



Music makers

Could music be the ultimate performance-enhancing drug for our kids? Kate Sidley looks at the link between the two.

Across cultures, throughout human history, moms have hummed or sung lullabies to soothe their babies and to help them fall asleep. An English mom might go for 'Hush Little Baby', while a Zulu mom might sing 'Thula Baba'. Studies have found that moms from different cultures use a remarkably similar tone and way of singing, which

is often accompanied by a soothing, swaying motion. In fact, exposure to music starts before birth. Babies can hear in utero, from 24 weeks of gestation. Sounds are muffled, but the child can still hear mom's singing. There's even some evidence that babies remember and respond to music that they were exposed to while they were in the womb. Dr Annette Lotter, a doctor of education who specialises

in brain profiling, says that babies respond emotionally to sound – even before they're born. A baby's heart rate will increase in response to harsh, aggressive sounds, and he will feel scared and anxious. Happy voices and music will contribute to happy emotions. "The fact that babies can hear and experience emotions before birth might lay the foundations of their own emotional intelligence throughout life," says Dr Lotter.

Understanding the brain

Undoubtedly, music affects emotion. Music can lift your spirits, put a spring in your step, or soothe your frayed nerves. It moves us to tears; to joy; to dance. But can it affect intellect? And, if so, how does it work?

Dr Lotter explains that there are five different brain states, ranging from deep sleep, through to shock. Brainwaves vary throughout the day, and in response to stimulation.

Music influences this brain activity. We respond to music physically and emotionally. This accounts for the connection between music and learning.

"The specific beat of the piece of music will influence the brainwave activity in the child. A normal heartbeat is about 60 to 75 beats per minute. To induce alpha brain waves, where your child is primed to learn, you can play music with the same beats per minute. What I call active music. It can be the Bee Gees or it can be Mozart! Passive music will induce melatonin production, helping the child to relax into light sleep and eventually deep sleep," Dr Lotter notes.

She adds that if the child is agitated, the non-dominant hemisphere in the cortex switches off. This isn't a good learning state – as you will know if you have ever tried to recall names and numbers when you're stressed or in shock.

Dr Lotter has consulted to Majors for Minors to create CDs of active and passive music. "If a child has been playing outside and you want

him to calm down, you can play passive music for about 10 to 15 minutes to get the brainwaves back to an alpha state, which accommodates learning. Before going to bed, you will play the passive options like *Symphony of Sleep*," she explains.

What is the Mozart Effect?

In the early 1990s, a small study found that after listening to classical musical – Mozart in particular – students showed a temporary improvement on certain spatial-temporal tests. The media coined the term the 'Mozart Effect', and before long, moms were putting headphones onto their bumps and blasting a good dose of Mozart at their foetuses.

Ever more ambitious claims were made, including supposed benefits to children with conditions like dyslexia and attention deficit hyperactivity disorder (ADHD) – even without corroborating evidence. Such was the hype that in 1998, the governor of the state of Georgia in the US passed a bill ensuring that every mother of a newborn received a free classical music CD. Subsequent studies have discredited these claims. Nonetheless, there is a lot of support for the view that music has a powerful connection to other abilities, including maths and language.

In short, it would be a big stretch to say that popping a Mozart CD into the player makes your baby more intelligent. But it is true that music can contribute to your child's development.

PLAYING MUSIC

Several studies have shown that learning to play music – as opposed to just listening to music – positively influences non-musical intelligence (linguistic, mathematical and spatial skills).

A number of studies have pointed to a correlation between playing an instrument and achieving higher grades. Thanks to MRIs, scientists can now see that musicians really do have different brains. Scans show significant increases in grey matter in certain regions of the brain.

Dr Lydia Dreyer, psychologist and co-founder of the South African Music Appreciation and Development School, believes in the benefits of playing music from a very young age. She says that all kids are musical and that music will stimulate a child's overall development –

particularly if it's introduced through age-appropriate activities. She developed a programme, Music for Our Little Ones, that's designed for one- to six-year-olds. It incorporates listening, playing music, storytelling and movement.

"Musical activities help develop a child's music-appreciation abilities, as well as intellectual, emotional, social, motor, listening and concentration skills in a playful manner. This contributes to a positive self-image," says Dr Dreyer.

Playing an instrument is complex, as it requires different visual, spatial and auditory skills. It teaches you to focus and multi-task – you have to read the music, keep the beat and find the notes, as well as co-ordinate the hands, eyes and even your breathing.

Many personal and interpersonal skills are given a big boost. Learning to play an instrument requires patience, practice and precision. There are no quick, easy rewards. Perseverance is key; only self-motivated people will succeed. To learn a piece of music takes time, so organisational skills and time management are essential. When a child masters a new piece or technique, there's a huge sense of achievement. ➔



MAKE THE MOST OF MUSIC

Music and maths

Seemingly, the strongest positive correlation is between playing music and achieving in maths. Music and maths have a lot in common. In a bar of music, the beat is subdivided – whole notes, half notes, quarter notes and so on. Essentially, you're dealing with fractions. Reading or even clapping to music involves counting notes and rhythms.

TIP: Look out for nursery rhymes and simple songs that have a mathematical element. Songs like 'Ten Green Bottles' or 'There Were Three in the Bed' reinforce counting and teaches subtraction.

Music and language

Like spoken language, music has rhythm, tone and pitch. When listening to music, the child becomes aware of different sounds and learns how to recognise and distinguish between them. Young kids learn vocabulary and auditory skills through hearing and joining in with simple songs. New words are

processed, practiced, remembered and reinforced.

TIP: Sing along to songs that incorporate movement, which stimulates gross and fine motor skills. Raise the arms and flex the fingers in 'Twinkle, Twinkle Little Star'. Make the spider movement in 'Incy, Wincy Spider'.

Music and motor skills

Clapping, stamping, marching, jumping, stretching and dancing to music engage the body and enhance motor skills. Spatial orientation, coordination, and understanding the body in space may all benefit.

Music and relaxation

Dr Lotter says certain types of music have a calming effect. Kids

may perform better in certain tests if they're less stressed.

Studies of preemies show that music might reduce stress, leading to lower resting energy expenditure (REE). With the help of music, it seems that calmer preemies might gain weight quicker and leave hospital earlier.

Music and social skills

Making music is often a communal activity – in a band, orchestra, choir or even a preschool ring! To take part you have to listen to others, wait your turn, come in on time and play together. Teamwork and co-operation are essential. So social skills get a boost. Plus, it's fun to play together in a group. Performing music is great for confidence, too.



Go to www.livingandloving.co.za, click on 'Articles', then 'Development' for a round-up of our favourite toy musical instruments for kids.

Moms say...

"I used to play Claude Debussy, Mozart and Vivaldi to my unborn children by putting the headphones over my tummy when I had an afternoon rest. Once they were born, I would play these three to them if they were restless or unhappy and it would instantly calm them down."
 – ANNETTE

"My son claims listening to heavy metal helps him study. He has attention

deficit disorder (ADD) and he definitely does better with his headphones on."
 – KATH

"I played music to my daughter when I was pregnant. I would put my phone on my belly with soft music on. I think that's where her love for music developed. If she hears music, she'll stop whatever she's doing and dance to it. If the music stops playing, she starts crying."
 – LICIA 1&1