How and why has there been an increase in dietary allergy rates in children since 1970?

The research question is answered primarily by the educated opinions of professionals based on studies, investigations and statistics regarding increasing dietary allergy rates. The increase of dietary allergy rates is a multifactorial issue that cannot be narrowed down into one category. However, extensive research has exposed the changing infant feeding guidelines and the convenience of hygiene as the main contributing factors.

**Sub-question 1:** What is an allergy?

Michelle Simmons, Professor of Quantum Physics at the Faculty of Science at the University of New South Wales (2017), defines dietary allergies as ‘an abnormal response to a food triggered by the immune system’. This was confirmed and expanded upon by health professionals Nurmi Davidson, Tish Davidson and Deborah Davidson (2015) in their article that states ‘food allergies are the body’s abnormal response to specific proteins found in food’.

**Sub-question 2:** How much and why have allergy rates increased since 1970?

It is a widely debated topic amongst professionals as to whether there has been an increase in allergies or simply an increase in awareness. As stated by both Dr Shankar Mahadeva, a professional and qualified general practitioner (interviewed 19th April, 2018) and Dr Paul Russo who has qualifications in clinical immunology (interviewed 26th April, 2018), the increase is more likely to be in awareness than in dietary allergies. This opinion is fairly common amongst professionals because, as stated by Corinne Keet, expert allergist and Immunologist at The Saint Johns Hopkins Hospital, evidence of an increase has only been ‘measured through hospitalisations and self-
How and why has there been an increase in dietary allergy rates in children since 1970? The increase in hospital admissions however, cannot be disputed. Statistics shown in the report ‘The provision and administration of Adrenaline Auto injectors in the management of Anaphylaxis in SA Schools’ (figure 1) demonstrate the increase in Australian hospital admissions of children aged 0-4. The admissions showed a 500% increase between 1993/4 and 2004/5 and a further 200% increase between 2000 and 2005 (2014). This report was written by ‘SA Health’ professionals sponsored by the Government of South Australia and includes valid information concerning the research question. This information provides credible evidence showing the increase in hospital admissions in Australia and therefore, from this, only assumptions can be made with regards to whether this specifically shows an increase in dietary allergies or whether it shows an increase in rates due to awareness.

**Sub-question 3:** Are our immune systems weaker today than in 1970?

An important factor in answering the research question is determining whether immune systems are now weaker than they were in 1970. In the opinion of Dr Mahadeva (2018) and Dr Russo (2018), immune systems are weaker today than in 1970. Although this view is widely believed by many professionals and has been proven through the research of Cheryl Rockwell, an Assistant Professor of Pharmacology and Toxicology in the College of Human Medicine (2016), there are still many different theories as to why immune systems are weakening. Rockwell’s research, as discussed in an article written by Geri Kelley and Sarina Gleason, shows that the preservative tBHQ, approved in 1972, causes ‘T cells to release a set of proteins that can trigger allergies to [certain] foods’ (Kelley & Gleason, 2016). However, Dr Mahadeva (2018) believes it was possibly due to women entering the workforce in greater number after the 1960’s. This meant children were left in the house during the day, rather than outside exposing themselves to dirt and bacteria. Dr Mahadeva also mentioned the ‘hygiene hypothesis’ which was discussed thoroughly by Dr Russo (2018) who stated that that the weakening of immune systems may be due to the ‘convenience of hygiene.’ In recent years in most developed countries, bathing and hygiene practices such as daily showers, washing with soap and using laundry detergent are all available and recommended to people. Showering with hot water washes all the dirt from the skin leaving it bare and vulnerable, products such as body soap and washing detergent which can
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change the bodies pH will also weaken the immune system. It is only in the past few decades that this level of cleanliness has been possible; before then people could not afford to bathe every day, especially not with hot water (Dr Russo, 2018). Although there is not any official research stating exactly why, the key finding was that immune systems have weakened since 1970 (Dr Russo, 2018).

Sub question 4: Do our foods have more additives and preservatives than in the 1970’s? Does this impact allergy rates?

Prior to the 1970’s, most foods contained fewer additives and preservatives than they do today. In particular, the preservative tBHQ which was not approved by the U.S. Food and Drug Administration until 1972 and is now present in foods such as, cooking oil, nuts, crackers, waffles and breads (Rockwell, 2016). This preservative has been found, through Rockwell’s investigation, to cause the bodies T-cells which protect the immune system to release a set of proteins that can trigger allergies (2016). Rockwell’s research was supported and funded by the National Institute of Environmental Health Sciences. As this preservative evidently effects the immune system, it is very likely that it is a major contributing factor in the increasing allergy rates. Rockwell said ‘the expanded use of tBHQ parallels a rise in food allergies and an increase in the severity of some allergic reactions’ (2016). Research has shown that, although there are more new additives and preservatives in foods today, there is limited research relating preservatives and additives to the increase of dietary rates as it is not clear how commonly they were used previous to 1970.

Sub-question 5: What lifestyle and dietary factors have changed since the 1970’s which may impact our immune systems? What are the main causes of dietary allergies?

There are many causes of dietary allergies which, as reported by Professor Katie Allen a paediatric gastroenterologist and allergist, and Dr Merryn Netting a clinical paediatric dietitian; include inheritance, ‘the microbiome, vitamin D levels, migration effects, the number of siblings and exposure to pets’ (2016). There are also many different theories concerning the increase in dietary allergy rates including The Hygiene Hypothesis which is, in Dr Russo’s opinion, a huge contributing factor (2018). Dr Mahadeva was in full agreement
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(2018). However, the most commonly believed cause of allergies is the age of which food is introduced into an infant’s diet. This theory was mentioned by numerous sources including all three primary contacts Dr Mahadeva (2018), Dr Russo (2018) and Dr Spurrier (2018) who answered the question ‘In your opinion, why has there been an increase in dietary allergies?’ with a response relating to the changing infant feeding guidelines. Dr Spurrier was especially ‘concerned about changing national advice regarding introduction of solids’ (2018). According to The Australian Infant Feeding Summit, an article written by many experts and based on scientific research, since about 1990 until 2005, infant feeding guidelines recommended the avoidance of allergenic solids such as peanut, egg, and cow’s milk for at least the first 12 months of life. These recommendations have since been proved wrong by tests and investigations that showed the introduction of egg and peanut into the diet within the first year of life and the introduction of solids between 4 and 6 months reduces the risk of developing a food allergy later in life. However, there is limited ‘evidence related to timing of exposure to allergens for infants with food allergies other than egg and peanut’ (p. 2, 2016). These facts were decisively confirmed by Dr Nicola Spurrier who explained that ‘there was the general belief by health professionals that avoiding allergenic foods until infants were older would prevent allergy. In fact, this has not been the case and the opposite maybe true’ and that ‘introducing solids after six months of age can lead to problems of babies not actually wanting to take solids at all which may have contributed to the increase in food allergy rates’ (2018). Evidence from ASCIA, who are the professional body of clinical immunology/allergy specialists in Australia and New Zealand (2016) and Susan Aldridge the president of Drexel University Online (2011) have reinforced this statement. In fact, it was recommended in the ASCIA Infant Feeding and Allergy Prevention Guidelines (2016) that solids should be introduced into an infant’s diet at ‘around six months, but not before four months... while continuing breastfeeding’ and ‘all infants should be given allergenic solid foods including peanut butter, cooked egg, dairy and wheat products in the first year of life.’ The wide range of sources show that this is a very well researched and common theory among professionals.
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**Sub-question 6:** Why did the infant feeding guidelines change?

The main reason there has been an increase in dietary allergy rates in children is because the national infant feeding guidelines changed in about 1990 to advise parents against feeding their children solids or common allergens within the first 12 months of life (The Australian Infant Feeding Summit, p.2, 2016). Dr Spurrier explains the reason for the changing guidelines in Australia is because the World Health Organisation recommended people in ‘developing countries with poor access to clean water with subsequent high rates of fatal gastroenteritis once children started solids’ wait until infants were at least 6 months of age before introducing solids (2018). As Australia is not a developing country and is not at risk of fatal gastroenteritis, otherwise known as viral diarrhea (Encyclopaedia Britannica, 1998), the recommendations were not relative (Dr Spurrier, 2018). Research by several experts and organisations have since shown that introducing solids after 6 months increases the risk of food allergies (ASCIA, 2016; Dr Spurrier, 2018; Outcomes from the Australian Infant Feeding Summit, 2016) and therefore the ASCIA feeding guidelines have changed and now advise introducing solids between 4 and 6 months (2016).

**Conclusion:**

There is no simple explanation as to why there has been an increase in dietary allergy rates in children since 1970. The key finding from this investigation is that there has been an increase in dietary allergy rates and the primary cause is the later age that infants are introduced to solids. Increasing dietary allergy rates is a multifactorial issue. While the primary cause appears to be late introduction of solids to infants, food additives and preservatives, the lack of exposure to common allergens and the convenience of hygiene are all contributing factors to the rising levels of food allergies. To begin the process of decreasing allergy rates in Australia, it is important for parents to increase the exposure of harmless bacteria to assist in strengthening the immune system and to follow the current infant feeding guidelines. These guidelines advise feeding infants solids, including common allergens, from four to six months. The research in this report has been referenced from many credible sources and it is this information as well as critical and creative thinking that has contributed to answering the research question.
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Reference list:


Mahadeva, S, Interview by (552895T), Adelaide, 19th April 2018.

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Research Outcome
How and why has there been an increase in dietary allergy rates in children since 1970?


Russo, P, Phone interview by (552895T), Adelaide, 26th April 2018.


Spurrier, N, email interview with (552895T), Adelaide, 4th April 2018.

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