An evaluation of sensory diets and the impact on sensory processing, engagement and the wellbeing of autistic children

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Editorial comment

The sensory challenges for autistic children and adults alike can seriously affect their wellbeing and their ability to access and benefit from experiences. Over recent years, there has been an increasing focus on how sensory needs can be ascertained and then how these might be addressed to lessen their effects. In this small study within a resource base in a mainstream primary school, the author worked with a specialist occupational therapist (OT) and parents to devise a sensory diet for five autistic children. The Autism Education Trust (AET) Progression Framework was used to monitor change. While it is not possible to claim it was this work that led to some of the improvements seen, the study does provide some good ideas on sensory assessment and on ways to support children who are over or under sensitive to sensory stimuli. Developing the knowledge of the whole staff of the school and working closely with the children's parents were key aspects so that experiences and ideas are shared and built upon and future children can benefit.

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Introduction

Sensory processing refers to the central nervous system's ability to receive, interpret, organise and modulate sensory input in a graded manner according to environmental demands (Miller, Anzalone, Lane, Cermak and Osten, 2007). People with sensory processing differences may find it difficult to register and modulate sensory information and to organise sensory input to execute successful adaptive responses (Humphry, 2002). People can be hypersensitive (over responsive) or hyposensitive (under responsive) to different sensory stimuli and this sensory profile can vary both within modalities and over time (Baranek 2002; Baranek, David, Poe, Stone, Watson 2006). Individuals with hypersensitivities experience stimuli as uncomfortable and sometimes painful and subsequently create coping strategies and may display extreme emotional responses. Sensory hypersensitivity is associated with anxiety (Engel-Yager and Dunn 2011), irritability and high levels of arousal (Kinnealey and Fuiek 1999; Pfeiffer, Kinnealey, Reed and Herzberg, 2005). Sensory hyposensitivity is associated with low levels of arousal and both high and low levels of arousal can limit adjustment to the environment (Pfeiffer et al 2005).

People typically refer to having five senses - vision (visual), hearing (auditory), taste (gustatory), smell (olfactory) and touch (tactile). There are three additional senses – vestibular, interoception and proprioception. The vestibular sense is focused on body position and movement in space, such as balance and movement.

The proprioceptive sense processes information from the muscles including joint position and often involves pressure (eg bending, straightening, pushing, pulling, compression and motor planning). Proprioception can in turn affect tactile and vestibular senses. Interoception is our body's internal sense and involves interpreting messages to signal emotions and states such as hunger, thirst and needing to use the toilet.

Sensory integration

Sensory integration is defined as a neurological activity within our bodies in which the nervous system processes information from the senses and organizes it (Ayres, 1979). For a child who is hypersensitive to certain stimuli, a 'normal' environment can create a barrage of extra connections firing in the central nervous system resulting in overstimulation. The child may respond with a fight, flight or freeze response. A child who is hyposensitive to stimuli may be registering sensation less intensely resulting in hyperactivity or high energy in an attempt to seek extra stimulation to maintain a normal level of arousal or alertness. The child may seek or create extra stimulation.

Sensory processing and autism

Some studies have investigated the link between sensory processing differences and different aspects of autism. Ricon, Sorek and Engel-Yager (2017) found that not only did autistic children have significantly more sensory difficulties than typical children but that sensory difficulties significantly affected the quality and independence of the performance of everyday tasks. Wigham, Rodgers, South, McConachie and Freeston (2015) found that sensory under responsiveness and over responsiveness were significantly associated with repetitive motor movements and an insistence on sameness. Relationships with others were affected due to the intolerance of uncertainly and anxiety. Many people with autism experience high levels of anxiety and Green, Ben-Sasson, Soto and Carter (2012) found that sensory over-responsiveness was predictive of anxiety.

Sensory integration therapy

Occupational therapists (OT) have been practising sensory integration therapy for over 30 years but little is known about the use of such therapy or sensory diets within education settings. Through observation, direct work and information from parents and other adults working with the child, an OT with additional training in sensory integration principles can create a sensory profile. This profile can then be used to create an individual sensory diet for the child.

Sensory diets

A sensory diet is a series of activities and stimuli which aim to support the child to achieve more affective integration of the information from the senses, enabling them to stay alert, engage in the environment and reduce anxiety. Over time, a hypersensitive child may show improvements in motor planning, increased participation with peers, more flexible eating and/or less fear related to gross-motor activities (Schaaf and Nightlinger, 2007).

Aims of the study

The aim of this study was to investigate the effects of sensory support and sensory diets for autistic children in a mainstream school setting. The main research questions were:

1 What changes in an autistic child's sensory profile are identified after following a sensory diet for 15 weeks?

2 What benefits do parents think they notice in their child as a result of following a sensory diet for 15 weeks?

As an inclusive school with a resource base for autism, there are a number of children with an autism diagnosis. In doing this research, we wanted to improve our knowledge and expertise in identifying the children's sensory needs. We also wanted to work alongside parents in partnership, to develop their knowledge and expertise and enable them to support their child's sensory needs at home.

The participants

The research initially aimed to include 10 children with a diagnosis of autism and sensory processing needs. These children ranged in age from 5 to 10 years and had varying cognition and communication profiles. Consent was sought from parents for all children to receive

sensory support and for their data to be included within the evaluation. All parents were also invited to attend training and individual sessions were offered.

During the course of the study, one child moved to another authority, a parent of another child did not give written consent for the data to be used and a third child joined the school a few weeks after the study had started but he and his parents joined the sample. So data for a total of nine children was collected.

Methods

The school worked closely with Lucy Bates, a Specialist OT with postgraduate Sensory integration training. The first stage was to create a sensory profile for each child. The OT observed and assessed each child. Their parents and the staff who were working closely with the child completed a sensory observational checklist (see *Appendix 1*). The data was analysed and used to develop a range of sensory activities to address each child's sensory issues. The child's response to the activities was monitored and the activities adjusted accordingly. This then led to the creation of a sensory diet for each child (see *Appendix 2* for an example of a sensory diet). The sensory diets consisted of specific activities that take place throughout the day and at key times to support the child to achieve a 'just right' state (ie a state in which they are alert and engaged). The sensory diets were extremely personal to the child. Activities were chosen that either alerted or calmed the child's sensory system according to what they needed at any given point in the day. The diets were flexible and responsive to need and were delivered over the course of 15 weeks.

Assessment

Together with the sensory profiles, a baseline assessment was completed using the Autism Education Trust's (AET) Progression Framework. Each child was baselined under two specific sections - Sensory Processing and Emotional Understanding and Self-Awareness. Under each heading, there are a number of subheadings and under each subheading are a number of statements, as follows:

- *Heading:* Sensory processing
- *Subheading:* Understanding and expressing own sensory needs
- *Statement:* Informally expresses likes and dislikes of sensory experiences/stimuli encountered

These statements range in complexity from those appropriate for preverbal individuals with a learning disability, to those appropriate for verbal individuals without a learning disability. So, there was an opportunity for all children to show progress in each section, regardless of their communication or cognitive needs. Each statement is rated under one of four headings:

- Not yet developed
- Developing
- Established
- Generalised

At the end of the study. the children were reassessed against each section.

Goal Attainment Scales (GAS)

As part of the sensory diets, two targets were created for each child. These targets related to the child's main area of difficulty in relation to sensory needs at the start of the study. Goal Attainment Scales (GAS) are designed to document progress against targets and are often used by therapists to evaluate outcomes. There is a five point scale:

- Much less than expected (present level)
- Somewhat less than expected (benchmark)
- Expected level of outcome (annual goal)
- Somewhat more than expected
- Much more than expected

These are then converted into numerical scores to enable statistical analysis.

Training of the parents and staff

All staff in the school had basic training in sensory processing needs; what sensory processing is, how to identify potential needs and how to support sensory needs in the classroom. Specialist staff then had further training and regular opportunities to discuss sensory issues with the specialist OT and to adjust the sensory support for children accordingly. The parents of all the children in the study were invited to attend sensory processing training as a group and were then offered the opportunity to meet with the sensory OT to discuss their own child's sensory needs and support.

Interviews

At the end of the study, key adults and parents were invited to participate in semi-structured interviews. They were asked a series of questions relating to sensory diets and their impact. Only one child was able to participate in the interview process.

Findings and discussion

A score was given for each statement taken from the AET Progression Framework. If a child moved from 'not yet developing' to 'developing' then the score would be one. If they moved from 'not yet developing' to 'established' their score would be two.

Table 1 shows the change in the progress of each child under each subheading in the Sensory Processing section. Each child was baselined against the specific AET Progression Framework sections. They were then assessed by staff again at the end of the 15 weeks. If a child progressed one stage against a statement, they received one progress point. If they progressed two stages they received two progress points. The progress ratings for all children moved in a positive direction under each subheading, particularly within the 'Increasing tolerance of sensory input' section. For example, Child A made 10 progress points from baseline to re-assessment in the area of 'Understanding and managing sensory needs'.

Table 1: Progress in sensory integration areas

Child	Understanding and managing sensory needs (11 statements)	Responding to interventions (16 statements)	Increasing tolerance of sensory input (7 Statements)	Managing own sensory needs (14 statements)	Total sensory Processing score (48)
Child A	10	14	4	15	43
Child B	16	10	10	6	42
Child C	11	19	10	18	58
Child D	6	5	2	2	15
Child E	1	5	2	9	17
Child F	8	26	9	19	67
Child G	Left				
Child H	3	5	3	4	15
Child I	5	5	5	1	16
Child J	Unable to use data				
Child K	11	21	12	12	46
Mean score	7.8	12.2	6.3	9.5	35.4

Table 2 shows the same information for the Emotional Understanding and Self-Awareness section. Again, the ratings for all children changed in a positive direction for every subheading. As these skills are higher order skills and appear at a later developmental stage, it was expected that there might be less movement in these areas than the Sensory Processing sections. The ratings suggest that the children seemed to make particular progress in 'Managing emotions and behaviour' and 'Developing confidence and self-esteem'.

Table 2: Emotional understanding and self-awareness

Child	Understanding and expressing ow emotions (14 statements)	Managing emotions and behaviour (18 statements)	Understanding other motions and intentions (16 statements)	Self-awareness (22 statements)	Developing confidence and self-esteem (20 statements)	Total Emotional Understanding and Self-awareness (90)
Child A	4	13	5	11	10	43
Child B	1	6	4	1	5	17
Child C	2	5	1	2	6	16
Child D	1	0	0	0	5	6
Child E	3	5	4	1	2	15
Child F	5	2	2	2	7	18
Child G	Left					
Child H	2	2	2	2	5	13
Child I	2	4	0	1	2	9
Child J	Unable to use data					
Child K	15	15	6	9	12	57
Mean score	3.8	5.7	2.6	3.1	6	21.5

Goal Attainment Scale (GAS) data

Two to three key goals were selected as a priority for each child and their performance rated at the start and end of the study.

Examples of GAS goals are:

- to be able to work for 10 minutes following sensory activities
- for the child to interact with 10 new foods
- for the child's anxiety around lunch to reduce to 4 from 7 on a self-rating scale

Each goal is rated on a 5 point scale, with the degree of attainment captured for each goal area. If the child achieves the expected level, this is scored at 0. If they achieve a better than expected outcome, this is scored at +1 (somewhat better) +2 (much better). If they achieve a worse than expected outcome, this is scored at -1 (somewhat worse) or -2 (much worse). Goals are weighted to take account of the relative importance of the goal to the individual, and/or the anticipated difficulty of achieving it. *Table 3* presents the ratings for each child in relation to their GAS goals.

Table 3: Positive change ratings against the GAS goals

Child	Baseline	Achieved	Change
Child A	38	50	12
Child B	38	75	37
Child C	38	62	25
Child D	38	58	20
Child E	40	50	10
Child F	37	65	28
Child G	left		
Child H	38	45	7
Child I	40	50	10
Child J	Not able to use the data		
Child K	38	69	31

The data shows that all the children made progress against their targets following the intervention.

Interview data

The parents

Eight parents attended group training and of these, seven parents also attended individual sessions to discuss their child's needs. All parents believed their understanding of sensory needs and sensory diets had improved as a result of the training and support. All felt there were benefits of sensory diets which included; increased independence, including eating independently; increased range of foods eaten; improved nutrition and reduced lethargy; increased tolerance to taste and smell; more willingness to try new things; increased exploration; increased engagement; reduced anxiety; increased access to the learning environment; increased calmness, quieter; increased knowledge of strategies.

Five of the six parents interviewed felt there had been a marked improvement in their child's wellbeing stating:

> *"He used to cry loudly all the time but….he has calmed down…there has been a major improvement…now he doesn't respond with crying, he accepts if I say no." (Y3 Child F)*

No parent felt there were drawbacks to the sensory diets but one said there was a need for specialist support to understand the effects of the different sensory activities.

Five of the six parents who took part in the interviews noticed a marked improvement in their child's engagement in learning:

> *"It's been a brilliant impact. His speech is incredible in the last few months…he is really excited about telling me things he has done at school. Things are really moving along and with the right help things can be done." (Rec Child K)*

> *"Yes… wasn't ready to learn at the beginning but I am noticing…wants to learn now….I see… pushing themselves and have an interest in learning." (Y3 Child H)*

> *"…is able to access school better…more relaxed in lessons.' (Y4 Child A)*

All parents said they had noticed at least small steps towards engagement in learning. Similarly, all parents, except one, felt they had seen an improvement in well-being. They said:

> *"...a lot happier. When he is violent, it's not for long. Before it could last for 2 hours now it's about 15 minutes." (Rec Child K)*

> *"Yes. I do feel…seems a bit happier. At the beginning…seemed anxious but now…always smiling and seems comfortable." (Y3 Child H)*

> *"It definitely helps reduce anxiety. When…gets upset or anxious...knows how to use some of the strategies to calm. It helps…feel more relaxed at school." (Y4 Child A)*

> *"…is happier at home…doesn't cry as much as used to…understand routine at home." (Y3 Child F)*

All six parents interviewed said they had managed to implement some sensory strategies at home (eg trampoline, water play, feeling food) and saw benefits to these.

> *"...loves playing on the ball and the trampoline. I don't always have to keep an eye on…" (Y3 Child F)*

> *"sometimes it works and sometimes it doesn't…. likes the trampoline and water play. Sometimes likes to feel food before…eats it. Have seen a 20 per cent difference in behaviour" (Y1 child D)*

> *"…has a tent in …room and in the garden…I'm really proud of him…he ate a whole hot dog and half a burger...trying more foods…knows to go in the quiet area…A few months ago we would not have been able to calm…down but now we can…" (Rec Child K)*

> *"Yes, definitely I think it has helped a lot…taking more initiative." (Y3 Child H)*

> *"Having a sensory diet in the morning is making the process of coming to school easier." (Y4 Child A)*

When asked if there was anything additional to add to their comments about sensory diets and support, the parents were overwhelmingly positive:

"Everything that has been put into place is making a difference on a slow pace. It is a good thing and I have seen results." (Y3 Child F)

"I'm just happy with everything…has definitely changed since starting here…it's really shocking…changed drastically and I really see a difference." …(Rec Child K)

"I think… awareness of those needs has really impacted on… ability to recognise when… needs some sensory support at school or home." (Y4 Child A)

Some parents expressed a wish for more training and support.

Staff views

Nine staff were interviewed. All worked closely with the children and had training that involved sensory integration awareness and individual support regarding individual children. All staff felt that their understanding of sensory needs and sensory diets had improved greatly:

"Yes definitely, I feel a lot more aware of children's sensory needs throughout the day and how it impacts on them."

"…There has been lots I have found out that I didn't know before."

"..I understood a little bit about sensory needs but never heard of a sensory diet."

"..it has given me more detail on hyper and hypo sides of the senses"

"...most definitely. I had a small awareness… but it has greatly improved now."

"..the training was really helpful."

In conjunction with the parental views, staff felt there were many benefits of a sensory diet and no known drawbacks:

"…they can access class a lot more…more alert… stay in class for longer periods and engage in the lesson…It's been calming and the benefits are massive."

"reducing anxiety and challenging behaviour…"

"…(child) has really enjoyed…very hands on… loves the sensory swing…much calmer... with the food …doing fantastic…"

"You can see how it affects their moods and how it can help them regulate themselves."

"Helping them to manage their ability to be calm so they can get on with work."

"They are able to focus on the task once they have their sensory movement breaks. They can respond in a better way."

"…helps them calm down when they are agitated and distressed…helps them focus in the mornings."

When discussing the impact on engagement, all staff perceived a positive impact.

"…if someone is calmer and happier, then they are going to be more open to suggested work."

"…definitely. Much more engaged…less fidgeting…able to sit down and engage in class."

"…seen a massive difference since we started… being able to concentrate for longer because of the preventative sensory things we do…enables… to stay for longer. We don't have to do as much ad hoc sensory activities to reduce anxiety as much as we used to."

"…everybody says…like a different child… stays in class all morning."

"…seem a lot more focused…easier to get them back when they are having their breaks."

"..I am aware (the child) needs these (sensory breaks) to focus for the next task."

"…able to do tasks for longer and focus… posture and presence has improved…"

"...other people have told me…more settled now and focuses in the morning…now a lot calmer and focused."

"It's been up and down but generally yes. Concentration has improved and more willingness to change between transitions. The weighted backpack has helped."

In addition, all staff perceived impact on both the children's progress and their wellbeing:

"…wants to do things and tell me things...will try and write his name whereas before wouldn't pick up a pencil…seems a lot more alert now… definitely given him what he needs nutritionally."

"…a lot happier when they can calm themselves… using things like rocking chair and fiddle toys brings them back down."

"…seems very happy to come to school. There are less meltdowns…more willing to try new things."

"Social progress definitely…seems calmer"

"It's been up and down but generally it makes… happier"

Similarly, all staff felt more confident in both identifying and addressing sensory needs in school. When staff were asked about any additional comments or observations their responses again were overwhelmingly positive:

"….marked difference on how…was in the afternoon…helped greatly particularly in engaging in activities."

"…more alert and more able to access groups… able to engage in smaller activities in different areas of the school."

"…it's really helped…really settled…back down. It definitely helps him release a few anxieties…"

"…people need to understand and be aware of how important it is. It needs to be widened to more parents."

A pupil's views

When asked about his sensory needs, the child spoke about there being a lot of smells and noise in school and things he did not like the 'look of'. He also spoke about not liking certain clothes and colours. When asked how some of these things made him feel, he said:

"It definitely doesn't make me feel good. It makes me feel high."

('High' is a term taught in the Alert programme to describe feelings that may become overwhelming and possibly result in overload.)

He described some of the things that helped him such as the gym ball, sensory swing and walks with a weighted backpack. He said these made him feel calmer.

When asked how he would feel if he didn't have access to these things, he said:

"High all the time. I would have to go out of lessons…I would only be able to stay in for 5 minutes and then go out again."

He felt the sensory support was a good thing which helped him to feel calm and to understand how he felt.

Discussion

The data suggest there are a number of benefits arising from using sensory diets for autistic children in a mainstream school. The data from the AET Progression Framework data suggested that all children made some progress within the areas of sensory processing and emotional understanding and awareness. Parents and staff felt that the sensory work also improved their children's tolerance of new sensory experiences and helped them to manage sensory challenges.

Limitations of the study

There was no comparison group and the staff and parents were involved in the intervention the children received and so were not 'blind' when making their ratings. It would strengthen the study to have a control group who did not receive the intervention and for staff who did not know which group the children were

in to rate them at the start and end of the intervention. There are so many factors which determine how a child responds and determining what makes a positive difference is almost impossible. In future studies, one might consider the aspects of the intervention that the children, parents and staff enjoyed and benefited from and continued to use after the study ended.

Concluding comments

The comments and ratings from the staff and parents suggest that sensory diets have a positive impact on autistic children's engagement, access to learning and enhance their wellbeing. Both the staff and the parents felt they had increased their understanding of how to assess the children's sensory needs and what they might do to support the child. All saw positive benefits for the children from the activities offered and the changes in the children had benefits for the parents and staff too. Developing the knowledge of the whole staff of the school and working closely with the children's parents were key aspects so that experiences and ideas were shared and built upon and future children can benefit.

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Appendix 1: Sensory checklist

Name: DOB: Class:

Diagnosis: Date completed:

SENSE	Y	N	?	COMMENT
TOUCH				
Dislikes/becomes fearful, anxious or aggressive when touched unexpectedly or touched by something or someone they cannot see				
Avoids/dislikes to be held or cuddled. May also resist friendly touch				
Dislikes close proximity to other people or peers (especially in lines)				
Distressed by personal grooming task, eg hair brushed, washed or cut, nails cut, teeth cleaned. Give details				
Sensitive to fabrics, clothing or clothing seams/labels				
Prefers to wear certain types of clothes				
Will persistently wipe or rub an area on his/her body where they have been touched, kissed or come into contact with something				
Dislikes splashing water, water from shower, or rain or wind blowing on skin or face				
Dislikes 'messy play' ie sand, mud, glue, paint, etc				
May resist brushing teeth or dislike taste of paste. Give details				

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Sensory checklist taken from questionnaire devised by Alison Harris Occupational Therapist- June 2011

SENSE	Y	N	?	COMMENT
May want to wear long sleeved and long legged clothing all year round to avoid having skin exposed				
Prefers short sleeved clothes even when cold				
Maybe a picky eater, only eat certain tastes and textures				
Dislikes trying new foods/textures				
May refuse to walk barefoot, particularly on certain textures. May walk on toes only				
Keeps to known foods, ie a limited diet.				
May crave touch or needs to touch everything and everybody, to the point that it gets in the way of getting on with an activity				
Appears to be unaware when touched/ bumped into				
Has a high pain threshold and may not notice or respond to significant injuries				
May be self-abusive, pinching, biting or banging own head/neck. Give details				
Tends to be too rough in play – often hurts others				
Seeks out 'messy play'				
Has a preference for strong tasting foods, eg unusual spicy, salty, sweet or sour				
Eats anything – little food preference				
Engages in pica (eating non food items discriminately)				

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SENSE	Y	N	?	COMMENT
VESTIBULAR				
Avoids/ dislikes playground equipment, swings, slides, etc				
Is car sick				
Prefers sedentary tasks, moves slowly and cautiously, avoids taking risks, may appear 'wimpy'. Dislikes climbing or having feet off ground				
Holds tight to another person/rail/bannister when moving around				
Overanxious about falling				
Uncertain/ anxious when walking on uneven surfaces or using the stairs				
Dislikes having head upside down. May strongly resist getting hair washed over the sink				
Loses balance easily and may appear clumsy				
Falls frequently. Give details				
Can't seem to be still, always 'on the go'				
Craves fast, spinning and/or intense movements experiences. Loves spinning and vigorous swinging				
Seeks out rough and tumble play				
Always take opportunity to bounce on furniture/trampolines				
Enjoys being in upside down position				
Loves swinging as high as possible and for long periods of time				

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Sensory checklist taken from questionnaire devised by Alison Harris Occupational Therapist- June 2011

SENSE	Y	N	?	COMMENT
Is a 'thrill seeker' and is unaware of dangers				
Always running, jumping and hopping, banging into obstacles or hitting hands on objects				
Rocks while standing, foot to foot				
Rocks while sitting				
PROCESSING				
Very difficult to engage in energetic activity				
Prefers quiet sedentary activity				
Often heavy handed and breaking objects or toys				
Seems to use heavy pressure when using hands for fine motor activities				
Seeks out jumping, bumping and crashing activities, will stomp their feet when walking, or kicks feet on floor, etc when sitting				
Seems to enjoy crashing into things or dropping to the floor				
Enjoys being wrapped in or under materials or weighted blanket				
Prefers clothing to be as tight as possible, including shoes, belts, caps and hood				
Likes to be hugged tight, seeks out hugs and squashing				
Frequently hits, bumps or pushes other people				
Chews on non food items, such as pens, clothing, straws, etc				

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Sensory checklist taken from questionnaire devised by Alison Harris Occupational Therapist- June 2011

SENSE	Y	N	?	COMMENT
AUDITORY				
Bothered by sounds not normally noticed by others, eg humming of lights or refrigerators, fans, heaters, or clocks ticking				
Reacts negatively to everyday noise				
Appears fearful of and in pain at the sounds of flushing toilets, vacuum, hairdryer, squeaky shoes, dogs barking, school bells and sirens				
Distressed by having hair cut or brushed				
Is bothered by background environmental sounds, eg lawn mowing, or construction/ banging				
Put hands over or fingers in ears in noisy environments				
Avoids or dislikes noisy places – eg noisy classrooms crowds, shopping malls, etc				
Often does not respond to verbal cues or to their name calling				
Makes own noises, such as humming or squeaking - describe				
Loves excessively loud music or TV. Appears to want loud sounds.				
Looks for where a sound is coming from				
Enjoys being in certain rooms in the house, eg bathroom (acoustics, flushing toilet, running water) or kitchen (busy, washing machines, dishwasher, etc)				

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Sensory checklist taken from questionnaire devised by Alison Harris Occupational Therapist- June 2011

SENSE	Y	N	?	COMMENT
TASTE				
May be a picky eater, often with extreme food preferences				
Resists trying new foods				
Eats only soft or pureed foods				
Prefers dry, crunchy foods				
Gags easily				
Has difficulty with chewing or swallowing				
May lick, taste or chew on inedible objects, eg hair, fingers, shirt sleeves, toy				
SMELL				
Reacts negatively to or dislikes smells which do not usually bother or get notices by other people				
Notices and comments on how people smell				
Dislikes sitting near others if they are eating foods this person dislikes				
Refuses to eat certain foods because of the smell				
Bothered/irritated by strong smells, eg perfume				
Smells everything – people, objects				
Smears				

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Sensory checklist taken from questionnaire devised by Alison Harris Occupational Therapist- June 2011

SENSE	Y	N	?	COMMENT
VISUAL				
Sensitive to bright lights; will squint, cover eyes, cry or avoid				
Easily distracted by other visual stimuli in the room, eg movement, decorations, toys, windows, doorways, etc				
Dislikes bright colourful rooms or visually stimulating areas				
Avoids eye contact				
Enjoys or prefers being in the dark				
Stares inappropriately or appears to need to look closely at people/objects				
Has difficulty telling the difference between colours, shapes and sizes				

Further comments on Sensory Behaviours

FURTHER GENERAL COMMENTS	Y	N	?	COMMENTS
Sleeps well. Give details				
Wakes easily/ alert in mornings. Give details				
Appears dozy/ sluggish during the day. Give details				
Behaviour highly fluctuating day to day. Give details				

Appendix 2:
Example of a sensory diet and activities for a child in the sample

Occupational therapy report

School:

Goals for the child:

1 For Kelly* to select three sensory strategies during the school day 4/5 days per week with verbal prompting from staff by the end of the academic year.

2 For Kelly's anxiety around lunchtime to reduce from 7 to 4 on a self-rating scale through the implementation of sensory strategies prior to lunchtime by review date.

(*name changed to protect her identity)

Sensory needs

Kelly presents with significant sensory processing difficulties which impact upon her ability to function in day to day environments. She is very good at masking her difficulties within the school setting.

Kelly's sensory difficulties are outlined in the table below:

Sensory Area	Low Threshold Behaviours	High Threshold Behaviours
	NB Behaviours in this column indicate that Kelly has difficulty with tolerating or coping with the sensory input. She is easily overloaded by the sensory input.	*NB Behaviours in this column indicate that Kelly needs a high level of this type of sensory input in order to process the input and to feel 'OK' and be functional.*
Tactile (Touch)	• Dislikes being touched by someone unexpectedly or if she cannot see them. • Dislikes close proximity to other people • Distressed by personal grooming activities • Sensitive to fabrics of clothing - seams • Prefers to wear certain types of clothing • Dislikes splashing water on face • Distressed by having hair cut or brushed	• May crave touch or needs to touch everything • Occasionally will chew on hands when anxious • Prefers clothing to be as tight as possible

Sensory Area	Low Threshold Behaviours	High Threshold Behaviours
Oral/smell/taste	• Dislikes strong toothpaste • Dislikes trying new food textures • Resists trying new foods • Gags easily • Reacts negatively to smells not noticed by other people • Notices or comments on how people smell • Dislikes sitting next to others if they are eating foods she dislikes • Refuses to eat certain foods because of the smell • Bothered by strong smells	
Vestibular (Movement)		• Always on the go at home. • Takes the opportunity to bounce on furniture or trampolines • Enjoys being in an upside down position • Rocks when sitting or standing
Auditory (Hearing)	• Bothered by sounds not normally noticed by others • Reacts negatively to everyday noise • Appears to be in pain with some noises • Bothered by background noises • Will put fingers in her ears in noisy environments • Avoids or dislikes noisy places • Looks from where a sound is coming from	• Makes her own noises such as humming
Visual (Sight)	• Sensitive to bright lights • Easily distracted by visual stimuli in the room • Dislikes bright colourful rooms and becomes distressed when rooms are reorganised • Will sometimes prefer to be in the dark	
Proprioception	• Seeks out bumping and crashing activities • Seems to enjoy crashing into objects • Enjoys being under the weighted blanket • Likes to be hugged tight • Chews on non food items	

From the sensory questionnaires completed and observations of Kelly in class, she presents with significant sensory processing needs. These involve her tactile, auditory, visual and olfactory senses. This means Kelly's registration of sensory input in these senses is low and she easily becomes overwhelmed. This causes increased anxiety and distress which she masks well in school. Kelly will often end in a fight or flight state which over the course of the day has negative effects on her nervous system and emotional state.

Kelly seeks sensory input in her vestibular and proprioceptive senses. These senses are closely linked with our emotional state and she seeks additional input in these senses to help calm her nervous system.

Sensory programme

Below is a list of sensory activities that Kelly can participate in to help manage her sensory needs. She has a keyring which she wears which enables her to highlight how she is feeling. However, she may be masking her true feelings as she wants to fit in with her peers. Therefore, the sensory activities should be carried out at the following times as a minimum:

- halfway between the morning session (8.55am to 11am) so ideally when lessons change around 10am
- at morning breaktime
- after lunch

If Kelly is appearing anxious or stressed then she should be encouraged to use some of the sensory strategies in her box or choose from one of the activities below.

Activity	How to complete?	Why are we completing?
Weighted backpack	Kelly should be sent for a walk with her backpack. She should be encouraged to march/walk quickly to ensure she gets the most benefit. From her classroom to the infant school and back is an appropriate distance.	The weighted backpack will provide additional propriocpetive input which may help her to increase her alertness levels.
Chewy necklace	Kelly should have access to this at all times	Chewing on objects provides proprioceptive input to the jaw which can help calm the nervous system.
Movin sit cushion and busylegz on her chair.	Whenever completing a seated activity	The movin sit cushion and busylegz will provide additional movement input when seated. This can provide proprioceptive input when seated.
Ear defenders	To have these accessible at all times	Ear defenders will help block out excessive noise in her environment.
Gymball activities	Kelly to bounce on the gymball for ten large bounces. To complete this for three sets of ten. Kelly to lie over the gymball on her tummy and walk her hands backwards and forwards. Kelly to lie over the gymball on her tummy and rock back and forth gently with her hands tucked underneath the ball.	Bouncing on the gymball will give additional proprioceptive input which will help her to gain the movement input she is seeking.

Activity	How to complete?	Why are we completing?
Swing	Kelly to lie on the platform swing on her tummy and push herself around the floor using her hands. She can pull on the rope and then crash into the mats. Using the hammock swing, Kelly can get in and swing back and forth to help her to calm.	The swing provides linear vestibular movement which will help calm. The pushing and pulling movements on the swing will offer some proprioceptive and vestibular input.
Weighted blanket	Kelly can have this wrapped around her shoulders or on her lap to help her to calm if she is feeling anxious or distressed.	The weighted blanket will offer deep pressure tactile input which is calming to the nervous system.
Brushing programme	See separate sheet. Brushing programme and joint compressions to be completed in school once per day.	The brushing programme provides deep pressure, tactile input which can calm the child when they are anxious.
Scooter boards	Kelly and a peer to use the scooter boards in the hall or gym. To lie in prone and push themselves around using their hands.	Using the scooter boards will offer proprioceptive input through the pushing and pulling movement.
Lycra sock	Kelly to get into this and be encouraged to jump and stretch in this. She can also roll on the floor.	The Lycra sock will provide proprioceptive tactile feedback as she pushes back against the Lycra.

Other strategies

The use of a visual timetable for Kelly is beneficial to ensure she knows what is happening during the school day and if any changes are coming up. This will reduce her anxiety around these transitions.

Kelly to have her lunch early so that the level of smell is reduced in the dining room.

If there are any questions or queries regarding these suggestions, please do not hesitate to contact me. The above suggestions should be carried out after training from the Occupational Therapist.