W – SITTING: AN EMERGING BEHAVIOURAL PROBLEM IN CHILDREN

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Introduction

Children don't maintain the particular position for long time. But a unique position makes all the children to sit and work for chronic period. The position is commonly used in children when seated on ground. Children sits on their bottom with knees bent, feet tucked under and legs splayed out to each side in a "W" shape. It is hard to break the habit of such sitting in children. Toddlers, pre-school and school going children are prone to this common position. Sitting in a "W" position too often or for too long can negatively impact a child's development and growth patterns.

Why children follow 'W' sitting?

The position is easy to maintain during play and any group activity and Children feel comfortable and enjoy sitting W positioned. They are influenced by peer play group posture and also feel relaxed and stress free.

CONSEQUENCES OF "W" SITTING IN CHILDREN

- **Hip Dislocation** – If a child has hip problems, sitting in the W position can put strain on the hips and joints and can lead to dislocation.

- **Limited Trunk** – The wide sitting of the W position helps keep the body upright. Children no need to use their core muscles as much and won't develop them as they would in other sitting positions.
- **Lack of Cross Body Movements** – The W position makes it difficult for children to rotate their upper bodies and reach across to either side with one or both arms.
- **No Hand Preference** – A child has too much trunk control and stability. It's very easy to use either hand to accomplish tasks. However, developing hand preference is important for writing ability later on.
- **Increased Muscle Tightness** – If a child is prone to muscle tightness or Hypertonia, then sitting in a W position will increase tightness in hips, knees, and ankles.
- Pigeon toed walking
- Impaireddevelopment of the hip
- Sway back position
- Weak trunk
- Tight hamstrings

There are researches showing evidences pertaining to postural advantages and consequences in children.

Matusiak-Wieczorek Eet al (2016) conducted a study that enrolled thirty-nine children aged 6-12 years with GMFCS level 1 or 2 spastic diplegia or spastic hemiplegia. The Sitting Assessment Scale (SAS) was used to assess the patients' posture and balance. Some children improved their posture and balance during the study. Generally, control of trunk and head position and function of arms were getting better, while footwork was the weakest.

Another study on postural maintenance conducted by Kim DH, An DH, Yoo WG(2018) fifteen children (10 boys and 5 girls) was recruited. Trunk sway was measured using a triaxial accelerometer that recorded variation in movement acceleration during quiet sitting- and standing-position. Anterior-posterior (AP) acceleration was significantly greater in the standing position than the sitting position (p= 0.001). Medio-lateral (ML) acceleration was significantly greater in the standing position than in the sitting position (p= 0.012). The TIS total score showed a moderate negative relationship with AP acceleration (r=-0.635, p=

0.011). The TCMS total score moderately and negatively correlated with AP acceleration (r=-0.582, p= 0.023). The SACND total score moderately and positively correlated with AP acceleration (r= 0.670, p= 0.006).

MANAGEMENT OF "W" SITTING IN CHILDREN

W-sitting, can be managed in simple ways and can break their W-sitting habit.

- Remind the child to "fix their legs" whenever they sit in a W-position.
- Offer the child a small chair or stool as an alternative to sitting on the floor.
- Discourage w-sitting by showing other ways to sit.
- Legs crossed – Child sits on their bottom, crosses their legs, bends their knees and tucks their feet underneath. Sometimes referred to as criss-cross applesauce.
- Legs in front – Child sits on their bottom with their legs straight in front of them.
- Legs to the side – Child sits on their bottom and bends their knees so both legs are lying in one direction on one side of their body.
- Side-sit**:**knees are bent, weight is shifted to one hip, and both feet are out to the same side. This position relieves stress from the hip joint structures, allowing for pain free transitions in and out of sitting.
- Long-sit**:** feet are straight out in front of child. The back may or may not be supported by sitting with back against a wall or steady surface.
- Short kneel**:** children sit back against heels in a folded kneeling position with their feet tucked together under their bottom. As long as they don't shift back into the W-position with their bottom on the floor, kneeling is a great way to strengthen hip and core muscles.
- Half kneel**:** children position on their own with one foot tucked under and the other foot flat on the ground. In this position, muscles will be energetic and get a gentle stretch without wear and tear.
- Chair sit**:**Sitting in a low chair allowsthe children to participate in play. Time in this position should be restricted to encourage muscle activation.

The Cross-sectional survey (Hardy LL et al 2019)of 2734 children in years 2 and 4 and 3671 adolescents in years 6, 8, and 10. Total sitting time, 6 screen time behaviors, and physical activity were measured by self-report. Muscular strength was assessed by standing broad jump; CRE by 20-m shuttle run test; and fundamental movement skills by process-oriented

checklists. Associations between incremental sitting and screen time (in hours) and meeting the healthy zone of physical activity attributes were examined using logistic regression. For adolescents, each hour of screen time per day was associated with lower odds of achieving the healthy fitness zone for CRE, locomotor skills, and overall healthy zone, and each hour of weekend screen time was associated with lower odds of achieving the healthy zone for most attributes and overall healthy zone. The associations were slightly stronger among adolescent girls than boys. The findings were similar for total sitting time.

Sherry AP, Pearson N, Ridgers ND, et al(2019) conducted a study among children and Overall, 79 children (9.8 (SD 0.3) years old, 52% boys; 70% South Asian) wore activPALs for 7 days. Total sitting time, sitting time accumulated in different bout lengths, and the proportion of wear time spent in these variables were explored and compared across different periods of the week. Children spent 614 ± 112 (median ± IQR) min/day on school days and 690 ± 150 min/day on weekend days sitting. The proportion of time spent sitting was significantly higher on weekend days compared to school days (mean±SD: 74 ± 10% versus 68 ± 8%,P< 0.001), as was the proportion of time accumulated in >30 min sitting bouts (mean±CI: 28 ± 27-33% versus 20 ± 20-22%, P < 0.001).

Mazzoli E, Teo WP, Salmon J, et al (2019) investigated the relationship between class time sitting/stepping/sit-to-stand transitions and cognitive functions in Grade 1-2 children. Overall, 149 children (7.7 ± 0.6 years old, 54% boys) participated. Linear mixed-models, adjusting for age, sex, and clustering at the classroom level, found that more sitting time was associated with higher lapses of attention ($\beta = 0.12$, $p < 0.05$). Children who stepped more had quicker inhibition response time ($\beta = -0.95$, $p < 0.01$); however, they were less accurate in their responses ($\beta = -0.30$, $p < 0.05$) and this was also observed with sit-to-stand transitions ($\beta = -0.26$, $p < 0.05$). No associations were found with brain activity. In conclusion, reducing and breaking up sitting may help keep children focused, but the evidence regarding response inhibition is unclear.

CONCLUSION

There are evidences that w sitting position is harmful for the children during their developmental years. Parents play a vital role in identification and motivating the child to have postural changes and maintenance.

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