





to pathophysiological effects in a number of different tissues. The draft report also cited older studies suggesting that arsenic may be an essential trace element. However, this is a controversial area, and arsenic essentiality remains to be determined experimentally. The older data in this regard are very weak, incomplete, and in some cases entirely misleading as currently cited in some recent reviews. For example, some of the key studies most often cited are merely abstracts which have little or no experimental detail and, as far as we could determine, were never published as full length or peer-reviewed papers. These studies were also for the most part conducted in the 1970's in the context of agricultural feed supplementation, and at a time when arsenic measurements were crude. So their definition of "low arsenic" diets is quite different from our current understanding of arsenic in food. For example, some of these studies started with what they deemed a "low arsenic" diet, then added high amounts of arsenic as a feed supplement. They noted enhanced growth rate and other effects of As supplementation that they cited as being beneficial. However, while rapid weight gain can be argued to be of agricultural benefit, it is not at all clear that this is physiologically beneficial in the context of human health, or that absence of arsenic would be detrimental in this regard. We are currently conducting studies in mice in which we have reduced total food arsenic well below 1 ppb and will be examining these animals relative to those with organic and inorganic arsenic in food versus iAs in water. Hopefully others will also re-investigate these issues. Until such studies are conducted under more modern conditions, we would urge extreme caution in considering or citing this essentiality literature, particularly in the context of establishing low dose toxicological effects of arsenic.

Thank you for considering these comments. I commend the panel for their thoughtful review of the EPA documents and their careful analysis of this important topic.

Sincerely,

Joshua Hamilton