PRESENTATION TO "YOUTH AT RISK" CONFERENCE

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Food and behaviour

by Sue Dengate

There have been documented changes in children's behaviour during the last half century. The top seven problems in schools, as reported in U.S. national teacher surveys, are shown below:

1940 1990

talking out of turn drug use

chewing gum alcohol abuse

making noise pregnancy

running in the hall suicide

cutting in line rape

dress code infractions robbery

littering assault

Increase in ADHD

A sharp increase in children's behaviour problems in the 1960s and 70s was noted by two U.S. paediatricians who reported their findings in medical journals. Dr W. Crook described why he became interested in this problem:

"In my general paediatric practice in Jackson Tennessee (pop 50, 000) in the 1950s, my partners and I were "the only game in town". Yet we only saw an occasional hyperactive kid ... In the 1970s, I saw so many hyperactive children that I kept records ... "

Both Dr Crook and Californian paediatric allergist Dr Ben Feingold were convinced that the increase in processed foods was involved in the changes (1). After a number of studies, many funded by the food industry, this idea was discounted and the general consensus was that hyperactivity had always existed and was now recognised more frequently.

However, a new survey in the U.S. shows a real increase in the prevalence of hyperactivity, now called attention deficit hyperactivity disorder (ADHD). The percentage of doctor visits identifying ADHD children has increased from 1.4% in 1979 to 9.2% in 1996 (2). Australian prescribing rates of drugs typically used to treat ADHD suggest a similar increase: from 23,340 in 1990 to 346, 000 in 1998. In the U.S. prescription rates of drugs such as Ritalin and Prozac have increased even for very young children. In 1994, there were 3000 prescriptions for Prozac for babies under the age of 12 months (3).

Why the increase?

Traditionally, children's behaviour problems were blamed on poor parenting and studies show that mothers of ADHD children do have poorer parenting techniques. However, when the children's behaviour improves with treatment, so do the mothers' parenting skills, suggesting that bad behaviour causes bad parenting rather than the reverse (4). There is evidence to suggest that both food additives and environmental

chemicals may be sources of childhood behaviour disorders (5,6,7,8,9).

Food additives have been used in increasing quantities in our food supply since the 1960s. Irritability, restlessness, inattention and sleep disturbance rather than hyperactivity were the main effects of food additives found by researchers in a Melbourne study (10). Children aged 2 to 6 exhibited constant crying, tantrums, irritability, restlessness and severe sleep disturbance when affected by food colouring. They were described by their parents as disruptive, distracted and excited, high as a kite and out of control. Their parents were exhausted through lack of sleep and the constant demands of their children, who were unable to be comforted or controlled. Children aged 7-14 were irritable, aimlessly active, lacking self-control, whiney and unhappy, "like a bear with a sore head".

Oppositional defiance

Given that irritability is the main behavioural effect of food additives, it is interesting to look at a relatively new condition called Oppositional Defiant Disorder (11) of which irritability is the core feature. Children with ODD like to say no even when it is counter to their best interests. Other features include

losing temper

arguing with adults

refusing adult requests or defying rules

deliberately annoying other people

blaming others for his or her own mistakes

touchy or easily annoyed

angry and resentful

ODD can progress to Conduct Disorder which is essentially a failure to respect the rights of others, from vandalism to robbery to assault, and generally results in breaking the law.

Medications for ADHD do not work with ODD. The approach recommended by psychiatrists is to stay calm, to avoid conflict and confrontation, to avoid backing these children into a corner and to emphasise positivity and reward, but it is acknowledged that this approach has limited success (12).

Symptoms of ODD respond well to dietary management and this is demonstrated in a BBC video, which shows remarkable improvements in a group of young offenders filmed before and after a trial of diet (13). Superintendent Peter Bennett of the West Yorkshire police organised a study with nine children aged 7-16 with persistent anti-social, disruptive and/or criminal behaviours. They were chronic offenders, with an average arrest rate of more than once a month. All were hyperactive. Their offences included violence, criminal damage, theft, arson, and solvent/alcohol abuse. The children remained at home in the care of their parents while following a restricted diet. The health and behaviour of all nine children improved. After two years, two of the subjects had abandoned the diet, re-offended and been placed in care. Two had reoffended at much reduced frequency and violence. Five of the nine subjects had not re-offended. Researchers concluded, "the [dietary] approach appears to work within an ethical, efficient, effective, economical and preventative paradigm without harm" (14).

Diet, health and behaviour

Pursuing the link between diet, health and criminal behaviour, Superintendent Peter Bennett compared two samples of 100 chronic offenders and 100 non-offenders. Of the chronic offenders, 75% had health problems often associated with food intolerance, which is much higher than the rate for non-offenders (15).

Symptoms of food intolerance (16) include:

eczema, itchy skin rashes

asthma, stuffy or runny nose, frequent ear infections

stomach ache, irritable bowel symptoms, reflux, colic, 'sneaky poos'

headaches, migraine, lethargy, impairment of memory and concentration, anxiety, panic attacks, depression, restless legs, sleep disturbance, irritability, restlessness, hyperactivity.

How many are affected?

In 1974, Californian paediatrician Dr Ben Feingold proposed that children's behaviour and learning ability is affected by food additives and natural food chemicals called salicylates (1). Studies in the seventies examining the Feingold hypothesis concluded that only about 5 per cent of hyperactive children were affected. Later studies suggest that Dr Feingold's diet failed to remove sufficient harmful food chemicals. Since the 1980s, a number of studies which have eliminated more foods have achieved success with between 50 to 100 per cent of ADHD children (14, 17, 18, 19, 20, 21). A study in 1993 measured immunological responses in more than 1000 ADHD children and found less than 5 per cent affected (22) but reactions to food additives are not true immunologically mediated allergic responses so this study has no relevance to the incidence of food intolerance. Food additive reactions are difficult to identify because they are related to dose, cumulative and often occur the next day or later. The only way to detect reactions to food additives is through an elimination diet followed by systematic reintroduction.

In Australia the Simplified Elimination Diet from Royal Prince Alfred Hospital (RPAH) is widely used. In a trial of the RPAH diet with 140 hyperactive children, one third improved substantially, one third improved significantly and, of the other third, some improved but their parents reported that the diet was 'not worth the effort' (19,23).

Which foods?

Originally developed for symptoms of food intolerance such as urticaria and migraine, this diet avoids 50 additives (see below) as well as naturally occurring salicylates (eg. in tomatoes and citrus), amines (eg. in cheese and chocolate) and glutamates (eg. in Vegemite and soy sauce). Dairy foods and wheat are also avoided in the most severe cases.

Food additives to be avoided

Colours

102, 107, 110, 122, 123, 124, 127, 128, 129, 133, 142, 151, 155

160(b) annatto natural colour

Preservatives

200-203 Sorbic acids

210-213 Benzoic acids

220-228 Sulphites

249-252 Nitrates & nitrites

280-283 Propionic acids

310-321 Antioxidants

Flavour enhancers

620-635, HVP

Artificial flavours unregulated

Salicylates

These little chemicals are difficult to understand because they occur in 'healthy' foods like fruit, vegetables, herbs, spices, nuts and seeds. All plants produce toxic chemicals to protect themselves, and some humans can be affected by these chemicals. The most common of these chemicals are salicylates, of which aspirin is the best-known. The side effects of aspirin have been recognised for nearly a century, but it is less understood that salicylates in our foods can amount to nearly an aspirin tablet a day. This is more than enough to affect the most food-sensitive people (24). The majority of people who are sensitive to salicylates are unaware of their sensitivity because they eat salicylates many times a day every day and usually react also to some food additives (23).

Sugar not the problem

Although sugar is often blamed for children's behaviour, extensive research has failed to find any connection. A possible reason for improvements observed on sugar free diets is the simultaneous removal of processed food including many additives and concentrated natural chemicals in foods like jam and chocolate. One large and expensive study in the USA found no difference in children's behaviour and learning on disguised diets sweetened with sugar, aspartame or saccharin. However, the children generally improved on all the experimental diets, which were additive free (25).

Diet modification in the community

The prevailing opinion of the medical profession and the food industry is that so few children are affected by food additives that removing additives from children's diets isn't worth the effort. Yet, where dietary modifications have been carried out in the community, the results speak for themselves.

School tuckshop in the UK

In 1996, additive-containing snack foods were banned at school tuckshop of Wolney Junior School in South London and fruit was introduced instead. All the teachers noticed a difference in behaviour and concentration. Within two years, the success rate for 11 year olds in stage two English almost tripled, from 23% of pupils achieving expected results in 1996 to 64% in 1998. The school was listed as one of the most improved in the country (26).

School lunches in the USA

The introduction of a low additive, low sugar policy in breakfasts and lunches supplied by 803 New York City schools over 4 years was followed by a nearly 16% increase in mean academic ranking compared to the rest of the nation's schools, who used the same standardised tests. There was a significant decline in learning disabled children, from 12% to 5%. The percentage of students who ate school breakfasts and lunches in each school was positively correlated with the school's rate of gain (27).

Detention Centres in the USA

Similarly, a series of diet studies in U.S. juvenile correction facilities involving more than 8000 juveniles showed that improvements in approximately 20% of the youths were responsible for a 47% institution-wide decline in antisocial behaviour. As in Superintendent Bennett's study, researcher Dr Stephen Schoenthaler noted that improvements continued for months. He concluded, "this diet policy, for unknown reasons, played a major role in reducing the antisocial behaviour ... the improvements resulted in a long-term reduction in institution-wide behaviour problems at no cost and apparent risk to anyone. Dietary intervention is clearly a cost-effective approach to reducing institutionalised behaviour problems" (28).

Conclusion

Increasing evidence from both small carefully controlled scientific studies and open trials in the community suggests that there are significant benefits in behaviour, health and learning to be gained from dietary modification. The following recommendations can be cheap, workable and beneficial:

1) A trial of the RPAH diet should be offered routinely for young children with behaviour problems

2) Schools and other institutions which care for children should promote an additive-free policy.

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