Weighted Therapy Guide

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What is Weighted Therapy?

Weighted therapy is the use of weight to apply deep pressure to the body. The weight and pressure stimulate the proprioceptive sense helping those who are "sensory seeking" to relax, focus, and develop a greater awareness of their body.

Weighted therapy;

- can have a calming effect, promoting a sense of wellbeing.
- can improve body awareness.
- can improve focus and concentration.
- can reduce repetitive sensory-seeking behaviour.
- is safe and effective.
- is non-invasive and discreet.

Weighted therapy is becoming increasingly recommended in the UK by Occupational Therapists. It is used in schools, hospitals, and homes. It is widely regarded as a safe and effective treatment for sensory integration disorder, making an enormous difference to the lives of sufferers and their families. Many children on the autistic spectrum have sensory processing issues, and many have benefited from the use of weighted therapy products.

Weighted therapy may also help those with Cerebral Palsy, Prader-Willi syndrome, Retts syndrome, Asperger's syndrome, ADHD, Down's Syndrome and those with learning and communication difficulties. The list of conditions that can be helped by weighted therapy is extensive, and some people suffering from other conditions (such as hearing problems and restless leg syndrome) also appear to benefit from the use of weight therapy. That said, not all children with these conditions will benefit. Success very much depends on the individual and their affiliation to deep pressure and weight.

The Proprioceptive Sense

The proprioceptive sense is a little-known, yet vital, bodily sense that most of us take completely for granted. Proprioception is the sense and awareness of our own body's position and movement. It is our awareness of our body's orientation in space, and the direction, speed, and extent of the movement of our body and limbs. This information is detected by sensory receptors in our muscles, ligaments, and joints, and then processed through the central nervous system.

The proprioceptive sense is closely related to the vestibular sense. The receptors for the vestibular sense are hair cells within the inner ear (vestibule). These send messages to the brain about the position and movement of the head in relation to the rest of the body.

In practical terms, the proprioceptive sense sends messages to our brain to tell us whether muscles are stretched or relaxed, whether joints are bending or straightening, and the extent to which this movement is occurring. This information is essential for carrying out everyday activities which most of us take for granted.

Poor proprioception makes maintaining bodily posture and moving with a feeling of safety and security difficult. It affects awareness of the position of the body, arms, and legs.

The ability to recognise which series of bodily actions and movements are necessary to complete a certain task is dependent on our proprioception. An underperforming proprioceptive sense affects 'motor-planning'. When this does not function properly the child may have difficulty getting dressed, tying shoelaces, and completing other everyday tasks.

Our proprioceptive sense tells us how much force to exert when completing a task. For example, how hard to push when opening a door, or how much pressure to exert on a pencil when writing are just some of the everyday tasks that may be affected.

A poor-functioning proprioceptive sense can be a symptom of Sensory Integration Disorder. This concept was first developed by Dr. A Jean Ayers in the 1970's. Sensory Integration is, in essence, the process of taking information in from our environment, making sense of that information, and using it to act and respond in an appropriate manner.

So, a child with a poor proprioceptive sense may;

- play roughly; pushing too hard, shouting, jumping, or running excessively.
- appear clumsy.
- have poor fine motor skills, finding writing and drawing difficult.
- display repetitive and self-stimulatory behaviour such as spinning, rocking or fidgeting.
- like to chew on their fingers, clothes, pens, toys, or other objects.
- appear uncoordinated and have difficulty with large motor skills such as jumping, climbing, or bike riding.
- frequently bump into other people and objects.

Deep Touch Pressure and Proprioception

Weighted therapy stimulates the proprioceptive system through the use of **deep touch pressure**.

Deep Touch Pressure works on the principle of applying weight or pressure to provide proprioceptive input. This input calms and modulates the central nervous system which, in turn, aids the processing of sensory information (Grandin 1992, McClure & Holtz-Yotz 1991). This calming and modulating has the effect of making the child feel more grounded and lowers their state of arousal. This lowered state of arousal then reduces repetitive self-stimulatory behaviours (such as spinning, hand flapping, and rocking) and allows better focus, concentration and attention.

Dr. Temple Grandin describes Deep Touch Pressure as follows: "Deep Touch Pressure is the type of surface pressure that is exerted in most types of touching, holding, stroking, petting of animals, or swaddling." (Grandin, 1992).

Dr. Grandin (who was diagnosed at autistic at the age of 3) goes on to state that "Occupational Therapists have observed that a very light touch alerts the nervous system, but deep pressure is relaxing and calming".

Children with a poor proprioceptive sense (particularly those 'sensory-seekers') will often seek out deep pressure sensations which make them feel more secure, more relaxed, and able to focus and concentrate better.

For example, some children like to wear tight clothing (which gives proprioceptive feedback). Some sleep under heavy blankets for extra weight – I have even heard of an autistic boy who preferred to sleep underneath his mattress! Other children will like to carry around heavy objects, such as backpacks, in order to gain proprioceptive feedback as this can often make them feel more grounded and secure.

Dr. Grandin developed a 'squeeze machine' to help her overcome her own sensory problems (Grandin 1992). The machine applied deep touch pressure to a large area of the body and gave the "feeling of being surrounded and contained by the embrace of the deep touch pressure squeeze". Dr Grandin found that the machine had a relaxing effect that calmed down her nervous system, reducing anxiety, and making her "less aggressive and less tense".

Deep Touch Pressure and the Tactile Sense

The tactile sense is our sense of touch. It contains two different touch systems – the protective touch system which relates to light touch, and the discriminative touch system which relates to

deep pressure as well as where, and what, is being touched. These senses should work in harmony allowing us to distinguish between different touch sensations.

Some children are over-sensitive to touch and will avoid tactile sensations wherever possible. Others may be under-sensitive and as a result they constantly seek tactile experiences. They will tend to fidget, try to touch everything, and find it very difficult to sit still. The application of deep pressure through weight or compression can benefit those sensory seekers helping them to calm down, concentrate, and focus.

Weighted Therapy, Deep Pressure, and Night-time

Weighted therapy is just one possible treatment for children with an under-developed proprioceptive sense. It can be used as part of a 'sensory diet' which is used to treat those with Sensory Integration Disorder.

Often children with poor proprioception do not sleep well, particularly if they are sensory-seekers. They may take a long time to go to sleep, and then wake throughout the night. As a parent this can be immensely frustrating, not to mention exhausting.

There is a wealth of anecdotal evidence to demonstrate that applying deep touch pressure at night-time helps to get children settled and ready to sleep and stay in bed at night.

For those of us lucky enough to have fully functioning proprioception it is difficult to understand the appeal of weight and deep pressure. The principle is the same as swaddling a new-born baby. The new-born, with his immature proprioceptive sense, is comforted and calmed by being wrapped tightly in a blanket.

Many children seek this type of deep pressure when going to bed by asking to be wrapped up tightly or asking for additional covers for additional weight and pressure. As a child, particularly in the days when we just had sheets and blankets, you may have been 'tucked in' tightly when you went to bed. Remember the feeling of comfort and security this application of deep pressure gave? Children with poor proprioception *need* this feeling *all* of the time.

Weighted Blankets

The use of a weighted blanket at bed time provides a safe and effective solution for many parents and their children. I have spoken to many parents who have not enjoyed a full night's sleep for several years, but on introduction of a weighted blanket for their child, have seen dramatic and immediate improvements. Imagine their relief and joy at finally getting a decent night's sleep!

Many parents now use a weighted blanket as part of their child's bedtime routine. The vast majority of these parents have found weighted blankets to be effective in improving their child's sleep, both in terms of getting to sleep more quickly and easily, and also remaining asleep throughout the night.

Some Occupational Therapists now recommend that a weighted blanket is always used under the supervision of an adult. For use at night this effectively means staying with your child until they have gone to sleep and then removing the weighted blanket. This is sensible advice, however it can cause practical difficulties – for example your child may not go off to sleep with you in the room or they may wake in the night and be unable to go back to sleep without their weighted blanket. For smaller and younger children, I would never recommend that you go against the advice of your OT. That said if your child is older, you follow some basic safety guidelines and use some common sense, then leaving a weighted blanket on all night can be OK. I left my son with his weighted blanket all night for many years, but I made sure it was not too heavy (less than 10% of his bodyweight) and that he could remove it himself if he became uncomfortable or too hot. I would also check up on him regularly throughout the night. If you decide to leave it on all night, it is important that you speak to your OT for guidance before you start.

Types of Weighted Blanket

There are different types of weighted blanket available made form a range of different materials. Blankets are typically made from fleece, neoprene, cotton, or a polyester-cotton mix.

There are advantages and disadvantages to each. Fleece is a very tactile material, and some children may not like the feeling it provides. Another consideration is that, being quite thick, it may cause overheating if used with other bedclothes. Neoprene is used to manufacture wetsuits, and neoprene blankets tend to be quite inflexible, often becoming hot and sweaty if used on a bed. Poly-cotton mix blankets provide excellent comfort and durability, are fully washable, and have the advantage of not providing too much additional insulation, so your child will not overheat, particularly in warm weather.

Weights used inside a blanket vary between plastic pellets, sand, steel shot and even corn seed. Sterile sand is popular as a filling. However, sand blankets cannot be easily washed. Steel shot is very heavy and offers excellent weight density but once again, washing these blankets can be a problem unless the steel shot is in a waterproof outer such as neoprene. Plastic pellets are now the most widely used filling as they are safe, provide a good weight density, have a pleasant feel, and can be put in the washing machine. A more expensive option available is a blanket filled with small hollow plastic balls which, as well as providing weight, provide a pleasing tactile sensation for the child.

Traditionally, these weights have been sewn into the actual blanket. Now, however, some blankets use removable weight bags which fit into pockets sewn onto the blanket. These blankets can also be fitted into a cover to ensure that the weights cannot easily be removed. This technique has several advantages over the more traditional blankets;

(a) The weights can be removed to allow easy cleaning and washing.
(b) The weight of the blanket can be tailored to the weight of the individual child.
(c) The distribution of the weight can be altered as appropriate – for example, weight can be concentrated on the legs for someone with Restless Leg Syndrome.
(d) As your child grows you can easily, and cheaply, add more weight without having to buy a new blanket.

The disadvantage of these blankets is that they do not wrap around the body as well as blankets with the weight sewn in as the weight pockets have a tendency to shift and move around.

How to use a weighted blanket

Weighted blankets come in different sizes and are designed to be used in a variety of ways.

When using at night the most flexible blankets are those designed to be used with your child's usual bedclothes. Using a weighted blanket over the top of your child's duvet allows them to use their familiar bedclothes and keep change to a minimum. When you remove the weighted blanket your child will still have their normal bedding for comfort and warmth.

Blankets made from poly-cotton do not add much in the way of extra insulation and therefore overheating is not a common problem with these blankets. In hot weather, however, using a lighter duvet is always an option if this is likely to be an issue. Larger, duvet-size blankets are available for older children – again those with removable weights are the most flexible and user friendly.

IMPORTANT – IF you decide the leave the blanket on the user should always be able to self-remove the blanket and the blanket should never be used as a restraint. However, most of the time they will not want to remove it as it is providing the deep pressure they crave!

Classroom use of weighted blankets

Smaller blankets than those designed for bedtime are available for use in other contexts, such as a school classroom. Often referred to as 'midi' blankets, they can be used whilst the child is sat; watching TV, reading, in the car, or as a comfort in the classroom if a child becomes over-excited or upset.

Such blankets are widely used in special education classrooms, and autism bases within mainstream schools. Where a child with ASD finds the classroom environment too overwhelming, they are offered a quiet area (often a separate sensory room) where they can sit quietly wrapped in a weighted blanket. The deep touch provided by the blanket helps to calm, relax, and re-focus the child.

Other weighted therapy products, such as lap pads and shoulder wraps, can also prove equally useful in classroom environments.

What weight of blanket should I buy?

The generally accepted principle is that the weighted blanket should weigh 10% of the user's body weight. Our research and experience have shown that this method gives a blanket that is heavy enough to be effective, but not so heavy as to be uncomfortable to use.
For example, a child that weighs 30kg, the weighted blanket should be no more than 3kg. It is recommended that the weighted blanket should not exceed 10% of the user's bodyweight – so, for example if the child weighted 33kg then the recommended blanket weight would still be 3kg (rather than moving up to the next blanket weight of 3.6kg).

It is important to remember that is only a guide. Many parents I speak to get a little anxious if the blanket is not at least 10% of their child's weight and some will tend to go for the next size up on the basis that their child is still growing. This tends to be a mistake and not something I would recommend, with often the heavier blanket being returned for something lighter as the child finds in too heavy and uncomfortable. Something around the 10% ratio works perfectly well for most people, but it is just a start point – if a child likes deep pressure, they will be soothed by most blankets with weight in them. Our own son started using a blanket when he was 5 years old – the same blanket was still working it's magic 5 years later despite him having significantly grown!

The table below gives a guide to blanket weights, however we must stress that it is a guide only.

- Body weight 25kg – weighted blanket should not exceed 2.5kg
- Body weight 30kg – weighted blanket should not exceed 3 kg
- Body weight 40kg – weighted blanket should not exceed 4 kg
- Body weight 60kg – weighted blanket should not exceed 6 kg
- Body weight 80kg – weighted blanket should not exceed 8 kg

Safety and use of weighted blankets

When used as directed, weighted blankets are a completely safe and effective tool to help with sensory integration. Follow the weight guides and always consult with your Occupational Therapist.

The blanket should never be used to restrain a child and should never cover the face. Your child should be able to self-remove the blanket, and you should remove it immediately if they show any signs of discomfort or distress.

How much do weighted blankets cost?

Weighted blankets vary in cost from about £100 to over £400; as blankets are very labour-intensive to manufacture, hence the cost.

When choosing a weighted blanket, look out for those which use high quality material and carry a quality assurance mark such as the CE mark.

Sensory Direct weighted blankets also carry a lifetime guarantee.

Weighted Jackets

The deep pressure provided by weighted jackets has a ‘calming and organising’ effect on the body's proprioceptive system. The jackets are commonly recommended by Occupational Therapists for use in the classroom to increase attention-span and reduce the hyperactivity often seen in children with autism, ADHD, and sensory or learning difficulties.

A weighted vest can benefit children who:

- have autism, ADHD, or sensory processing disorder
- display hyperactivity, such as excessive shifting in their seat
- have a short attention-span and are easily distracted
- show tactile sensitivities such as needing to touch everything, or being resistant to touch
- have a poor awareness of their body position
- display self-stimulatory behaviour such as rocking, twirling, and chewing

Occupational Therapist Nancy Vandenberg conducted research on children with ADHD and the use of weighted vests in the classroom (Vandenberg 2001). Students with ADHD were studied in the classroom performing fine motor activities for 15 minute periods, both with and without a weighted vest. The research showed that concentration on tasks increased by 18% to 25% in all

students tested. Additionally, 75% of the pupils frequently asked to wear the vest even when they weren't being observed.

Nancy Vandenberg's research recommends using a jacket for maximum periods of 30 to 40 minutes before giving the child a rest for a similar period before using it again.

Jackets may have weight around the waist area only, or offer weight around the shoulder area as a way of applying deep pressure to the upper body. The better jackets are discrete and have a "non clinical" look – without close inspection you would not know it was a 'special' jacket. This is an important consideration for all using the jacket, particularly for children in mainstream schools, who don't want to stand out from their peers.

Weighted jackets are designed for the classroom or other passive activities. They are not recommended for outside play or any other physical activities. In addition to the classroom, weighted jackets are useful in a wide variety of other environments such as restaurants, cafes, church, or cinemas when it is necessary for the child to sit calmly for a period of time. Other situations may include, for example, a busy shopping centre to help keep a child calm and reduce anxiety.

The most effective weighted jackets (or vests) are those which are flexible and allow the weight can be varied, using removable weights which slot into pockets in the jacket. It is important to ensure that these weights are evenly distributed throughout the jacket. In addition to providing the flexibility to tailor the jacket's weight to the individual, removable weights also make washing much easier.

When selecting the weight of a jacket there is no definitive weight guide. As with a weighted blanket, enough weight is required to make a the jacket effective but not too much as to make the jacket uncomfortable. The generally accepted principle for jackets, used by many OTs, is that a weighted jacket should not exceed 5% of the child's bodyweight. For smaller and younger children it may be advisable to use a less than 5%. We would recommend that you always consult with your OT particularly if you are devising a sensory diet for your child.

Case study - weighted jacket

Helen is 5-years old and has diagnoses of; Autism, ADHD, and Global Developmental Delay.

Lots of children on the autistic spectrum feel anxious a lot of the time. Helen's father John explains that, "One of Helen's particular needs is to feel safe and secure. She used to achieve this by wearing various backpacks and tight fitting clothes which were too small. Sometimes she would wear 2 or 3 backpacks at the same time. This apparel was not always appropriate, particularly given the weather in the UK".

John continues, "She found great comfort in wearing a swimming costume which was for a 3-year old but she managed to fit into somehow by stretching it to its limits. She is a very eccentric little girl and does not really care what other people think of what she is wearing".

John purchased a weighted jacket for Helen and noticed an immediate impact. "We found that the weighted jacket calmed her down completely. Her behaviour improved, the tantrums decreased, and we managed to give the swimming costume to a charity shop - when she was not looking!"

Now Helen uses the weighted jacket in school, at the discretion of her Learning Support Assistant, and in church to help her sit still for short periods of time. Her father goes on to say that, "life for Helen and the rest of the immediate family has hugely improved, especially when she has worn the jacket for a period of time - normally about 20-30 minutes."

Weighted Belts

Weighted belts are a relatively new concept, first tried in the USA. A weighted belt fits around the waist concentrating the child's weight around their core, increasing body awareness, particularly of the lower body and legs. This in turn promotes a feeling of calmness and balance, making the child feel grounded, focused, and secure.

The belt can be worn discreetly under a jumper or sweatshirt and is ideally suited for use in the classroom, during a therapy session, or out on a trip.

Case study – weighted belt

At the age of six, Jack was diagnosed with ADHD, Sensory Integration Disorder and a mild form of Autism. As a baby he was a late developer, being slow to walk and talk, but once he started there was no stopping him. Jack slept for just four hours a night and couldn't sit down long enough to enjoy a meal with his family or a story at nursery.

As Jack grew up he struggled in school and found it hard to make friends. Jack's mum, Marianne, was at her wits end. She had heard about weighted belts - worn around the waist to improve balance and propriception - and thought that this approach may help her son.

Feeling she had nothing to lose, Marianne decided to purchase a belt. When it arrived she told Jack that it was a 'Magic' belt that would give him 'secret superhuman powers of concentration'.

Within half an hour of putting the belt on Jack did something he had never done before – he sat down and did some colouring. "As soon as he put the belt on he became a different child", recalls his mother Marianne. The belt has helped Jack in many aspects of his life. He now eats at the table with the rest of the family and, thanks to his ability to concentrate and focus better when using the belt, Jack has made significant progress at school.

Deep Pressure Compression Vests

Compression Vests apply deep pressure and proprioceptive feedback to the body and shoulders. Compression vests do not use weight. Instead, deep pressure is applied to the body by the tight wrapping of the vest around the body.

Deep pressure has been found to reduce anxiety and distress by lowering the heart rate and calming breathing which, in turn, promotes a feeling of calmness and security. Some autistic children enjoy tight clothing or wrapping themselves up in sheets or a gym mat to give them the pressure they crave. The compression vest works on the same principle and may benefit children with tactile and proprioceptive sensory problems. Challenging behaviours and sensory-seeking behaviours are often reduced with the application of deep pressure.

Compression vests are manufactured from neoprene which wraps tightly around the body while fully adjustable, detachable, shoulder-straps provide deep pressure to the shoulders.

Weighted Compression Vests

There are now some weighted deep pressure vests available (often called Weighted Compression Vests) which are made of neoprene for compression but also contained a small amount of weight. These vests are an “in between” solution, offering a bit of weight (usually less than the 5% of

bodyweight) and some degree of compression – although less than a deep pressure vest. They are popular with younger children to gauge if responsiveness to deep pressure and weight.

Lap Pads and Shoulder Wraps

Lap Pads apply calming deep pressure to the lap and upper legs. Because they are used while the child is seated, it makes them ideal for use in situations like; the classroom, at reading time, at the table, or in the car. The weight has a calming effect helping attention span and reducing excessive movement or fidgeting.

Lap Pads are relatively inexpensive and portable making them ideal for use in schools. They can be used in conjunction with other tools such as wedge cushions to help with focussed sitting.

Shoulder wraps are designed to have much the same effect, except that the weight is applied to the shoulders. They are a cost effective, safe and portable tool, enabling easy use whenever and wherever they are needed.

Will weighted therapy work for my child?

There is a simple a short answer to this question – nobody knows until you give it a try! Some children actively seek out situations that provide them with weight and deep pressure. The introduction of weighted therapy items will have an enormously positive benefit on the lives of these children, and on the lives of their families. Other children may gain some benefit from it (such as a calming influence), whereas others will find the weight uncomfortable and will not tolerate it. Most children will let you know fairly quickly whether or not they like the sensation!

There are some simple steps you can follow to find out if weighted therapy will work for your child:

1. **Speak to your Occupational Therapist:** if you have an OT, ask them about weighted therapy products and if this approach may help your child. Most OTs are familiar with weighted therapy, and many thoroughly recommend it.

2. **Try heavy blankets and or coat :** before buying a weighted blanket, try putting some heavy blankets, winter coat or leather jacket on your child – a good time to do this is when they are trying to settle in bed so pop it on top of their normal bedclothes. This will give an indication of whether a weighted blanket may work. If they like the sensation of the weight, then it is likely that they like deep pressure and that weighted therapy would benefit them. *This is only a trial, so you must supervise at all times and do not leave them unattended – do not leave the heavy bedclothes/coats on all night as your child will get too hot and overheat.* It's also important never to cover the face, and make sure the child can self-remove any weight if they desire.

3. **Tuck them in tightly :** some of us recall fondly being tucked into bed tightly as a child under a sheet and blanket, remembering the feeling of security this provided. Tucking your child into bed will not add weight but will add some deep pressure which some children may find comforting. One method is to use a "mummy" style sleeping bag and then a sheet over the top of this tucked in tightly. If it works you can use this as a calming method when required (under supervision). There is some compelling medical research demonstrating that this is an effective calming technique for some psychiatric patients

4. **Hire a weighted blanket:** Sensory Direct offer a hire scheme allowing you to try a weighted blanket for a relatively small outlay. If, after your hire period you decide to purchase a weighted blanket, your hiring fee is refunded. (Sensory Direct Weighted Blanket Hire Scheme)

5. **Give you child a backpack to wear;** put some books and other heavy items into it to add weight – don't overload it though and keep the weight to under 5% of your child's bodyweight. This is a cheap and easy way of trying weighted therapy. If your child is calmed by this, then other forms of weighted therapy may also be effective.

What next?

If you think that weighted therapy may help your child, your first step should be to speak to your Occupational Therapist. If you don't have one, then speak to your doctor or school and ask for a referral. Your Occupational Therapist should be able advice you on what will help your child. However, you may face a long wait for an appointment depending on where in the country you live. Alternatively, you could arrange for a private consultation with an Occupational Therapist.