CHAPTER 2

Rebound Therapy as a Method of Developing and Assessing Communication

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Introduction

This chapter looks at the opportunities for communication which can be presented to dual sensory impaired children through rebound therapy. The work described developed firstly from attendance on an advance rebound therapy course, and secondly from observing and working with a seven year old dual sensory impaired girl with severe learning difficulties during her weekly rebound sessions. It very quickly became apparent that rebound therapy gave very positive opportunities for communication both to the child and to the adults working with her.

It seemed appropriate therefore to investigate the potential of rebound therapy for developing and assessing communication with dual sensory impaired children. I was able to do this in my capacity as an Advisory Teacher with a GEST 29 (14) project, by observing rebound therapy sessions with a range of children and staff in a variety of special schools in the North East of England, in addition to involvement in weekly rebound therapy sessions over a period of six months.

Most children integrate themselves into their environment by a process of reflex reaction to the world around them. The child reaches out to explore the external environment and the process of establishing body awareness proceeds automatically. In all of this the senses play an essential part. Touch, sight, sound, taste and smell come together to enable the child to make sense of the outside world and to become at home in it. All this usually happens without the adult making a conscious contribution to these processes.

If, however, these earlier proprioceptive experiences have been prevented, by brain injury for example, another way of stimulating the sensory system must be found in order that the development of body image and spatial awareness can take place.

Children need to discover how their bodies move in order to distinguish one part of their body from another. (Stewart, 1990)

David Stewart goes on to emphasise that good body image is an essential requirement in order to have a sound base upon which to build perceptual skills. If children have good body image, spatial awareness and balance, their bodies can act in an integrated manner.

Body image is a variable concept but Cratty (1979) states that it includes:

the responses the child makes relative to his/her body’s shape, size, components, and perceived capacity for movement and interaction with the environment.

Cratty also suggests that movement is a vital factor if a child with learning difficulties and sensory impairments is going to be given the maximum opportunity to develop cognitively.

Sherborne (1979) worked with children who had severe learning difficulties and observed that:

Children with severe handicaps would appear to have two prerequisites for making significant progress:

a) a need to improve their self-awareness and body image
b) a need to develop an awareness of others through the ability to make meaningful relationships.

Sherborne developed a movement method which enabled these two prerequisites to take place. Rebound therapy develops these equally well.

The rebound therapy system offers an easy way of flooding the child’s senses of touch and spatial awareness in a controlled, safe system, and the trampoline bed became our earliest working tool. (Williams, 1984)

Deryck Williams was referring to a system of movement on the trampoline which was developed by Eddy Anderson, who at the time was head teacher at a special school in Cleveland. Anderson used the energy freely available from the trampoline bed to generate a system of movement which used this easily released and controlled kinetic force.

Anderson (1987) continually emphasises that this is not trampolining. Adults operating rebound therapy must be aware when a child is transferring from rebound to trampolining so that the child’s needs are
met safely and sensibly and fall within the requirements of the British
Trampolining Federation.

Anderson was looking for a structured environment which provided a
dynamic situation which could be used daily in order to provide for
children with profound and multiple learning disabilities. He wanted an
environment which facilitated a multi-sensory approach, e.g. one which
provided sensori-motor input, and auditory and visual stimuli which
awakened or facilitated basic body reflexes, body image, and spatial
awareness. Rebound therapy has not been devised to develop skill
learning as an end in itself but to develop problem solving, concept
formation and sequential thinking. 'The simple activity of bouncing on the
trampoline teaches the child a great deal about his (sic) own body. It
enables him to become more aware of the position of his body in space as
well as the relationship between body parts.' (Young, 1986)

Whilst working on the trampoline the child and the adult have to
develop a one-to-one working relationship, social interaction and
communication skills. A major advantage of rebound therapy is that it is
fun and both the child and the adult can gain pleasure and fitness from the
activity.

Rebound therapy is a very dynamic system. Apart from the
opportunities to develop body image and spatial awareness there are other
significant educational aspects to this work, e.g:

- development of relationships
- opportunities for communication
- development of advocacy.

The length of this chapter does not allow for a detailed description of the
safety aspects or the techniques used but many of these will be discussed in
a later section.

Communication functions
This study concentrates on the following communication functions

- satisfaction of needs
- control of the environment
- regulating interpersonal interaction

as these would seem to be the functions most appropriate to the needs of
children with profound learning disabilities and additional sensory
impairments.

'Somehow, we have to ensure that children want to communicate, that
there is someone to communicate with, that they have something to
communicate about and that we teach them that communication is
enjoyable and brings results.' (Mittler, 1988) Peter Mittler goes on to
question:

- How often do we present each child with opportunities for choice and
decision making?
- How many adult child interactions are initiated by the child?
- Who responds and how?
- What happens as a result?
- How can we help a child to learn that initiations of interaction are
rewarding and lead to desired outcomes?

Rebound therapy can provide opportunities and situations in which these
questions can be answered.

Coupe and Goldbart (1988) suggest that behaviours are exhibited to
both internal and external stimuli which are received through all sensory
channels. At this level, any behaviour which indicates a change from a
previous state can be interpreted as a signal by an adult. Ouvry (1987)
suggests that children need to be able to produce behaviours which are
consistent and which can therefore be accurately interpreted by others.
Children move from the pre-intentional stage of communication when
they begin to realise that facial, vocal, gestural and other behaviours may
have an effect on people around them and that they can begin to
communicate their needs. By creating situations for this development to
take place some children can be encouraged to develop early intentional
communication. Coupe and Goldbart (1988) state that 'this stage must be
deliberately taught and carefully structured'. This can be achieved by
using rebound therapy as the 'carefully structured' situation.

Communication is inherent in every activity undertaken with the
children and the establishment of some form of interaction is an
essential pre-requisite for teaching. Communication is also vital for
the personal development of the children as it allows them to express
and to satisfy their physical needs, their need for social interaction
and their need for understanding and organising their surroundings.
(Ouvry, 1987)

Rebound therapy fulfils these three functions and gives opportunities for
children to develop their communication skills whatever their level of
functioning might be.

Moody (1986) worked with older learning disabled children and looked
at the area of non-verbal communication. He found that whilst working
with his students on the trampoline he became much more aware of non-verbal communication taking place especially through facial expression, eye contact, and body contact. He also realised how important facial expression is in communication, as the face is part of the body which is most clearly observed during interaction on the trampoline. The close physical contact involved in movement activities such as rebound therapy encourages synchronisation of action. This is essential for children who must rely on physical cues or co-active signing as their main channel for receptive communication.

For children with profound disabilities in addition to sensory impairment, the system of Total Communication gives them every possible cue that may help them attribute meaning and understanding to the words and actions of others. If a child is working toward vocalising, rebound therapy can assist the physical process.

The physical basis of speech can be helped in some cases through rebound therapy. The steady rhythm of the bed pushes the abdominal viscera against the diaphragm forcibly expelling air from the lungs across the vocal chords. This explosive release of air can be the beginning of previously unformed speech patterns. (Beachill, 1985)

Although not specifically referring to rebound therapy when she put forward these ideas, Wyman exactly describes the focus of this work when writing in general about movement experiences:

Through the use of movement the child is able to become involved in the interaction process and may begin to anticipate and restart a movement following a pause. He (sic) may give some indication which the adult can interpret as a signal to restart an activity. The child may indicate that he has enjoyed the activity by moving his limbs or bouncing on his bottom or pushing the adult or taking the adult’s hands and putting them back in the correct position for the movement to be restarted. It is important that this stage is recognised and that the child is encouraged through the adult’s response to use movements to effect change. (Wyman, 1986)

As a result of their disabilities dual sensory impaired children receive confused information from the environment which causes them to feel threatened. They have problems making sense of the world and this results in a failure to communicate and an intolerance of external interaction. As a consequence the establishment of emotional and social relationships are delayed and they become locked into themselves, often exhibiting stereotyped behaviour such as finger flicking, eye poking and head banging as a form of self-stimulation. The needs of dual sensory impaired children must therefore be identified in order to provide them with a suitable learning environment and appropriate learning strategies. The environment in which dual sensory impaired children learn must be designed to give them security, familiarity, consistency and structure. They need structured routines where they are given opportunities to make choices, solve problems, and above all, communicate. They need to develop relationships and attachments to people and through these relationships will learn to explore and discover, thus developing their own self-image.

The learning environment provided for a dual sensory impaired child must be a reactive environment. It must allow the child to make choices and solve problems whilst feeling secure. It must encourage the use of residual vision and hearing and it must allow the child to move about safely. The environment must also provide the child with opportunities to develop social and emotional relationships.

Creating a reactive environment for a child is an important step in providing the necessary stimulation for the child to learn. When teaching dual sensory impaired children it is important that they understand the environment in which they are learning by receiving clues as to where they are and what is going to happen next. A reactive environment is designed to allow dual sensory impaired children to have control over their interaction whilst at the same time providing for their needs of love, affection and security.

McInnes and Treffry (1982) state that a reactive environment must include the following features:

- emotional bonding
- problem solving
- utilisation of residual vision and hearing
- communication.

Rebound therapy can provide this reactive environment and can be used as part of a dual sensory impaired child’s structured routine. Very few young dual sensory impaired children are motivated to move and they may have little or no knowledge of what their bodies are capable of. Many have very poor body image and one of the aims must be to give them an awareness of where their hands, feet, arms and legs are, and the different ways in which they can move them.

For a dual sensory impaired child the stage of motor development reached often parallels stages of social, emotional, and intellectual
development. Motor activities should be planned to provide children with opportunities to learn awareness of themselves and their environment. As well as the development of body image and spatial awareness, rebound therapy can also give the child the opportunity to develop communication skills. ‘All behaviour is interpreted as communication. Regardless of the development level, a person is never non-communicative’ (Aalborgskolen, 1991) Visser (1988) suggests that ‘signal behaviour is the primary goal of communication development’. Rebound therapy presents opportunities for this signal behaviour to take place. Visser goes on to emphasise how important it is that these early signals are interpreted by adults so that the child learns that his signals can produce a response.

McInnes and Treffry (1982) state that: ‘For many MSI children who are functioning at an extremely low level, the simple body signal may be the level of communication at which the child is capable of functioning.’

Through intensive play activities, it is hoped to establish that the child’s own body is giving good messages, that these messages are received by the adult and that they will be modified or extended according to the child’s needs. (Wyman, 1986)

This observation from Rosalind Wyman describes the focus of this study. Although she was referring to activities in general, the comment can be directly related to rebound therapy.

Case studies

Over a period of six months, regular weekly observations were made of one child in detail. Two further groups of children were observed, each on two occasions. Video recordings were made wherever possible and field notes were taken to document the observations made. Observations were made on the following areas:

- opportunities for the adult to communicate with the child
- opportunities for the child to communicate with adult.

During the sixth month period, observations were made of one rebound session per week with a seven year old girl with a dual sensory impairment. Sarah has moderate hearing loss in both ears and has optic nerve hypoplasia with a converging squint. She also has severe learning difficulties. Sarah has no speech and makes very little attempt to communicate. She is ambulant but wears splints to straighten her ankles. Sarah’s class teacher reported that she responded well to rebound sessions, also to swimming, and music and movement. A copy of Sarah’s educational objectives was made available by the class teacher and those which were relevant to rebound therapy sessions were noted.

Although work with Sarah for the purpose of this study began in November, her rebound sessions had begun six months earlier. During the first few weeks Sarah was helped to climb on to the trampoline and encouraged to crawl around the bed so that she could become used to the feel of the trampoline and the environment in which she would be working. Sarah then progressed through the following stages between May and November.

1. Sat in a cradle with two adults supporting and bouncing gently.
2. Adults moved back slightly to slowly reduce support.
3. One adult only kept Sarah’s legs straight between adult’s legs. No back support given to encourage Sarah to sit independently.
4. Stood with two adults, one behind holding hips and one in front holding Sarah’s hands. Gentle bouncing.
5. Stood on bed with two adults but no support given. Sarah encouraged to walk between adults.
6. Hoop introduced. One adult in front and one adult behind. Sarah stood inside the hoop and held the hoop with both hands. Gentle bouncing.
7. Stood alone. Adults depressed the bed slightly. Sarah tried to jump alone. Adult offered hands for support.

Although this records the progression Sarah made from a motor development point of view, the observations which were subsequently made focused on the area of communication rather than on motor development.

Objects of reference are used with Sarah to help her to understand the structure of her day. Her object of reference for the rebound sessions is a wooden frame with rubber bands stretched across it in both directions to represent the bed of the trampoline. On the window sill in her classroom is a row of shoe boxes and at the beginning of each day Sarah’s timetable is communicated to her by placing the object of reference for each activity in the shoe boxes in the correct sequential order. When it is time for a rebound session Sarah is taken to her calendar boxes and the adult working with her co-actively removes the object of reference and makes sure that Sarah recognises it by moving her hands over the surface a few times. On most occasions when Sarah was observed, she set off, without prompting, for the sports hall where the trampoline is situated, as soon as she felt the object of reference. Sarah takes the object of reference with her and puts it down once in the sports hall. When the rebound session has finished she is encouraged to carry the object of reference back to the
classroom and replace it in the appropriate calendar box thus indicating that the activity has finished.

Whilst working with Sarah during these sessions I wore an object of reference myself to distinguish me from the adults who usually work with her. This was presented to Sarah each time I approached her. Her regular classroom assistant also used her own object of reference and therefore before a rebound session Sarah was presented with three objects of reference, one for the activity and one for each of the adults working with her.

A Total Communication approach is used with Sarah, therefore objects of reference are not the only method of communication used. The adults working with Sarah use Sign Supported English. This means that a sign is used with the spoken word to reinforce meaning. The two signs used with Sarah during the rebound sessions were MORE and FINISH. Once Sarah was on the bed and involved in an activity, e.g. bouncing in the hoop, the bounce would be stopped after a countdown of five and Sarah was encouraged to sign MORE or FINISH. The activity would then continue again for a short time or would stop. This sequence would be repeated several times for each activity and signing encouraged each time the activity stopped.

In addition to the weekly observations made on Sarah, two other groups of children were also observed. One was a group of three girls aged between four and five years, also with dual sensory impairment and additional severe learning difficulties. This group was observed on two occasions two weeks apart. Field notes and a video recording were made. Again the observations focused on the opportunities for communication both for the adults and the children. This group of children was at an earlier stage of development than Sarah and rather than conventional signs being used, the adults were looking for any signal from the child which indicated PLEASURE/DISPLEASURE, MORE/FINISH.

The second set of observations were made of a group of older children, ages ranging from thirteen to nineteen years. These children had severe learning difficulties in addition to dual sensory impairment. Two of them also had severe behaviour problems. Again field notes were made but it was felt inappropriate to make a video recording of this group in order not to disturb the normal routine of the session.

Analysis
The length of this chapter does not allow for an analysis of body image and spatial awareness, which are important elements of any rebound programme. The analysis will therefore concentrate on the following aspects of communication as identified by Ouvry (1987):

- pre-intentional/intentional
- receptive
  - tactile clues
  - visual clues
  - auditory clues.
- expressive
  - satisfaction of needs
  - control of the environment
  - regulation of personal interaction.

The examples of pre-intentional communication which were observed included smiling, laughing, facial expressions which indicated uncertainty, physically reaching for adult for reassurance, and so on. These behaviours could be interpreted as reflex responses, or pre-intentional communications in response to the external stimuli which were being presented to the child at the time.

It was apparent from the observations made that all the children had very quickly moved from the pre-intentional stage of communication to the intentional stage once they were on the trampoline. Without exception, each child was observed at some stage to communicate in a positive way that they wanted an activity to start or stop. This was demonstrated in a variety of ways which were different for each child. The following list shows the variety of ways to indicate MORE:

1. Moving legs up and down.
2. Banging trampoline bed with hand.
3. Vocalising.
4. Arching back.
5. Signing MORE.
6. Bringing hands back down onto bed after head banging.
7. Lying back down on bean bag on trampoline.

As most of the children obviously enjoyed rebound therapy there are fewer examples of ways in which FINISH or STOP was indicated by the children observed. The following list shows ways in which the children indicated that they wanted to FINISH:

1. Sitting down in the middle of the bed.
2. Sitting up from lying position.
3. Head banging.
4. Vocalising

Both pre-intentional and intentional communication were observed while the children were taking part in rebound therapy sessions but it was very obvious that the trampoline was an ideal environment in which to give the children the opportunity to develop intentional communication skills.

Rebound therapy is an activity through which messages can be given to a child immediately. The child receives tactile clues through the movement of the trampoline itself and from the adults working with the child. Visual clues may be useful to children unless their visual impairment is such that these would be inappropriate. Visual clues can help children to orientate themselves on the trampoline as well as receiving instructions or questions from the adults. Auditory clues can also help children orientate, e.g. by having bells tied to the centre of the bed or beating a drum in time to the bounce. Adults can prepare the children for the next activity by giving verbal instructions.

Tactile clues were given to the children in a number of different ways depending on the needs of the individual child. Every child except one was given a physical prompt of some degree when getting on to the trampoline. This was because the trampoline was too high for the children to climb on independently even though crash mats were placed alongside in order to reduce the height the children had to climb. As well as providing the physical assistance the children needed to climb on to the trampoline it gave the adults working with the children the opportunity to have personal interaction with the children and therefore help them to identify who would be working with them.

Once on the bed a variety of tactile clues were given to the children. These ranged from giving the children enough physical support for them to be able to take part in the activity safely, to co-active signing with the children in order to communicate what would happen next. One child was given additional tactile information by a hoop being used to support her when she was bouncing. This took the direct adult contact away but gave her a substitute in order that she maintained her skill level. Another child, who tended to be tactile defensive and reluctant to accept human contact, was provided with a bean bag for support instead of direct adult interaction.

For children with visual impairment, visual clues may not prove particularly useful but in order to encourage the use of residual vision these cues should not be forgotten. Children with some degree of residual vision will receive visual clues as they enter the room where the trampoline is situated. They may be able to locate the trampoline and the adults who will be working with them. It is useful if the pads placed round the edge of the trampoline for safety are a contrasting colour to the bed of the trampoline. This will help the children to locate the working area. Children who were using signing as a method of communication were given visual clues by the adults in the form of signs. These gave the children instructions or told them what would happen next.

As with visual clues, auditory clues were used to a greater or lesser degree depending on the children's level of functional hearing. For some children the spoken voice was extremely important as they relied on receiving instructions and directions as to what would happen next. Others, however, were given clues as to where to locate the centre of the trampoline by listening to bells which were attached to the centre of the bed. Another method of clueing was by the use of a drum beat which was used to indicate to the children when to start and stop bouncing.

In addition to the children receiving clues from the environment and adults around them, rebound therapy also provides an excellent opportunity for the children to interact through expressive communication with those around them. Every child who was observed during this study exhibited some form of expressive communication.

Earlier in this chapter the needs of dual sensory impaired children were identified. During the course of my observations it became apparent that rebound therapy can satisfy these needs. These children need a reactive environment. The trampoline by its nature provides this. As soon as the children move onto the bed, the surface will react to the slightest movement made by the children. The trampoline provides a clearly defined environment so that the children experience security and familiarity whenever they are on the trampoline.

The movement routines through which the children progress provide structure to the sessions and the children are given opportunities to use their residual vision and hearing. By working with familiar adults in close physical contact the children are given the opportunity to build up personal relationships and learn to interact with those working with them. Most importantly, the children are given the opportunity to control their environment and the activity which is taking place through communicating at whatever level is appropriate for them.

As stated the environment of the trampoline provides opportunities for the children to control the activity which is taking place. It has already been stated that every child who was observed for the purposes of this study was able to control the activity to a greater or lesser degree. Each child had a method of communicating that they wanted more of the activity or that they wanted to stop. More able children can be given a choice of activity, e.g. 'Do you want to sit or stand?'

The advantage for staff working with the children on the trampoline is
that the activity is immediately controllable which means that a quick response can be given to the children’s communications. In this way the children very quickly learn that they can cause a change to take place.

It is important that children with a dual sensory impairment should not be tactile defensive since they rely heavily on adults in order to be able to interact with the world around them. Rebound therapy provides opportunities for children to develop relationships and to learn that they can have dialogue with the people working with them. Initially, it is necessary for the adults to have very close physical contact with the children for safety reasons. During this time the children are given the opportunity to develop trusting relationships with the adults working with them. As the children become more confident and the adults begin to move away the children learn that the dialogue still continues with the adults and that they can be in control of the activity by communicating with the adults.

During my observations it became apparent that the trampoline is an ideal environment for children with dual sensory impairment. It provides a confined identifiable area which they can understand. There is no clutter to confuse them and it gives them an opportunity to experience freedom and energy which they cannot find elsewhere. The results of this study have shown that rebound therapy can satisfy the needs which have been identified as being of paramount importance for dual sensory impaired children.

In 1966 Charles Buell wrote that ‘trampolining can be great fun for visually handicapped children’. This surely is one of the most important considerations when working with dual sensory impaired children. So many activities in which they take part are not ‘fun’. One of the overriding impressions which was left with me as a result of this investigation was that the majority of children do find rebound therapy an enjoyable activity in which to take part. This must surely give added value if an enjoyable activity can also present opportunities for educational development.

The findings of this work confirmed that rebound therapy can provide a very positive environment in which to develop the communication skills of children with dual sensory impairments. The trampoline provides a restricted environment definable by texture and movement which reflects the idea of Lilli Nielson’s ‘little room’. It is an area with which a child can become familiar and feel secure. It fulfils one of the requirements of McInnes and Trefry (1982), for a reactive environment. The child can learn to control this environment through signal behaviour which Visser (1988) considers to be the ‘primary goal of communication’.

Rebound therapy also provides opportunities for co-active movement between adult and child which Wyman (1986) says is ‘the basis for a great deal of the child’s learning’. The activity is easy to control quickly in response to the signals given by the child and the child learns that s/he can be in control of the activity and make choices about what will happen next. It has been shown that, in terms of giving opportunities for communication, rebound therapy offers the criteria laid down by Mittler (1988) ‘that the children want to communicate, that they have something to communicate about and that communication is enjoyable and brings results’.

Having established the benefits derived from using rebound therapy with dual sensory impaired children it would seem appropriate to discuss the implications for including this activity in the curriculum for these children. During visits to a variety of special schools in the North East, it became apparent that those members of staff who were running rebound sessions were very committed to the activity and were convinced of the benefits to the children. One school made a decision that on the afternoons rebound was to take place, the usual staffing ratio should be altered to give the rebound sessions priority because of the importance attached to those sessions.

Obviously, the main consideration is that a school has a trampoline. It is not necessary to have a full size trampoline, however, as the junior size is quite adequate, although it would not be appropriate to try rebound sessions on anything smaller. Having acquired the trampoline it needs to be located in a suitable room. This is often the school hall, gym, or sports hall. Wherever it is located, the position must be considered from the safety aspect. There must be adequate space both around the trampoline and above it. It goes without saying that suitable safety pads must be provided to cover the springs, and adequate crash mats placed around the edge of the trampoline. However, the children observed for this study were always accompanied on the trampoline with one, and in most cases two adults, so crash mats and spotters are often not necessary for immobile children. This must be left to the discretion of those running the sessions.

Having acquired and set up the equipment the next major consideration is that of staffing. Training must be the priority. Every member of staff taking rebound sessions should have the minimum qualifications of the Basic Rebound Therapy Course. These courses can be run by anyone with the Advanced Rebound Therapy Certificate. Neither of these courses is a substitute for a qualification from the British Trampolining Federation and they are not qualifications for teaching trampolining. In addition to appropriate training, Donsback (1980) and the DHSS (1986) have published articles on the medical aspects of rebound therapy which
should be read by anyone planning to run rebound sessions.

Once the staff are trained the school must decide upon the commitment it will give in terms of time and staffing to rebound sessions. For the sessions to be of any benefit to children with dual sensory impairment the minimum requirement should be once a week. The more frequent the sessions the greater the benefit to the children. For those readers who do not have access to a trampoline, there are other movement methods, such as the Halliwick Swimming Method and the Sherborne Movement Method, which have been devised for children with physical, sensory and learning disabilities. These also provide similar opportunities for the children to feel the freedom of movement, have the opportunity to develop relationships, and to develop their communication skills.

Author’s acknowledgement

I should like to acknowledge the contribution made by the children and staff of the special schools who allowed me to observe and take part in their rebound sessions. Without their co-operation this investigation could not have taken place.

References


