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Sensory-processing informed autism practice for child-centred therapists

Stuart Daniel [a b], Kelly Mahler [c d], Dee C. Ray [e], Kade Sharp [f], Kim Clairy [g], Sean M. Inderbitzen [h], Amy C. Laurent [i], Jacquelyn H. Fede [i], Jonathan T. Delafield-Butt [a j]

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Abstract

A majority of autistic children experience sensory processing difficulties. In this paper we give concise summaries of the impact of sensory processing difficulties and baseline chronic dysregulation for autistic children. We acknowledge the need for flexible, informed and individualized child-centred therapy practices that are sensitive to, embrace and include autistic sensory experiences. In consideration, we discuss the subtle implicit assumptions and communication biases non-autistic therapists may hold due to their neurotype. We consider the concept of interactive mismatch: exploring how difficulties in autistic/non-autistic interactions are bidirectional in nature and not inherent to either neurotype. We identify five areas of sensory-processing informed adaptation in clinical technique, encouraging practitioners to (1) create sensory-stable spaces for their clients, (2) adapt their

basic use of voice and body, (3) consider cross-neurotype differences of emotional experience and employ behavioural observations at the heart of empathic processes, (4) facilitate interoceptive awareness and support personalised connections between sensations and regulatory actions, and (5) support the development of individually tailored vocabularies of feelings. The strategies we present in this paper offer a practical roadmap to address each autistic child's sensory needs, reducing dysregulation and fostering meaningful connection without compromising the child's agency.

Previous Next

Keywords

Autism; Child-centred therapy; Sensory processing; Emotion; Interoception; Mindfulness

1. Introduction

A significant majority of autistic children experience sensory processing difficulties (Ben-Sasson et al., 2019, Crane et al., 2009, Hazen et al., 2014, Leekam et al., 2007, Tomchek and Dunn, 2007). In this article, we summarize and synthesise research and practice insights to present five areas of sensory-processing informed clinical technique specifically for child-centred therapists[1] working with autistic children. Our author team comprises Occupational Therapists, Speech and Language Pathologists, Behavioural Health Therapists, Developmental Psychologists, Counsellors and Play Therapists; most are also autism science research academics; more than half are autistic.

Child-centred therapies are usually one-to-one dynamics in which the therapist uses empathy, unconditional acceptance, and authenticity to foster a therapeutic relationship (Landreth, 2023). Non-directivity, at the heart of the child-centred therapeutic relationship, is the function by which the therapist holds and

communicates unconditional acceptance (Wilkins, 2015). The child-centred therapist works consciously on developing non-directivity as their core attitude; accepting and trusting all that the client brings and carefully ensuring that they are not leading, persuading or influencing the child with even the subtlest intention or agenda (Landreth, 2023, Wilkins, 2015).

A review of the differences between non-directive and directive dynamics in therapy is beyond the scope of this article. Such reviews are available (Bozarth, 2012, Hayes, 2017, Raido, 2006, Renger, 2023). Child-centred (non-directive) therapies have specific strengths, weaknesses and a role to play within a wider network of tailored support for many autistic children. Child-centred therapies support relationship dynamics (Landreth, 2023) and can offer appropriate therapeutic support for autistic children in the context of co-occurring attachment disorder, affective disorders, trauma *etc*., and underlying regulatory challenge, for example, in Play Therapy (Chung and Ray, 2025, Schottelkorb et al., 2020, Hillman, 2018), Music Therapy (Geretsegger et al., 2012, Geretsegger et al., 2025), Dance Movement Therapy (Takahashi, Matsushima, & Kato, 2019), Drama Therapy (Bololia, Williams, Macmahon, & Goodall, 2022), and Art Therapy (Vogel, Mullins, & Kumar, 2025). These priorities are aligned with research and intervention priorities upheld by autistic community members, parents, and researchers (Pukki et al., 2022, Autistic Researchers Committee at the International Society for Autism Research, 2025). However, meta-analyses have concluded that child-centred therapy training programs have not tailored techniques adequately in a manner sensitive to the sensory and communication needs of autistic children (Hillman, 2018, Geretsegger et al., 2012, Takahashi et al., 2019, Bololia et al., 2022). To address this shortcoming, this article examines the sensory and communication needs of autistic children in therapy and develops informed clinical techniques, without compromising non-directivity.

Given average population demographics, most therapists will be non-autistic and our model and assumptions in this paper reflect this fact. From here on, we refer to *therapist* or *practitioner* on this basis. If you are an autistic therapist, many of our suggestions will also be supportive of your practice with autistic children - you will simply have the advantage of autistic sensitivities and insight.

As a practitioner, most of our suggestions will ask you to adapt *your* behaviours and awareness in an attempt to minimise *interactive mismatch*. The *Double Empathy Problem* (Milton, Emine and López, 2022) posits that communication challenges in autistic/non-autistic pairings are *bidirectional* in nature, as opposed to being based on impairments isolated in the autistic partner (evidenced by: Casartelli et al., 2020, Di Cesare et al., 2017, Glass and Yuill, 2024, Keen et al., 2005, Rochat et al., 2013). These difficulties are often due to interpersonal mismatch *between* neurotypes - the difficulties go both ways. Autistic children frequently struggle to grasp the subtleties of communicative gesture and flow from non-autistic children and adults (Di Cesare et al., 2017, Rochat et al., 2013). Conversely, non-autistic adults often face challenges in discerning the nuances of communicative gestures from autistic children (Casartelli et al., 2020, Faso et al., 2015, Keen et al., 2005, Sheppard et al., 2016).

When working with autistic children, we assert that most non-autistic therapists (including child-centred therapists) will approach interactions with the implicit biases of their own biology, their own neurotype. The perceptual, contextual and emotional biases we hold as human therapists impact on the therapy-client dynamic in all therapies, with all clients. Here however, we are asserting that the high potential for autistic/non-autistic interactive mismatch requires us to look specifically at bias through the lens of neurotype. We propose consideration of three such important implicit biases. First, therapists tend to assume a neurotypical range of sensory experience in considering what is, and what is not a stable environment. Second, there is a bias towards assuming a neurotypical range of interactive experience. By this we mean therapists tend to assume that the children they are working with understand the basic ways the therapist communicates their emotions and intentions through voice and body. Third, therapists tend to assume each child has a neurotypical level of coherence in their internal experience. There is an assumption of a neurotypical range of functional integration (across the brain and body) of bodily sensations, regulatory states, and emotions.

In this article, we describe how these three implicit biases are often inappropriate when working with autistic children. For autistic children, basic sensory stability, integration, and modulation are often missing from their experience of the

environment, their body, and other people. We, as child-centred therapists, need new techniques for adapting *our* behaviour and helping autistic children feel regulated and connected enough for therapy to be possible.

In this article, we first consider the specific sensory difficulties experienced by many autistic people. Next, we consider the relationship between baseline dysregulation (of stress and shut-down systems) and sensory difficulties in autism with an emphasis on the interoceptive sense. We then go on to propose five areas of clinical technique (see Table 1). The five areas of clinical technique we propose are intended to *augment* the practice of trained, registered therapists. The techniques should be used as responsive elements within the child-centred framework, not as stand-alone structured activities or goals.

Table 1. Five areas of clinical technique for sensory-informed child-centred practice.

Clinical Technique	Summary
Sensory Stability	We describe how to minimise potential stressors in the immediate sensory environment.
Tailored Interaction	We discuss the very basic ways we use our voice and body-language to help autistic children stay regulated. We go on to describe simple, playful communication techniques which support clarity of intention, vitality, timing and togetherness.
Tailored Empathy	We acknowledge that, for many autistic people, their experiences are felt, contained and understood out with the particular narrative of emotions shared by most non-autistic people. We recommend avoiding the use of neuronormative emotion-labels when expressing empathy with an autistic child in therapy. Instead, we recommend sharing *behavioural observations* at the root of empathic process. *Behavioural empathy* can include reflections on body language, posture, movement and gesture, and reflections on bodily expressions indicative of *valence states* (a sense of *positive/pleasant/okay*; *negative/ unpleasant/not okay/need for change*; *neutral*). We consider alternative ways to explore neuronormative emotion labels with autistic children,

	including empathic emotion-labelling in character, in third-person play, and in our own congruent expression as therapists.
Playful Mindfulness	We introduce *playful mindfulness*, an approach which actively facilitates embodied awareness of sensations and valence states in child-led contexts. The approach moves on to facilitate personalized connections between sensations and *regulatory states* (such as hunger; tiredness, overwhelm, pain, needing the toilet etc.) and the actions needed to address them.
Tailored Vocabularies of Feelings	For many autistic children, public-facing emotion concepts or those describing regulatory states will remain a mystery, unhelpful, or require highly personalised experiences as a bridge before such concepts become meaningful. As an alternative, we can support a child to develop their own *personalized vocabularies of feelings* and connect them up with helpful regulatory states and actions.

2. Autism, sensory processing and dysregulation

2.1. The eight senses

Sensory processing involves all eight senses (Miller, Anzalone, Lane, Cermak, & Osten, 2007) including the five external senses that engage the world outside of the body, *i.e.* visual (sight); auditory (sound); tactile (touch); gustatory (taste); and olfactory (smell). Additionally, there are three internal senses gathering information from the body, *i.e.* vestibular (the sense of balance and orientation of the body); proprioception (the sense of movement and position of the body); and interoception.

The latter sense of interoception is the human ability to represent, perceive and respond to the range of internal sensations (Craig, 2003, Craig, 2014). Interoception involves afferent activity that reflects *all aspects* of the physiological condition *of all tissues* of the body (Craig, 2003, Craig, 2014). The interoceptive sense's primary job is to monitor the internal condition of the body (Craig, 2003, Craig, 2014) and signify if, and when, something needs to change, such as the feeling of hunger, cold, or tiredness.

2.2. Sensory processing and autism

Over 90 % of autistic people experience sensory processing differences (Ben-Sasson et al., 2019, Crane et al., 2009, Hazen et al., 2014, Leekam et al., 2007, Tomchek and Dunn, 2007). Research with autistic toddlers, points to the early onset of an extreme sensory profile in autism (Ben-Sasson et al., 2007). Autistic children (along with children with ADHD) experience significantly more intense sensory processing patterns than other cohorts (Tomchek & Dunn, 2007). These can include differences in *sensory modulation* (experiencing sensory information intensely or painfully; craving sensory input; and/or missing sensory information that may register for other people) and *sensorimotor integration* (differences in the way information is perceived, integrated and used to organise motoric behaviour).

Heightened sensory experiences and focused preferences can, of course, be a source of great advantage, happiness, comfort, and inspiration for many autistic people. Often though, sense experiences in autism are painful, overwhelming, and disorientating (for an overview see Kojovic, Ben Hadid, Franchini, & Schaer, 2019). Sensory processing difficulties in autism affect all ages and these impacts can change and overlap for any one person over time (Kojovic et al., 2019). The effects vary greatly for each person and can affect any of the eight senses or any combination. An effective child-centered therapist will need a general understanding of sensory processing difficulties and their relationship with stress and shut-down system dysregulation. But specifically, it will be crucial to understand how each individual autistic child experiences their sensory world, since each person is unique.

While a full review of sensory processing difficulties is beyond the scope of this paper, it is important to understand the most common sensory subtypes that may be present for each person. These are presented in Table 2, as proposed by Miller et al. (2007). Almost all autistic people with sensory processing difficulties experience more than one subtype, with some people experiencing a diverse range of extremes and/or contradictions in their lived sensory experience.

Table 2. The common sensory processing difficulty subtypes (Miller et al., 2007).

Sensory

Subtype	Summary
Sensory Over-Responsivity (Hyper; Intense)	Occurs when someone experiences sensations very intensely, often causing an extreme dysregulation response. For example, certain sounds or smells may cause an automatic 'fight, flight or freeze' response leading a person to run away, lash out, or shut-down to avoid the aversive stimuli.
Sensory Under-Responsivity (Hypo; Muted)	Occurs when a person does not readily notice or respond to sensation. They may miss important sensations like the smell/taste of spoiled food or feelings of pain from an injury. Many times, under-responsivity to tactile and proprioceptive information can lead to reduced body awareness or clumsiness.
Sensory Craving	Occurs when a person actively seeks sensory input on a highly frequent basis. They can always seem 'on the go', touch everything in their space, frequently mouth items, etc. Although they are actively seeking input, this input does not necessarily regulate their body. In fact, it can do the opposite and lead to further dysregulation.
Sensory Discrimination Disorder	Occurs when a person has difficulty identifying the exact quality, location and/or meaning of sensation. For example, a person may have a bruise on their leg yet experience the pain in their foot, or a person may struggle reading due to challenges with knowing where the words are in relation to the lines on the paper.
Postural Disorder	Occurs when a person has difficulty maintaining a position or stabilizing their body during movement. Holding a standing or sitting position for any duration of time can be very tiring. This postural difficulty goes beyond strength or endurance issues; it is connected to how the person responds to information from different senses.
Dyspraxia	Occurs when a person has trouble using sensory information to plan, sequence or perform various motor actions, especially during new motor tasks. They appear clumsy, have awkward movements, and may experience high degrees of frustration during play and/or daily tasks such as chores, zipping, tying shoes, etc.

In Section A of the Supplementary Material accompanying this paper we give detailed summaries of each of the eight senses and how they are impacted in autism.

2.3. Autistic children, dysregulation and sensory processing

Evolutionarily, well-adapted regulation includes prioritizing fight/flight states to avoid immediate danger, shut-down responses to unavoidable danger; then a healthy and timely return to *good enough* working states (Heilman et al., 2008, Porges, 2001, Porges, 2009, Sterling and Eyer, 1988). Chronic *dysregulation*, on the other hand, involves the *skewing of anticipatory states* towards either hypervigilance (a state-shift into fight/flight as baseline) or towards shut-down and dissociation (a state-shift into freeze as baseline) or both (Heilman et al., 2008, Porges, 2001, Porges, 2009, Sterling and Eyer, 1988).

Dysregulation is the baseline (*i.e.* present *at rest* and in the presence of stressors) for most autistic children (Kushki et al., 2014, Makris et al., 2022; for overview see Inderbitzen, 2024) and comes *at the expense* of wellness, relaxedness, social ease and connection (Corbett et al., 2019, Denver, 2004, Edmiston et al., 2016, Goodman, 2016, Kushki et al., 2014, Porges et al., 2013). Dysregulation is often experienced as emotional instability, impulsivity, reactivity to various stimuli, difficulties with sleeping and difficulties with social engagement. Chronic dysregulation is significantly correlated with affective disorders (*anxiety and depression*: Hu, Lamers, de Geus, & Penninx, 2016; Makovac et al., 2016; Vinkers, Kuzminskaite, Lamers, Giltay, & Penninx, 2021; *chronic pain*: Barakat et al., 2012; and *irritable bowel syndrome*: Salvioli et al., 2015). Autism exhibits notable co-occurrence with complex psychiatric disorders (Leyfer et al., 2006) and affective disorders (Cai et al., 2018, Lainhart and Folstein, 1994), including anxiety (Adams & Emerson, 2021) and depression (Pezzimenti, Han, Vasa, & Gotham, 2019). In a large-scale study of autistic children accessing psychological services, Kommu et al. (2017) found that co-occurring mental health conditions were highly prevalent (41 % with Axis-I co-morbidity). Such childhood elevated rates of mental health symptoms often persist into adolescence and adulthood (Lai et al., 2019) without effective early intervention.

Sensory-processing patterns in autistic children correlate moderately to strongly with difficulties at school and at home, with dysregulation level as the significant mediator (somatosensory patterns: Riquelme, Hatem, Sabater-Gárriz, & Montoya, 2023; broad sensory profile: Sung, Lin, Chu, & Lin, 2024; Tseng, Fu, Cermak, Lu, & Shieh, 2011). As sensory processing patterns in autistic children become more problematic, dysregulation significantly increases and the ability to regulate emotional reactions decreases (Levitt, 2019).

As interoception is crucial in monitoring the body's internal condition, interoception challenges are at the core of dysregulation and adaptation. When an autistic child is unaware of *how they feel*, they will experience difficulties monitoring and acting on their basic physiological and psychological needs (Di Martino et al., 2014, Nomi and Uddin, 2015). From the basic sense of when to eat or when to toilet, through to self-preservation and the pain-sense, to catching early warnings of difficult experiences, to developing a coherent and safe embodied sense of self, and on to learning about emotions and other people, interoception is the foundation of understanding *how we feel* and a crucial factor in self-regulation (Craig, 2003, Craig, 2014).

2.4. Sense portraits: Experiencing sensory processing difficulties in autism

In support of your understanding, at this point we present three subjective sense portraits by three of our autistic authors, describing sensory processing difficulties from the inside (see Fig. 1, Fig. 2, Fig. 3).

I can't feel my body. I push on things and flap my arms to know where I am. I need boundaries in and around my body.

I interpret sensory information differently depending on environmental factors. This affects how I perceive information and how my body reacts making my own movements and abilities unpredictable which can leave me feeling unsafe in my body.

In noisy environments, my vision becomes blurry, words move around, and it's hard to walk.

Wind from fans, air conditioners, and the outside is painful like fire ants all over my body.

I need to know you are not scared of my reactions

I need to know that you can take charge to help me manage my sensory challenges when I cannot control my body.

I need YOU to know sensory challenges are more than a difference or dislike. They are more than a nuisance and something I can get used to. They are often disorienting and often make daily life a real struggle... The way my brain processes sensory information makes me hear, see, smell, taste, feel, think, and do scary or strange things sometimes. I don't do them because I am bad or not trying, I do them because my brain sometimes gets jumbled.

Food textures can change just by moving into a different room. How I perceive food textures is affected by how my eyes process light.

I NEED to know when my challenges are due to sensory processing difficulties. If my abilities change and I don't understand its due to sensory elements and how I process I may be cautious to do things out of fear for physical safety, failure, judgement...

Spinning, jumping, running, and slamming into things helps me self-organize. Pacing helps me to think and organize my speech to talk. However, sometimes I can get stuck in motion and it can become dysregulating; I can get too excited and struggle to stop. I need limits.

visual discrimination challenges can result in fear responses due to frightening distortions - faces looking animalistic or things stretching out changing in appearance suddenly.

For me ...I can laugh when I am sad. This is because when I am sad I have a tickle in my throat and tickling is supposed to make you laugh

It's hard to trust others when I cannot even trust my own body.

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Fig. 1. Sense Portrait by Kim Clairy.

My visual system can become overwhelmed easily. My visual field is very **LARGE** and strong. I don't really know where it ends. It's dysregulating.

In busier environments – maybe a train station or airport or other public place – the whole thing sounds like, what I call, a sound blob. Auditory clutter; a muffled mess. It's all just a blob, including the person right in front of me... attempting to speak to me. It's impossible to tease it out, no matter how much energy I spend.

In goal (soccer), I was throwing myself into the ground over and over and over again. I was in it for the failing and falling. These days, I get a lot of crashing and smashing on the mat as well in jiujitsu. I need to move and feel strong proprioceptive, vestibular impact into my system. I'm constantly seeking it.

If I hadn't figured out how to find body impact in an "acceptable way", it would have been perceived differently and thought about as a "challenging behavior". I threw myself into walls and all sorts of things at school and work.

If I'm in nature, it can be like millions of sounds of different insects, different birds... wind and how it rustles through different leaves, blades of grass, reeds, different kinds of plants, water trickling... Millions of varieties of these things can be happening and I can single in on any one of them and hear them all as unique defined sounds.

But the same visual system, when leveraged as a tool, can be a protective factor. When I have something that is predictable and a central grounding focus, it can be very regulating. Sometimes, I will also focus on something like a Stim screen on a phone or something kaleidoscopic because it's a central visual predictable thing. That is very regulating and will drop my energy down a bit.

And it's really important to know... My profile is not your profile or everybody's profile. Not everyone is drawn to these intense movement-based inputs. What's going to be regulating to others, are more passive strategies. So yeah, listening to music, smelling certain smells. Sitting out in nature, you know, feeling water... hmm, watching water, a kaleidoscope. Those are really powerful sensory motor tools as well.

Human noises like breathing, chewing, coughing are some of my most immediate and intense triggers of dysregulation.

My visual spatial processing is my greatest strength. I excel at human frogger (avoiding humans in the wild).

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Fig. 2. Sense Portrait by Jac Fede.

Meltdowns have always been internal for me. You wouldn't guess I was having one from the outside. On the inside, it's a barrage of self-blame, self-doubt, and self-hatred, often repeating overly critical messages I've heard from others.

Knowing the schedule for the day can help me pre-plan breaks to move around, use the bathroom, grab a snack or drink, etc. Otherwise, I will forego my basic needs and not notice my body's cues while completing other tasks. I definitely prefer being part of the schedule creation process.

Your cooking or preference regarding food isn't actually bad, even if I can't eat it or won't try it. I'm just very sensitive to textures, temperatures, and tastes that feel "off", "wrong", or otherwise aren't what I expected or wanted. This can change slightly from day to day.

It helps lower my anxiety if people don't watch me while I attempt a task requiring fine motor skills.

I can hear just about any noise from multiple rooms away- my sensitive ears cause me to be alert (sometimes on edge) and notice things faster than others.

Electronics provide a great deal of regulation for me; scrolling on a screen while we chat may mean I'm actually paying more attention to you than if I were looking at your face. This is doubly true if I'm seeing something on the screen related to one of my interests.

I need some reassurance that it's okay to take my time when processing conversations and other sensory input.

When I'm in a shutdown, my brain and body feel like molasses: tough to move, recall memories, formulate thoughts and words, etc. Sometimes my brain gets stuck on a certain thought or worry (metaphorically frozen), while my body feels physically frozen.

Both meltdown and shutdown tends to lead to passive suicidal ideation for me: "it would be easier if I were dead" or "I wish I didn't exist" because it's tough to tolerate this level of distress and the external stressors.

It's tough to make decisions when I'm shutting down. I need a pre-planned course of action to follow or someone to gently guide me to safety.

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Fig. 3. Sense Portrait by Kade Sharp.

3. Sensory stability

When the sensory environment is tailored to minimize sensory disturbance for each autistic child we work with, we refer to this as *sensory stability*. Sensory stability minimizes the potential for acute dysregulatory events such as meltdowns and minimizes ambient dysregulation *enough* for the beginnings of rapport and therapy. In Table 3, we suggest sensory stability baselines for the therapy room. These baselines are best-estimate, very-low-risk, and a good place to start in therapy with autistic children.

Table 3. Considering Sensory Stability in the Therapy Room. Table References: 1.Khalfa et al. (2004); 2.Rosenhall, Nordin, Sandström, Ahlsen, and Gillberg (1999); 3.Takahashi, Komatsu, Nakahachi, Ogino, and Kamio (2016); 4.Kwakye, Foss-Feig, Cascio, Stone, and Wallace (2011); 5.Lepisto et al. (2006); 6.Russo, Zecker, Trommer, Chen, and Kraus (2009); 7.Pfeiffer, Stein Duker, Murphy, and Shui (2019); 8.Ikuta et al. (2016); 9.Iacono, Trembath, and Erickson (2016); 10.Coulter (2009); 11.Daluwatte, Miles, Sun, and Yao (2015); 12.Little (2018); 13.Koh, Milne and Dobbins, 2010; 14.Franklin et al. (2010); 15.Ludlow, Wilkins, and Heaton (2006); 16. Güçlü, Tanidir, Mukaddes, and Ünal (2007); 17.Biel (2017); 18.Laurie (2022); 19.Crow et al. (2020); 20.Ashwin et al. (2014); 21.Chu (2017); 22.Proff, Williams, Quadt, and Garfinkel (2022); 23.Van Hecke et al. (2019). Other statements (marked with an *), while also reflecting the collective clinical experience of our author team, lack the backing of a reported evidence base.

Sensory System	Possible Threats to Sensory Stability	Environmental Adaptations to Promote Sensory Stability
Auditory (sound)	High or low-pitched *loud* voices or sounds[1]. Specific noises such as metallic, machine, jolting, hissing, or	• Keep the ambient sound levels low[4,5,6]. • Keep the auditory

	banging sounds, electric hums and buzzes from electronics and lights[2,3]. Outside noises[4,5,6]. Hearing others talking from adjacent rooms or outside[4,5,6].	environment as simple as possible[2,3,4,5,6]. • If the child you are working with is hyper-sensitive to sounds, might noise reduction headphones be supportive[7,8]? • Initially, keep your baseline volume levels slightly below average conversational volume[1,6]. Never shout[1,6]. With respect to vocal tone, consider avoiding very low or very high pitch[2,3] registers of one's voice as to create an inviting tone. Adapt, as appropriate, as you get to know the child, and for varying contexts. • Try supplementing your verbalizations with visual supports such as drawings, symbols, lists, schedules, or written tips/instructions[overview: 9]. • Unplug phone chargers and other electronics chargers if not in use*.
Visual (sight)	Bright lights[10,11,12], high or low	• Try to keep your space tidy

contrast[13], specific colors[14,15], many LEDs[12,13], patterned lights[12,13], strobing[12,13], flickering[12,13], spinning fans*, strip lights[12,13], some dimmer-switch lights*, light through sun-blinds (any other flickering source)[12,13], visual complexity (wall décor, overall room set-up)[12].

- Try to keep your space tidy, minimal and structured. If possible, keep the same stuff in the same places each time you interact*.
- Wear simple block colours without patterns or stripes[12].
- Try out different colour elements. Lay out some coloured fabrics somewhere in your space… is the person you are working with drawn to a specific color[14,15]?
- Keep light levels low and warm[10,11,12]. Keep, initially, to a single light source (avoiding multiple shadows and excessive lines of contrast)[13]. Have multiple light source options for hypo children to choose and control*.
- Be careful with the types of LEDs you use; don't use strip-lights, dimmers, blinds etc[10,11,12,13].
- For discrimination and clarity, use colour contrasting objects,

		consider marking boundaries of room areas visually*. • It's helpful to have a safe-space in your therapy room, such as a tent. This should be *containing* and allow for muted, dim light*.
Haptic (touch)	Highly individualized preferences… but physical contact in general and often overly gentle touch can be disturbing[16]. Feeling disembodied and disorientated[16].	• Take time to understand and respect each child's preferences*. • As a general rule, do not instigate physical contact but be open to playful, supportive contact when approached. If contact is initiated, try using firmer touch rather than overly gentle*. Be immediately responsive to the child's communicated preferences regarding touch*. • Have various textures, tactile objects, playdough, *fidgets* etc., available to touch, feel and explore in support of embodiment*+ opinion: 17,18.

Olfactory (smell)	Smells can be overwhelming or sources of distraction[19,20]. Or smells can support and define a stable experience[19,20].	• Try to keep your space clean and as odour-free as possible[19,20]. • Open windows for ventilation between clients[19,20]. • Don't use room-fresheners*. • Don't wear scented deodorants, perfumes, or colognes[19,20]. • Have different scents available to smell, such as stickers, markers, smell bottles[20].
Proprioception/Vestibular (body sense, positioning and alignment)	Sensorimotor dysregulation[21,22,23]; feeling disembodied and disorientated[21,22,23].	• Have weighted items available, such as blankets, stuffed animals, lap pads*. • Have safe options for therapeutic touch available, such as a massage ball, yoga ball, textured glove etc.*. • Offer options for where and how to be positioned: sofa, chair, bean bag, boxes, basket, sleeping bag, sensory sock, comfortable rug*.

Initially, applying these baselines will help protect against our limitations as practitioners in understanding a child's immediate experience. For instance, we may not realize that any one child may experience hyper-sensitive aspects *and* hypo-sensitive aspects within their sensory profile (for overview see, Dunn, 2007, Millington and Simmons, 2025). For example, we may not notice that a *hyper-sensitive* child can become further dysregulated and move into experiencing freeze or shut-down, presenting, in that moment, as *hypo-sensitive* (see, *ibid.*). Or, we may not realize that a *hypo-sensitive* presenting child, apparently under-stimulated, may be experiencing the overwhelming sensations of over-abundant or disorganized *internal* sensations. As such, they (like overtly hyper-sensitive children) may need space, patience and reduced sensory input to find their way (see, *ibid*). As we get to know the individuals we work with, we can adapt levels of sensory support and tailor input as appropriate. This will include on-going sensitive modulation and attunement of body and voice in play, and will also involve monitoring and tailoring the choice of objects within the therapy room (including the addition of stimulating objects or experiences for hypo-sensitive children).

In addition to these general guides, prior to your sessions we suggest spending time observing the child and talking with them (if possible) and to those that know them: What are their sensory experiences and how can you use this information to provide an environment that reads as safer to their nervous system?

4. Tailored interaction

4.1. Initial connection

Whatever your therapeutic modality, we suggest starting *minimal* to give you and the child time to acclimatise to the space and get comfortable with each other. Just be in the space together. You can keep your body language non-threatening yet open. Be self-aware and check you are projecting as little expectation as possible. Your body language, even your intentions (even well-meaning), may be perceived

as imposing or a burden on an autistic child whose nervous system is dysregulated and whose sensory baseline is likely to be heightened or disorientating. You being simple, minimal, and truly welcoming (without any agenda) is likely to be a breath of fresh air for their so-regularly-triggered system. There's no rush. Basically, keep things very simple, keep things slow. From here you can wait for an invitation from the child, and interactions can grow.

4.2. Body language and vitality

To expand a little on "*body language as non-threatening yet open…*" (see Section 4.1 *Initial connection*), be sensitive to your positioning, your relative eye-line (adjust your posture and proximity to be on a level with, or below the child's), and your posture (you can play with being contained yet facilitating a bridge for interaction, perhaps with one hand slightly outreached as an offer of interaction). You can also play with mirroring the child's posture. Tickle-Degnen and Rosenthal (1990) demonstrated that postural mirroring, applied sensitively, is often the quickest route to rapport. Direct copying in this way, may be perceived as simplicity, clarity, and a welcome sense of recognition… Or, it risks being perceived as a patronizing over-simplification. It very much depends on the abilities and preferences of the child. Always stay open to their response, to adapting in the moment, and to trying other ways to relate.

Another option is to try matching the child's *vitality* (Daniel et al., 2022, Daniel et al., 2024). *Vitality* is the energy, feel, style, flavour of any particular movement (Stern, 1999, Stern, 2010). It is the *how* in the way we do something. It communicates intention, feeling, force, and the direction of our actions. For instance, you could wave your hand vigorously with excitement in greeting a friend; or slowly with tentative sadness when your friend leaves; or in chaotic desperation in fear and panic. In these examples, the basic action of hand-waving is the same, it is the vitality that has changed.

Vitality is such a significant part of our use of body-language. It is also a significant feature of the interactive mismatch between autistic and non-autistic people (for overview see, Rochat & Gallese, 2022). Autistic children, as compared with typically developing children, demonstrate significant challenges in recognition of

neurotypically oriented vitality-forms (*imitation studies*, Hobson & Lee, 1999; *similarity judgements*, Rochat et al., 2013; *immediate evaluations*, Di Cesare et al., 2017, Di Cesare et al., 2020). There are several things we can do to minimize mismatch in vitality in our work with autistic children:

Be focused in the message your body is communicating. If possible, *isolate the body-language* needed (*i.e.*, take a pause, literally stop doing everything and neutralize your body and face, then communicate the body-language, then literally pause again). Di Cesare et al. (2017) have shown that autistic children have difficulties in perceiving vitality-form differences between two contiguous stimuli (smallest change detected at > 100 ms apart). This suggests that, "during action observation, *autistic children* need greater stimuli variations than [typically developing] children to detect their differences in terms of vitality forms" (*ibid*. p8).

Try exaggerating your body language. If appropriate (once you have got to know the child) feel free to be big, playful, theatrical in your movements. This can help clarity and engagement (Tortora, 2006). Or try theatrically diminishing your body language. To the same effect, we can play with theatrically diminishing our movements – taking them small, whispery, magical – this can bring a kind of sacred quality which can be useful for clarity and distinction. You can play with appropriately bringing your voice to a whisper, or using a tingly, magical sound effect (Daniel et al., 2022).

Add non-verbal expressive sound effects (big sighs for tiredness or unsureness, excited bubbly noises in upwards contours for joy or anticipation; sinking "huuh" noises for when things don't work out). In a study of visual and auditory expression of vitality, Di Cesare et al. (2017) have concluded, "… it may be plausible that visual information is not sufficient for *autistic children* to encode vitality forms correctly and that the use of alternative (additional) perceptual information may help vitality form perception" (p8).

4.3. Voice and language

Considering the parameters of the auditory challenges facing many autistic children (overview, Kwakye et al., 2011; and see Section A of the Supplementary

Material), we can use clarity and simplicity in our speech and choice of words. With words in general - less is more.[2] We can be patient, give time for response and maintain overall low-volume levels (we always suggest starting quietly, tailoring our ground-zero-volume to each client's needs - often below average conversational volume i.e., <60 dB) (Khalfa et al., 2004).

A comprehensive review of language processing factors and preferences in autism is beyond the scope of this article. Here, we note a *general* trend towards literal interpretation and a preference for *concrete* nouns, pronouns and descriptors (Chojnicka and Wawer, 2020, Eskes et al., 1990), and difficulties with pronouns in *some* cases (Barokova and Tager-Flusberg, 2020, Lee et al., 1994; for an overview see Finnegan, Asaro-Saddler, & Zajic, 2021). Some autistic children prefer it if we use names (proper nouns), rather than pronouns,[3] e.g., "Sally will put the paper out for you", to talk about yourself and your actions as therapist; "I wonder if Justin needs paper?", to talk about the child. But many autistic children are fine with, and prefer I, You, They etc.[4] It is great simply to be aware of the options and discover whatever is most helpful for each child.

Our use of intonation and musicality in voice is specifically significant when working with autistic children (for overview see, Daniel et al., 2024; Daniel et al., 2022). In a structural magnetic resonance imaging (MRI) study, Lai, Pantazatos, Schneider, and Hirsch (2012) found that the neuroanatomical systems that process speech are more effectively engaged by song than by speech for many autistic children. The quality of rhythmicity in speech, body language, and movement helps autistic people to predict what is coming just-ahead-in-time in playful interactions (for overview see, Daniel et al., 2024; Daniel et al., 2022). We can foster interaction and shared meaning-making by avoiding monotone, using a melodic "story-teller" voice or considering singing aspects of our communication.[5]

In typically developing populations an orientation to, and reliance on vocal intonation, musicality and other resonate indicators of meaning tends to emerge when individuals are challenged by prolonged periods of dysregulation and sensory overload (Blanc, Blackwell, & Elias, 2023). This holds true for many autistic children (Blanc, 2012, Blanc et al., 2023, Prizant, 1982). Our use of an information-rich "story-teller" voice - epitomized by short utterances, elements of regularity

and repetition, rhythmic intonation and undulating pitch - is akin to a tailored *motherese* and supports synchrony, ease and co-regulation for the autistic children we work with (Blanc, 2012, Blanc et al., 2023, Malloch, 1999, Malloch and Trevarthen, 2009, Prizant, 1982).

5. Tailored empathy

5.1. Autism and Emotion

Many autistic people have difficulties regulating emotions (Berkovits et al., 2017, Cai et al., 2019, Cibralic et al., 2019, Conner et al., 2020, Mazefsky et al., 2014, Samson et al., 2015), recognizing more complex emotions in other people (Berggren et al., 2018, Landowska et al., 2022, Yeung, 2022), and feeling emotions as coherent experiences (Butera et al., 2023, DuBois et al., 2016, Mahler et al., 2022, Mul et al., 2018). To be clear, we are in no way suggesting that autistic people have a less rich, nuanced or powerful body of feelings than other neurotypes. We are suggesting that, for many autistic people, their experiences are felt, contained and understood out with the particular narrative of emotions shared by most non-autistic people.

5.2. Emotion-labelling can be harmful for autistic people

A key feature of child-centred therapy is empathic reflection. Reflected empathy helps us let the child know that “they are seen”, and facilitates each child in their journey towards self-awareness and self-regulation. It is reasonable to think that we might be offering clarity, empathy and learning through labelling an autistic child’s emotions verbally. Most of us in the author team have done this for years and we are all on a learning journey together in understanding the limitations of this practice. The limitations are many.

Many autistic children find neurotypical concepts of emotion a mystery or an irrelevance as their experiences do not align with neuronormative frameworks of emotion and emotional literacy. In therapy, and across majority culture, neuronormative interpretations of autistic behaviour as expressive of an emotion may be inaccurate, and stand in disagreement with what is actually felt. These

unwitting incongruencies between a therapist's emotion-labelling and the autistic child's experiences can, for the child, become a source of social anxiety. Acknowledging this simple fact can enable practitioners to recognize *their* limitations within the cross-neurotype dynamic.

Non-autistic adults are known to have considerable trouble recognising the intentions and expressions of autistic children (Casartelli et al., 2020, Faso et al., 2015, Keen et al., 2005, Sheppard et al., 2016). Without intention, non-autistic implicit bias can lead therapists to look for, interpret and validate neurotypical displays of emotion from autistic children. One challenge here is that non-autistic adults will often link a particular physical sensation with an emotion, such as, "if your stomach aches or feels fluttery, you might be feeling anxious." This may simply be an incorrect interpretation. The difference between nervous, "butterflies in the stomach", and feeling excited is nuanced and contextual. A child may grow up essentially feeling gaslighted into anxiety, when all along they were feeling excitement and delight. Additionally, this example presents a unique problem for autistic children, who are at higher risk for many health conditions that could have stomach or gastric aches as a symptom (Bjørklund et al., 2020, Hung and Margolis, 2024). Incorrectly, they may be led to believe that they are frequently experiencing anxiety, leading them to downplay their physical health symptoms because they believe it is, "all in their head."

As an attempt to decipher an autistic child's experiences, a practitioner may decide that certain stims[6] indicate a particular emotion. For example, an adult may insist that headbanging is a sign of anger, self-harm (like cutting) is a sign of sadness or depression, or hand wringing is a sign of frustration or anxiety. These self-stimulatory behaviours may not at all be an expression of those particular emotions for each individual autistic child, or they may sometimes be expressing that emotion but not always.

Additionally, for autistic children, emotions may take longer to surface due to processing difficulties and interactive mismatch. This means the emotion may not apparently match the present moment, leaving non-autistic therapists feeling out of synch and confused.

Over time, inaccurate emotion labelling can narrow, limit and distort the feeling-world of an autistic child. It can lead to the suffering of self-doubt, disconnection and disembodiment. It can lead an autistic child to relate specific emotion-words to specific, concrete situations and *not* to their internal experiences. Emotion words, for these individuals, are often rote-learned, scripted responses. They know what emotion word "*is supposed to*" pair with a particular situation or coping strategy and will want to convey, "*the correct answer*." This is a type of *masking*. It masks a lack of emotional awareness, corresponding dysregulation and suffering. The harms of long-term masking include feeling a lack of self-identity and worth, as well as an increase in suicidal thoughts, depression, and anxiety (Bernardin et al., 2021, Evans et al., 2024, Miller et al., 2021).

5.3. Emotions in therapy with autistic children?

Every therapy dynamic is unique and evolves over time. With perhaps older, more emotionally literate autistic youth or with a client you have got to know well, it may be appropriate to explore emotional empathy and labelling your client's emotions. This work can be affirming. It can also facilitate a learning bridge between felt experiences in the therapy room and education regarding public-facing emotions in school and wider life. Of course, if a child brings their own use of public-facing emotion labels into therapy, then relate, engage, and empathise with their language choice. In our experience though, younger autistic children rarely talk about themselves with emotion labels beyond the very basic angry or sad. We gently prompt therapists to check who instigated the use of emotion labels in therapy – was it the child, or the practitioner?

We recommend avoiding the use of neuronormative emotion-labels when expressing empathy with an autistic child in therapy. Instead, in consideration of the feelings behind any autistic child's expressivity, a more accurate means of understanding and empathic reflection can be found in Rogers' original concept of '*empathic understanding*'. This encompasses thoughts and behaviours *as well as* emotions (Rogers, 1975). As practitioners, we can verbalise our detailed observations of our client's behaviours to let our clients know that, "they are seen". Such *behavioural empathy* may include reflections on actions, gestures, movements, body positioning, body states and facial expressions. Through *behavioural empathy*

we can connect to the child's experience, "where they are at". We can reflect on observable experience rather than making top-down interpretations of emotion states, which may or may not be correct.

The skill of *behavioural empathy* is something that improves with practice. We start with simple verbal reports, saying what we see: "You're walking, slow, heavy feet… shoulders and head hanging down," instead of assuming *feeling sad*; "Reuben is holding his tummy, his feet are moving fast," rather than guessing at *feeling excited* or *nervous* or *needing the toilet*; "Bali threw the ball hard, her teeth are tight together", instead of interpreting *feeling angry*; "you're moving fingers fast, smiling a lot," rather than assuming *feeling happy* or *excited*. As we get more confident, it will be helpful (in most contexts) to isolate and embody the behaviour we are observing, simultaneous with our verbal report. We will be using our *Tailored Interaction* skills (section 4) and using postural mirroring or vitality matching as appropriate (see, section 4.2 *Body Language and Vitality*). We can also add non-verbal expressions (see, section 4 *Tailored Interaction*), big sighs for tiredness or unsureness, excited bubbly noises in upwards contours for rising playful energy or anticipation; sinking "huh" noises for when things don't work out, etc.

In addition to enabling practitioners with an autism-accessible empathic process, behavioural empathy will also serve as the groundwork when supporting a child to become more aware of their *sensations* (sensations in movement, posture, contact, gesture, expression) and *valence states*. Valence states are feelings indicative of *comfortable/pleasurable/okay*, *uncomfortable/distressing/not okay/action needed*, or *neutral*. They are integral aspects of interoception and, in particular of *regulatory states* (heuristic states indicative of, okay *vs*. the need for regulatory action and change – such as hunger; tiredness, overwhelm, pain, needing the toilet *etc*.) (Barret 2017b; Sterling & Laughlin, 2015; Sterling, 2012). Importantly for us, valence states are widely considered as basic and universal features of consciousness (Barrett, 2017aa, Barrett, 2017bb, Barrett and Russell, 1999, Damasio, 1999, Edelman and Tononi, 2000, Gross, 2023, Hoemann et al., 2019, Kuppens et al., 2013, Lindquist, 2013), making them accessible as simple foci for the empathic process.

Playful child-centred therapies can facilitate *safe-creative-permissiveness* within the

therapeutic dynamic (Landreth, 2023). The authors assert that this quality is conducive of valence states being experienced (and later thought about) in ways which get direct to their core essence. We suggest it can be helpful to think about reflecting valence states (beyond the immediately physical) in four broad types: *too much-ness*; *not enough-ness*; *stuck-ness*; and *just-not-right-ness*.[7]

In therapy, autistic children often communicate a sense of the overwhelm they feel in their daily lives. This might be an overwhelm of the senses; an overwhelm of being misunderstood; the overwhelm of immense energy spent just coping, masking, seeming okay; the overwhelm of impact. This is, *too much-ness* – the essential feeling that *I feel too much*, and *something needs to change or stop… right now*. Children might communicate this through object-play and art (in which overwhelming forces - armies, enemies, beasts, insects, elemental, magical, familial, natural – are created, displayed, animated and aimed in threat and action at vulnerable characters), or through conversation and body language. As always, any reflections we offer will be informed by everything we know about the child and our developing relationship. It is highly likely the child, or we as practitioners, will not be able to articulate the specific nature of these feelings. But this is unimportant… the sense is strong, and we can reflect accordingly… using vitality in whole-body gesture and voice, "feels just TOO MUCH…"; "so much happening, you wish it would all just stop"; "there's so many tigers, feels like we can never escape"; "why won't the tornadoes just stop, they just keep on and on"; "can't escape out of the blankets, just want to bust out of here"; "just David, against all those soldiers… so, so many"; "just too much stuff to deal with at school today, just wanna hide in a deep hole"; "why don't dad and mum and Sara and Jack just shut up, just stop talking all the time… too much", "too many people in the shop this morning, wish they'd just leave you alone".

The flip side of this is, *not enough-ness*. Autistic children may communicate a pervasive sense of not having enough energy, or resources, or understanding, or love, or sense of solidity in embodiment, or friends, or simplicity, or input that makes sense. This is the feeling of, *there's not enough to make me solid, to make me whole, to protect me, to help me, or to let me understand*. Children might express this through their object-play or art (vulnerable characters just keep eating… keep piling on armour, magical protection, weapons, skills… heroes, monsters and

animals fight for them, sages advise… the mountains and fortresses just keep getting bigger… the caves, bunkers, fences keep getting stronger… but nothing is enough to stay safe); through their relating (*I want all your attention*, *I'm not leaving*, *you're not to work with other children*, *I need to take all this stuff home*, *I need to bring in everything from home*, *I need to use all the arts materials*, *I need to put everything in that one place*); or through conversation and body language. We can reflect with sighs, folding body gestures and words, "whoah, just not enough"; "needing all of it, keeping it all, feels like there's never enough"; "so much food, feels like he needs to just keep on eating"; "need more magic gems, more and more and more"; the mountain keeps on getting higher, I wonder if it can get high enough to be safe?"

With a slightly different feeling tone, is, *stuckness*. Autistic children may feel stuck (or trapped) by misunderstanding, in a social or friendship situation, in a debilitating sensory world, in an education setting which is not tailored for them, or – very specifically – stuck in dysregulatory patterns of fight/flight or shut-down/freeze (from which their intelligent bodies naturally feel the impulse to free themselves and the suffering from that impulse impeded) (Levine, 2017, Porges and Daniel, 2021). Children might communicate this in object-play and art (play characters crushed under weight, locked, held down, stuck underground or in prisons); through physical play (most likely the therapist will initially be placed in situations hard to escape from – squashed under body weight, held down under pillows and beanbags, "locked" in a tent or to a wall – then later, the child will initiate first-person versions of such experiences to push through and escape from, Daniel, 2019; Levine, 2017); or through conversation and body language. We can reflect withheld intensity in our bodies, quiet frustrated tones and in our words, "need to get out"; "just need to push through"; "feeling so stuck under there", "the turtle is so trapped under the massive stones", "you just want to run away from all those teachers at school."

Sometimes the clarity of the above three types is absent, and children feel simply an overall sense of *just-not-right-ness*. Everything the child does seems, from their perspective (and often in actuality in the moment, in the therapy room), not to be quite working, everything they say or do seems full of frustration. We can reflect with kindness, whole-body matched intensity, and our words, "just not working",

“not right, not good”, “feels like everything’s rubbish”, “yep, just leave you alone”, “why, why is stuff like this?

5.4. Emotions, autism and managing expectations

An important part of our role as therapist will also be to manage expectations, for the child or youth, parents/guardians, and for ourselves, in terms of how much connection each autistic child may realistically have (or ever have) to their emotions. It’s okay to never be able to fully pinpoint these things. Different neurotypes have different capabilities and that’s okay. It is much more important to develop a workable sense of valence and regulatory states and learn how to take relevant action to support self-regulation.

5.5. Alternative ways to explore neuronormative emotion-labels in therapy with autistic children

There are alternative routes to empathizing and exploring neuronormative emotion-labels with autistic children in therapy. If you are playing in character, or employing empathic response to a figure or toy or character in play, it is great to reflect directly on basic emotions and states. There is safe-distance in the perspective of play. From the first-person perspective, we offer empathy for a character the child has asked us to play; from the third-person perspective we can reflect on the emotions and states of a character controlled by the child. In both contexts the child has generated the play world and is in control. The child understands that there is a distance between this world and their own body and emotions. There may be significant overlap (which is part of the power of therapy), but the child is always free to disown the experience in an instant and tell us, as therapists, that we got it wrong. When directy reflecting on experiences we may have within the child-led play context, we can also feel free to label *our own* emotions, bringing authenticity, congruence and emotional clarity into our refelections.

6. Playful mindfulness

Here we outline a *playful mindfulness* template, an approach to helping autistic

children become more aware of, learn about, and make functional connections within their inner experiences of sensations, valence states and regulatory states. The aim is to support a better integrated and better regulated experience of being in the body. Playful mindfulness, as presented, is a slight remodelling of Kelly Mahler's work on *The Interoception Curriculum* (2019),[8] designed here to dovetail as closely as possible with non-directivity. The approach piggybacks on the play the child brings, working with sensations inherent in child-led experience. And, in particular, playful mindfulness builds naturally from behavioural empathy on behavioural, body and valence states.

While dovetailing as closely as possible with non-directivity, the authors note that the *playful mindfulness* approach *does* involve the use of questions which focus and deepen attention on body experiences. This *is* an agenda on the part of the therapist and could impact non-directivity. The authors reason that, with careful light-touch use, playful mindfulness can be used without compromising the equalized power dynamics of the child-therapist relationship built on non-directivity. We offer up the analogy of being a good, non-directive listener supporting a friend. For much of the time the listener simply listens and provides non-verbal prompts for flow and attention-signalling. There are times however, when a good friend will sensitively drop in questions to deepen focus and communicate interest. We suggest that, if used sensitively, such questions are unlikely to unbalance the non-directive power scales in the relationship. And, if this does occur, immediate sensitive repair and a return to pure non-directivity is possible and productive (Tronick & Cohn, 1989).

Playful mindfulness is offered in this careful way; only to be used within an established therapeutic relationship, held lightly, and with elements of the template being introduced *as and when the child offers* a relevant development in *their* play, in *their* way of relating. A practitioner may also decide that, while seeing the value in the approach at their client's developmental stage, they might prefer to maintain pure non-directivity within their sessions and bring an allied professional onboard to offer additional sessions of *The Interoception Curriculum* (Mahler, 2019) to compliment play therapy.

In the sections above, we have established dysregulation is the norm for many

autistic people. When the world feels chronically dysregulated, and experienced as an attack on the senses, a primary response is the drawing of attention outwards to monitor and respond to perceived threat (Bradley and Korossy, 2022, Heilman et al., 2008, Millington and Simmons, 2025, Porges, 2001, Porges, 2009, Sterling and Eyer, 1988). This is hypervigilance. Hypervigilance perpetuates the stress system's tendencies towards flight, flight, freeze or fawn adaptive response. This can result in reduced attentional resources left to notice one's own body, how it feels, and one's own needs. With playful mindfulness, we aim to help each child move safely from hypervigilant external orientation towards embodiment and a gentle interoceptive focus on, "*how I feel in my body*".

To outline this technique, we will first describe the playful mindfulness template with *external body parts* as focus. We support embodiment by facilitating a child's observation of their body parts and bring awareness towards their related sensations. At this early stage, we include sensations with a *leaning towards* valence states (the broad sense of *how I feel*, or *how a specific experience makes me feel*). Then, we will explore the possibility of using the template with *internal body parts*. Next, we discuss ways to support integration of sensations *with* valence states, building functional connections for each child. This builds toward better awareness and understanding of regulatory states. The aim is to help autistic children understand that some of their feelings require actions and how and when to take those actions – *regulatory actions* – that can help them feel better.

6.1. The playful mindfulness template with external body parts

We suggest starting with noticing *external body* parts; particularly sensations related to external body parts in motion or other action. Tactile, proprioceptive and interoceptive sensations related to external body parts are often experienced in more concrete ways than those related to internal organs, experiences or states. The nose, ears, mouth, eyes, hands, feet are all great initial focus-priorities. But any external body part can be chosen if the child's play leads you in its direction (for instance, feeling the back might ordinarily be an obscure priority for a certain child, but when they happen to introduce a piece of play that promotes sitting back-to-back or rolling a ball on your backs, then it's *focus on backs time*!). The following six aspects make up the playful mindfulness template.

A. Evoke movement and body sensations in playful ways (setting up the therapy room)

We want to promote loads of playful sensory experiences to promote interoceptive, tactile, and proprioceptive sensations. Set up your space so that it provides rich opportunities for body signal exploration. Specifically, consider playful activities that (potentially) evoke stronger sensations in the body. These will be the moments that are ideal for inviting body attention, providing helpful practice in noticing sensations. Sand, water, rice, textured objects and material, sensory fidgets, containers of slime, playdough, putty, ice packs, hand warmers, vibrating toys, etc., are all perfect. Also, if space permits items that invite big body movements for playfully intense body input, you could include a yoga ball, weighted toys, mini trampoline, scooterboard, etc.

B. Invite the child to notice one body part or region at a time

Be led by the child's actions into *which* body part to prioritise, and prioritise *only one body part at a time*. You might choose even smaller regions to focus on, if this super-bite-sized focus is supportive to the child. Chunking the noticing into one body part or region at a time can reduce the cognitive load and provide a more succinct goal versus noticing how the entire body feels.

C. Support alternative forms of expression

Each child's inner world is unique, and so is their preferred modality for access and ease of expression. Some children will prefer words. Some might use sound or song. Some might prefer making marks, using colours, drawing, making textured creations, using play dough or clay etc. Your therapy space should include materials for these kinds of possibilities. It will also be great to have the following available: emotion words on cards, sensation descriptor words (such as hot, cold, sticky, wet, dry, itchy etc.); colour cards; picture cards of emotion faces; picture cards of potentially associative things (animals, sea creatures, dinosaurs, weather etc.). All of these might help a child express their inner world. You can keep them available in a format best suited for the child you are working with (perhaps in

tubs, perhaps in lists, perhaps on Velcro menus?).

D. **Curiosity and the use of questions**

In playful mindfulness, we ask gentle questions to draw the child's attention to aspects of their inner experience; aspects which can deepen in self-understanding if we actively support curiosity and exploration. In asking questions, *we are not looking for answers* per se, we may never know those answers. We are looking to facilitate curiosity.

Questions prefaced with softening, curious openers such as, *I wonder…, maybe…, I'm interested if…,* are often a great place to start. We balance this light curiosity with the individually appropriate use of *direct* personal pronouns or nouns (see *Voice and Language* above): "I wonder how your hands feel in the sand?"; "I wonder what will happen next?"; "I wonder what Jaz's tummy feels like just now?"

Prefacing our questions with simple behavioural observations (rather than labels or interpretations) can be extremely helpful, "Dave's feet tapping in the water, Dave smiling, I wonder what Dave's feet feel like just now?"

Some autistic children may benefit from being given structured answer options together with a question, thereby facilitating focus and limiting cognitive load. If we provide options though, we should always give an *open-ended* option in the mix, to avoid leading or mislabelling, "Zazie is in the tent today, maybe Zazie is tired, or feeling shy, or feeling something else?" Some autistic children will, from the start, simply need more details in their questions to help them focus. In these cases, we can move straight into using these more detailed, option-focused questions.

It may be helpful to reflect on the fact that we will often miss the mark in terms of the tone, timing, and appropriateness of our questions. We will often experience moments of interactive mismatch. We can return immediately to deep listening and warm attention. We can light-heatedly make fun of ourselves getting it wrong. We can repair our connection. Tronick and Cohn (1989) found that in healthy play infants regularly experience interactive miscoordination, yet mismatch is typically

repaired close-on-instantaneously. “This constant oscillation between momentary miscoordination and interactive repair marks the essence of human dialogue, to which infants are sensitized in their earliest interactions” (Feldman, 2007b: p341). It might be very helpful for you to know that this is all very normal, and a healthy and essential part of your developing relationship (Feldman, 2007aa, Feldman, 2007bb, Hughes, 2011, Tronick and Cohn, 1989).

E. **Awareness on sensations and valence states**

Initially, we want to draw the child’s attention to *noticing* an external body part in action. Let’s take an example of a child who has chosen to play in a sand tray, pouring sand through their fingers. Initially, we can draw attention, “I wonder how your hand feels in the sand?”; or, “Maybe you can feel your fingers in the sand?” Or, we could support our questions with observations, “You are pouring the sand over your hand, I wonder…”, or, “Sand on hand, I wonder…” Or we could include answer options, “You’re pouring sand over that hand… I wonder if your hand feels cold, or soft, or maybe something else…?” Our questions invite curiosity without the pressure of an expected response. We invite the child to notice sensations in a specific body part, even if we remain unsure if the child is noticing their body at all. It is a powerful practice for us to presume competence and continue modelling curiosity. Our gentle focus, curiosity and supportive questions may well catalyse awareness in ways in which we don’t need to understand.

In our example, you will notice that we’ve worded our question in support of interoceptive focus, on the *how* of the internal experience of the hand, rather than the experience of the sand itself. In wording our questions *in the direction* of interoception, we open up possibilities. When things are going well, and the child is comfortable with the approach, we can start to introduce questions which lean toward the valence states *within* sensations. These questions get to the foundations of, “*how do you feel*?”, or, more specifically, “*how does having that specific experience make you feel*?” We can start with the basic dichotomies of good vs bad, comfortable vs uncomfortable, nice vs not-nice, nice vs icky, I want more vs I want to stop etc. It is important to find and play with the words that work for the child you are working with. “I wonder how your fingers feel in the sand?”; “I wonder if

your fingers feel nice or icky or something else?"; "Maybe the sand feels comfortable or uncomfortable or maybe it feels something else?" Here, our alternative expression forms can be very useful as we can present quite open-ended menus, lists, or tubs of options in various formats (see *C. Support Alternative Forms of Expression*, above).

You can, of course, move onto much more nuanced concepts and language in your explorations of sensations and valence states, as and when appropriate for the child you are working with.

F. **Acknowledge and accept *all* responses**

Our aim is to support curiosity, awareness and depth of experience; not to interpret or label. It is foundational to maintain our curiosity and acceptance of the child and their responses, even when the reported experience is different from what we might expect. The simplest way to acknowledge and accept any response is the classical child-centred technique of repeating (often slightly paraphrasing) the child's response. We can use all of the body-language, movement, vitality matching and voice tips from above (see section 4 *Tailored Interaction*), to augment our words and add extra levels of non-verbal connection and acceptance.

6.2. The playful mindfulness template with internal body sensations

After the child has had plenty of practice noticing body sensations in external body parts, an option will be to slowly shift to inviting attention to noticing *internal* body parts such as the lungs, heartand stomach. This can be seen as a new phase with a new focus-priority, or we can move back and forth between internal and external body parts as natural play enables.

As with the focus on external body parts, we can set up our therapy room with equipment and activities that could potentially evoke stronger sensations internally. For example, if the child is bouncing fast on a yoga ball, it might serve as a good time to notice how the heart or lungs feel. We can follow the template we describe above, but with this new internal focus.

Noticing sensations from internal body parts can be very abstract for some clients and it is important to go slowly, giving plenty of sessions and play time to noticing external body parts prior to shifting internally. It is likely that this development will be accessible only for certain older, perhaps more cognitively able children and young people. We can try it out and see if this level of focus is accessible to our particular client. And, don't worry at all if it isn't, we can move on to the next stages directly from external body parts if this proves more accessible.

6.3. Integrating sensations *with* valence states: Moving towards understanding of regulatory states and (if appropriate) Emotions

We advise taking it slow. For many, it is important to stay in the body-noticing phase and give plenty of safe practice connecting to and exploring body sensations. Often a therapist's instinct, based on past training, is to jump right to inviting the child to identify their regulatory states and emotions. A unique shift we propose in this paper is to start with noticing and describing body sensations and valence states and *then* slowly begin to use them as clues to regulatory states and (possibly) emotions. For some people, body sensations and their valence can provide valuable clues to regulatory states and emotions. Or, said in another way, sensations may provide an indication of what the body needs from an energy, survival and regulation perspective.

Initially, we want to invite body noticing with emphasis on a particular body part and sensation. With the child's focus drawn, we can add observations and deepen our questioning. We can wonder aloud what the sensation qualities (in particular, the valence experience) might mean, as felt by the child. If this is flowing, if the child's interest is sparked, perhaps the child will connect to an emotion or regulatory state (tiredness, hunger, overwhelm, pain, needing the toilet)? If so, we can validate and deepen our questions in this direction. If not, we can return to an exploration of how the sensation feels. Or, we can wonder aloud about what sorts of regulatory states the sensations might relate to (again, offering up lists, menus, tubs of options; alternative expressive possibilities; or giving a limited range of verbal options while always including an open-ended possibility).

To accompany these basic instructions, please see Section B of the Supplementary

Material, for three detailed examples of the move from noticing sensations and valence states to connecting those with regulatory states or emotions. These examples cover a lot of ground in short moments. This is for explanatory purposes while, in reality, it is likely that deepening interoceptive awareness and integration will take many experiences over time…

Our three detailed examples (Section B of the Supplementary Material) have exemplified how each autistic child can be supported to develop *personalized* connections between certain sensations, certain regulatory states and the actions required to address the needs inherent in those states. Some examples of such individualized connections could include: restless legs + tight/fizzy lower belly = go to toilet; feeling rubbish + can't sit still = go to safe place (catching early signs and pre-empting a meltdown); angry + belly weird = have snack; angry + heavy head = rest. These of course are just examples and, if this process is going well, each child you work with will develop a *unique* array of connections. We can then support each child in remembering when and how to take these appropriate actions in support of wellbeing. Word, symbol or picture charts on paper, on the wall, in the pocket or on schedule apps on a personal device can serve as very simple reminders of the connection between a felt experience and an action to take. We can help children to develop these reminder systems, communicate them to their loved ones and care givers, and practice using them in play to habituate responses that will be needed later under more stressful conditions.

7. Tailored vocabularies of feelings

In each of the three playful mindfulness examples (see Section B of Supplementary Material), the children connected up their experiences of certain sensations and overall valence states and, slowly, linked these experiences with regulatory states (e.g., needing the toilet) or *publicly recognizable* emotions (e.g., fear and excitement). Often though, autistic children may not relate to publicly facing labels of emotions or regulatory states (see, Section 5 *Tailored Empathy* above). We can help each child connect up *their* understanding and language of sensations and valences and relate this to regulatory actions without recourse to standardized concepts or labels at all. We can help each autistic child develop their own unique,

personally meaningful vocabularies of feelings.

In the first example (see Section B of Supplementary Material), the child who drew and labelled the "big red zaps" may not have connected to the concepts of *scared* or *fear* or *anxiety*. Instead, they could stick with the personally powerful label "big red zaps", with the shared understanding that *big red zaps = put on noise-reduction headphones and go to safe place* (or whatever regulatory action is supportive). The tacit understanding shared by the adults in this child's life is that "big red zaps" means that the child is scared due to specific noises in their environment. But the unnecessary leap to using a shared emotion concept is by-passed and, in doing so, the child retains the power of a personally meaningful experience. We can support each child to develop *their* vocabularies over time. Perhaps "big red zaps" is joined by "black belly blob = eat snack", "metal lines and teeth = drink water", and "fairy belly = try the climbing wall or trampoline", etc.

A powerful potential use of such vocabularies, relevant to the lives of many autistic children, would be in the recognition of sensations and valences indicative of overwhelm. The signs of building overwhelm are often difficult to catch for a child or observing adult. They may remain a complete mystery to non-autistic observers. For example, one of our authors reports how blurry pinpoint vision and warbly sound are the first body cues, for her, that indicate the onset of a meltdown. We can envision supporting a child with similar experience to notice these sensate cues, to become more aware of their related valence (feeling rubbish, feeling desperate), and to link these experiential building blocks with regulatory action to prevent melt down – for instance, going to a safe place, telling others, talking to a safe adult, breathing, making comforting sounds, stimming, or whatever works for that child.

We can support children in creating their own signifiers of pre-emptive feelings. In the above example, perhaps the child relates *blurry pinpoint vision/warbly sound/feeling rubbish* to the image of a ball on the edge of a cliff. Work can be done to develop this image into a signifier that can be used to communicate this feeling to the significant adults in the child's life. Such a signifier should be simple (especially as they are often needed at times of heightening dysregulation; times when cognitive-linguistic capacities are lessened), for instance, simple picture

symbols (in our example, a ball on a ledge), a hand signal (perhaps a wobbly fist), a one-word label ("ball"), an object (a particular ball). We can envision vocabularies of sounds, of movements, of gestures, of hand signals, of found objects, of made objects, of words, of textures, of scents, of drawn images, of found images, of marks made, or of any combination.

8. Discussion

The five areas of clinical technique we presented in this paper are offered as augmentative to child-centred therapy models. We emphasize again here that these techniques do not represent a stand-alone therapeutic approach and that any therapist working with these techniques should be trained and registered in a recognized therapeutic modality. When understood, practiced and delivered affectively, we posit that the proposed clinical techniques offer a practical roadmap for addressing each child's sensory needs, reducing dysregulation and fostering meaningful connection without compromising the child's autonomy.

Further research is needed to isolate and assess the various aspects of our proposals as potential mediating factors in intervention studies. In considering *Sensory Stability*, there were several factors within Table 3 which we acknowledged were without source and were developed from the authors' combined professional and personal experience. These un-sourced elements could be foci within intervention studies (with multivariate analysis isolating the specific variables).

In *Tailored Interaction* (*Initial Connection*) we acknowledged that our clinical suggestions were rooted in several autism-specific child-centred modalities. These modalities have all been tested in efficacy studies: DIRFloortime (Pajareya and Nopmaneejumruslers, 2011, Liao et al., 2014, Salman, 2016, Aali et al., 2015, Ho and Lin, 2020, Hamid et al., 2023); PACT (Green et al., 2010, Aldred et al., 2004, Rahman et al., 2016); SCERTS (Wetherby et al., 2014, Morgan et al., 2018, Fiaz and Rehman, 2020, Yu and Zhu, 2020); Rhythmic Relating (Daniel et al., 2023, Daniel et al., 2025); autism-specialized Child-Centered Play Therapy (Schottelkorb et al., 2020, Chung and Ray, 2025).

In *Tailored Interaction* (*Body Language and Vitality; Voice and Language*) our

suggestions are taken directly from the Rhythmic Relating model (Daniel et al., 2022, Daniel et al., 2024, Daniel et al., 2023, Daniel et al., 2025). We are currently in the study design phase of a project to undertake a large-scale intervention study examining the therapeutic efficacy of Rhythmic Relating with young autistic children.

In *Playful Mindfulness*, we tailored Kelly Mahler's *Interoception Curriculum* to dovetail with child-centred therapy principles. Intervention studies on the efficacy of the Interoception Curriculum include, Mahler et al., 2022, Mahler et al., 2024, and Hample, Mahler, and Amspacher (2020).

Our sections on *Tailored Empathy* and *Tailored Vocabularies of Feelings* present original clinical suggestions (based on extensive literature searches and experience) as opposed to syntheses, as in the above. As such, as far as the authors are aware, there are no related source materials or intervention studies currently. Further studies, isolating certain clinical variables, are needed. In particular, these variables are (a) the use of body and action-based reflections as foci for empathy (*behavioural empathy*), and (b) the development of a child's unique interoception-based (and interoception-facilitated) vocabularies of feelings.

In conclusion, we encourage practitioners to remain flexible and attuned to each child's unique sensory and communication profile. Future research and practice improvements will continue to benefit from attention to autistic voices, helping to ensure therapeutic models develop in alignment with the lived experiences of autistic individuals. By embracing neurodiversity and sensory-informed care, therapists can help create more inclusive therapeutic spaces where autistic children are understood and valued.

CRediT authorship contribution statement

Stuart Daniel: Conceptualization, Writing – original draft, Writing – review & editing. **Kelly Mahler:** Writing – original draft, Writing – review & editing. **Dee C. Ray:** Writing – original draft. **Kade Sharp:** Writing – original draft, Writing – review & editing. **Kim Clairy:** Writing – original draft. **Sean M. Inderbitzen:** Writing – original draft. **Amy C. Laurent:** Writing – original draft. **Jacquelyn H.**

Fede: Writing – original draft. **Jonathan T. Delafield-Butt:** Writing – original draft, Writing – review & editing.

Appendix A. Supplementary material

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Supplementary material

Recommended articles

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1 Child-centred therapists such as non-directive counsellors, music therapists, play therapists, drama therapists, dance and movement therapists, somatic practitioners, art therapists, and child-centred occupational therapists and speech and language pathologists.

2 The authors note that this recommendation (the use of minimal spoken language) is often crucial when building initial rapport with a child *in child-centred therapy*, when sensitively feeling towards individual attunement, and when communicating with some children throughout treatment duration. However, individual attunement is key within therapy and for some children, and at some stages, more complex language usage could be appropriate and beneficial. The authors make no statement as to the potential role of adult syntactic complexity in the lives and development of autistic children outside of the child-centred therapy context - the evolving debate around this issue is beyond the scope of this article.

3 The authors note that this recommendation (the use of proper nouns in direct communication with a child, about a child) can be a powerful way to connect and build rapport. However, we recommend this *primarily* as a tool for rapport and ease *within child-centred therapeutic work* – and not preferably as a language form to be used in the child's wider life. Gordon, Hendrick, Ledoux, and Yang (1999) have demonstrated that consistent use of concrete nouns instead of pronouns or referential terms (this, that) can inhibit linguistic understanding and slow processing time.

4 Exploring gender and sexual identity in a safe space is a priority for a significant percentage of autistic youth (Kallitsounaki and Williams, 2023, Moore et al., 2022, Sala et al., 2020). Removing pressure from the youth by initially using "you" and "I", rather than particular pronouns or a personal name, can allow them to know they are safe to refer to themselves however they'd like and that you'll follow suit, even if that changes over time.

5 The authors note that, as with all aspects of communication within therapy, individual attunement is key here. Any use of voice should be tailored to each individual child, starting with the initial volume and quality recommendations we make above (re: Khalfa et al., 2004) evolving as attunement grows. This process often benefits from explorations in the use of musicality, rhythm and possible singing speech. However, for some autistic children with profiles indicative of misophonia, elements of these possibilities may prove deregulating (for an overview see, Rinaldi, Simner, Koursarou, & Ward, 2023).

6 Stims or stimming... commonly used terms for "stereotypies": semi-voluntary, stereotyped repetitive movements.

7 In reality, it is likely that these types overlap in lived therapeutic experience. Our empathic reflections will reflect this.

8 Playful mindfulness traces many of its roots back to the Sensorimotor Psychotherapy of Ogden, Fisher, and Minton, and its predecessor the Hakomi Method, which focuses on the regulating effects of body-based awareness in therapy contexts (Kurtz, 1990, Fisher and Ogden, 2009, Ogden and Fisher, 2015).