

The Autism Epidemic & *The Pill*

- **Dr Ellen CG Grant**
- www.harmfromhormones.co.uk
- **Pub Med grant ec.**

Increases in incidence

- **California 1987 - 1998**
- ***Autism Spectrum Disorder* 300%**
- Cerebral palsy
- Epilepsy **3%**
- Mental Retardation

“The Autism Epidemic”

Autism Spectrum Disorder (ASD)

Neurodevelopmental

Environmental toxins

Toxic metals

Oxidative stress

Maternal *Pill (Progesterone)* Use

Increase in **ASD** & **toxic exposures**

- DeSoto and Hitlan 2010 17 studies (4-5 each)
- Pockets of higher prevalence of **ASD**
- **Increased rates of ASD** associated with **sources of contaminants**
- **ASD - Higher levels of neurotoxins**
- **ASD - Decreased detoxifying ability**

ASD

Sajdel-Sulkowska 2011

Brain region-specific changes

in **oxidative stress** markers

3-NT(3-nitrotyrosine) and neurotrophin-3

Areas associated

Speech processing

Coordination - sensory & motor

Behaviour - emotional & social

Post-mortem 3-NT levels pmol/g

Controls	1.6 to 12.0
Autistic cases	1.7 to 281.2
orbitofrontal cortex	214.5
Wernicke's area	171.7
cerebellar vermis	81.2
cerebellar hemisphere	37.2

61 autistic children

Dr John McLaren-Howard

Deficiencies - Zn Mg Cr Se Mn Cu Mb
B vits EFAs

WBC **DNA adducts**

16	Malondialdehyde (from lipid peroxidation)	26%
12	Cadmium	20%
9	Nickel	15%
3	Mercury	5%
1	Lead	1.6%

Fall in Children's Zinc 1979 -1989

- **1979** 150 **Healthy** **Sweat Zinc 719 - 704 ug/l**
- 1989 26 Controls 520 ↓
- 26 ***Dyslexia*** **358 ↓↓**
- John McLaren-Howard
- 1971 **10%** of single women had used **OCs**
- **1981 95% used OCs** before **a First Pregnancy**
Effect children 1980s 1990s & onwards

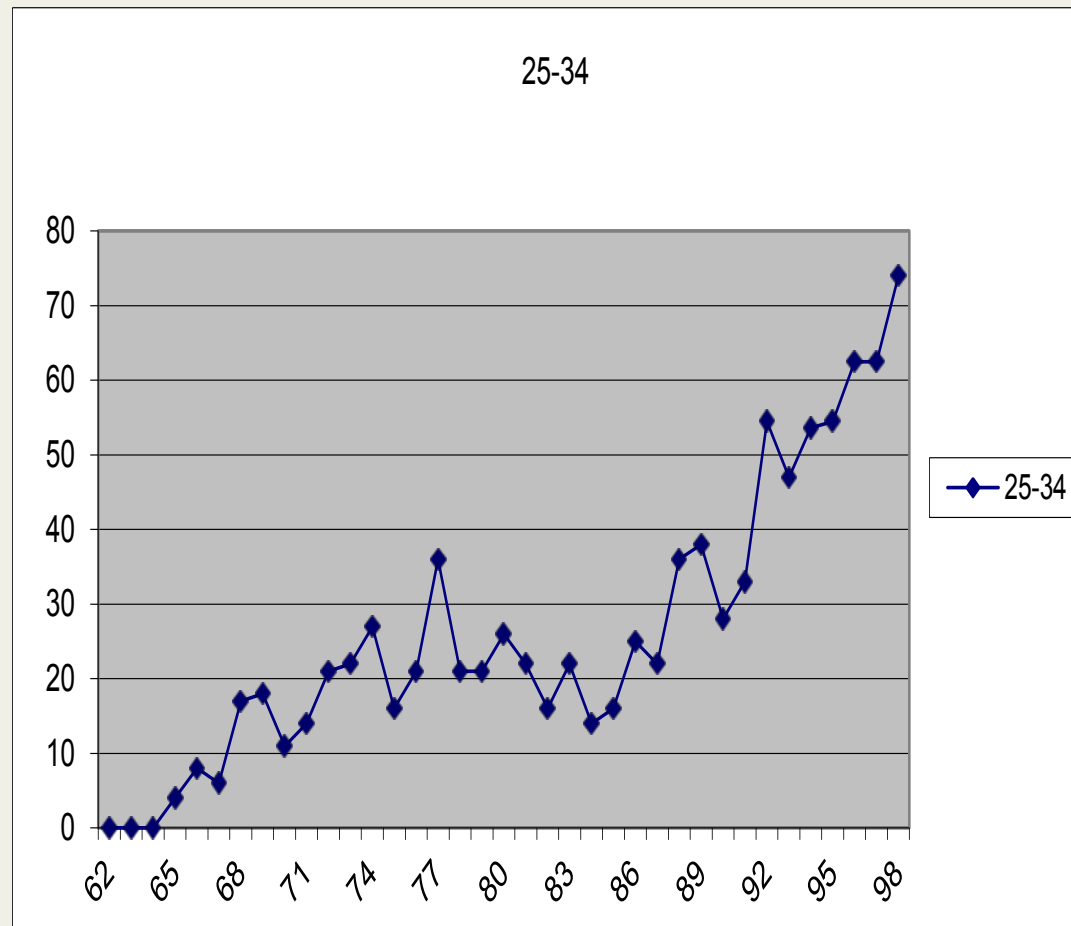
Longer use of OCs before Pregnancies

- **1989 UK study** *Breast cancer by age 36*

• <i>OCs for ≥ 4 years</i>	<i>%</i>	<i>%</i>
• Starting age	Br Ca	No
• Up to 18	80	71
• 19-21	71	61
• 22-24	57	48
• 25+	50	30

Figure: % increases 1962 - 1998 in annual *Breast Cancer* registration rates in **England & Wales** with more hormone use

- Age group **25 -34**



Why ↑ Autism 1987 - 1998?

↑ Progesterone use Genotoxic

•Cancers Developmental disorders

•Current and Longer use

•*Before a First Full Term Pregnancy*

•*In Pregnancy* - fertility treatments

•miscarriage prevention premature labour

•↑ Breast Cervix Ovary Lung Cancers

The “PILL”

- *Progesterone* - like actions
- Cream jabs implants depots IUDs
- RCGP –world’s largest Pill study
- *Mortality in young women* ↑ 300%

Enzymes altered by Progesterone ↑

- **Oxygen metabolism**
- **MAO Mono amine oxidase** depression ↑
- **COMT Catechol- O- methyltransferase** pain ↓
- **Alkaline Phosphatase** osteoporosis ↓
- **SOD Super oxide dismutase** Zn Cu Mn ↓
- **GPx Glutathione peroxidase** Se ↓
- oxidative and antioxidative capacity modulated by sexual steroid hormones
- mediated through antioxidant metabolizing enzymes

Dr John McLaren-Howard

DNA adducts WBC

Women

OCs/HRT

Never?

356

182

Nickel

12.5%

7.1%

Lindane -estrogen

8.7%

5%

27 Age & Sex matched

Cancer Cases

Controls

Malondialdehyde

18.5%

3.7%

Nickel

18.5%

0%

Genotoxic damage

- **Progestins** - acting like xs **Progesterone**
- **Animals - Chromosomal aberrations** Sister chromatid exchanges
Vitamin C prevents
- **In vitro - Free oxygen radicals** Siddique
2005
- **In women - Mitochondrial dysfunction** Ni/Lindane
TL gene ATP → ADP blocks x2 + P McLaren-Howard 2006
- **ASD Mitochondrial gene dysfunction**
mDNA over-replication & deletions Giulivi 2010

*The **AUTISM Epidemic** & the **Pill***

- **↑ Genotoxic hormonal contraceptives**
- **↑ Maternal ↑ ASD Mitochondrial dysfunctions**
- **↑ Maternal ↑ ASD DNA toxic adducts**

Children always inherit maternal mDNA

- **ASD ↑ susceptibility to damage ↓ detox**
- **Replete deficiencies and remove toxins**
- **Non-hormonal contraception**