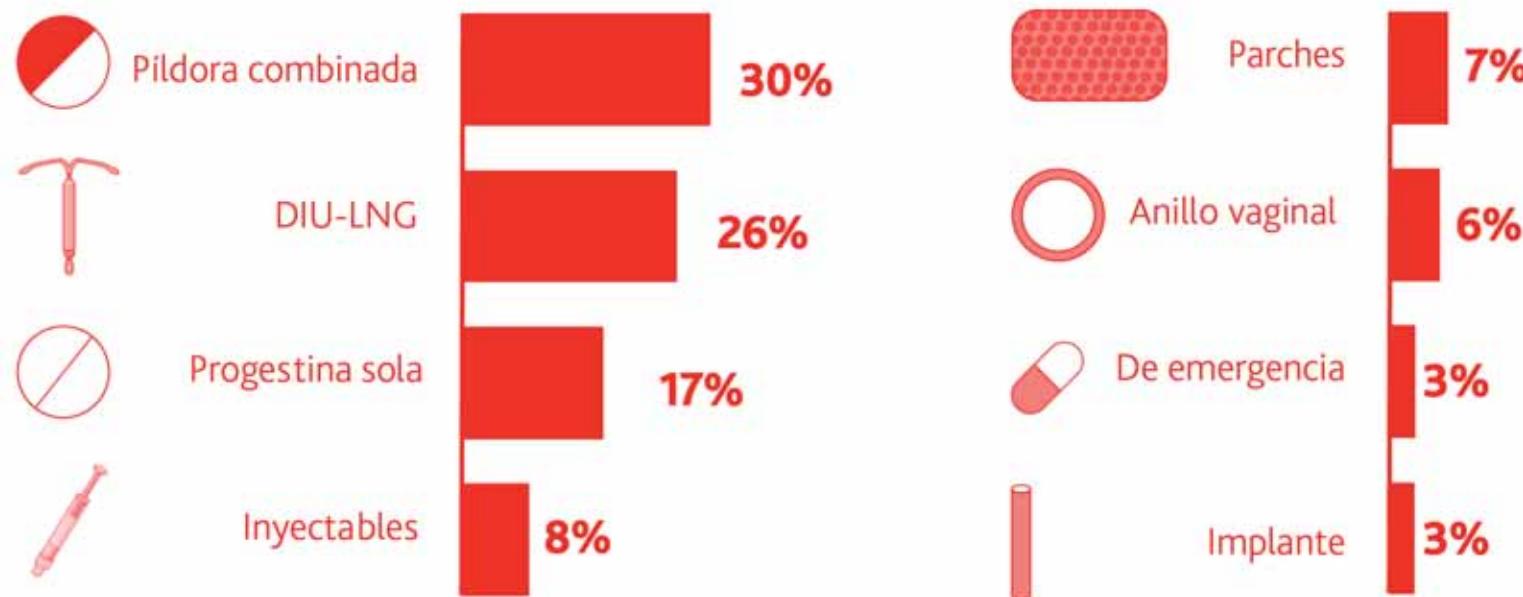
Progestina sola

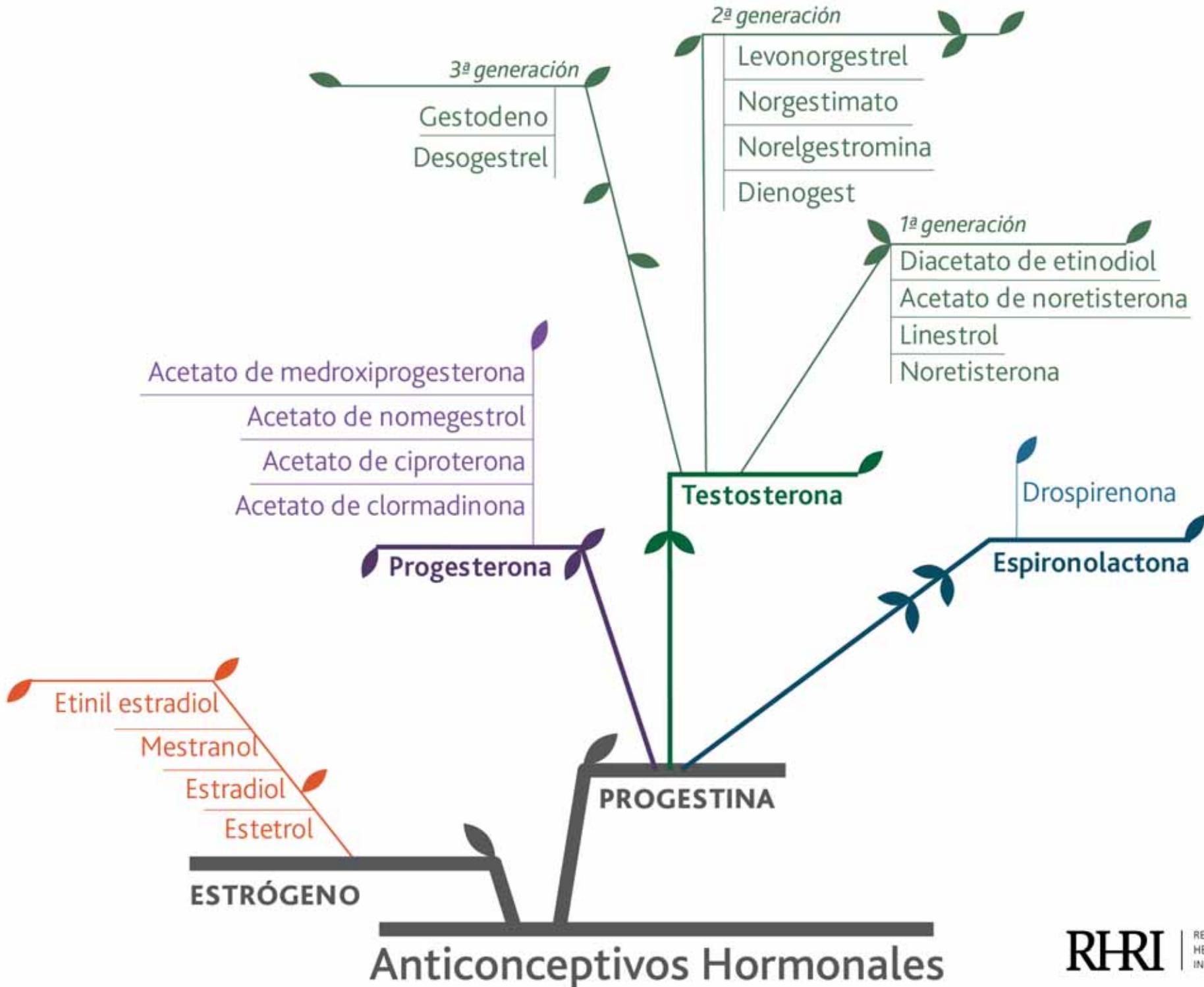
Anillo Vaginal

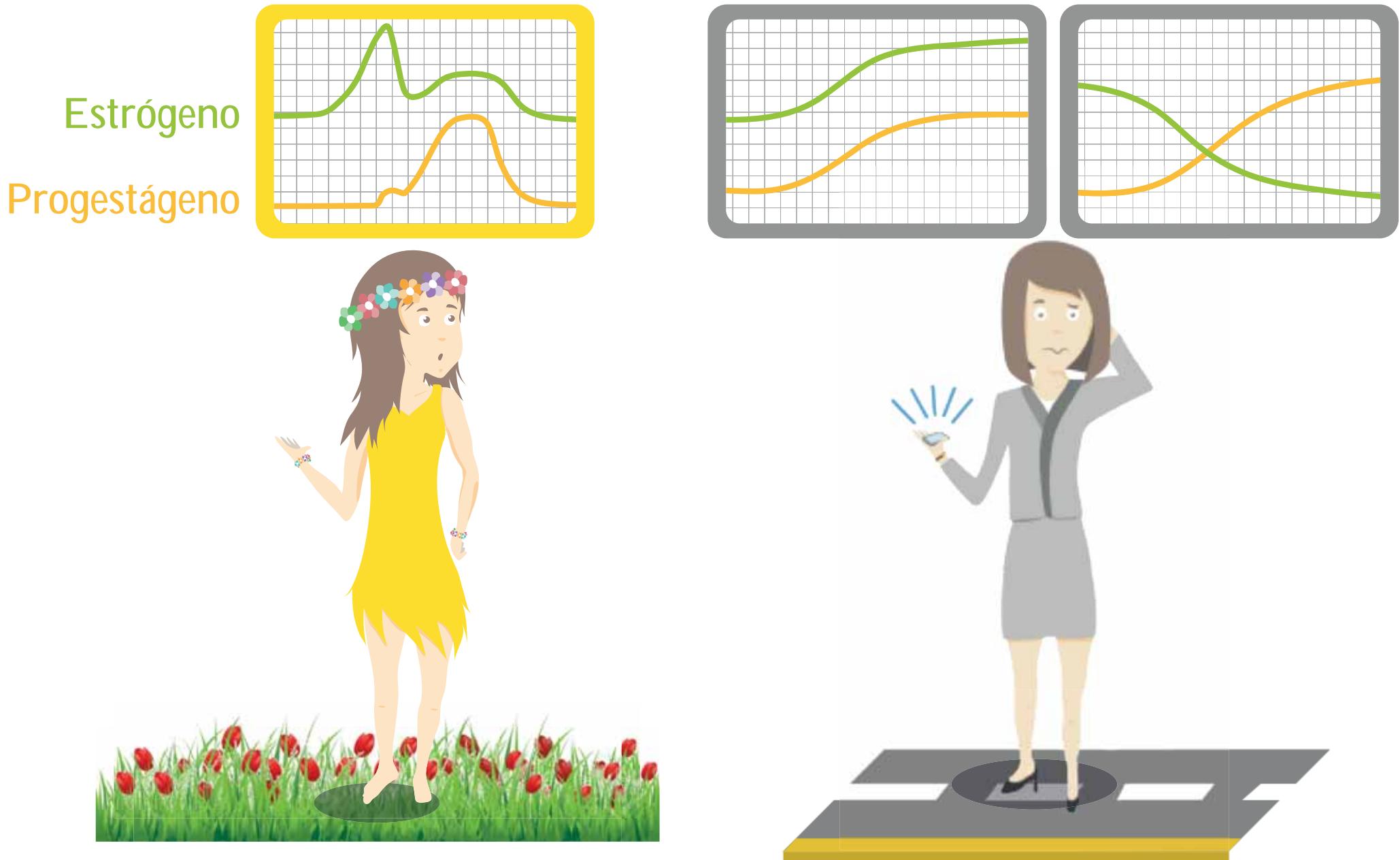
Parche transdérmico

%

Uso de anticonceptivos Hormonales



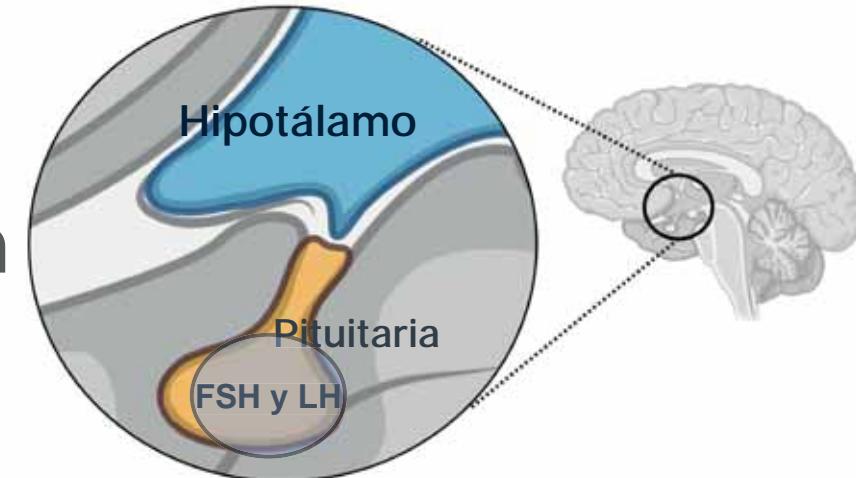




Del Rio, Alliende MI, Molina N, Serrano FG, Molina S & Vigil P . (2018).

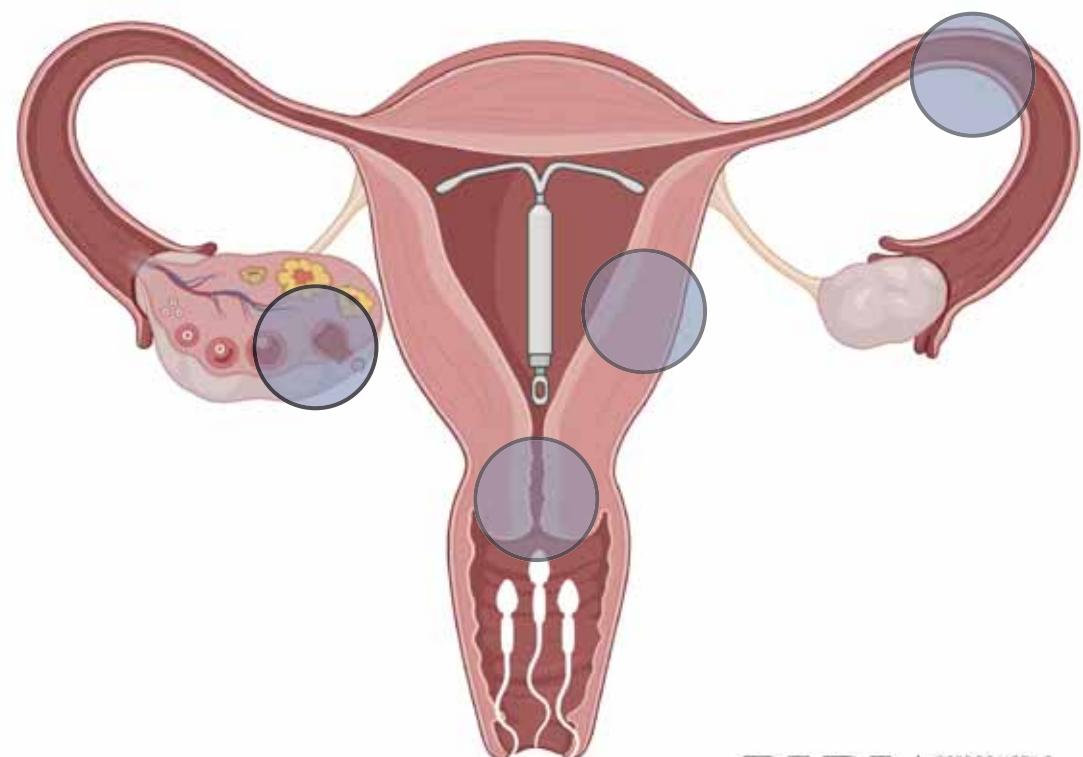
Steroid hormones and their action in women's brains: the importance of hormonal balance. *Frontiers in Public Health*.

Mecanismos de acción MAC



Inhibición a nivel de:

- Gonadotrofinas (*FSH/LH*)
- Ovulación
- Transporte espermático
- Endometrial
- Transporte ovular



Mecanismos de acción de los anticonceptivos

ANOVULATORIO

Inhiben la secreción de GnRH desde el hipotálamo y de las gonadotrofinas (FSH y LH) a nivel hipofisario

ENDOMETRIAL

Impide el crecimiento del endometrio

CUELLO DE ÚTERO

Cambian las características del moco cervical, haciéndolo impenetrable a los espermatozoides

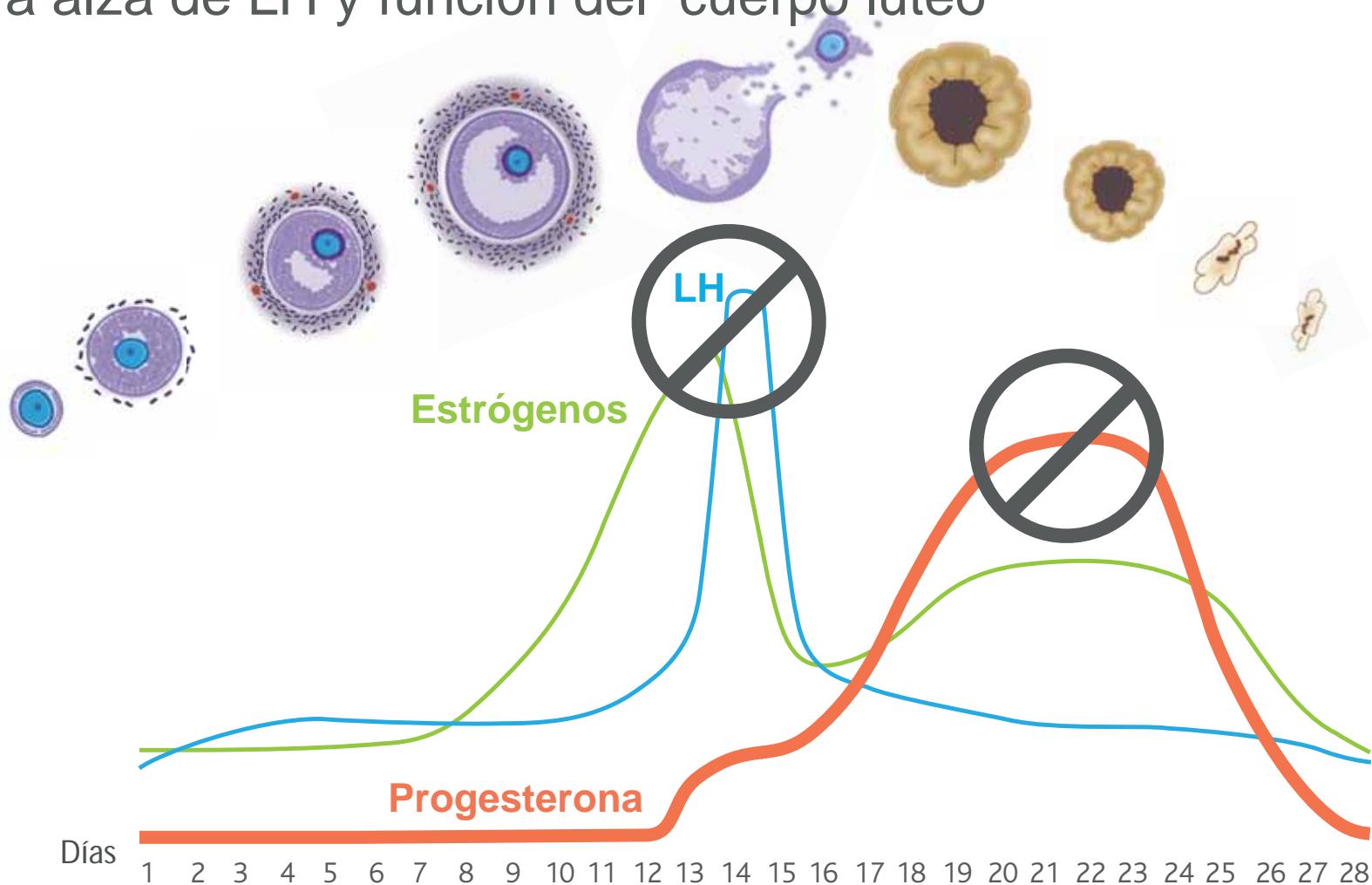
MIOMETRIO Y TROMPAS

Inhiben sus contracciones sinergicas, alterando el transporte ovular

Mecanismos de acción

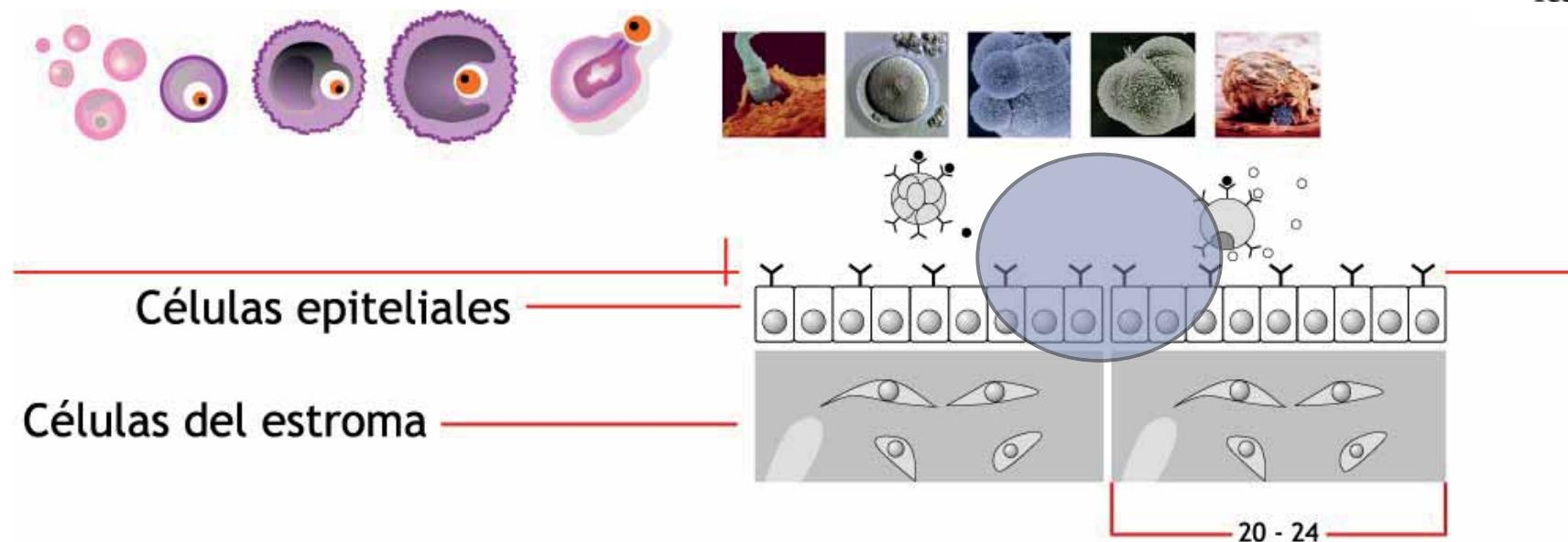
AE (*Píldora del día después*)

Altera alza de LH y función del cuerpo lúteo



Mecanismo de acción RU 486

Modifica la expresión génica endometrial
afectando la ventana de implantación.



Lessey BA. Two pathways of progesterone action in the human endometrium implications for implantation and contraception. *Steroids* 2003; 68(10-13): 809 - 815.

Indicaciones de los ACO

Para prevenir/evitar el embarazo y además....

Irregularidad Menstrual

Acné e Hirsutismo

Dismenorrea

Terapia de Reemplazo Hormonal

Endometriosis y Adenomiosis

Metrorragia Disfuncional

Roe, Andrea, Deborah Bartz, and Pamela Douglas. 2022. Combined Estrogen-Progestin Contraception: Side Effects and Health Concerns. UpToDate.

Rebecca H. 2021. Combined Estrogen-Progestin Oral Contraceptives: Patient Selection, Counseling, and Use. UpToDate

EFECTOS COLATERALES

1	Disminución de la libido	6	Acné
2	Náuseas y vómitos	7	Cambios de humor
3	Dolores de cabeza (cefaleas y migrañas)	8	Retención de líquidos
4	Sangrado irregular	9	Sensibilidad e hinchazón de los senos
5	Aumento de peso		

Roe, Andrea, Deborah Bartz, and Pamela Douglas. 2022. Combined Estrogen-Progestin Contraception: Side Effects and Health Concerns. UpToDate.

Rebecca H. 2021. Combined Estrogen-Progestin Oral Contraceptives: Patient Selection, Counseling, and Use. UpToDate

Efecto deletéreo a nivel
vinculante con su pareja.

Lo que toda mujer debería preguntarse antes de utilizar AC hormonal



¿Antecedentes de Diabetes?

¿Sobrepeso?

¿Síndrome de Ovario Poliquístico?



¿Antecedentes de Diabetes? ¿Sobrepeso? ¿Síndrome de Ovario Poliquístico?



↑ de la Insulino-Resistencia.

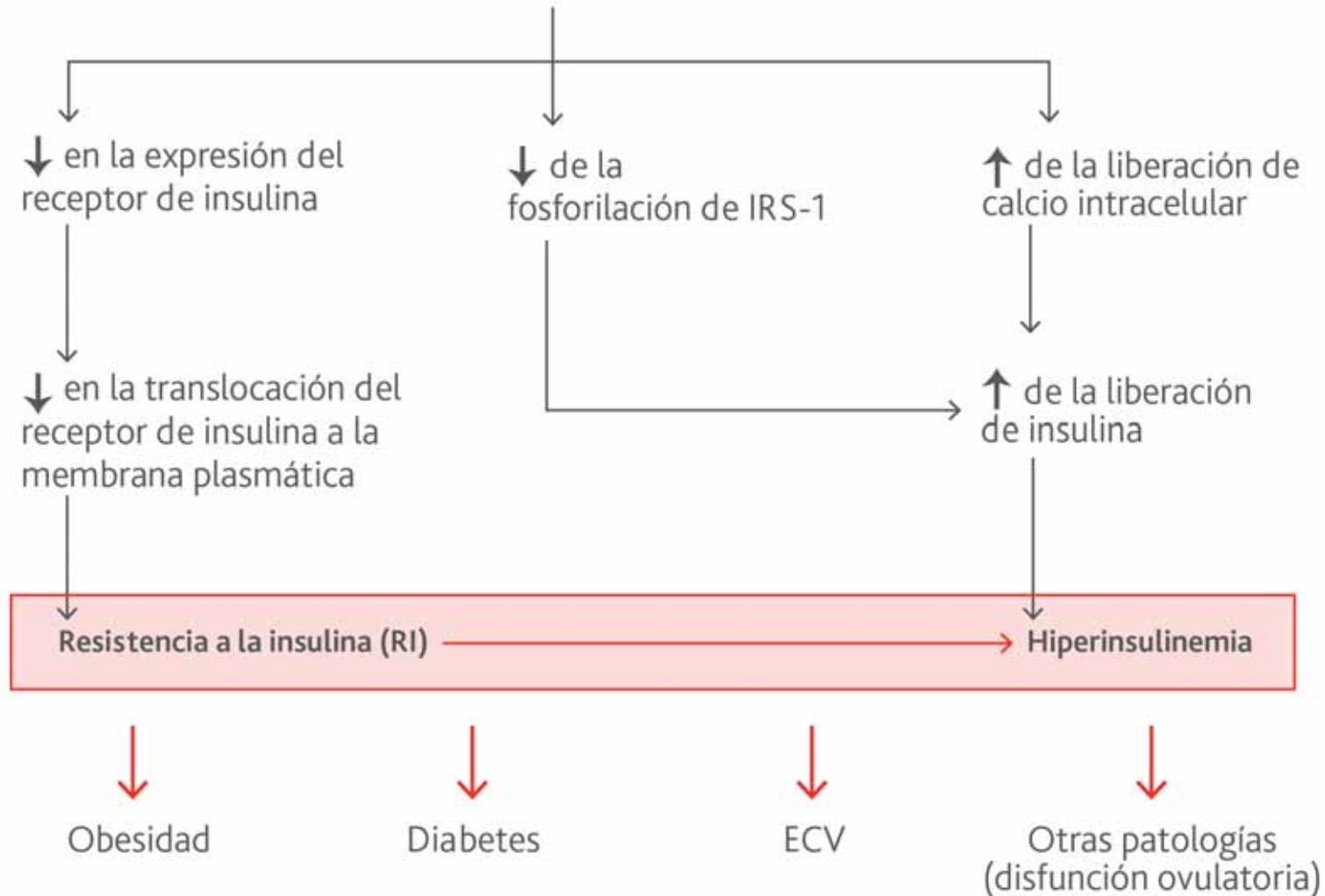
↑ del colesterol y los triglicéridos.

↑ de entre 4 a 6 kilos.

↑ del riesgo de enfermedad biliar e hígado graso.

Roe, Andrea, Deborah Bartz, and Pamela Douglas. 2022. "Combined Estrogen-Progestin Contraception: Side Effects and Health Concerns." UpToDate. https://www.uptodate.com/contents/combined-estrogen-progestin-contraception-side-effects-and-health-concerns/print?search=anticoncepción&source=search_result&selectedTitle=4~150&usage_type=default&display_rank=4.
Coopland AT, 1980. Effects of oral contraceptives on the liver. Can J Surg 23(6): 511
Krauss RM & Burkman RT, 1992. The metabolic impact of oil contraceptives. Am J Obstet Gynecol 167 (4Pt2): 1177-1184.
Rosano, Giuseppe M.C., Maria Angeles Rodriguez-Martinez, Ilaria Spoletni, and Pedro Antonio Regidor. 2022. "Obesity and Contraceptive Use: Impact on Cardiovascular Risk." ESC Heart Failure 9 (6): 3761–67. doi:10.1002/ehf2.14104.

Hiperestrogenismo



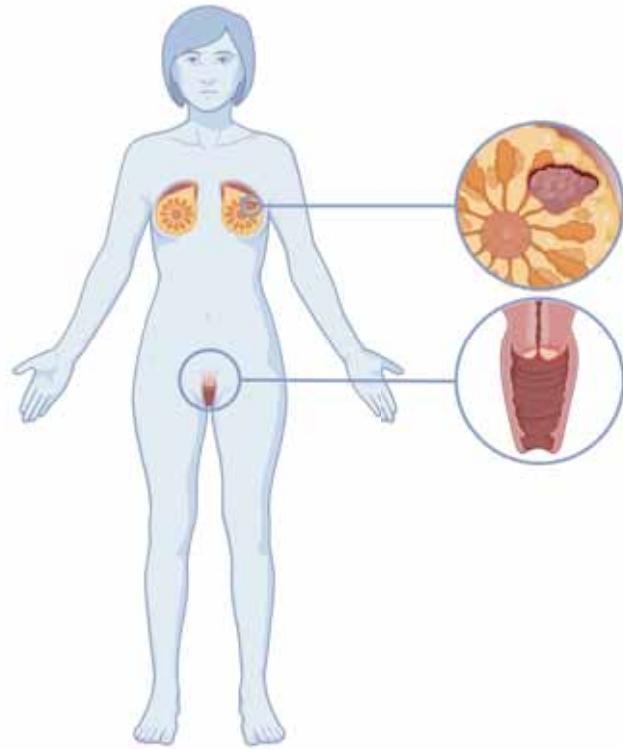
González, C., A. Alonso, N. A. Grueso, M. M. Esteban, S. Fernández, and A. M. Patterson. 2002. "Effect of Treatment with Different Doses of 17- β -Estradiol on the Insulin Receptor."

" Life Sciences 70 (14): 1621–30. doi:10.1016/S0024-3205(02)01489-3.

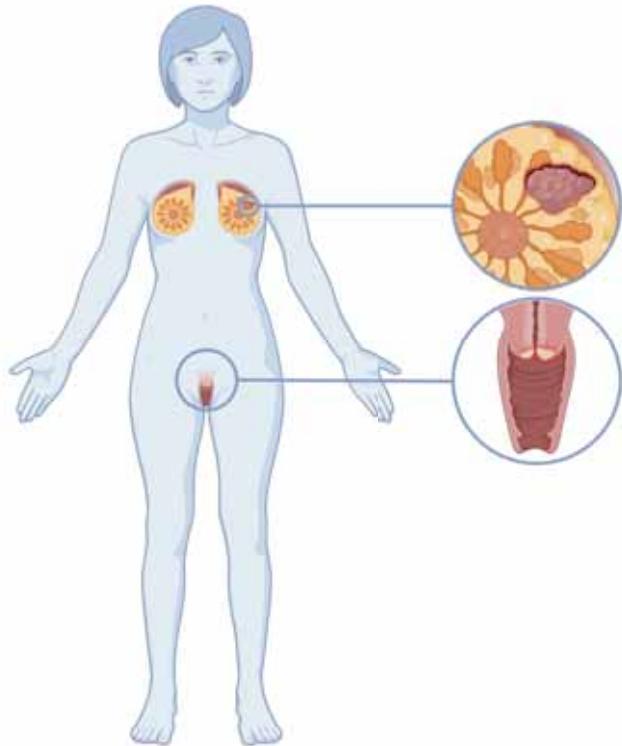
Oliveira, Cremilda Amaral Roso de, Thiago dos Reis Araujo, Gésily de Souza Aguiar, Joel Alves da Silva Junior, Jean Francesco Vettorazzi, Israelle Netto Freitas, Kênia Moreno de Oliveira, et al. 2019. "Combined Oral Contraceptive in Female Mice Causes Hyperinsulinemia Due to β -Cell Hypersecretion and Reduction in Insulin Clearance." Journal of Steroid Biochemistry and Molecular Biology 190 (March): 54–63. doi:10.1016/j.jsbmb.2019.03.018.

Root-Bernstein, Robert, Abigail Podufaly, and Patrick F. Dillon. 2014. "Estradiol Binds to Insulin and Insulin Receptor Decreasing Insulin

¿Antecedentes de cáncer de mama o cáncer al cuello del útero?



¿Antecedentes de cáncer de mama o cáncer al cuello del útero?



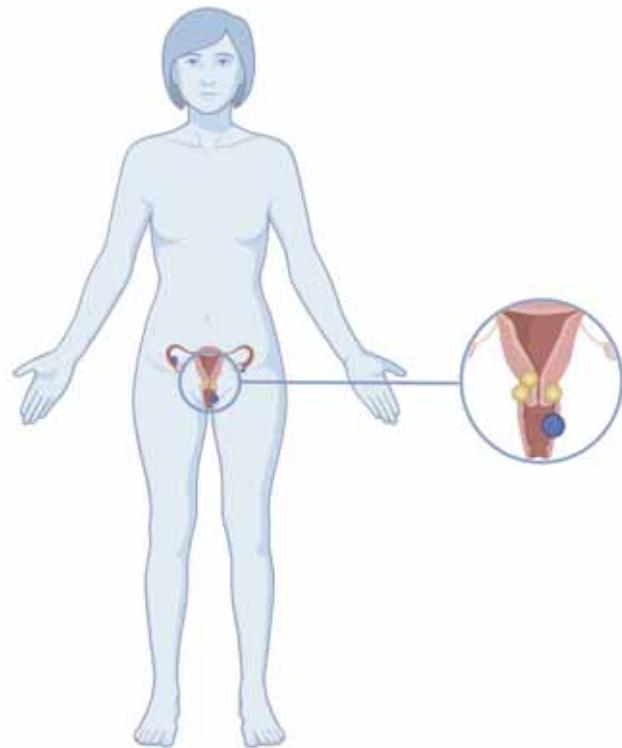
↑ RR de cáncer de mama.

↑ RR de cáncer al cuello del útero.

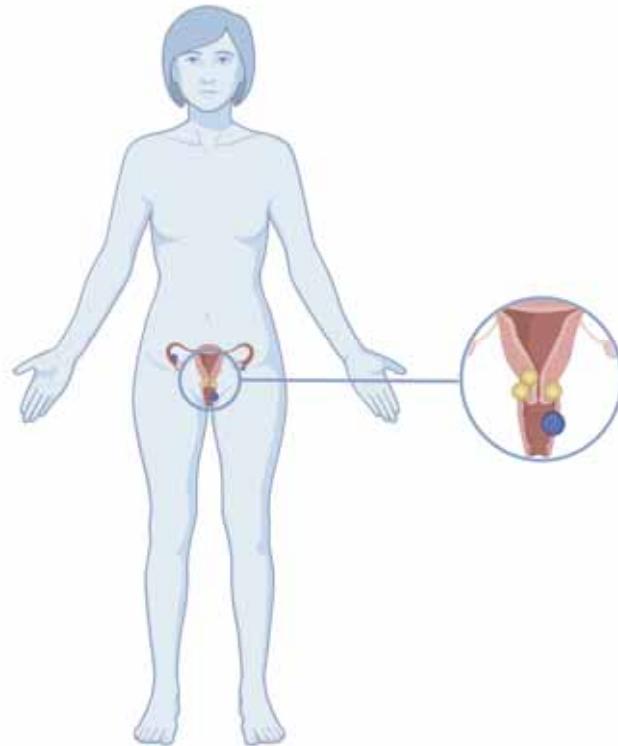
RR = Riesgo Relativo

Dragoman M. (2014) The combined oral contraceptive pill-recent developments, risk and benefits. Best Practice & Research Clinical Obstetrics and Gynaecology (28) 825-834. Kaunitz A. (2018) Overview of contraception. UpToDate.

¿Antecedentes de Enfermedades de Transmisión Sexual?



¿Antecedentes de Enfermedades de Transmisión Sexual?

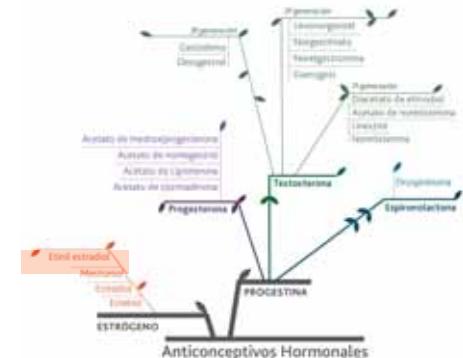


- ↑ RR infección genito-urinaria por *Chlamydia trachomatis*.
- ↑ proliferación del VPH.

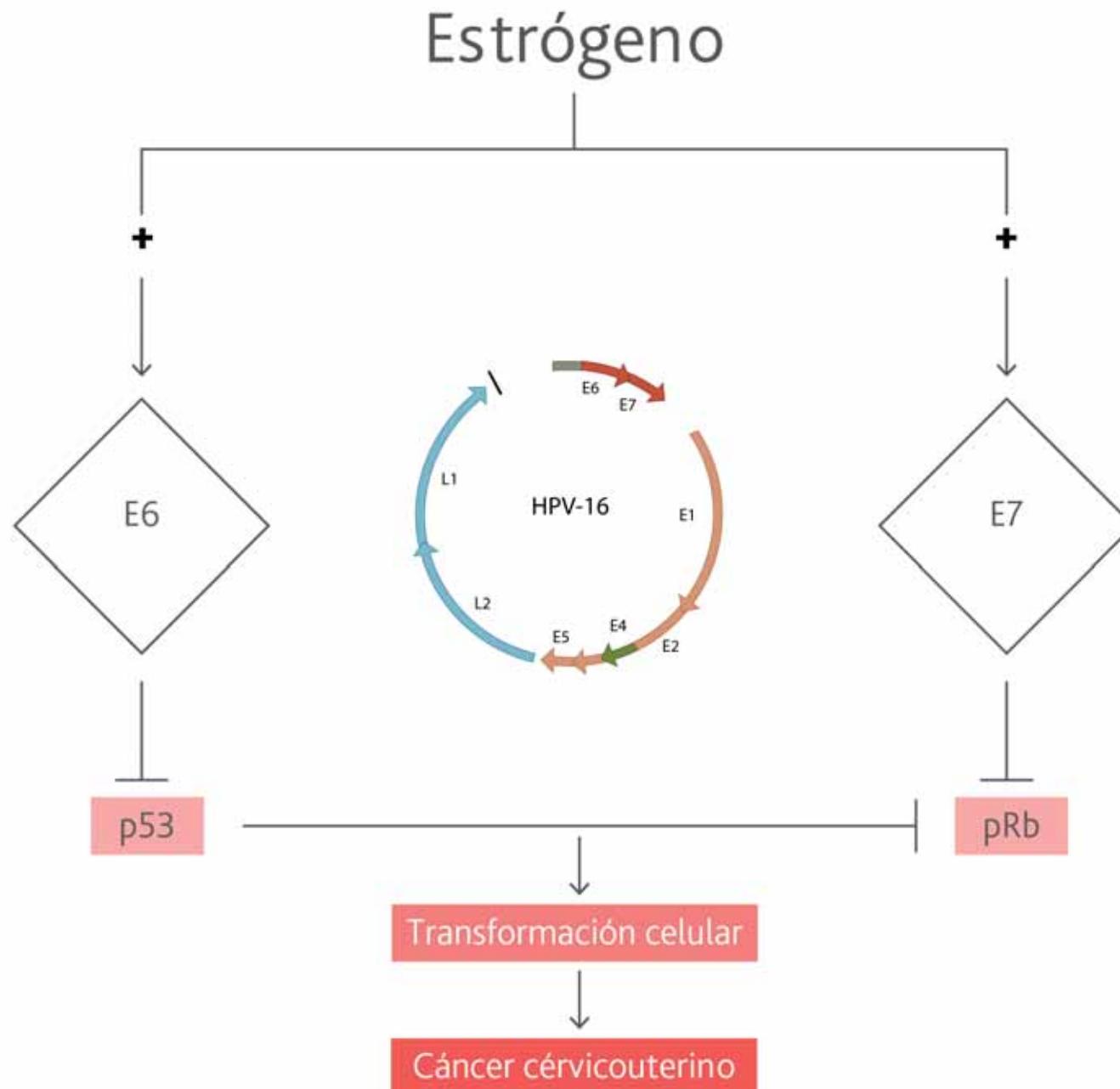
RR = Riesgo Relativo

Molina MA et al., 2020. Cervical cancer risk profiling: molecular biomarkers predicting the outcome of hrHPV infection. Expert Rev Mole Diagnose 20: 11, 1099-1120.

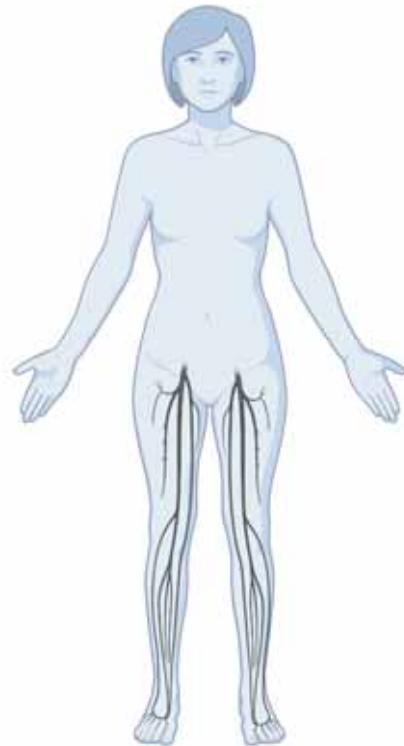
Adhikari I, Eriksson T, Harjula K, Hokkanen M, Apté D, Nieminen P, Luostarinen T, Lehtinen M. Association of Chlamydia trachomatis infection with cervical atypia in adolescent women with short-term or long-term use of oral contraceptives: a longitudinal study in HPV vaccinated women. BMJ Open. 2022 Jun 1;12(6):e056824. doi: 10.1136/bmjopen-2021-056824. PMID: 35649600; PMCID: PMC9161064.



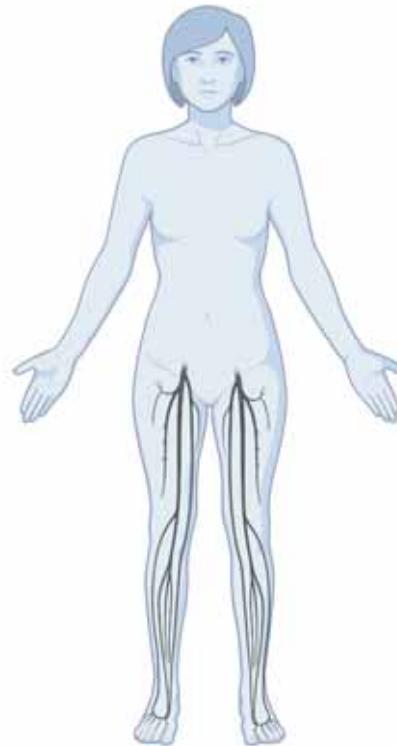
Mecanismo de oncogénesis del virus papiloma humano mediado por E2



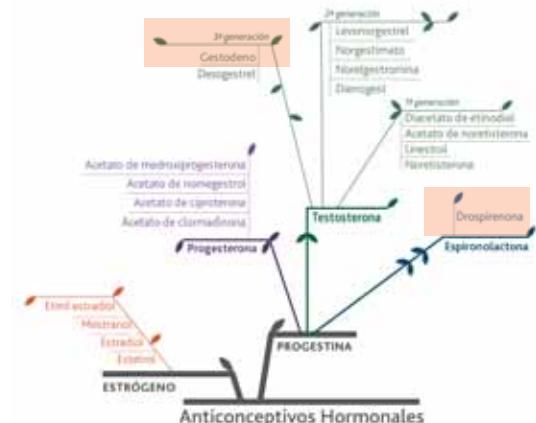
¿Antecedentes de tromboembolismo venoso?



¿Antecedentes de tromboembolismo venoso?



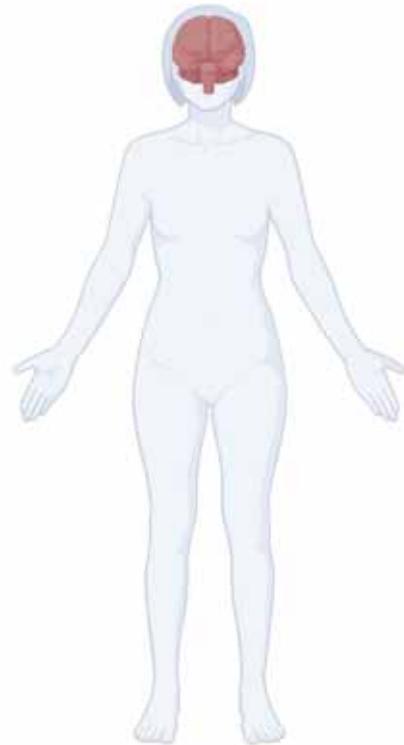
↑RR de
tromboembolismo
venoso.



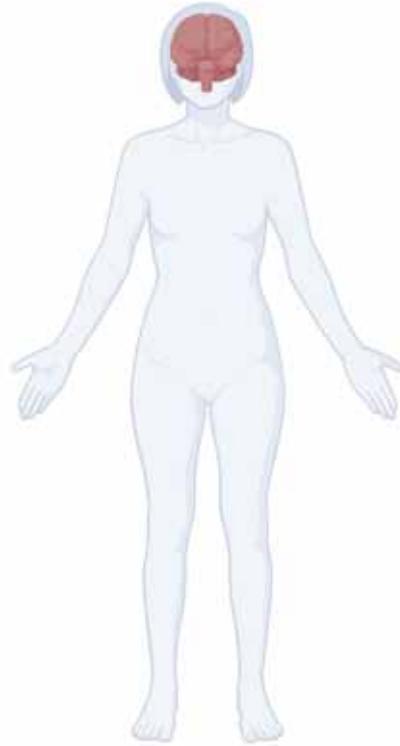
RR = Riesgo Relativo

Rosano, Giuseppe M.C., Maria Angeles Rodriguez-Martinez, Ilaria Spoletini, and Pedro Antonio Regidor. 2022. "Obesity and Contraceptive Use: Impact on Cardiovascular Risk." *ESC Heart Failure* 9 (6): 3761–67. doi:10.1002/ehf2.14104.

¿Antecedentes de patologías de Salud Mental?



¿Antecedentes de patologías de Salud Mental?



↑ RR de **Episodio Depresivo Mayor.**

↑ RR de **Trastorno de Ansiedad Generalizado.**

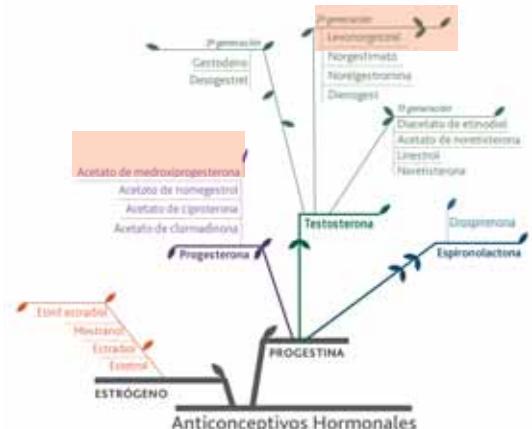
↑ RR **conductas suicidas.**

RR = Riesgo Relativo

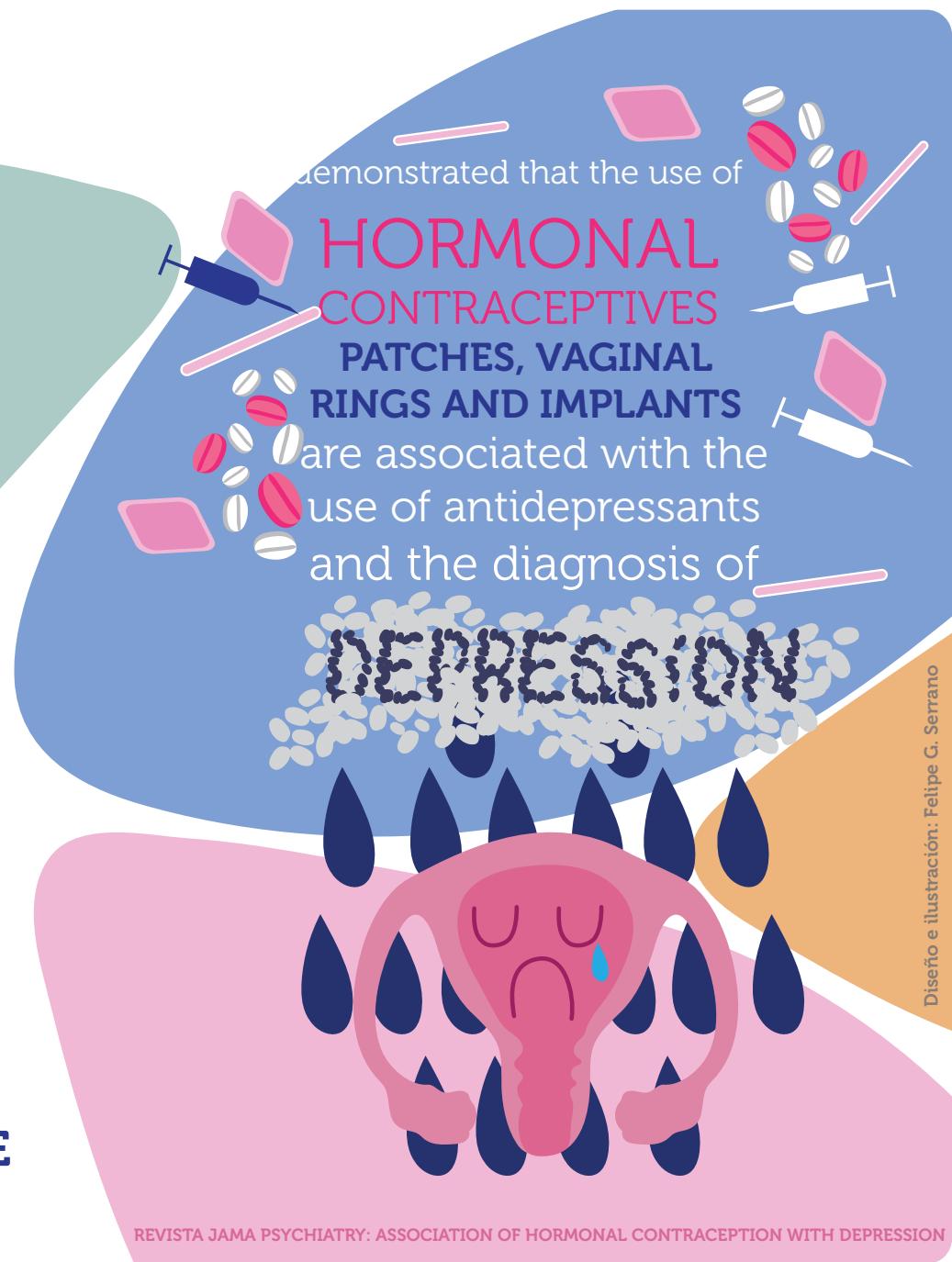
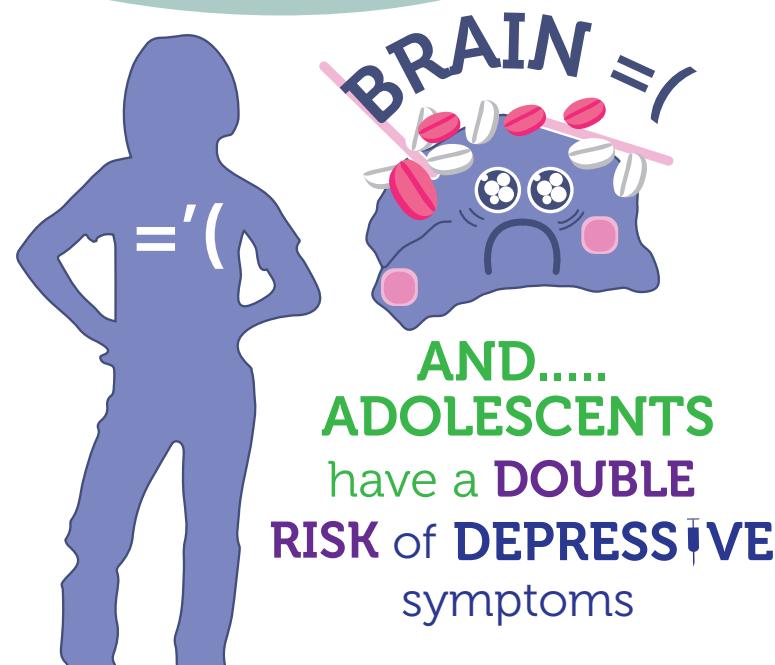
Hampson, Elizabeth. 2023. "Oral Contraceptives in the Central Nervous System: Basic Pharmacology, Methodological Considerations, and Current State of the Field." *Frontiers in Neuroendocrinology* 68 (October 2022). Elsevier Inc.: 101040. doi:10.1016/j.yfrne.2022.101040.

Skovlund, Charlotte Wessel, Lina Steinrud Mørch, Lars Vedel Kessing, and Ojvind Lidegaard. 2016. "Association of Hormonal Contraception with Depression." *JAMA Psychiatry* 73 (11): 1154–62. doi:10.1001/jamapsychiatry.2016.2387.

Linnemann, Birgit, Hannelore Rott, Rainer Zotz, and Christina Hart. 2022. "Venous Thromboembolism Issues in Women." *Hamostaseologie* 42 (5): 290–99. doi:10.1055/a-1919-9558.



A RESEARCH OF **1 MILLION** WOMEN (15 TO 34 YEARS OLD)



Skovlund, Charlotte Wessel, Lina Steinrud Mørch, Lars Vedel Kessing, and Ojvind Lidegaard. 2016. "Association of Hormonal Contraception with Depression.

" *JAMA Psychiatry* 73 (11): 1154–62. doi:10.1001/jamapsychiatry.2016.2387.

Mujeres entre
15-19 años
(2023)

**303
MILLONES**

50% Usa
MAC

154.000.000

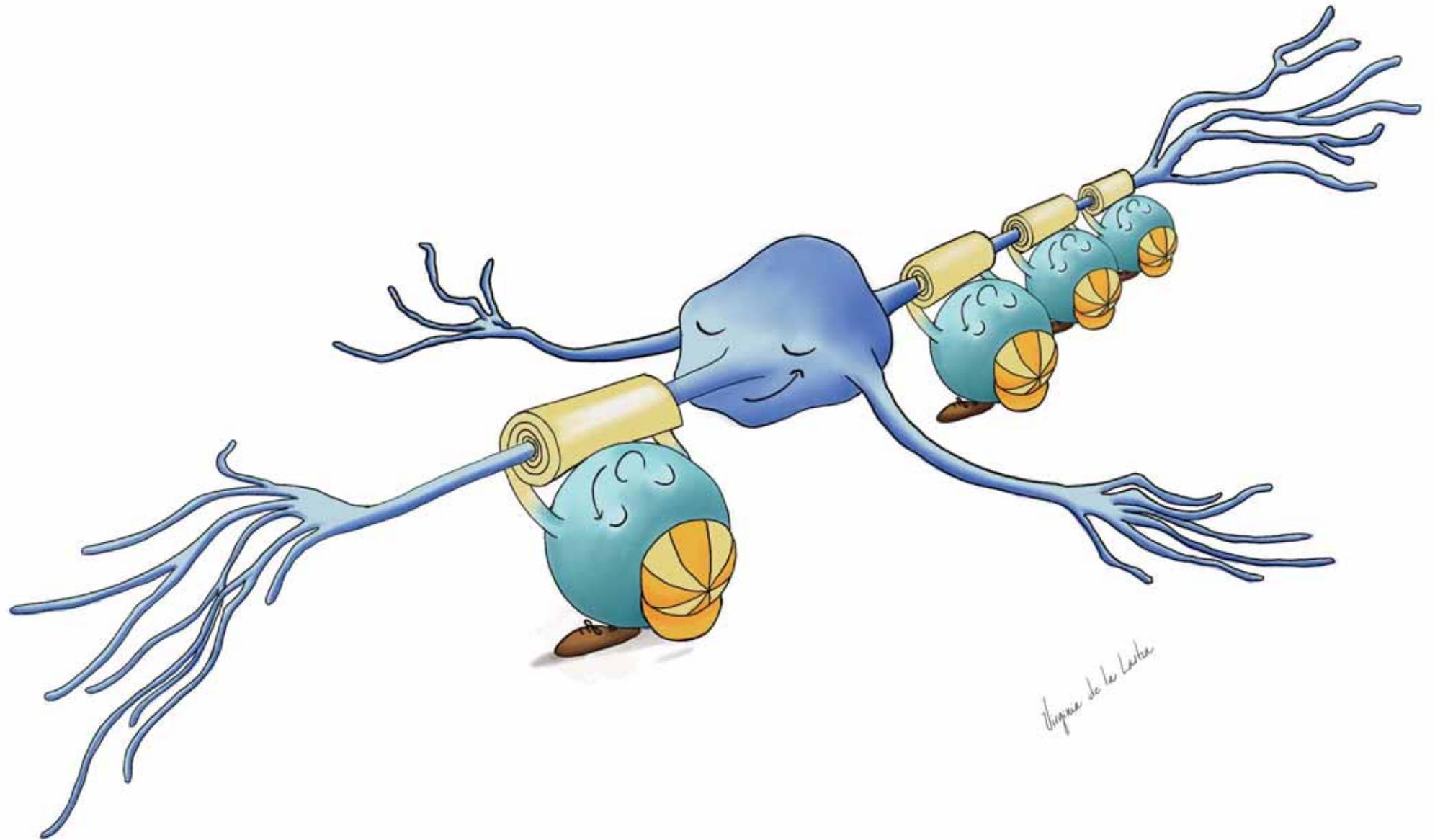
50%

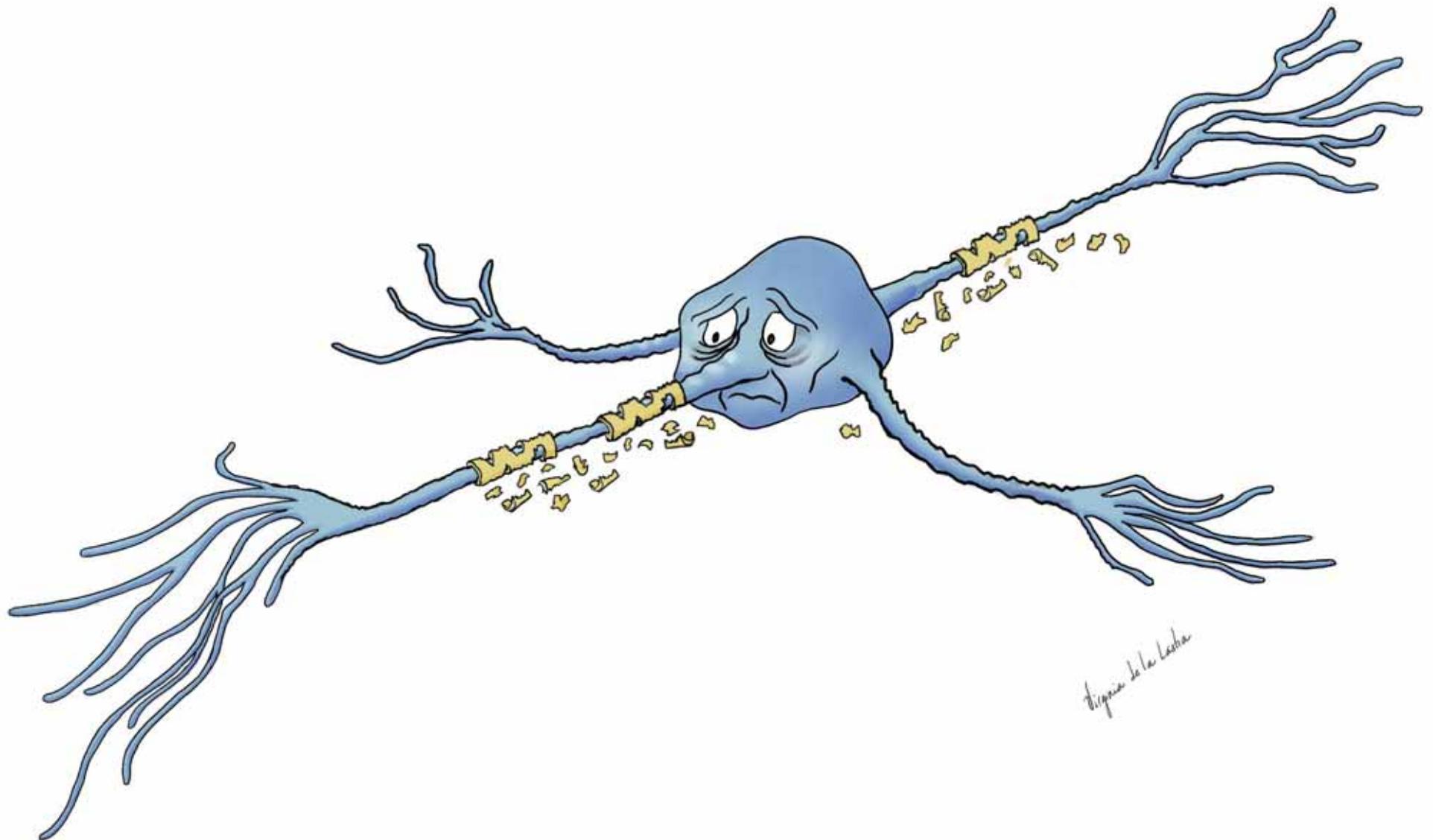
usan MAC
hormonales

**75
millones**

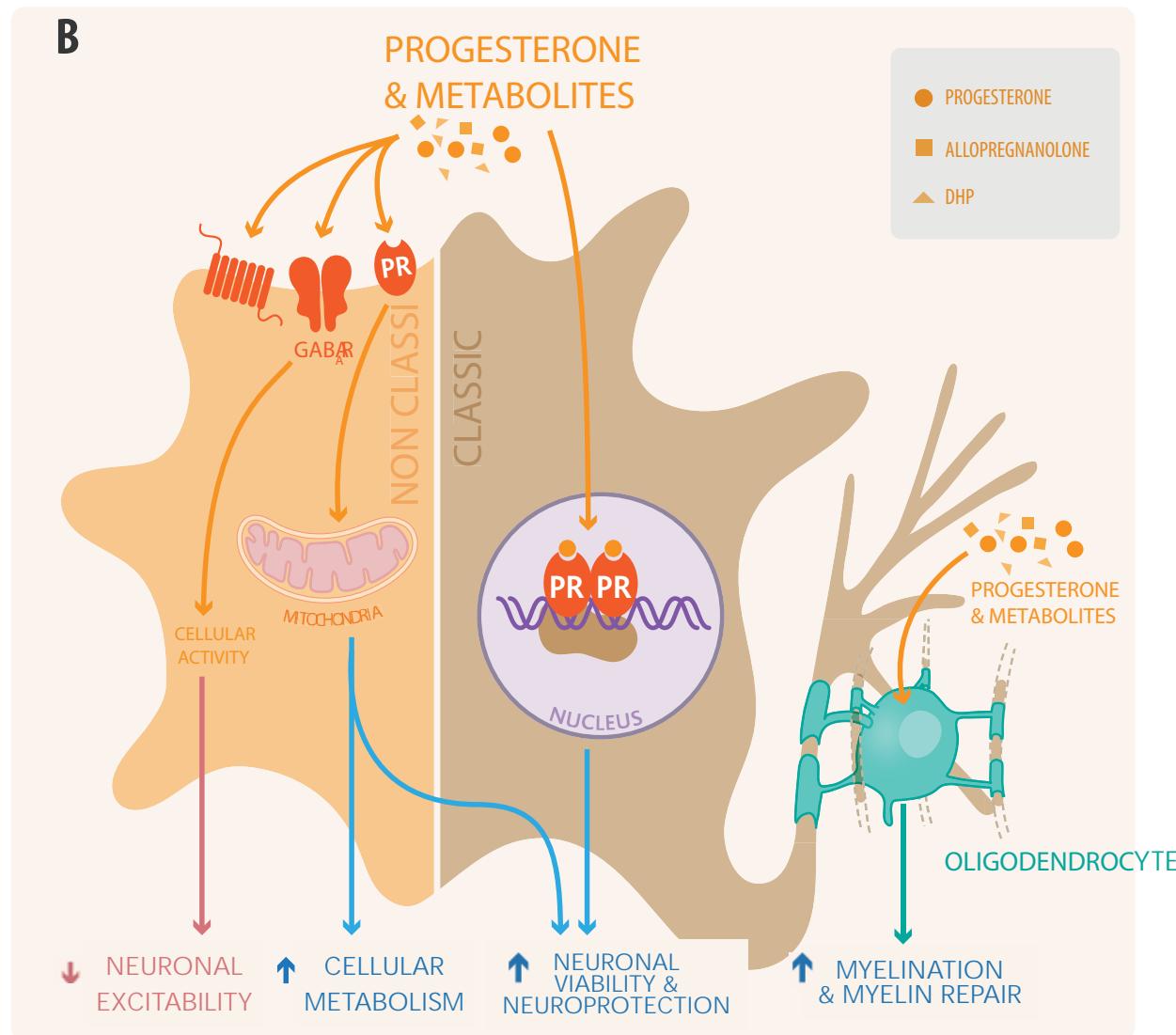
MAC: métodos anticonceptivos

United Nations Department of Economic and Social Affairs, Population Division (2022). World Family Planning 2022: Meeting the changing needs for family planning: Contraceptive use by age and method. UN DESA/POP/2022/TR/NO. 4
PopulationPyramid.net (2023)

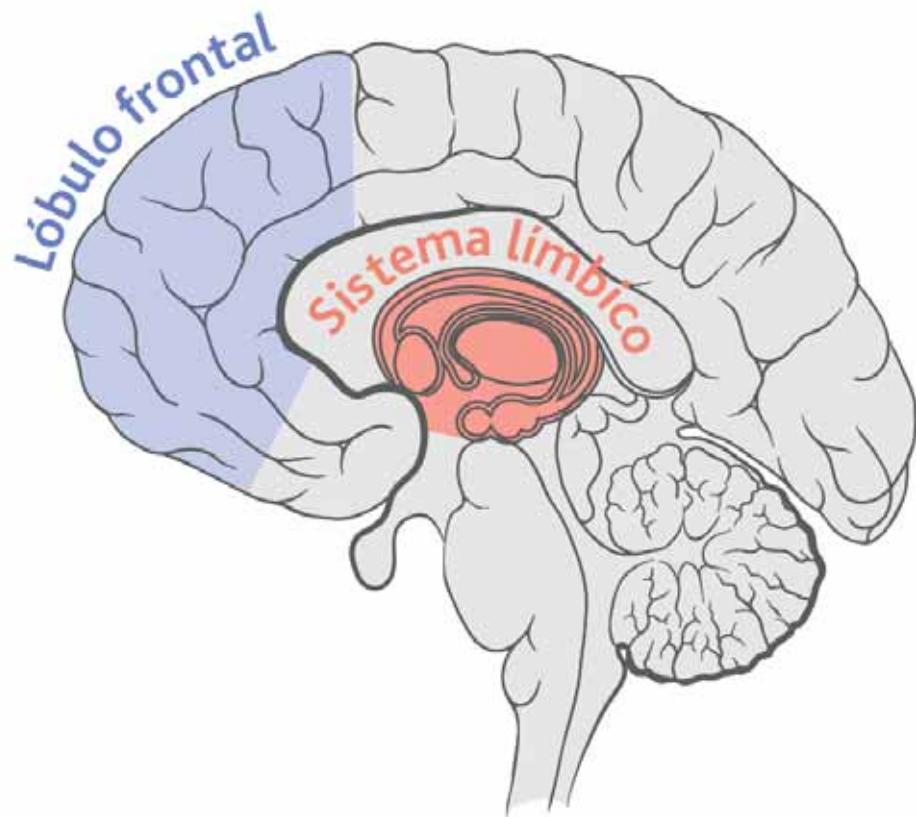




Sergio de la Llana



Del Rio, Allende MI, Molina N, Serrano FG, Molina S & Vigil.(2018). Steroid hormones and their action in women's brains: the importance of hormonal balance. *Frontiers in Public Health*.

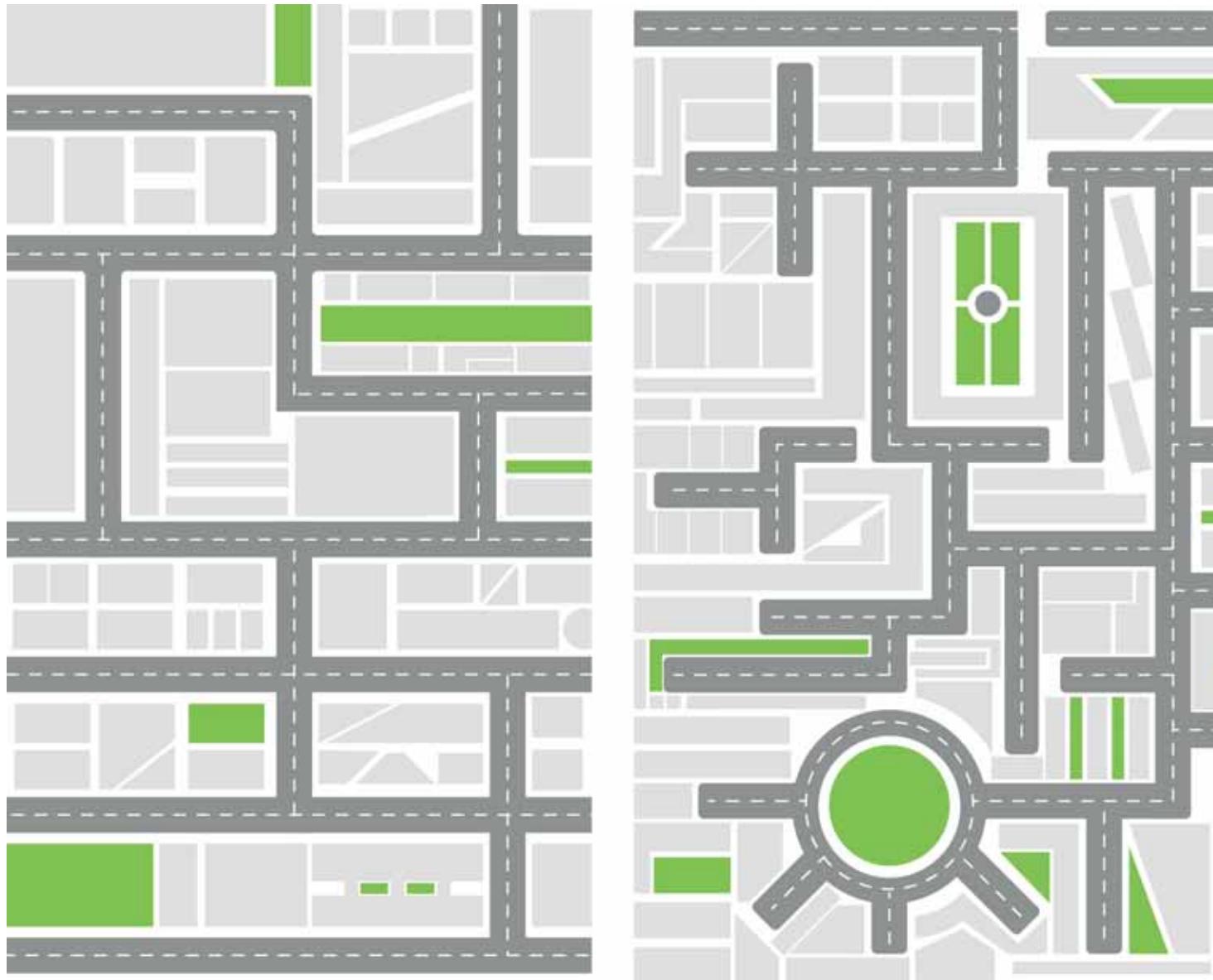


"Los estudios de RFM muestran efectos de los AC en la **estructura (organización)** y **función (activación)** del lóbulo frontal y sistema límbico.

Estas son consistentes con la distribución de receptores de **estrógeno, progesterona y andrógenos** en el cerebro.

Su expresión predominante es en la **corteza frontal, hipocampo y amígdala.**"

ORGANIZACIÓN DE LOS CIRCUITOS CEREBRALES



ACTIVACIÓN DE LOS CIRCUITOS CEREBRALES



Factores de riesgo asociados a la ingesta de anticonceptivos

1 Metabólicos

Aumento de insulina resistencia

2 Oncogénicos

Aumento del *RR* de cáncer de mama

Aumento del *RR* de cáncer al cuello del útero

3 Infecciosos

Aumenta *RR* de infección genitourinaria
por *Chlamydia trachomatis*

Aumenta proliferación VTH

4 Cardiovasculares

Aumenta tromboembolismo venoso

5 Salud Mental

Aumento del *RR* de depresión

Aumento del *RR* de ansiedad

Aumento del *RR* de suicidio

Hampson, Elizabeth. 2023. "Oral Contraceptives in the Central Nervous System: Basic Pharmacology, Methodological Considerations, and Current State of the Field." *Frontiers in Neuroendocrinology* 68 (October 2022). Elsevier Inc.: 101040. doi:10.1016/j.yfrne.2022.101040.

Skovlund, Charlotte Wessel, Lina Steinrud Mørch, Lars Vedel Kessing, and Ojvind Lidegaard. 2016. "Association of Hormonal Contraception with Depression." *JAMA Psychiatry* 73 (11): 1154–62. doi:10.1001/jamapsychiatry.2016.2387.

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¿Porqué se ha perpetuado el uso de los ACO?

Alta efectividad como MAC

Bajo costo y buena accesibilidad de la población

Industria que genera importantes ganancias
(app.16,6 billones dls/año)

Debemos considerar

La ovulación no se reemplaza, se suprime.
Para ello se requieren altas
concentraciones (suprafisiológicas) de hormonas.

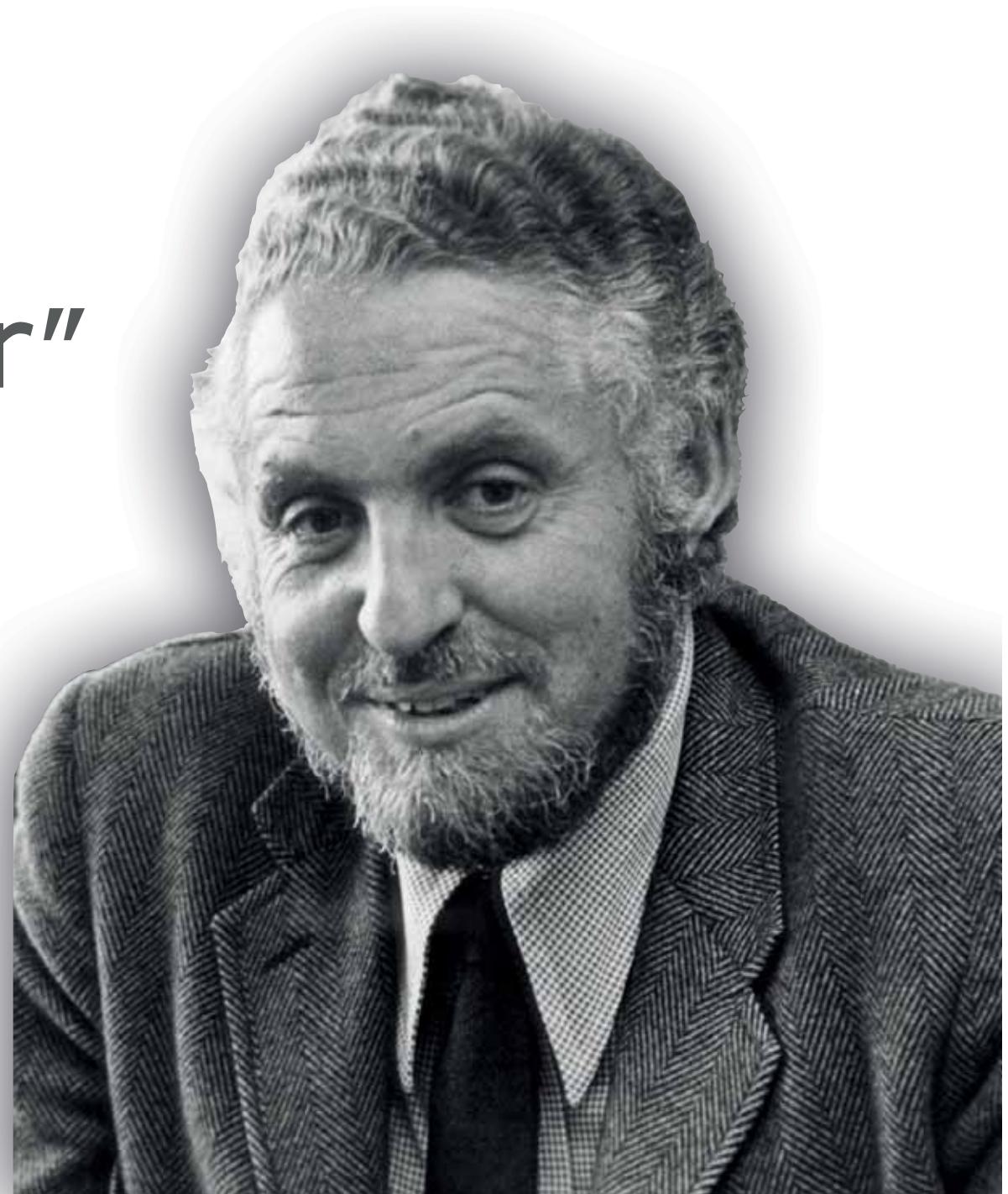
Los ACO datan de los años 1950-1960

Mejoran muchos síntomas y signos visibles
para la mujer y empeoran parámetros
invisibles.

The “Mother” of the Pill

Carl Djerassi

Recent Progress in Hormone Research
(1995)50:1-17



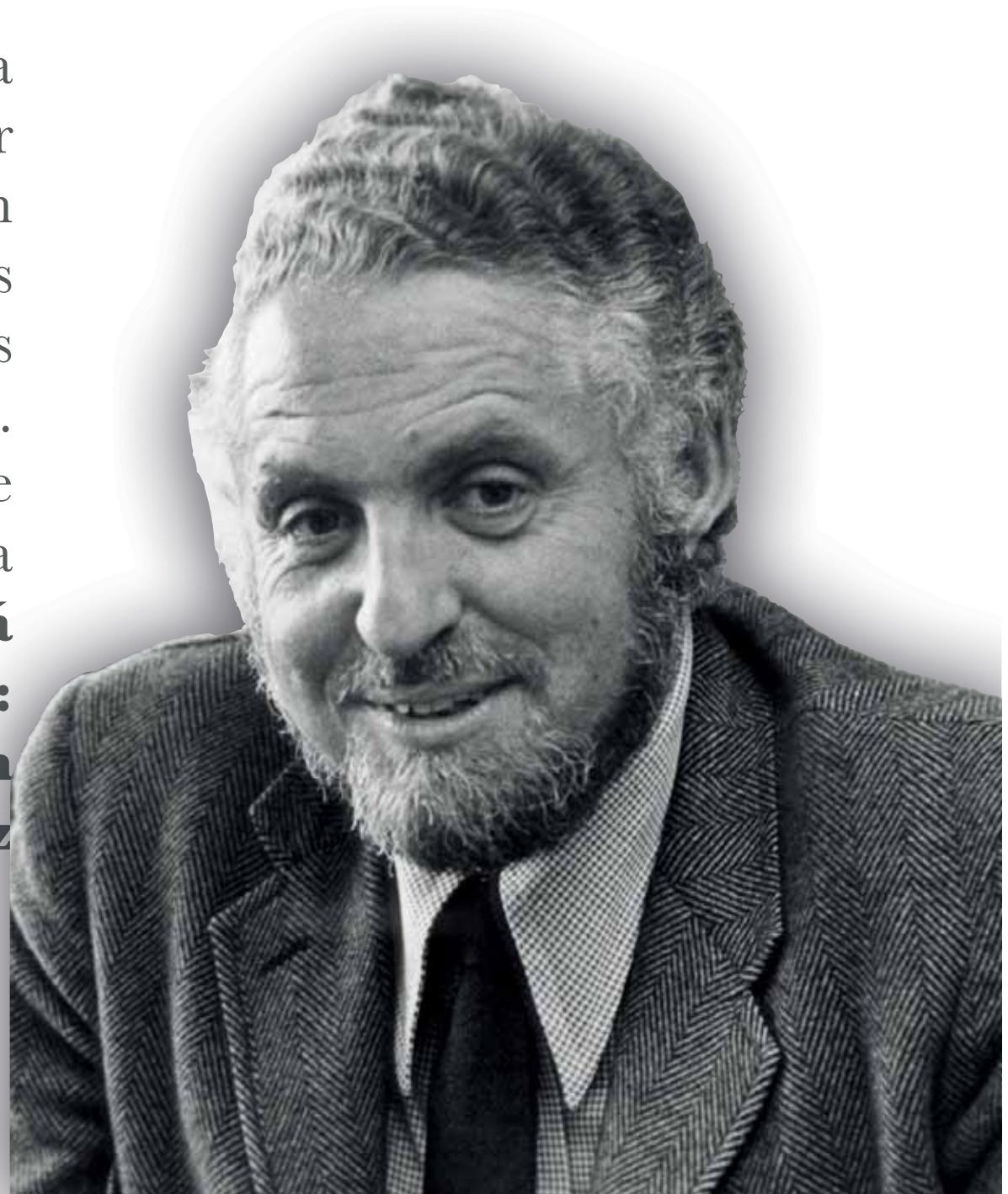
"...la gran aceptación de la píldora trajo consigo el temor sobre los efectos que podrían ocurrir cuando mujeres sanas consumieran potentes hormonas durante años.

G.B. Shaw probablemente fue profético sobre la píldora al decir: **la ciencia está siempre equivocada: nunca soluciona un problema sin crear diez nuevos.**"

Carl Djerassi

The Autobiography

The Pill, Pygmy, Chimps and Degas Horse
(1992) Ed. Harper Collins p.122



Policy Forum

Fertility Awareness: Jet-Age Rhythm Method?

CARL DJERASSI

THIS present crisis (*1*) in contraceptive R&D through the virtual withdrawal of large pharmaceutical companies—caused in part by enormous legal liability exposure, stringent, long-term toxicology, and exceptionally long lead times—suggests we take another look at one of the least efficacious methods, natural family planning (NFP).

At present, optimal NFP requires daily measurement of basal body temperature (often affected by extrinsic factors such as illness), coupled with examination of cervical mucus to estimate the onset of ovulation. Popularity and efficacy are low—primarily because of the required, lengthy abstinence from intravaginal coitus. Indeed, the level of acceptance of any birth control method, predicated solely on a determination of the “safe” period, is bound to be inversely proportional to the extent of required record keeping and to the number of days demanding abstinence from coitus. Thus, reliance on the “sympo-thermal” method of NFP requires an average (*2*) of 17 days of such abstinence. Measurement of certain biochemical changes, however, if done accurately and simply, could reduce this period by more than 50% and thus improve significantly NFP’s poor image.

Since the ovum’s fertile period is short (~1 day), precise knowledge of the passage of ovulation would provide assurance that unprotected coitus is now safe (the green light). Unfortunately, such assurance covers only the postovulatory (luteal) half of the menstrual cycle (Fig. 1). Prediction of ovulation by 3 to 4 days is needed before NFP can be extended to the preovulatory (follicular) phase. Such an extended advance warning (the red light) is required because sperm can remain viable in a woman’s fertile mucus for approximately 3 days.

Hormonal changes over the course of a woman’s menstrual cycle have been studied (*2*) extensively in blood and urine, and, to a lesser extent, also in saliva. Of these body fluids, saliva and urine are most suited for use in home testing. As shown in Fig. 1, a biochemically rational red light could be based on detecting the rise in the estrogen estradiol and in the pituitary luteinizing hormone (LH), which precedes the onset of ovulation. Since the estradiol rise is more gradual (48 to 168 hours, with median of 83 hours) as compared (*2*) to that of LH (24 to 56 hours, with median of 32 hours), detection of the increased production of estradiol (or its metabolites) offers considerably longer advanced warning of the onset of ovulation—a prerequisite for an effective red light. As seen in Fig. 1, the green light could be based on detecting the occurrence of two events in the postovulatory, luteal phase: the second increase in estradiol concent-

ration or, even better, the major increase in progesterone (or its metabolites).

Recent advances in analytical biochemistry (*2*), partly based on monoclonal antibody techniques, now make it possible to measure accurately the rise of progesterone metabolites in a few drops of urine. These have already led to reliable signaling of the green light in the home through as few as one or two simple measurements per month. Equally facile detection of estradiol is more difficult (*2*), but it is only a question of time before an effective home-use method for estrogens will also be available. The ultimate approach, the use of two dipsticks (or other simple technique) for reliable measurement of estradiol and progesterone levels in saliva, is clearly feasible, provided a sufficient effort is dedicated to such a project. This method would require no toxicology. Food and Drug Administration (FDA) scrutiny should be much shorter than with drugs, legal exposure would be minimal, and most importantly, such a project is within the technical and financial resources of relatively small diagnostic companies.

What would it take to stimulate such efforts? A missing stimulus is the demonstration that convenient ovulation prediction and detection in the home represents a significant commercial opportunity with a potentially wide customer base. Until now, measurement of such hormonal changes has focused on women with infertility problems—a limited group, though a highly committed one. Indeed, most of the practical advances in the field have been accomplished through the high motivation and cooperation of fertility

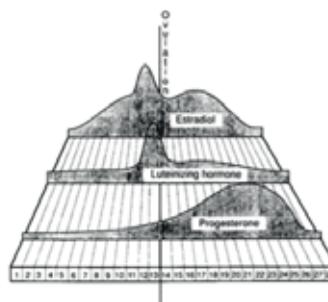


Fig. 1. Some hormonal changes during a menstrual cycle.

The author is professor of chemistry and a member of the Program in Human Biology at Stanford University, Stanford, CA 94305.

1 JUNE 1990

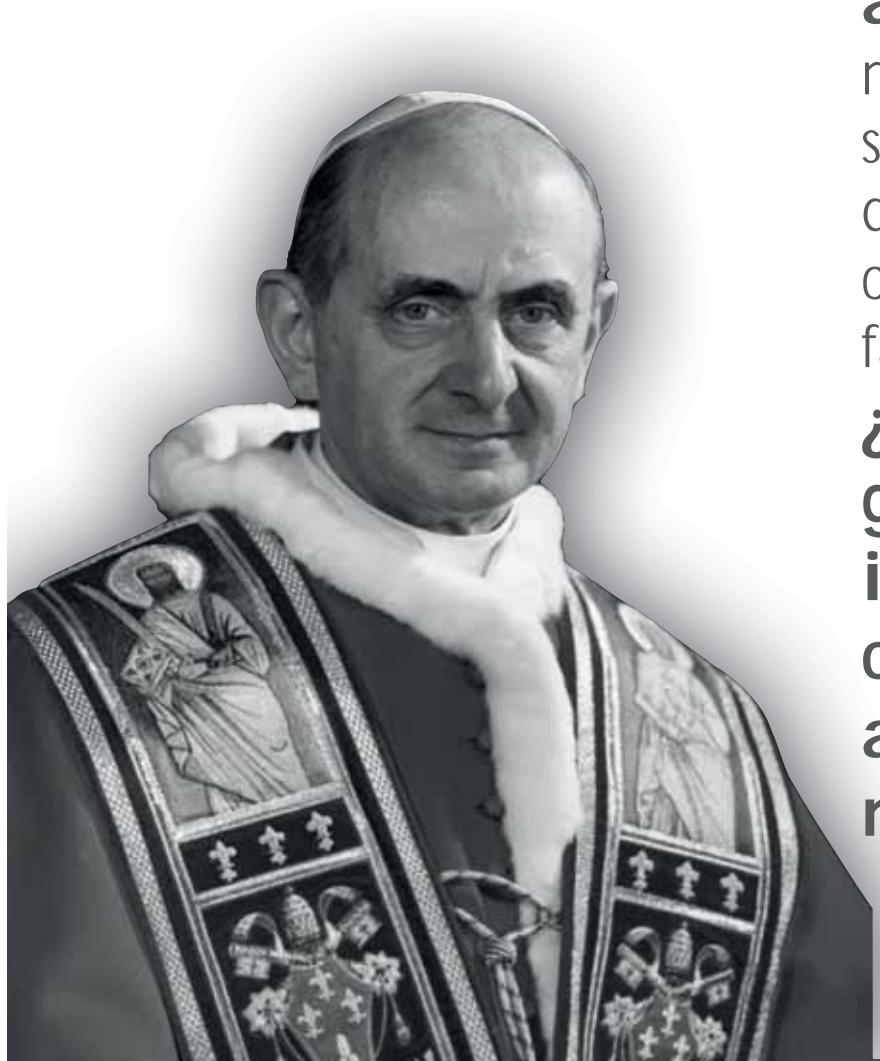
POLICY FORUM 1061

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Eventually, many a woman in our affluent society may conclude that the determination of when and whether she is ovulating should be a routine item of personal health information to which she is entitled as a matter of course. And why not use such a hormonal dipstick method for ovulation detection and prediction also as a routine teaching tool in high schools? Given the present political climate in America, emphasis on fertility awareness rather than birth control may be the best strategy. Yet who knows? It may even lead to a reduction in unwanted pregnancies.

Fertility Awareness: Jet-Age Rhythm Method?

CARL DJERASSI

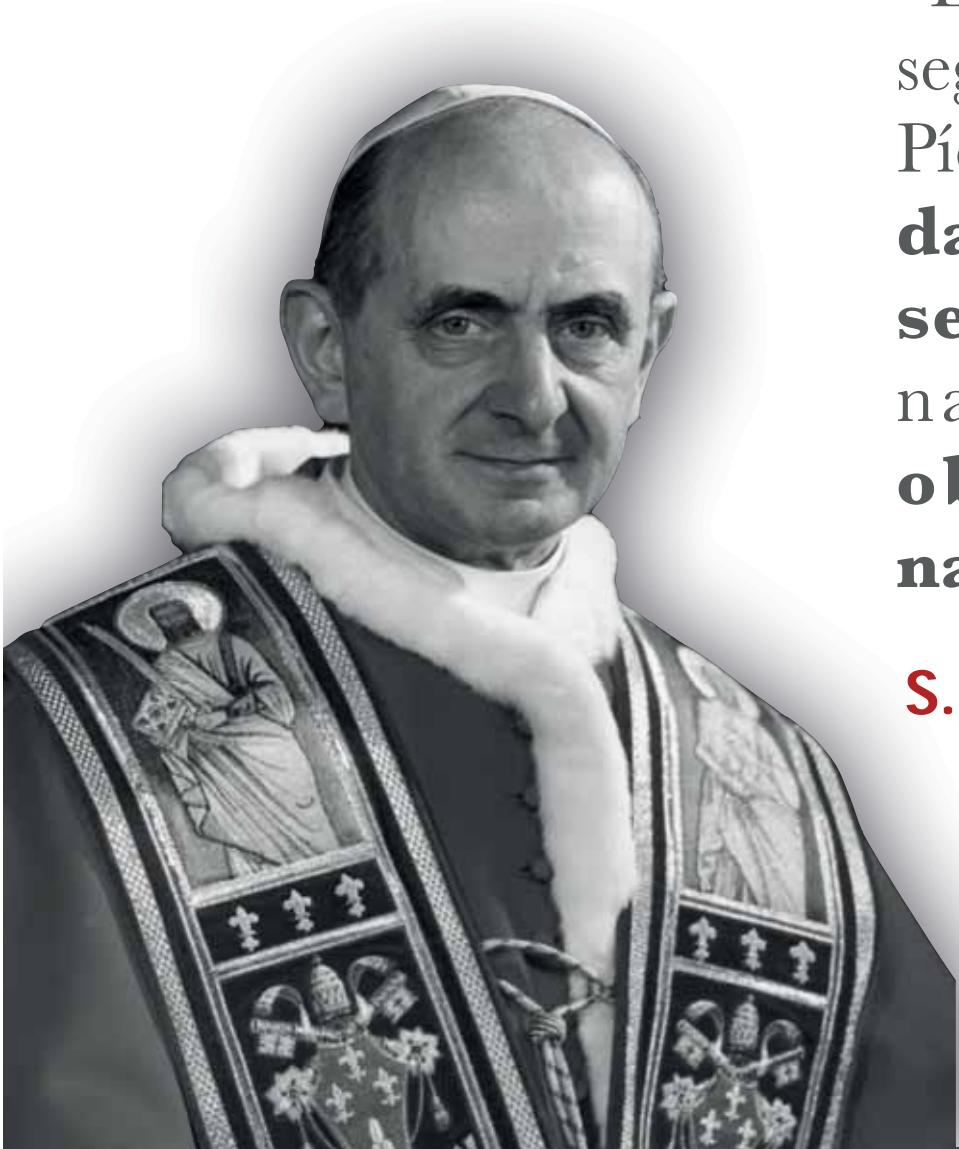


Reflexionese también sobre el **arma peligrosa** que de este modo se llega a poner en manos de **autoridades públicas**. ¿Quién podría reprochar a un gobierno el aplicar a la solución de los problemas de la colectividad lo que hubiera sido reconocido lícito a los cónyuges para la solución de un problema familiar?

¿Quién impediría a los gobernantes favorecer y hasta imponer a sus pueblos, si lo consideran necesario, el método anticonceptivo que ellos juzgasen más eficaz?

S.S. Paulo VI



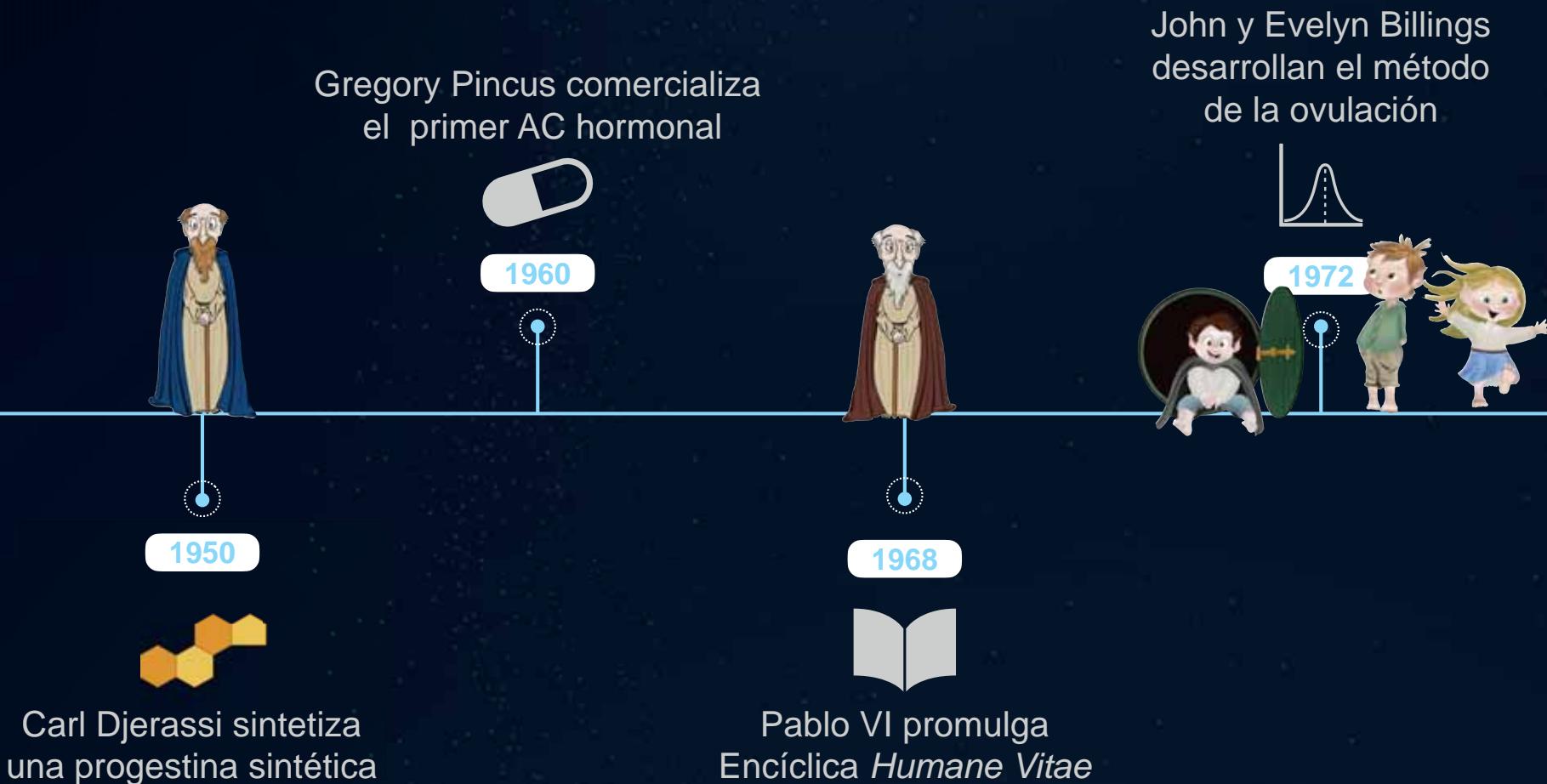


"Es de desear en particular que, según el augurio expresado ya por Pío XII, la **ciencia médica logre dar una base, suficientemente segura**, para una regulación de nacimientos, fundada en la **observancia de los ritmos naturales.**"

S.S. Paulo VI - *Gaudium et spes*



Una Historia de Profetas y Hobbits...





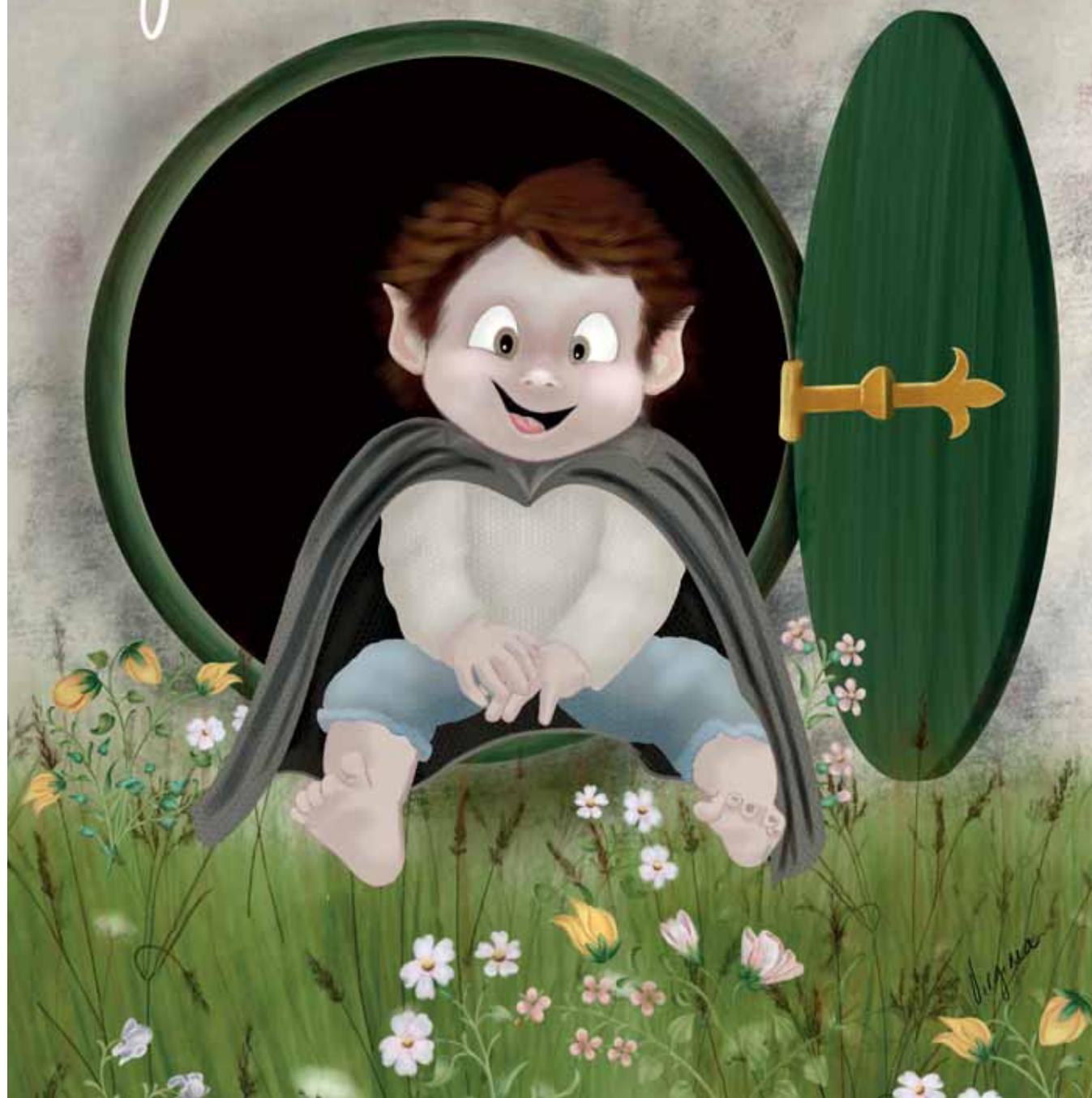
John

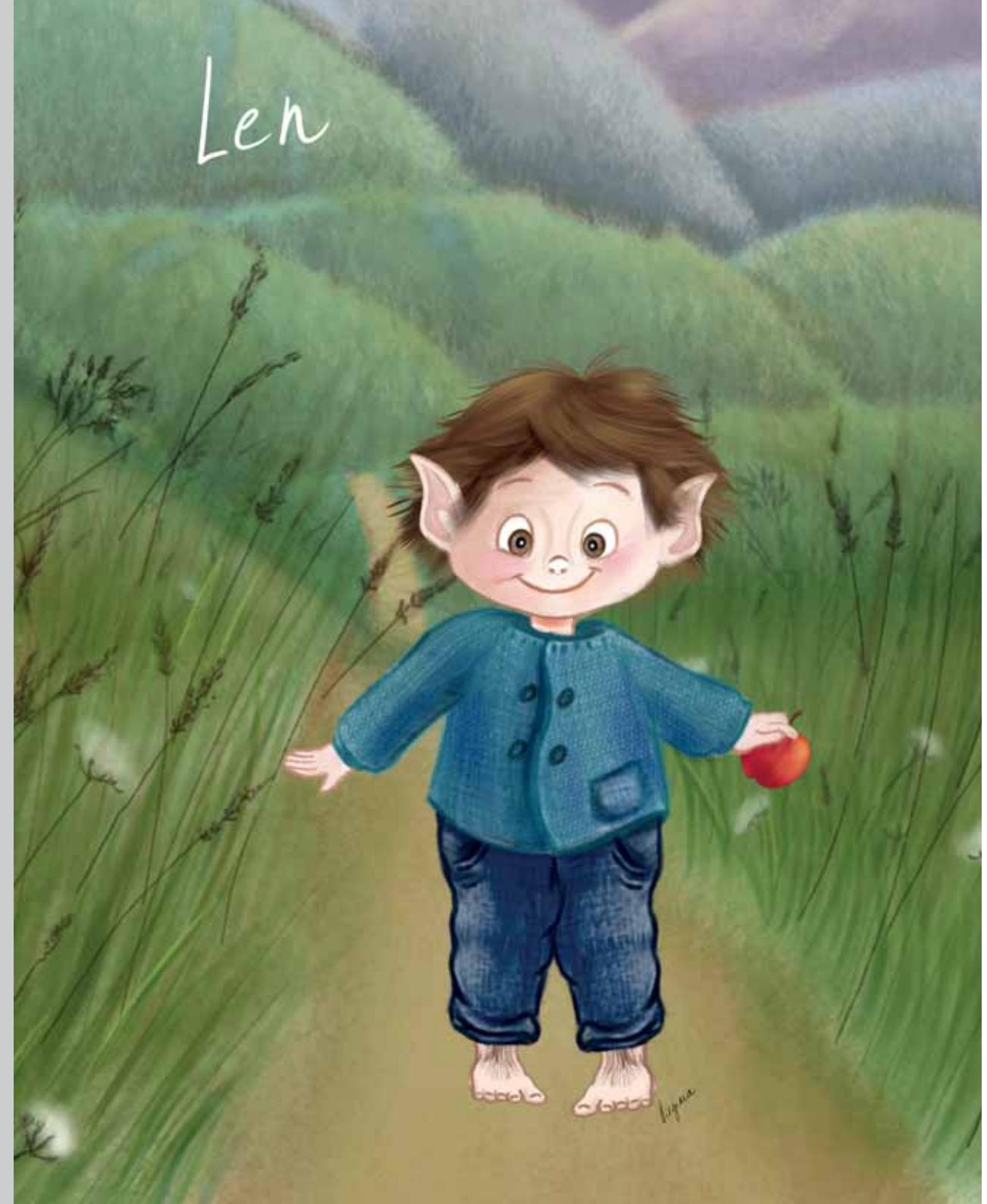


Lynn



Jim





Melbourne, Australia...los 80



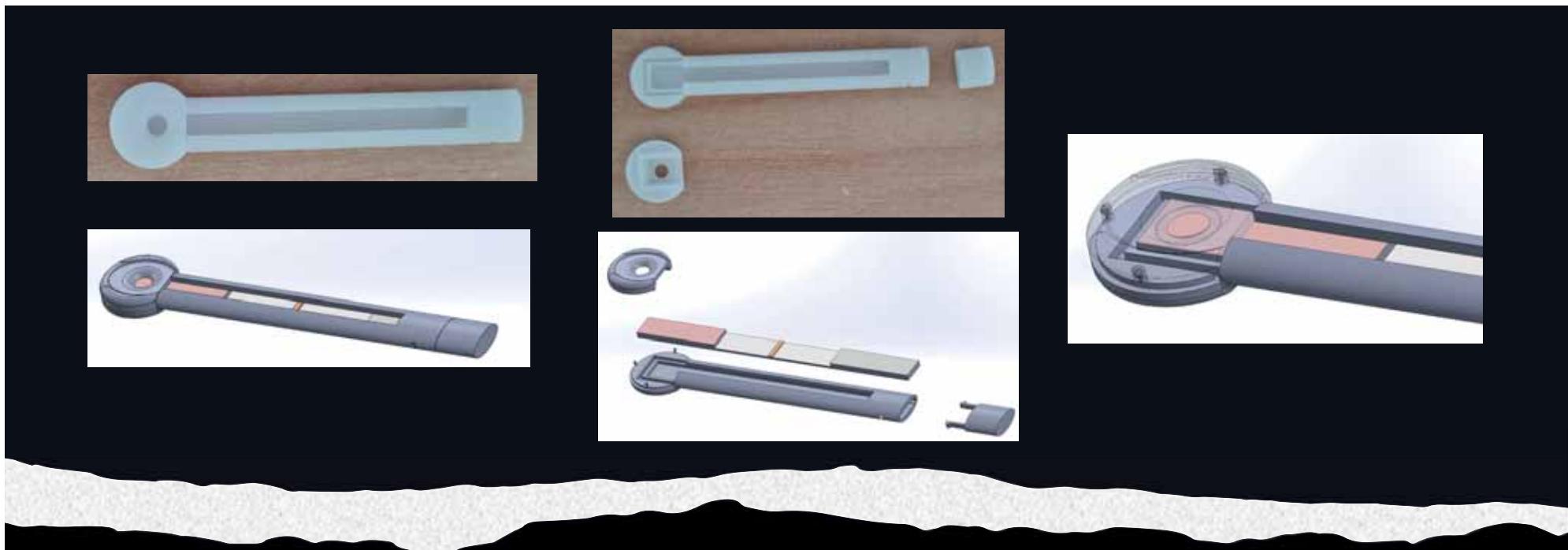


Miguel



Pilar





MSR V2.0: Strip Key Development

Purpose:

- Reduce user error & Enhance reproducibility
- Explore dried vs wet reagents
- Beginning of strip integration into product

Patented, Innovative Technology

STEP 1-3 URINE COLLECTION & AUTOMATIC DILUTION

Urine Volume Dilution Cartridge (UVDC)

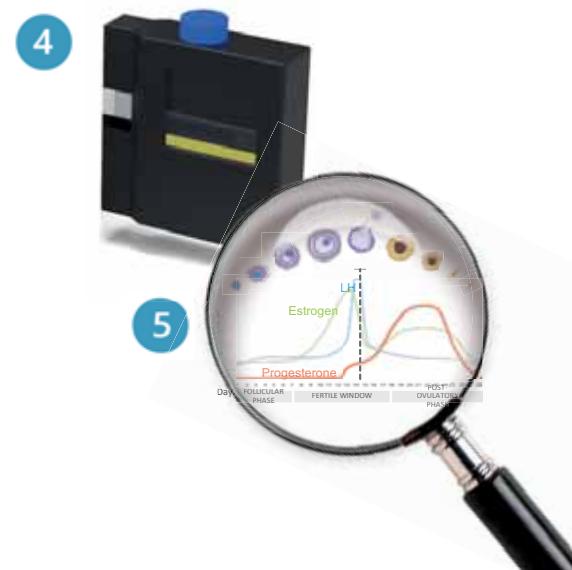
Urine Volume Dilution Device (UVDD)



STEP 4-5 TEST & MEASUREMENT

Lateral Flow Strip (LFS) Assay

Magnetic Strip Reader (MSR)



STEP 6 RESULTS & ANALYSIS

APP

- Values are calculated by an external Science Haven server
- Results are displayed in the app, with a report based on the user needs
- Reports can be sent to a clinician, as needed



6

PROPRIETARY AND CONFIDENTIAL

SCIENCE HAVEN

FemmCheck

MSR & UVDD

Readers



Cartridge &
LF Strip

Una Historia de Profetas y Hobbits...



Una Historia de Profetas y Hobbits...

Gregory Pincus comercializa el primer AC hormonal



1950



Carl Djerassi sintetiza una progestina sintética



1960



1968



Pablo VI promulga Encíclica *Humane Vitae*

John y Evelyn Billings desarrollan el método de la ovulación



1972



2023



FemmCheck



Una Historia de Profetas y Hobbits...



Muchas gracias a todos uds. por escuchar esta historia y a mis amigos por hacerla posible.

Agradecimientos Especiales

Dr. Juan Pablo Del Río

Dr. Patricio Contreras

Dra. Virginia De La Lastra

Bq. Jaime Meléndez

Magdalena Gutiérrez

Sr. Miguel Del Río J.

Equipo RHRI



"Finalmente, y sobre todo, el hombre ha llevado a cabo progresos estupendos en el dominio y en la organización racional de las fuerzas de la naturaleza, de modo que tiende a extender ese dominio a su mismo ser global: al cuerpo, a la vida psíquica, a la vida social y hasta las leyes que regulan la transmisión de la vida."

S.S. Paulo VI