

# Peanut butter

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Eversince I was a young boy I have craved peanut butter ([Unilever, 2016](#)). Peanut butter is the tacky stuff made of finely ground, roasted peanuts, which children love. It sticks to your teeth. We used to call it 'klembek' (jaw clamp) when I was young. The average American apparently gobbles up 1.5 kg of peanut butter per person, per year ([Krampner, 2013](#)). I, in my better years, reached 750 g. My personal favourite is peanut butter with bits of chopped peanuts, on a raisin bread sandwich. Peanut butter consists of 81% peanuts ([Unilever, 2016](#)), but also contains—among many other healthy and delightfully nutritious elements—3.1 mg vitamin B3 per 100 g, 8.8 mg vitamin E, 98 mg magnesium, 2.1 mg zinc and 253 mg phosphorus. How do I know all this? Well, the exact formulation of peanut butter is printed, in great detail, on the label of every jar. Together with the e-marking, the batch number, the production date, the sell-by date, the manufacturer, as well as the best way to dispose of the jar when empty (in the glass bin). All this is required by law.

How different is the world of IVF culture media. In this issue of the journal, [Sunde et al. \(2016\)](#) review the history of culture media. These started fairly simple, as salt solutions (such as Earle's or Tyrode's) in the early days of IVF, but soon developed into more complex media (such as HamF10). Today, commercially available culture media (for single or sequential use) have largely taken over from media prepared in-house. Some are still fairly simple—with 8–10 different salts and sugars—while other media consist of nearly 80 different ingredients, including amino acids, lipids, vitamins, trace ions and bioactive molecules such as hormones and expression modulators ([Sunde et al., 2016](#)). The authors point out that currently available commercial culture media show high degrees of variability. Even more worrisome, their exact quantitative composition is unknown, which limits the option to correlate specific culture medium ingredients to IVF outcome. Statements like '*Contains human albumin solution and recombinant human insulin*' are simply not enough. [Sunde et al. \(2016\)](#) therefore advocate that the complete formulation of culture media should be disclosed (just like peanut butter) and all subsequent changes should be justified, validated and communicated at once to their end-users by the manufacturers. Changes should be made to the existing regulatory system to

achieve transparency and improve monitoring of outcomes to the long-term benefit of ART children. In the EU covenant of 2009 it was agreed that the EU would regulate ART culture media and consider them medical devices (Class III) (Medical Device Directive 93/42/EEC, 2008, MEDDEV2.2/4 January 2012). This is not enough to safeguard the health of future IVF children. Brussels needs to do better.

The latter is even more imperative since—also in this issue—we publish the first-ever randomized controlled trial comparing two different IVF culture media and their effect on birthweight ([Kleijkers et al., 2016](#)). This high quality intervention study corroborates lower quality evidence from earlier observational studies that showed that—probably via epigenetic interactions—floating as an embryo for only a few days in a culture medium affects the birthweight of IVF children 9 months later. And that this difference persists till at least the age of 2 years. The Barker hypothesis (Developmental Origins of Health and Disease) proposes that events in early life affect cardiovascular and metabolic health at an adult age. Small differences in birthweight may reflect more subtle disturbances that only will manifest themselves later in life. As of today, after publication of this RCT, not knowing the exact composition of their IVF culture media is no longer an option for clinical embryologists.

## References

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