“offspring feel the effects of the maternal assault”

Science, August 2014
“Use epigenetics to place a long-lasting curse on your enemy's family”  [Genomics] IO9 | JULY 27, 2011
Why Your DNA Isn't Your Destiny
By John Cloud
(epi)Genetic literacy
Translational public health context

A new prime suspect behind the global upsurge in obesity and diabetes: the womb

CAROLYN ABRAHAM
Last updated Wednesday, Mar. 16, 2011 11:50AM EDT

An undated photo of a fetus in the womb. (NYT)
Intergenerational inheritance

Grandma’s Experiences Leave a Mark on Your Genes
Your ancestors' lousy childhoods or excellent adventures might change your personality, bequeathing anxiety or resilience by altering the epigenetic expressions of genes in the brain.

By Dan Hurley  |  Tuesday, June 11, 2013

RELATED TAGS: GENES & HEALTH
'Memories' pass between generations

By James Gallagher
Health and science reporter, BBC News

Behaviour can be affected by events in previous generations which have been passed on through a form of genetic memory, animal studies suggest.

Experiments showed that a traumatic event could affect the DNA in sperm and alter the brains and behaviour of subsequent generations.
The Improvement of Offspring.

Why Bring Into the World Idiots, Fools, Criminals and Lunatics?

1. The Right Way.—When mankind will properly love and marry and then rightly generate, carry, nurse and educate their children, will they in deed and in truth carry out the command to make them disciples of the doctrine of thyself and the mind of thine own soul?
The 20th century rise of the science of maternal-fetal effects

- Motherhood as instinctual, selfless, and intrinsically moral
- Psychosocial model of child development
- Birth as the moment of personhood and medical concern

→

- Mothering as an agential project of the self in which the mother’s interests are often perceived to be in tension with the child’s needs
- Genetic and neurological model of child development
- Conception, and even pre-conception, as the focal point of political interest and biomedical interventions in reproduction
Maternal blame

2005

Mass Hysteria: Medicine, Culture, and Mothers’ Bodies
Rebecca Kukla

1955

Generation of Vipers
Philip Wylie

Momism: The Silent Disease of America
Hans Sebald

1943
Fat stigma

CHILDHOOD OBESITY
Fat activism and Health at Every Size
The “metabolic ghetto”
All women are targets of intervention

“Whereas Gluckman & Hanson (2005) have suggested that the reproducing female should be the primary target of interventions to improve health in the next generation, I argue that it is the **total period of development of mothers**, including experience in their own early life, that is critical to health in the next generation.” (Wells 2007, 165)

“From an applied perspective, if a trait like fetal growth is designed to minimize the effects of short-term fluctuations by integrating information across generations, **public health interventions may be most effective if focused not on the individual but on the matriline.**” (Kuzawa 2005, 5)
“A growing body of evidence suggests that novel approaches and interventional agents to disrupt the feed-forward cycle of maternal to offspring obesity transfer that is initiated in utero will be important for stemming both the obesity pandemic and the associated increase in cancer incidence.” (Simmen and Simmen 2011, 539)

“If what we have found is true, it implies that the obesity epidemic is harming children while they are still in utero and increases the importance of addressing the risk of obesity before females enter the childbearing years, where the negative effects can affect the next generation.” (Katie Larson Ode, assistant clinical professor in pediatric endocrinology, University of Iowa, 2012)

“The likely limited success of weight-reduction interventions in the preconception period suggests that intervention during pregnancy merits consideration.” (Olson 2007)
Maternal bodies as epigenetic vectors
1. Deficit model

Diet of moms-to-be can up cancer risk in two generations
2. Maternal bodies as point of intervention
Paternal effects?
A focus on maternal effects

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Word counts for maternal/mother, parental/parent, and paternal/father in the three most highly-cited review articles in the field of environmental epigenetics.
3. Focus on fetal outcomes
4. A shifting and mixed message regarding maternal agency and responsibility
Maternal bodies as epigenetic vectors

issue about why death rates in newborn babies were so low in London.” Barker is given to wearing the same rumpled clothes for days on end, and, as he once put it, has “never been anything other than the shortest boy in school.” He is effortlessly sarcastic. Now sixty-nine, he has a head of white hair over dark eyebrows, a ruddy face, and a low voice that start from very well-nourished communities, with tall churches and tall people,” Barker said. But because agricultural wages were extremely low, wage riots broke out in the nineteen-twenties, and many young people migrated to London. “They brought with them all the advantages of having had a well-nourished childhood, and the women
“volume control for genes”
Somatic Determinism

You are what your mum ate

March 19, 2012
Sarah Berry and staff writers

Scientists say our emotions and susceptibility to disease can be altered by what our parents and grandparents ate and did in the past.

The behaviour and experiences of our parents and grandparents can affect the traits they pass on to us, new research reveals.

A phenomenon called epigenetics shows how environmental influences can ‘flick the switch’ on genes that might otherwise remain switched off.

“We inherit a set of genes but what we eat or experience can influence which genes are expressed and which are switched off. This can lead to different health outcomes for different people.”
Don’t blame the mothers
Careless discussion of epigenetic research on how early life affects health across generations could harm women, warn Sarah S. Richardson and colleagues.

14 AUGUST 2014 | VOL 512 | NATURE | 21
Recommendations

1. Avoid extrapolating from animal studies to humans without qualification.
2. Emphasize the role of both paternal and maternal effects.
3. Convey complexity.
4. Recognize the need for societal changes rather than individual solutions.