

Review

The impact of diet on anti-social, violent and criminal behaviour

David Benton*

Department of Psychology, University of Wales Swansea, Swansea SA2 8PP, Wales, UK

Received 26 July 2006; received in revised form 2 February 2007; accepted 16 February 2007

Abstract

The role of diet in anti-social behaviour was considered, paying particular attention to double-blind placebo-controlled trials. Meta-analysis of five well-designed studies found that elimination diets reduced hyperactivity-related symptoms, producing a summary standardized mean difference (SSMD) of 0.80 (95% CI 0.41–1.19). The picture was of children potentially responding to a wide range of food items although the pattern was individual to the child. Supplementation with poly-unsaturated fatty acids decreased violence (SSMD –0.61, 95% CI –0.83 to –0.39) although there was no evidence of an influence on hyperactivity. Three well-designed studies have reported that vitamin/mineral supplementation reduced anti-social behaviour. There are also findings of an association between a tendency to develop low blood glucose and aggression. Many responses to diet were idiosyncratic and involved a wide range of foods interacting with individual differences in physiology. Reactions were not observed in all members of groups chosen because they share a common behavioural designation or diagnosis.

© 2007 Elsevier Ltd. All rights reserved.

Keywords: ADHD; Crime; Hyperactivity; Poly-unsaturated fatty acids; Food intolerance; Hypoglycaemia; Micro-nutrients; Minerals; Sugar; Violence; Vitamins

Contents

1. Introduction	753
2. Children	753
2.1. Food intolerance.	753
2.2. Methodology	754
2.3. Elimination diets.	754
2.4. The Feingold hypothesis	757
2.5. Which children respond?	757
2.6. Summary—food intolerance and anti-social behaviour	758
2.7. Sugar	758
2.8. Challenge studies	758
2.9. PUFA intake and hyperactivity	759
2.10. The PUFA supplementation of those with hyperactive symptoms	759
3. Adults	760
3.1. Hypoglycaemia	760
3.2. Blood glucose and aggression.	762
3.3. Summary of hypoglycaemia and anti-social behaviour	764
3.4. Micro-nutrient status and anti-social behaviour	764
3.5. The plausibility of suggesting sub-clinical micro-nutrient deficiencies	765

*Tel.: +44 1792 295607; fax: +44 1792 295679.

E-mail address: d.benton@swansea.ac.uk.

3.6. Micro-nutrient/neurotransmitter interactions	765
3.7. Summary—micro-nutrient supplementation and anti-social behaviour	766
3.8. Fatty acid consumption	766
3.9. Aggression in adults	766
3.10. Summary	767
4. Discussion	770
4.1. The incidence of food intolerance	770
4.2. Implications	771
References	771

1. Introduction

The suggestions are considered that food intolerance, additives, sugar intake, a low micro-nutrient intake, fatty acid deficiency and a tendency to develop hypoglycaemia predispose to violence, anti-social behaviour and crime. Traditionally particular aspects of diet, such as additives and sugar, have attracted attention, although at least with children received wisdom is that controlled trials have demonstrated that sugar is not the cause of behavioural problems (Benton, 2007; Kavale and Forness, 1983; Wolraich et al., 1995). To date, the question asked has tended to be whether most individuals, or at least many individuals with a particular behavioural problem, react in a similar manner to a particular aspect of their diet. An alternative is examined, that a negative response may occur to a wide range of food items and that rather than expecting a general response, biological individuality needs to be taken into account.

Initially, the influence of food on the anti-social behaviour of children is considered as, compared with adults, there have been more well-designed studies of the influence of food. In particular, a role for diet in the aetiology of attention-deficit hyperactivity disorder (ADHD) has been proposed. The topic is of particular interest as Lynam (1996) concluded that problems of hyperactivity, impulsivity, attention or conduct in childhood were risk factors for becoming a chronic offender as an adult. For example, it has been reported that adult criminals with a diagnosis of psychopathy were four times more likely to have had a history, during childhood, of hyperactivity-impulsivity-attention and conduct problems (Johansson et al., 2005). In a prospective study, adolescents were followed up for up to 23 years (Satterfield and Schell, 1997). Those displaying hyperactive symptoms and conduct disorder in childhood were significantly more likely to have been arrested as both juveniles (46% vs. 11%) and adults (21% vs. 1%) and were more likely to have been incarcerated.

Although there have been relatively few studies of adult offenders there have been numerous suggestions that aspects of diet increase anti-social behaviour, even criminality (Hippchen, 1978). Many of the early studies were published by Stephen Schoenthaler who in penal institutions explored the influence of reducing the level of sugar in the diet (Schoenthaler, 1982, 1983a, b, c). For example, the

frequency that disciplinary action had been taken by the staff was found to decrease by 48% in those consuming the low sugar diet (Schoenthaler, 1982). Although this series of studies has been strongly criticized (Gray, 1986; Pease and Love, 1986), and vigorously defended (Schoenthaler, 1987) Schoenthaler et al. (1997) eventually referred to them as ‘open trial’ and commented that “none of the studies used proper control groups, random selection, nutritional assessment...”. His later better-designed studies are considered below. A major problem with these early studies is in understanding the nutritional consequences of the changes in diet. The stated aim was to decrease the intake of sugar at a time when sugar was widely suspected to cause problems; a rationale that has not stood the test of time. Therefore, various mechanisms by which diet could potentially influence anti-social behaviour in the adult are considered. For practical reasons, the data tend to reflect the behaviour of criminals rather than criminal behaviour, for example a tendency towards violence while in prison.

With both children and adults, to allow the making of statements about causality, particular attention has been given to intervention studies that have used a double-blind placebo-controlled design. Although on occasions the data did not justify its use, where appropriate these have been integrated using meta-analysis.

2. Children

2.1. Food intolerance

Food intolerance is one mechanism by which diet may influence anti-social behaviour. Although the term ‘Food Allergy’ is often used, it has been estimated that a true allergic response, one that involves the immune system, accounts for about 20% of adverse reactions to food. ‘Food intolerance’ is a better generic term in that it encompasses a range of underlying biological mechanisms. Foods can be malabsorbed due to intestinal enzyme deficiencies. There can be adverse reactions to naturally occurring chemicals such as histamine and tyramine that are found in food. Food toxicity represents a third mechanism as toxins and poisons may occur naturally in food, for example, glyco-alkaloids in potato and cyanogenic glycosides in beans. A fourth type of negative reaction to food is psychological rather than biological in

Download English Version:

<https://daneshyari.com/en/article/938033>

Download Persian Version:

<https://daneshyari.com/article/938033>

[Daneshyari.com](https://daneshyari.com)