
CENTER FOR NEUROSCIENCE IN EDUCATION

Our Research – Educational Implications

Our auditory work suggests that children with dyslexia have a hard time hearing rhythm.

They find it difficult to recognise whether patterns of musical beats are the same or different. They also find it difficult to identify “beats” in language, namely syllable “beats”. Syllables can be strong or weak. In English words like “mummy”, “daddy” and “baby”, a strong syllable is followed by a weak syllable.

Activities that we have used to enhance children’s rhythmic timing abilities include:

1. Tapping to a simple beat, like a metronome beat. Clapping, marching or foot tapping should also be useful, but we haven’t tested these.
2. Playing bongo drums in time with the underlying beat of simple children’s songs, like nursery rhymes, or well-known jingles.
3. Singing to music. This is thought to be helpful because syllable beats have to be co-ordinated with musical beat structure.
4. Singing and playing drums or a chime bar along to music.
5. Clapping and marching in time to songs, either with or without also singing along.
6. Chanting and playing hand clap games (like playground games).

Activities that focus on rhythm in language without involving music include:

1. Learning to recite by heart metrical poetry or nursery rhymes. Metrical poems are poems with strong rhythms.
2. Clapping out the number of syllables in longer words (“university” = 5 claps).
3. Repeating or singing a simple rhythmic phrase, but changing the syllable length of a key word while preserving the rhythm (e.g. “Happy Birthday Dear Duck – Happy Birthday Dear Giraffe – Happy Birthday Dear Camel - Happy Birthday Dear Dinosaur”).

4. Playing a “DeeDee” game, where a simple well-known phrase is spoken in strong (DEE) versus weak (dee) “DeeDees”, and the child has to identify it (e.g. by matching it to a picture). For example, “Jack and Jill went up the hill” has a strong-weak syllable structure, so the DeeDee version would be “DEE dee DEE dee DEE dee DEE”.
5. Speaking in time with a beat. For example, saying the child’s full name (“Patrick Anthony Brown”) in time with tapping on the table. Then varying the tap speed rate. Works best if child and adult both do this together, trying to keep in time.
6. Grouping longer words by syllable pattern. For example, for 3 syllable words in English, the most frequent pattern is strong-weak-weak (like “elephant”). So “Paddington” would match “elephant”, but “Waterloo” would not (as it is weak-weak-strong, like “understand”). “Terrific” would also not match (it is weak-strong-weak, hence matches “magician”).

Learning English Spelling Patterns

1. Our “rhyme analogy” work suggests that English phonics are more predictable when letter-sound correspondences are considered within spelling patterns for the rhyming parts of words.
2. For example, the sound pattern that rhymes in “fight” is very consistent and predictable in English (“night, sight, right, tight...”). Learning words in rhyming groups draws attention to these higher-order consistencies in English spelling.
3. Grouping words into rhyming families when both reading and spelling them appears to be beneficial for learning.
4. Longer words also need to be segmented into syllables.
5. Each syllable can then be recoded to sound separately, using rhyme analogies where helpful.