The role of diet in behaviour, learning, ADHD and allergic symptoms

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Dietitian

Understanding food sensitivity
Questions being considered

• Who does diet change?
  – Who is susceptible?

• What is making the change?
  – What diet factors should be excluded?

• When can it happen?
  – At what age does it occur?

• Where does change occur?
  – What diagnoses, what symptoms?
More questions:-

- How does it happen?
  - How does diet effect behaviour?

- Why has it happened?
  - Why this particular child?

- What’s in it for you!
  - Does it affect your own family?
1. Who is susceptible to diet?

- Initial idea – ONE DIET, ONE DIAGNOSIS
- Feingold’s hypothesis “Diet causes H/A”
- An allergist - his sample all atopic/allergic
- Clinically not all H/A children responded
- Diet in dermatology – not all responded
- Diet in migraine etc – not all responded
- >> EFFECT NOT RELATED TO DIAGNOSIS
- IT IS RELATED TO SUSCEPTIBILITY
Diet detective work
Features of the susceptible group

Families with some of the following:-

• Adverse reactions to foods or additives,
• Atopic/allergic family history,
• Another group of symptoms – headaches, migraine, IBS, mouth ulcers, car sickness, night terrors, limb pains, bad breath or body odour,
• A member sensitive to Aspirin,
• Members super sensitive to taste and smell,
• Low or high appreciation of pain and temperature.
ADHD & Food Sensitivity

Total Population

ADHD

Food Sensitive

ADHD & Allergic

Food Sensitive

Allergic
### Rowe Behavioural Rating Inventory (RBRI)

Parents, for each of the following paired behavioural statements, please mark a cross over the dot (e.g. 0) which is nearest the statement which best describes the behaviour of the child.

|   | Statements                                                                 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | Cannot concentrate on any particular task; easily distracted              |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 2 | Eager to learn; curious and inquiring                                    |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 3 | Perseveres in the face of difficult or challenging work                  |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 4 | Irritable, 'touchy', 'cranky'                                            |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 5 | Easily excited; gets 'high'                                             |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 6 | Patient and compliant                                                    |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 7 | Is able to control own behaviour                                         |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 8 | 'Grizzly'; cries easily; unhappy                                         |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 9 | Relates warmly to others                                                 |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 10| Persistent; sustained attention span                                     |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 11| Difficult to reason and communicate with                                 |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 12| Restless; fidgety; can't sit still                                       |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 13| On the go; lively; always moving                                         |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 14| Purposeful activity                                                       |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 15| Co-operative; shares with others                                         |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 16| Rough or aggressive with other children - usually unprovoked            |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 17| Parents have no difficulty in controlling child's behaviour             |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 18| Frequent temper tantrums                                                 |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 19| Has difficulty in settling down to sleep                                 |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 20| Undisturbed, restful sleep                                               |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
2. What diet exclusions?

- Diet refined over the last 30 years
- 1970’s “Feingold Diet” - simplistic
- Worldwide research - more exclusions
- All excluded enough to see effects
- Some adjustment for individual differences
- Some exclusions of whole foods [? allergy]
- Environmental factors also implicated
- >> all contributing to the “TOTAL BODY LOAD”
Individual food trials and reported intolerances

<table>
<thead>
<tr>
<th>Food Item</th>
<th>% Intolerant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paediatric syrup (12)</td>
<td>100</td>
</tr>
<tr>
<td>Colour &amp; flavour</td>
<td>87</td>
</tr>
<tr>
<td>Uncoloured lolly (16)</td>
<td>87</td>
</tr>
<tr>
<td>Artificial flavour</td>
<td></td>
</tr>
<tr>
<td>Chocolate (68)</td>
<td></td>
</tr>
<tr>
<td>Amine</td>
<td>66</td>
</tr>
<tr>
<td>Tomato sauce/fruit (72)</td>
<td>60</td>
</tr>
<tr>
<td>Salicylate</td>
<td>77</td>
</tr>
<tr>
<td>Paint, petrol (13)</td>
<td>69</td>
</tr>
<tr>
<td>Smells</td>
<td></td>
</tr>
<tr>
<td>Perfumes (42)</td>
<td>67</td>
</tr>
<tr>
<td>Infections (6)</td>
<td>67</td>
</tr>
<tr>
<td>Soy sauce (17)</td>
<td>65</td>
</tr>
<tr>
<td>Monosodium glutamate</td>
<td></td>
</tr>
<tr>
<td>Natural lemonade (14)</td>
<td>57</td>
</tr>
<tr>
<td>Benzoate; in can</td>
<td></td>
</tr>
<tr>
<td>Pres'd fat/oil (19)</td>
<td>53</td>
</tr>
<tr>
<td>BHA or BHT</td>
<td></td>
</tr>
<tr>
<td>Bacon or ham (37)</td>
<td>49</td>
</tr>
<tr>
<td>Nitrites</td>
<td></td>
</tr>
<tr>
<td>Yeast extracts (9)</td>
<td>44</td>
</tr>
<tr>
<td>Amine &amp; MSG</td>
<td></td>
</tr>
<tr>
<td>Natural lemonade (57)</td>
<td>44</td>
</tr>
<tr>
<td>Natural flavour</td>
<td>44</td>
</tr>
<tr>
<td>Carob (7)</td>
<td>43</td>
</tr>
<tr>
<td>Natural flavour</td>
<td></td>
</tr>
<tr>
<td>Mint toothpaste (26)</td>
<td>42</td>
</tr>
<tr>
<td>Salicylate</td>
<td></td>
</tr>
<tr>
<td>Natural lemon cordial</td>
<td>37</td>
</tr>
<tr>
<td>Sulphite (24)</td>
<td>30</td>
</tr>
<tr>
<td>Preserved bread (40)</td>
<td>28</td>
</tr>
<tr>
<td>Propionate</td>
<td>27</td>
</tr>
<tr>
<td>Vanilla icecream (50)</td>
<td></td>
</tr>
<tr>
<td>Natural flavour</td>
<td></td>
</tr>
<tr>
<td>Vanillin icecream</td>
<td></td>
</tr>
<tr>
<td>Artif. flavour (41)</td>
<td>17</td>
</tr>
<tr>
<td>Natural margarine</td>
<td></td>
</tr>
<tr>
<td>Natural colour (12)</td>
<td></td>
</tr>
</tbody>
</table>

(n) = number testing food
Suspect substances - The “TOTAL BODY LOAD”

- Additive colours
- Additive flavours
- Most preservatives
- Natural chemicals-
  - Salicylates
- Amines
- Mono sodium glutamate MSG
- Suspect whole foods e.g milk, peanuts
- Strong smells
- Contact dye on skin
- Inhalant allergens
- Infections
- Stress
- Insect bites
- Temperature change
- Sensory overload
- Biological maturity
- Hormones
The total body load
A common factor - FLAVOUR!

- Artificial flavour, tomato, spice, chocolate, MSG
3. When can F I occur?

- The tendency is inborn
- Tolerance can vary over years
- Children do increase in tolerance till teens
- Symptoms can be precipitated any time if the Total Body Load increases
  - Environmental chemical load increases
  - High flavour, high additive foods increase
  - Stress level increases
- Symptoms can increase or decrease over a lifetime, & “target organ” can change
4. Where was change found?

My research:

• 1970’s trial - no expectation of outcome
• Private practice & self-help groups
• 1980’s Mental Health – 500 over 5 years
• 1990 M App Sc 120 pts over 18 mths
• Overall 2000 families followed up
• Applying findings from other research
• Documenting changes found
Diet effects for all responders

- Poor Concentration: 1.5
- Curious: 1.0
- Not Persevering: 1.7
- Irritable: 1.2
- Excitable: 1.4
- Argumentative: 1.5
- Impulsive: 1.1
- Unhappy: 0.9
- Disruptive: 1.1
- Short Attention: 1.5
- Unreasonable: 1.4
- Restless: 0.8
- Active: 0.8
- Aimless: 1.0
- Uncooperative: 1.2
- Aggressive: 1.3
- Uncontrollable: 1.3
- Tantrums: 0.9
- Not Settling: 1.0
- Restless Sleep: 0.9

Average change: n=78
RBRI Scale 0-4
Behaviour changes with diet

• Symptomatology did not change globally
• ADHD inattention, impulsivity, and restlessness decreased
• Mood [irritable, touchy, cranky] changed more
• Also improved - excitability, difficult to reason with, argumentative, controllable, tantrums, settling and sleep.
• Six factors changed more than hyperactivity
Other symptoms that changed

• Attention - ADHD, ADD, CD, ODD, ASD;
• Changes in boys different to girls
• Mood – irritable, touchy, tense, anxious, angry
• Allergic - eczema, rashes, hay fever, etc
• Headaches, migraine, tummy aches, IBS, car sickness, bedwetting, night terrors, limb pains, halitosis [bad breath], body odour, developmental delays, fits, poor sense of direction
• “Target Organ Sensitivity” - RPAH
Change occurs broadly

Diet is an aggravating factor

• DIET IS SUSCEPTIBILITY DEPENDANT NOT DIAGNOSIS DEPENDANT

• Similar changes occurred in those with CD, ODD, Aspergers and autism
• On diet children “act more their age”
• Food Intolerance is a “multi system disorder”
5. How does diet produce change?

- Diet “AGGRAVATES THE UNDERLYING DISORDER IN SUSCEPTIBLE CHILDREN”

- Mechanism is pharmacological
- Similar compounds, dose effect, cravings, withdrawal, change with maturation
- All suspect substances contribute to load
- All have caused adverse reactions
Mechanism unknown

- Many proposed – allergy & idiosyncrasy
- ?Inborn error of metabolism ?Slower metabolism of phenolic compounds
- Vitamins or oils have not negated need for diet or enabled red cordial!
- No reports that nutrients affect change
- Nutrition is a separate issue – it may need attention as well
6. Why has it happened?

- No reason why one family member has ADD and another migraine, and another eczema.
- It just depends on what is inherited!
- Sometimes one family member has all the food intolerance symptoms.

- Why me? Grief for the loss of the normal child the parents thought they had.
7. What’s in it for you?

- Look for clues mentioned above in your family
- Many families are using diet? – often too strict
- Parents often get diet sheets from friends and alternative practitioners
- Consider what is most important first - diet aggravating ? use first so other action will be easier and clearer, or after immediate problems are dealt with.
- DIET IS ONE TREATMENT OPTION, MAY BE AN ADDITION TO OTHER TREATMENTS
“The Family Sensitivity History”

- The report of FI symptoms in family members, and suspect substances
- Valuable source of information for possible role of diet (or not!)
- Parents need to ask grandparents
- Gives view of family, not just child
- Shows other family members diet relevance
- Shows whole foods to attend to eg milk
The family sensitivity history

Well, we're not really allergic to anything...
But... Aunty Jane cant eat spice and
My Mother and I get headaches from
perfume and Grandma can't eat tomatoes...
Well, yes, maybe we are.
Sensitivity History

**Symptoms** may be ADD, ADHD, behavioural, mood, sleep, physical symptoms e.g. eczema, hives, rashes, dermatitis, headaches, migraine, hayfever, sinus, ear aches, asthma, tummy aches, gut pain, wind, diarrhoea, constipation, irritable bowel syndrome, mouth ulcers, limb pains. Include any of the above symptoms in any family members.

**Suspect substances** Write in anything that may be suspect. It can include whole foods, additives, inhalants, contacts, smells, medicines, infections, stress etc. Don’t forget to include symptoms that occurred in infancy too.

<table>
<thead>
<tr>
<th>Family member</th>
<th>Symptoms</th>
<th>Suspect substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>First family member</td>
<td>[Member investigating diet]</td>
<td></td>
</tr>
<tr>
<td>Brothers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sisters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aunts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal grandmother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paternal grandmother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aunts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paternal grandmother</td>
<td></td>
<td></td>
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<tr>
<td>Paternal grand-father</td>
<td></td>
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</tr>
</tbody>
</table>
Diet therapy: Use a dietitian

• Management is harder because of ADHD or other behaviour problems in family
• “Easy” “Good results” and “Finer points” levels of strictness - depend on:
  – Age, motivation, skills, severity of symptoms
• “Fussy” = supertasters, supersmellers
• Diet “more strict” or “slack”, not “on” or “off”
• Diet “to see if he can handle himself better”
• Attention to TBL > favoured foods tested
• Boys cf girls – presentation & outcome
Managing behaviour

YOU ARE STILL RESPONSIBLE FOR YOUR ACTIONS!!

THE FOOD MADE ME DO IT!
Diet investigation

• Families can fill out questionnaire eg RBRI and grade all symptoms before and after

• Give diet 4 + 1 weeks of full attention

• Milk & wheat can be limited not excluded

• APDs talk more about what food can be included rather than what to leave out.
Diet investigation

• Do not alter medication during trial, and avoid any flavoured paediatric syrups
• Antihistamines improve tolerance, herbal preparations may not
• Feeding - basic instinct -> strong feelings
• Diet Detective Work helps sort out which symptoms are changed by diet – activity, provocative, sleep, mood, attention, and physical symptoms
Take-away Ideas

• Diet “aggravates the underlying problem in susceptible people”

• Diet is more important than was thought - it changes more than hyperactivity

• Diet is less important than was thought - it does not affect all children.

Diet should be considered
Resources and references

- www.ozemail.com.au/~breakey for information, abstracts, articles and work over 30 years
- Note section 2002 – 2005 later thinking
- Review Article – The role of diet and behaviour in childhood J Paediatr Child Health [1997] 33, 190-194
- “Are you food sensitive?” Self help book – gives you an overview of diet investigation – more than 2 pages of diet sheets is necessary!