CONSCIOUS CARE & SUPPORT

CCS

GI, Bowel, Digestive and Immune Systems Holistic Treatment and Pain Management

Session III– Resource 1

Land Acknowledgements

Australia

We start by acknowledging the Traditional owners of the land, air and sea on which we meet, the First Peoples of the Butchulla land where I live and work and all the lands on which you sit. We pay our respect and acknowledge their Elders past, present and emerging. We recognise that the lands of Australia were never seeded. Always is, always will be Aboriginal Land.

United States

Where I sit is on occupied ancestral Ho-Chunk land, a place their nation has called De-Jope since time immemorial. We now on this land acknowledge the circumstances that led to the forced removal of the Ho-Chunk people, and honor their legacy of resistance and resilience.

Canada

We acknowledge that this territory is within the lands honoured by the Wampum Treaties; agreements between the Anishinaabe , Haudenosaunee , Lenny Lenopee and allied Nations to peacefully share and care for the resources around the Great Lakes. Specifically, we would like to acknowledge the presence of the Three Fires Confederacy (including the Ojibwe , Odawa , Potawatomi) and Huron/Wendat Peoples. We respect the longstanding relationships with First Nations people in this place and we are dedicated to honouring Indigenous history and culture while remaining committed to moving forward respectfully with all First Nations, Inuit and Métis.

The Recurring Cycles

People with Autism and Other Developmental Disabilities with Complex Needs

Have One or More

CO-OCCURRING CONDITIONS AND AREAS OF POTENTIAL UNMET NEEDS

- **Gastrointestinal**
  - *infections*
  - *intolerances*
  - *imbalances (e.g. vitamins/minerals)*
  - *physical pain*
- **Mental & Neurological**
  - *e.g. seizures and mood disorders*
- **Brain Imbalances**
  - *inflammations*
  - *coherence (lack of)*
  - *under development*
  - *motor planning problems*
- **Sensory Integration and processing**
  - *hyper/hypo activation*
- **Human Energy**
  - *sensitivities (e.g. EMF/ RWF)*
  - *intolerances*
- **Cellular**
  - *mitochondria dysfunction*
- **Emotional**
  - *fears and phobias*
- **Adrenal Glands**
  - *over production of cortisol*

Contributing To

LIVING & LEARNING CHALLENGES

- *Physical pain*
- *Sensory over/under load*
- *Psychological distress*
- *Speech/hearing limitations*
- *PTSD/Trauma*
- *Environmental stress*
- *Neglect/Abuse, Isolation/Loneliness*
- *Supporter 4 outs*

Resulting In

ANXIOUS REACTIONS

BLOW-OUTS
- *Repetitive behaviour*
- *4 functional goals*
- *SIB and aggression*

BLOW-INS
- *Withdrawal*
- *Compliance*
- *Depression*

repetitive cycles of behavioural compliance/non-compliance

Supporter Response

IF

Only Behavioural Interventions Without Care As Recommended

Breaking The Recurring Cycles

CO-OCCURRING CONDITIONS AND AREAS OF POTENTIAL UNMET NEEDS

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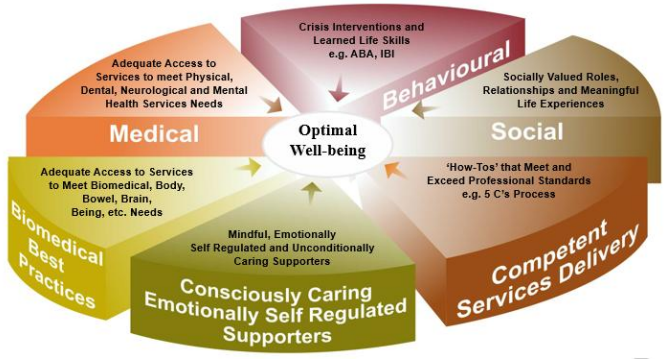
CCS Intervention



Contributing To

LESS AND LESS
LIVING & LEARNING CHALLENGES

- *Physical pain*
- *Fears and phobias*
- *Sensory over/under load*
- *Psychological distress*
- *Speech/hearing limitations*
- *PTSD/Trauma*
- *Environmental stress*
- *Neglect/Abuse, Isolation/Loneliness*
- *Supporter 4 outs*

Resulting In

BETTER AND BETTER
OPTIMAL LIVING CONDITIONS

- *Self Regulated Nervous System*
- *Relative Calm*
- *Well-being*

Note: living and learning challenges become less, directly proportionate to the implementation of CCS interventions resulting in enhanced optimal living conditions.

CCS Hierarchy of Service Needs

Toward A More Complete Understanding

of the hierarchy of special needs to meet in order to facilitate optimal well-being and to prevent and mindfully manage anxiety, anger and aggression

Physical and Emotional Well-being

Environmental – supporter's accommodations, behaviour (ABA learning), social interactions and contributing to others' well-being

Sensory integration and processing

Human energy system – building, balancing and protecting from wireless radiation and electromagnetic fields (EMF)

Brain development, coherence balancing and inflammation regulation

Emotional Wellness:

- mental and neurological health and disorders' treatment
- trauma desensitization and triggers' elimination
- psychological well-being
- medication side effects
- ABA behavioural interventions

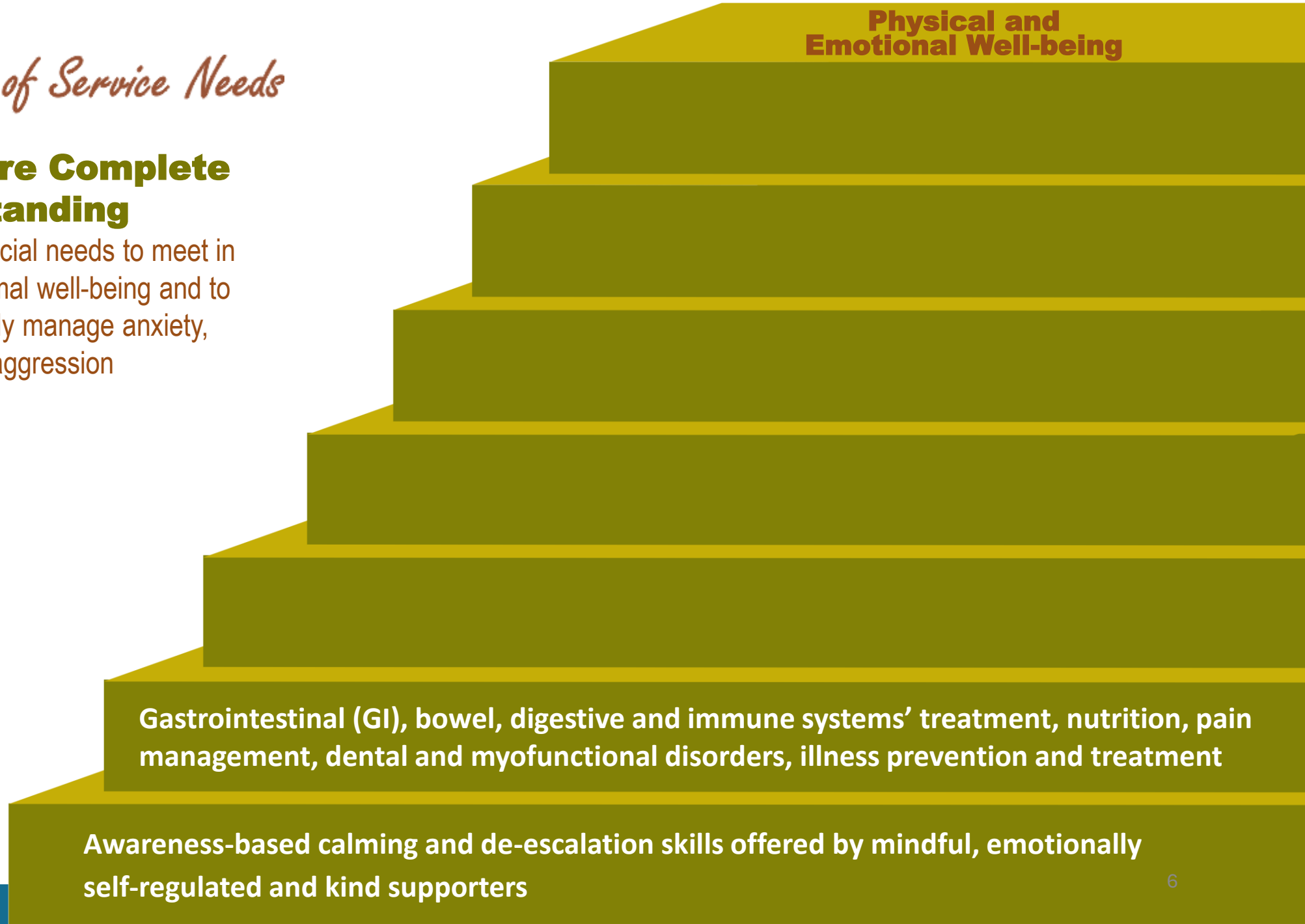
Gastrointestinal (GI), bowel, digestive and immune systems' treatment, nutrition, pain management, dental and myofunctional disorders, illness prevention and treatment

Awareness-based calming and de-escalation skills offered by mindful, emotionally self-regulated and kind supporters

CCS Hierarchy of Service Needs

Toward A More Complete Understanding

of the hierarchy of special needs to meet in order to facilitate optimal well-being and to prevent and mindfully manage anxiety, anger and aggression



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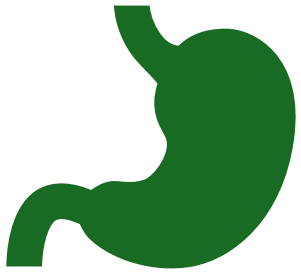
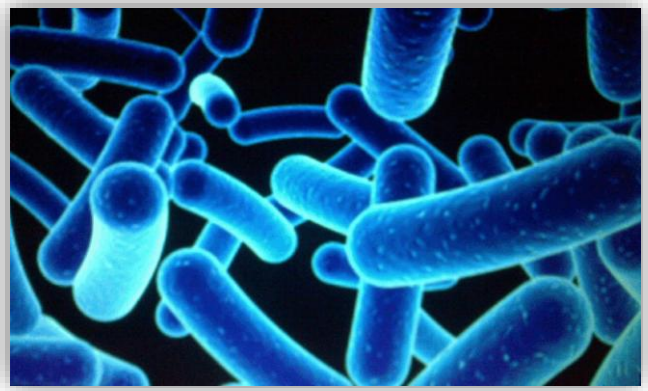
GI, Bowel and Digestive Health Is the Foundation for a Healthy Mind



Needs for GI and Bowel Management and Holistic Treatment

- Distressed Gut Microbes – produce Mind/Body Agitation, Pain and Anxiety which often leads to aggression.



1% Human
99 % Bacterial and Fungal

- Some Microbes found in the gut of individuals with Autism, when introduced into healthy rodents, create numerous Autistic like symptoms.
  e.g.
  - Repetitive behaviours
  - Social aversion
  - Easy to startle

*Yong, E. (2018). *I Contain Multitudes: the microbes within us and a grander view of life.* P. 69-70. Ecco.
**MacFabe, D.F., Cain, N.E., Boon, F., Ossenkopp, K.P., & Cain, D.P. (2010). Effects of the enteric bacterial metabolic product propionic acid on object-directed behavior, social behavior, cognition, and neuroinflammation in adolescent rats: Relevance to autism spectrum disorder. *Behav Brain Res.* https://www.ncbi.nlm.nih.gov/pubmed/23990817

The majority of individuals with ASD/DD have GI, bowel and digestive problems that significantly contributes to their anxiety, agitation, anger and aggression.

Chronic Anxiety

Chronic anxiety means ongoing excessive toxic cortisol in the body. To neutralize this toxin, the body uses up basic building blocks like amino acids needed to:

- Build the immune system
- Digest food
- Develop neurotransmitters

Depletion of these vital amino acids significantly compromises these systems causing illnesses that are treated with antibiotics that causes greater distressed gut flora.

Examples of Behavioural Symptoms of Unmet GI, Bowel and Digestion Needs (all of these behaviours are reactionary and cognitively unintended):

- To create situations or take advantage of situations to become agitated, angry and aggressive; this distracts from physical and/or emotional pain;
- To eat soothing but addictive and toxic “junk” foods;
- To withdraw;

- To reduce the preoccupation with pain in for example the bowel, the individual may harm themselves so that they will have a stronger, self-induced physical pain from, for example, biting;

- To escape into rage or OCD;

- To self-induce vomiting to relieve the stomach pain.

The Brain – Bowel Connection?

- For numerous reasons, including excess sugar or following courses of antibiotics, a waste product known as Propionic Acid (PPA) tends to overgrow in the gut.

- High levels of PPA producing bacteria are found in the gut of many children with Autism.

- When healthy pregnant rodents are fed diets high in PPA, they give birth to pups that in 4-7 weeks show numerous signs of Autism.

(reference PPA Research, Dr. Derrick MacFabe, the University of Western Ontario)

PPA thrives on simple carbs and refined sugar.

More Recent Research

AUSTRALIA:

In a 2024 Australian Study of 247 children (Yap et al., 2024)- although connecting gut microbiome to the cause of autism was negligible, autism-related restricted eating drove microbiome shifts, which led to subsequent loose stools.

In a recently published 2025 RCT study (Palmer et al., 2025) in Australia- both Gi systems of children with and without autism benefitted from supplementation with prebiotics with marginal improved quality of life.

In a 2024 Australian meta-study (Mathew et al., 2024)- evidence suggests that a subset of participants with autism with a marker for GI inflammation (higher calprotectin), have been clinically characterized by more severe gastrointestinal symptoms and higher levels of autistic traits.

More Recent Research

NORTH AMERICA:

In a recently published 2025 longitudinal study (Restrepo et al., 2025)- those with autism were more likely to experience GI symptoms than their typically developing peers, have multiple GI symptoms at the same time, and have persistent GI symptoms throughout their childhood. Increased GI symptoms were associated with more challenges with sleep, communication, sensory processing, and repetitive behaviours.

In a 2022 meta-analysis (Kim et al., 2022), individuals with autism are more likely to develop any inflammatory bowel disease, ulcerative colitis, or Crohn's disease.

In a study of 340 children and teens with autism (Ferguson et al, 2019), 65% experienced constipation. Children (2-5 years) engaged in more externalizing behaviour (aggression) as where adolescents (6-18) engaged in more internalizing behaviour (anxiety).

Causes of Unhealthy Gut Flora

- Antibiotics
- Inadequate Chewing
- Poor Nutrition
- Chronic Long Term Constipation
- Chronic Anxiety and Depression
- Diets Rich in Refined Foods
- Inflammatory Bowel Disease, Irritable Bowel
- Allergies
- Diabetes (Type I and II)

Why Vulnerable?

- **Poor Diet** (e.g. refined foods, sugar etc.) inevitably leads to poor GI health.

The area of the brain that controls attention, motor impulses and the capacity to inhibit impulses (for individuals with ASD) was discovered to be metabolizing sugar at the rate of 10-12 percent slower than that of a neurotypical person. The brain needs energy to keep the mind and body focused. Without that energy, thoughts and actions spin out of control (reference Shadow Syndrome, Ratey, John page 196).

Researcher Alan J. Zametkin of the National Institute of Mental Health

The Impact of a Poor Diet

- An average Canadian diet
  - is rich in refined foods
  - is low in fermented foods, complex carbohydrates and fibre

- Refined foods are easily broken down in the upper GI track
  - therefore very little healthy food makes it to the colon

- The colon should be the site of most beneficial gut microbe activity
  - starvation of this community can lead to ecosystem damage

(video resource references - "Hungry for Change" and "Fed Up")

Why Vulnerable? continued

- **Chewing Problems** - Good balanced meals do not necessarily result in good gut nutrition.

  Proper chewing is essential to:

  - break down food for the gut to process.
  - activate flow of specific digestive enzymes
  - facilitate pain free swallowing

Why Vulnerable? continued

- **Inflammation in the gut and brain** can be caused by toxins, food sensitivities or bad bacteria or yeast in the gut. This can cause pain that affects behaviour – such as self-injurious behaviour; eye poking, and head banging can all be signs of pain.

(reference John Hopkins Hospital research 2015 re: ASD brain inflammation)

- When **detoxification is poor** as is common with individuals with ASD/DD, toxins from food and the environment can result in brain inflammation causing irritability, aggression, brain/cellular damage.

Why Vulnerable? continued

- When **digestion is poor** and the gut is too permeable (leaky gut), the nutrients that are supposed to get through cannot absorb properly. This leads to nutrient deficiencies, which can affect all cellular function including poor brain function.

- **Opiates can be created** from inadequate breakdown of gluten, casein, and soy leading to symptoms of opiate excess – foggy thinking, insensitivity to pain, opiate addiction and withdrawal, and irritability.

- **Yeast** - when there is yeast overgrowth in the GI tract, toxins enter the bloodstream and make their way to the brain where they can cause symptoms ranging from spaciness, foggy thinking, and aggressive behaviour.

Why Vulnerable? continued

- **Neurotransmitters.** When the biochemistry is not working properly, neurotransmitters are not produced and cannot function as they need to. This increases the likelihood of anxiety, depression, ADHD, and sleeping issues.

Serotonin

- Learning
- Appetite
- Language development
- Mood and noise sensitivity
- Sleep
- Behaviour
- Sensory perception
- Memory

Dopamine

- Sensitivity and processing of information
- Perception of change
- Relaying information
- Fundamental brain function – cognition
- Motivation
- Emotional responses
- Attention and focus
- Transitions

Why Vulnerable? continued

- **Enzymes.** In this study, the researchers found that levels of 3 enzymes responsible for breaking down sugars are significantly lower in the small intestines of children with autism.

More than 90% of these children have deficiencies in at least 2 of the 3 enzymes and 73% in all three.

According to Dr. Derrick MacFabe, Director of The Kilee Patchell-Evans Autism Research Group at the University of Western Ontario "this study is consistent with data showing disruption of the gut microbiomes as a key factor in autism. It also provides indirect evidence of **carbohydrate rich meals** increasing ASD/DD gut symptoms and behaviour worsens."

Reference: Williams B.L., *PLoS One 2011;*6(9):e24585. (PubMed)

Harmful Effects of Sugar

- Suppresses the immune system
- Contributes to hyperactivity, anxiety, depression, concentration difficulties
- Reduces helpful high density cholesterol (HDLs) and raises harmful cholesterol (LDLs)
- Increases the risk of coronary heart disease
  and high blood pressure
- Increases fasting levels of blood glucose and contributes to diabetes
- Promotes tooth decay
- Contributes to weight gain and obesity
- Increases the water retention and bloating
- Causes headaches, including migraines
- Increases bacterial fermentation in the colon
- Increases risk of Alzheimer's disease

Solutions

Note: as with all other needs described in the Hierarchy Needs Model, the following information is presented to help develop the family and support professionals to become well informed, effective advocates to search and find competent community medical professionals e.g. Primary Care Physicians, Naturopathic Doctors, Registered Nutritionists to assess and implement the comprehensive support plan.

All assessment tests and treatment services will be directed by the community professionals and as applicable authorized by the primary care physician e.g. Organic Acid Test, Hair Analysis Test and Urine, Blood and Stool testing.

Solutions continued

1. **Reduction and elimination of unhealthy foods and toxins**
   - sugar (maximum 50 gm. per day for adults) e.g. soft drinks, power drinks, juice, bars and candy
   - grains/gluten – especially white and refined grain carbohydrates
   - dairy – a high percentage of all Canadians have a dairy intolerance
   - deep fried foods
   - artificial sweeteners
   - preservatives, e.g. MSG, artificial food dyes
   - processed meats and cheese
   - hydrated or heated fats, e.g. Crisco and Mazola oil, and margarine
   - toxic minerals, e.g. lead and mercury

Solutions continued

2. Facilitate assessment and testing as indicated

- Food intolerances, e.g. gluten, casein, egg, nuts
- Nutrient deficiencies and imbalances
  - minerals and metals, e.g. copper, zinc, magnesium, calcium, iron, mercury, lead, sulphur, PCB
  - vitamins, e.g. B12, B3, B6, D, C, E, Omega 3, Folate
  - glutathione
  - glutamate
- Bowel x-ray if constipated
- Celiac Disease and non-celiac gluten intolerances
- Urine and stool sample for infections, e.g. yeast, staph and clostridium.

Solutions continued

3. A Nutritious Diet

The Whole Foods Transition and Approach
(Reference** www.thecenterfordiscovery.org**)

We know now that the additives used in food production and processing are a hidden cause of all sorts of problematic behaviours and cognitive deficits. Our goal then, is to move away from processed foods as much as possible, and towards a diet of transitional, or ideally whole, foods. The following chart shows the healthy alternatives.

PROCESSED FOOD PRODUCTS	*TRANSITIONAL FOODS*	*WHOLE FOODS*
PROTEINS • processed meat, deli meat, eggbeaters, protein powders • bouillon cubes	• natural meats, fish, poultry, eggs • seeds and nuts • broth powders with natural ingredients	• organic, free-range, grass fed, or wild meat, fish, poultry, eggs • homemade bone or vegetable broths

PROCESSED FOOD PRODUCTS	TRANSITIONAL FOODS	WHOLE FOODS
Grains • white rice, white pasta, comer-baked goods • refined flour cereals sweetened w/white sugar, corn syrup etc.	• 100% whole grain bread and flours • organic, whole grain cereal with natural sweeteners	• soaked, cooked whole grains
Starchy Vegetables • instant potatoes, canned vegetables w/preservatives, frozen dinners, French fries, creamed corn	• real potatoes, frozen vegetables	• organic and locally grown root vegetables in season
Non-starchy Vegetables: • no vegetables, TV dinners, canned vegetables w/preservatives	• frozen vegetables w/veg ingredients only, fresh precut vegetables	• fresh, organic and locally grown vegetables in season

Solutions continued

4. **Examples of herbal, vitamin and mineral supplements that could be recommended by a Registered Nutritionist and Naturopathic Doctor:**
   - Methyl B12 and folate (B9) to keep mitochondria (the cells' engine) tuned up to drive methylation (the cells' production process)
   - N-Acetyl Cystine (NAC)*, milk thistle, selenium to enhance glutathione** levels
   - Carnitine
   - Vitamins D, E, & C
   - Calming herbs such as Kava to help with production of neurotransmitters, e.g. GABA, and serotonin
   - Zinc (to balance copper)
   - Probiotics

**Stanford University 2013, NAC reduced irritation in individuals with Autism by 82%*

***Glutathione is the 'mother' of all antioxidants. It is essential to prevent Brain Inflammation*

Tips to Optimize Glutathione Levels:

Eat Foods that Support Glutathione Production

- **Consume sulfur-rich foods.** The main ones in the diet are garlic, onions and the cruciferous vegetables (broccoli, kale, collards, cabbage, cauliflower, watercress).

- **Bioactive whey protein.** This is a great source of cysteine and the amino acid building blocks for glutathione synthesis. The whey protein MUST be bioactive and made from non-denatured proteins ("denaturing" refers to the breakdown of the normal protein structure). Choose non-pasteurized and non-industrially produced milk that contains no pesticides, hormones, or antibiotics. ‘Immunocal’ is a prescription bioactive non-denatured whey protein.

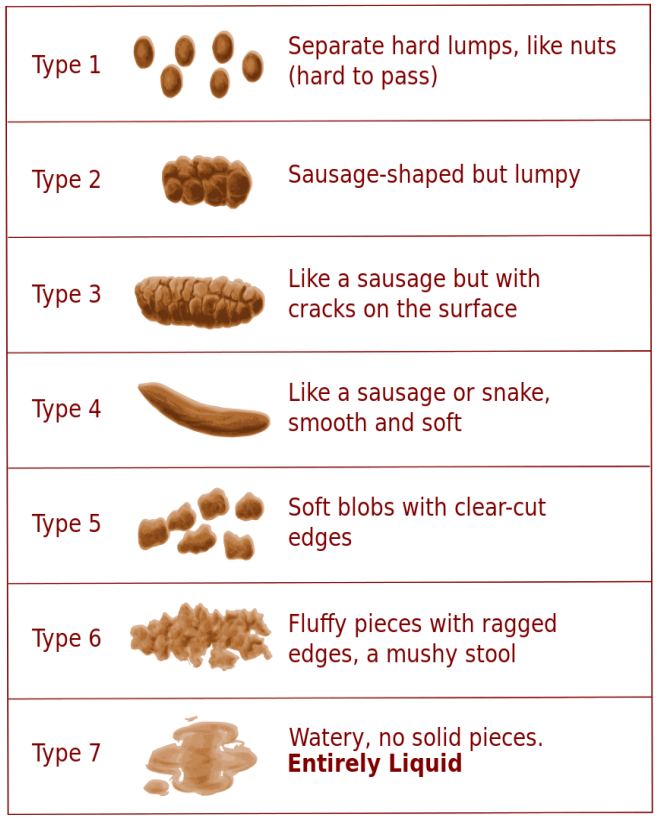
- **Exercise boosts your glutathione levels** and thereby helps boost your immune system, improve detoxification and enhance your body's own antioxidant defenses.

Solutions continued

5. Treat problems holistically

Problems	Cost of unresolved problems
• **constipation**	Pain, anxiety, hormone dysfunction, nutrient deficiencies, cells stimulating behaviours. Possibly no other symptom is more indicative of the individual's pain, discomfort and health risks than the quality of their BM/stools. Included is the Bristol Stool Chart. If stools are not generally Type 3 and Type 4 and daily (as a minimum) the individual must be referred to a qualified bowel management specialist to treat their condition holistically. (i.e. nutrition, supplements and pharmacological treatments as required. **Only treating the symptoms of constipation or diarrhea is absolutely incomplete and unacceptable.**

Bristol Stool Chart



Constipation:

Constipation must be corrected otherwise maladaptive behaviours are 100% predicable because constipation is most often an indicator of GI problems, infections etc. and results in:

- Physical discomfort from retained stool, gas and bloating.
- Urinary frequency and incontinence from the stool pressing on the bladder.
- Inadequate excretion of 'behaviour' producing toxins.
- Worsened reflux symptoms.

Bowel ballooning and loss of peristalsis is generally a big part of the problem

Examples of Solutions to guide discussions with Health Care Professionals:

1. Strict adherence to nutritional diet (see below).
2. Elimination of most dairy products per diet.
3. 4-5 teaspoons of 'Hemp Hearts' per day.
4. Proper hydration – 4-6 glasses of water per day.
5. Adequate fibre (reference diet).
6. As a minimum, test for Magnesium and Vitamin C deficiencies.
7. If yellow or gritty/sandy stools, check Taurine (essential amino acid).
   If constipation continues, refer to a medical doctor to check for impacted bowel.
   Supplementing a pharmacological laxative regime with 1-7 above is generally an essential part of the protocol.

Solutions continued

Problems	Cost of unresolved problems
Brain inflammation	Pain, anxiety, immune dysfunction
Excessive Cortisol from stress	Compromised - immune system, digestion, neurotransmitter production
Glutamate	Anxiety from sensory processing problems
PPA	Socialization problems, brain inflammation, repetitive behaviours
Methylation	Compromised detox and neurotransmitter imbalance
Enzymes	Nutrient deficiencies, digestive problems
Low/no exercise	Poor glutathione production

GI, Bowel and Digestion Conclusions

1. Continued GI, bowel and digestive problems will **100%** ensure ongoing risk for anxiety, agitation, anger and aggression.

2. GI, bowel and digestive health will likely need ongoing effective support, not unlike diabetes. This is not a quick fix but a deep fix.

3. GI, bowel and digestive health will impact all other important parts of the individual's wellbeing and quality of life, e.g. impulse control, emotional self-regulation, communications and socialization, etc. Ideally recruit a GP who is qualified and willing to consult with GI specialists if necessary.

4. A member of the support team must manage this vital need as their number one priority.

5. The team must have zero tolerance for making conditions worse.

Needs Area # 2 **Gastrointestinal (GI), bowel, digestive and immune systems' treatment, nutrition, pain management, dental and myofunctional disorders, illness prevention and treatment:**	***Who***	***Date Initiated***
Continue:		
Stop:		
Start:		