Mobility within Mobility Systems for Children

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Introduction

Human beings, on planet earth, as a species must move to live. Their entire neurophysiological systems are based on the underlying notion that movement is readily available and always used. This is not simply moving from one place to another, like ambulation, but moving while in place, even seated. We, as a species, are not meant to sit still. Even when not ambulating, but when seated, we need to regularly move our pelvis, our trunk, and our extremities. When we are confined in a particular way, or for a specific amount of time, we lose effectiveness in completing tasks. We, in fact, become fatigued and bored, almost unable to perform.

This task performance, and its subsequent reliance on mobility must be considered when prescribing and recommending mobility systems for individuals who no longer ambulate. As we have begun to become keenly aware of the need for adequate mobility products, we have also become more knowledgeable in providing adequate supportive, seating systems within these wheeled chairs. However, we still continue to place the individual, or presume for the individual, to stay in one place, of course, the correct or "right" position. This is not enough. Within seating systems, there must be mobility. In short, movement. No one should be seated in any singular posture for any duration of time.

Children are growing and developing. Children who happen to have a disability, have dramatic interruptions in that development, but it does continue. Mobility for children is critical for that growth, and, it directly impacts their growth, physically, emotionally and physiologically. Why are we not considering more movement within their seating systems? They spend entirely too much time in very limited positions and in most of those with strapping for safety, the restraint ensued prevents any movement. Their relationship with gravity is impaired and their experiences now even further impacted, by a lack of experience.

Some Underlying Notions of the Neurophysiology of Movement

Seating is not static. Seating is a series and repertoire of human postures, developed through the evolution of time and of our species.

Seating is NOT sitting still and sitting still is certainly not SEATING.
Seating or being seated is a human posture needed to perform tasks. In fact, from the moment we wake up to the moment we sleep, we are in the search of a chair. Ambulation is simply a method of movement which provides us with a way to move from one chair to the next.

To be seated, or being seated, allows us as a species to perform tasks. That task performance is the reason for our existence and our survival. It always involves the head and the hands. To use the head and the hands, with focus, we need to be seated. In fact, we only stand in a task, when a seat is unavailable.

To use our heads and hands adequately, our pelvis must be stable, yet mobile. It must provide a base from which the entire trunk can gain power, through rotation, to place the hands, and eyes, and head in various postures to study, learn, see, hear, and perform a task. The pelvis can only be stable and mobile (by the way these are not opposing terms but rather functions which occur simultaneously, in our amazing bodies) by the body having an adequate and secure relationship with gravity. This is most often and most efficiently able to occur when the feet are placed on the ground, and are weight bearing.

Having a disability does not change that. Instead, I must say that the biggest problem for task completion for individuals who are no longer ambulatory and no longer (or never did have) the ability to be seated in any chair, is the fact that weight bearing from the ground has been lost. To be in a wheeled chair, automatically means that the feet are no longer on the floor, but have been raised for the seat to roll.

When the feet no longer connect easily to the center of gravity of planet earth, the pelvis and trunk's abilities and power are compromised. Strength of the entire body and its endurance as well as its range of movements are hindered by this compromise.

The body as it always miraculously does, adapts. It adapts by creating patterns of "holding" that try to overcome the lack of weight bearing. These patterns include muscle shortening, tightening, and limiting ranges of movement, so that stability or "uprightness" of the human being can be preserved. In short, mobility is limited, to maintain uprightness. Why is uprightness so important? Breathing and cardiovascular support occurs with uprightness, but most of all the human being is a species of uprightness, where movement and task accomplishment originate from an upright posture. Seating is also an upright posture, limiting movement (ambulation) to allow increased movement and control of the head and hands.

As the body is denied input, the body survives with what input it receives. As the body receives increased amounts of input, its repertoire of responses and reactions increases.

As the repertoire of patterns of movements is increased, the functional abilities of the human being increases geometrically. Also, the reverse is true.

In short, as we limit mobility (movement), we limit function and task performance. As we increase the range and repertoire of movement (mobility) we increase our abilities to function and complete tasks.

Standard Generalizations of Mythological Proportion

1. There is a correct way to be seated.

Unfortunately, as we have been learning about seating we have some "rules" we think are "right." These have often included: a). the need for symmetrical postural placement, b). the famous "90/90/90" (a 90 degree hip flexion angle, a 90 degree knee flexion angle, and a 90 degree ankle flexion angle), c). there are multiple ways to seat a person and one can be expensive, the other cheap. d). one chair is all a person can have and all the person needs.

A primary "rule" is the underlying presumption that SEATING IS SITTING STILL.

Seating is a posture from which tasks are to be accomplished. Consequently, seating is not a singular posture at all, but rather a repertoire of postures needed to allow adequate hand use, head use, thinking, seeing, and working to occur.

When seating is seen as a part of what is needed for task completion, the seating itself must change. Following the "rules" arbitrarily can actually create seating systems which prevent individuals from being independent. In short, independence can be cost not only from an acquired injury or an active disease state or a congenital disorder, but can actually be caused or inordinately compromised by the seating system itself!!

2. Seating Assessment is choosing a chair, and a seat, in short, equipment choices.

As the range of products has greatly increased, seating assessment is being presumed that equipment itself is all that is needed. Seating is not only equipment, but a treatment process which includes equipment. Seating is a process remembered, adapted, and used by thechild herself, and one which must be constantly observed, supported, and adapted by the therapist and supplier. This is a challenge, as seating for children must also be seating that a parent can use as they manage the child's daily functions.

3. Choosing the Right Seat cushion is the best way to prevent pressure problems.

We now have a range of solutions, a range of products, with varying features. Pressure relief is NOT guaranteed by any cushion. Each cushion, and what it is placed on, and how it is used, and how the patient moves must be individually considered.

Prevention of pressure problems is through mobility. Weight shifting, changing body postures, and movement prevent pressure problems. A seat cushion can assist when someone is seated for long periods, but a seat cushion and mobility within a seating system really prevent pressure.

Yet with pediatric seating, it remains either too hard, with too little surface, or too large with automatic contours which trap the child's pelvis.

4. If the seating system isn't working, it is the patient's fault. It was set up correctly.

A patient returns for a follow-up visit after the delivery and fitting of a system, and a part is broken, or the chair is well used, or some part keeps getting hit and needs replacement. We find fault with the patient, not with the system itself. We want patients and their families to USE these systems. How can they be abused? From too much use? Usually it means that we figured wrong, we might have wanted a feature of the system for a particular reason, but then that feature only came with another feature (which, by the way, then caused the system to not work).

Patients and their uses of their systems is always correct. Our choices are often not. Seating systems cannot be expected to be static "answers" for function. Seating must allow movement, and change with the needs of the child during the day and for each activity within a day, and throughout time as they grow and change..

As the child and the family use seating systems we must then be able to react to how it is used, we cannot predict the use. As each child becomes more independent and mobile, so must the system they use become more flexible, and more customized to them personally.

5. One chair is enough.

This defies logic. It also defies clinical knowledge. All individuals who do not have complete control of their bodies need adaptive equipment to continue to function. Powered systems are required for efficient and speedy travel. They also are the easiest to add multiple powered seating functions onto, so that an individual can change position throughout the day readily.

However, a manual chair can work very well in many situations where powered chairs cause inaccessibility

Feeding positions are critial and require specific positioning, relaxation is needed and requires specific positioning.. Travel in a bus or within the community requires specific seating. These functions cannot be met through a single system.

6. Flexible systems cost too much. Standards of practice are developed by funding sources.

Funding sources are not teams of certification, nor teams educated in professional ethics, nor teams of people in any way qualified to judge clinical practice. Yet, we allow them to dictate standards of practice.

Their job used to be to distribute money equably, but, unfortunately, as we have moved into a world without compassion or social responsibility, one of "fiscal responsibility," funding sources are now judged by how much money they DON'T spend.

Changes Needed to Allow More Mobility with Systems

It is critical that we find ways to increase movement within systems. In the most recent years, in commercially available seating systems have increased in flexibility. We now have height adjustable and angle adjustable backs, and angle adjustable footplates. We have tapered legrests, and varies sized casters. However, this flexibility has been designed for the vendor/technician/therapist to SET UP a system statically for a patient. The movement included is a "false" movement, just movement which will allow the "maker" of the system to choose a singular spot to have the system work from. The user cannot make the changes. In fact, the user's footplates are never angle adjustable, the are fixed at a particular angle. The back height is not able to be adjusted by the patient for a task, i.e. "higher with more support" when working at a computer station, and "lower with more range of movement" when going out to lunch. We have dropped seats but we can't "undrop" them. When the chair stops moving, most seating systems do not allow or assist the patient in assuming a "stopped" seated posture, with feet on the floor.

In powered systems, we finally have powered tilt, recline, legrest elevation, and in some systems seat elevation and powered standing. Yet, the legrests cannot swingaway, out of the way, when the child stops. These systems can only be used for children who are presumed will NOT leave their chairs. These systems most often include swingaway trunk supports, but not trunk supports which can be moved by the child. Could you imagine if a child in a powered chair could approach a table, and drop the seat, swing away the footrests, and then truly be at the table? Once there, wouldn't it be great, if the trunk support on one side could be dropped, and the armrest out of the way, so that even if the child had only some ability to reach, it could be used?

What about a headrest which only came into play when it was needed? Or legrests which would taper or move under ?

It is so important that we, as therapistss, support and assist children to develop and maintain their own independence and we are frequently asked to decide on postures we can give them, barring others. We cant possiblty decide this, with any real knowledge. The individual child needs to be able to change her systems herself.

We need to take the flexibility we have built into the systems for our fittings and now place the control of it within the hands of the child (and parents). In short, we need more, new stuff, with an understanding that "sitting still" has nothing to do with being seated. We need to think "mobility within mobility system," and how we can truly help children (and their parents) have more movement, more control, more function.