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By [Dr David Moore](#), 13 August 2017

This week, media outlets widely reported findings of an Australian study linking vitamin B3 to birth defects and miscarriage. [Journal of Medicine](#), was undertaken by an Australian research team headed by Professor Sally Dunwoodie. The study's discovery of the link between folate and neural tube defects such as spina bifida.

Unfortunately, though perhaps not surprisingly, media enthusiasm has allowed a good headline to get in the way of the association between vitamin B3 and birth defects (in mice) is interesting, important, and creates many questions for "preventing millions of women from suffering miscarriage".

In a nutshell, the researchers of this study:

- Tried to identify random genes that might be associated with the occurrence of multiple congenital abnormalities (that is, the same person, suggesting something more than just random chance at work).
- Found a couple of possible genes, among four families that included such individuals.
- Determined that these genes were associated with NAD metabolism - mutations in these genes meant less NAD production.
- Created "knockout" mice (that is, mice that were genetically engineered to make zero NAD by completely removing these genes, or, in some families, that had the genes, but some mutation in them that reduced their function). That is to say, they create mice with metabolic problems.
- Determined that these mice had babies with lots of congenital abnormalities (and early abortions probably related to these abnormalities).
- Acknowledged that NAD is synthesised using either niacin (B3) or tryptophan (found in cheese).
- Fed the mummy mice niacin and fixed the problem (which they created.)
- Concluded that:
 - NAD is important to embryogenesis (like many other things.) -- *this seems reasonable.*
 - Removing it entirely creates problems, in a mouse model at least. -- *interesting.*
 - Removing it and replacing it prevents these problems. -- *also interesting, perhaps not surprising given the first two.*

- Theorised that niacin supplementation may be useful in these families with recognised gene mutations affecting I answered.

Importantly (and curiously left out by the media):

- They didnt actually conclude (nor should they), that niacin supplementation reduces birth defects in normal families.
- NOWHERE in their study is the word miscarriage or phrase first trimester loss used (even though the entire media rep
- There are no trials (intervention trials) looking at the effect of NAD/niacin/B3 on low-risk women (or low-risk/non-muta
- Likewise, there are no intervention trials looking at supplementation in HIGH risk women, such as in these families.
- There is NO safety data about high-dose niacin supplementation

The assumption is that something occurring naturally cant be bad, BUT the entire HRT fiasco came from initial studies s because it prevents heart disease, and women with early menopause have more heart disease, so extra oestrogen mu just turned out to have more strokes, more clots (and MORE heart disease!) the painful lesson from the HRT trials is i something useful, is not without risk.

After much pain, a few law suits, and many more trials, we eventually settled on HRT benefits may outweigh risks, in *som*

The unfortunate but inevitable consequence of over-enthusiastic journalism that reports gross extrapolations of animal s and currently unfounded - hope of a treatment that is not only unproven, but also untested. With headlines like these, th B3 supplements.

Nevertheless, let's look forward to the follow-up study findings from this Australian team of researchers!

About Dr David Moore



David is a Fellow of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, a Queensland. He is highly skilled in the management of complex and high-risk pregnancies, and has special endometriosis, pelvic floor and incontinence surgery. David has completed a Master of Reproductive Medi management of fertility problems, and can offer the full range of assisted reproductive treatments. He is a Queensland Medical School, and has published both medical journal and textbook contributions.

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