



# Five Notes to Rule Them All: The Power of the Pentatonic Scale

## Five Notes to Rule Them All: The Power of the Pentatonic Scale

The powerful role of music within our society cannot be underestimated and countless studies have demonstrated that individuals who are able to access music and engage with musical instruments benefit in a huge number of ways. We know that music therapy can dramatically improve the lives of those living with poor mental health including anxiety, depression and dementia<sup>1</sup> and that children who participate in music education become more sociable and demonstrate increased communication and reasoning skills<sup>2</sup>. Playing outdoor musical instruments in particular also has the added benefit of enhancing both physical and mental well-being by virtue of being outside and having the opportunity to connect with the natural environment.

However, for some individuals the idea of engaging in any kind of activity or group therapy session presents difficulties and can cause fear and self-doubt. People may worry about making mistakes or may struggle to overcome their social anxiety in order to participate meaningfully. One way of overcoming these obstacles and engaging all manner of individuals in music is by harnessing the powerful potential of the pentatonic scale.

### What is the Pentatonic Scale?

The pentatonic scale takes its name from the Latin words *penta* meaning 'five' and *tonus* which means 'sound' or 'tone' and so the pentatonic scale is simply a five note musical scale. It is by far the most common scale found in blues, pop and rock music because this group of five notes sound *good* together regardless of when, how or in what order you play them. The pentatonic scale provides the foundation for improvisation and musicians around the world rely on the pentatonic scale to create harmonies regardless of which musical style they play in.

The pentatonic scale has a very distinct, instantly recognisable and pleasing sound that can be layered over many other chords and scales. For these reasons it is frequently found to be a key component of many popular songs. In fact, the vast majority of lead guitar solos are based on the pentatonic scale<sup>3</sup> and the reason is because there are "*no half steps to create dissonance*"<sup>4</sup>. This means that the pentatonic scale "*sounds good over any chord progression that stays in one key*"<sup>5</sup> and as a result "*holds a very special place in nearly every genre of mainstream modern music*"<sup>6</sup>.

Because the notes of the pentatonic scale are harmonious in whichever order they are played they are great for developing musical technique and building the confidence of inexperienced or very young musicians. Since it is impossible to play a 'wrong' note anyone and everyone can create music that sounds good- which is important for those who struggle with anxiety or an initial lack of confidence. For this reason, pentatonics have long been recognised as having a significant role in musical education and music therapy.

### The Power of the Pentatonic

If a musician takes the time to learn the pentatonic patterns, then they will find that they hold the key to opening a whole universe of musical creativity and will be able to experiment and improvise in a satisfying way. The power of the pentatonic is that it has no barriers to engagement and no matter what the age, cultural background or level of ability a musician has, the pentatonic scale can be understood, appreciated and used by everyone.

---

<sup>1</sup> See 'Hitting the High Notes' white paper by Percussion Play

<sup>2</sup> See 'Music Matters' white paper by Percussion Play

<sup>3</sup> Led Zeppelin, Jimi Hendrix, Pink Floyd and ACDC are among some of the most famous rock artists to use the pentatonic scale repeatedly in their guitar solos

<sup>4</sup> Bradley Sowash 'The Pentatonic Scale: The Secret to Improv Success'

<sup>5</sup> *ibid*

<sup>6</sup> Musical U 'Five Notes Will Change Your Life: Pentatonic Scales'

Willy Minnix a music teacher, multi-instrumentalist and writer from North Carolina states that teaching students the pentatonic scale “never ceases to impress new students who walk away with the tools needed to figure out, literally, thousands of tunes that are based off of these scales.”<sup>7</sup>

## Discovering the Pentatonic Scale

The concept of the pentatonic scale is very simple and comprises of five notes taken from the seven-note major scale. To form the pentatonic scale, you simply remove the 4<sup>th</sup> and 7<sup>th</sup> notes leaving five notes per octave<sup>8</sup>. The easiest way to discover the pentatonic scale is on the piano because it is easy to visualise the five notes. If you begin by playing the black keys one after the other you will hear the sound of the pentatonic scale.

You can find the major pentatonic scale by playing the three black keys and then playing the other two, the 1, 2, 3, 5, 6 notes of the scale. The minor pentatonic scale starts two notes lower and you can find it by playing the 1, 3, 4, 5, 7 keys<sup>9</sup>. The major and minor pentatonic scales are the foundations of blues and rock music.

It is very easy to memorise the pentatonic scale which means that when improvising even an inexperienced musician can rely on the pentatonic scale to make their compositions sound good. Some musical instruments, such as Percussion Play’s Babel Drum, Duo and Akadina for example, are designed around the pentatonic scale and are known as pentatonic instruments. Pentatonic instruments only contain notes from the pentatonic scale and so they are perfect for encouraging people with little or no musical ability to play.

## Why does the Pentatonic Scale sound so good?

The reason why the pentatonic scale sounds so good is because it has no semitones which means that there is no tension between the notes in the scale. In a seven-note major scale it is the fourth and seventh notes that introduce suspense and tension<sup>10</sup> and so when these notes are removed you eliminate any possible discord. It is because there is no discord within the pentatonic scale that it makes it easy to ‘layer over chords and scales’<sup>11</sup> which is what makes it perfect for the basis of improvisation.

## Prehistoric Pentatonic

As Zoltan Kodaly, a Hungarian composer and creator of the Kodaly Method<sup>12</sup> states:

*“Pentatony is an introduction to world literature: it is the key to many foreign musical literatures, from the ancient Gregorian chant, through China to Debussy.”<sup>13</sup>*

As Kodaly suggests, pentatonic scales were developed independently by many ancient cultures and in fact it was Pythagoras, the ancient Greek mathematician and philosopher, who is the first person known to have carried out a scientific study into pentatonics. Like the Babylonians<sup>14</sup> before him, Pythagoras discovered that the notes of the pentatonic scale seemed to occur naturally in the world<sup>15</sup> and he began to use pentatonics to explore the numerical relationship between intervals. His

---

<sup>7</sup> Willy Minnix ‘The Mystical Pentatonic Scale and Ancient Instruments, Part 1: Bone Flutes’

<sup>8</sup> Musical U ‘Five Notes Will Change Your Life: Pentatonic Scales’

<sup>9</sup> Ed Pearlman ‘The Versatile Pentatonic Scale’ (2013)

<sup>10</sup> Musical U ‘Five Notes Will Change Your Life: Pentatonic Scales’

<sup>11</sup> *ibid*

<sup>12</sup> The Kodaly Method is an approach to music education based on teaching, learning and understanding music by giving direct access to music without the technical problems involved with the use of an instrument

<sup>13</sup> Katja Maria Slotte ‘The Power of the Pentatonic Scale’ (2011)

<sup>14</sup> An ancient civilisation in Mesopotamia (modern day Iraq) dating from the 18<sup>th</sup> to 6<sup>th</sup> centuries BC.

<sup>15</sup> Internet Encyclopaedia of Philosophy- Pythagoras

studies into pentatonics led him to discover the mathematical properties of proportion and symmetry and to investigate the idea of universal harmony, which although now outdated, continues to intrigue modern theologians and occultists. Pythagoras may have been the first person to systematically investigate the pentatonic scale but thanks to a number of recent archaeological discoveries we now know that the use of the pentatonic scale predates Pythagoras's explorations by many thousands of years<sup>16</sup>. In 2008 an Ice Age bone flute was discovered in Hohle Fels, a Palaeolithic cave in South West Germany<sup>17</sup>. It transpired that the flute, which was made from a vulture bone, had five holes and was found to have been tuned to the pentatonic scale. The flute is thought to be between 40,000 and 60,000 years old and demonstrates that even prehistoric societies appreciated and understood pentatonics.

Doug Goodkin, the author of 'Play, Sing and Dance- an Introduction to Orff Schulwerk' (2002) writes that:

*"Some people (Leonard Bernstein among them) have theorized that the universal quality of the pentatonic scale comes from a subconscious sounding of the overtone series. A string produces a sound based not only on the vibration of the whole string, but also on vibrations of that string in halves, thirds, etc. Each division produces a soft, but audible tone called the overtone that becomes a part of the texture of the fundamental tone. This is not only true of strings, but any vibrating body, be it a tube of air or metal gong or drumskin."*<sup>18</sup>

The pentatonic is evident in music from all types of cultures from all over the globe and is called the most universal of scales because of its ubiquity. The scale appears in early Gregorian chants, West African music, Native American music, Sami Joik singing, Indonesian music, Appalachian folk music, Celtic folk music, Chinese music and Andean music in addition to many others<sup>19</sup>; and, as Kodaly noted, the pentatonic scale is also evident in the works of impressionist composers like Claude Debussy.<sup>20</sup>

## Are Pentatonics innate?

The discovery of the bone flute at Hohle Fel would seem to confirm the theories of Pythagoras and the observations of the Babylonians that pentatonics are a naturally occurring phenomenon. The bone flute proves that even the very earliest civilisations discovered and then imitated pentatonic tones within their own cultural practices; but perhaps pentatonics is more than just a phenomenon of the natural world that humans recognise and copy. There is a suggestion that as a species we seem to be particularly drawn to these five notes- could they in fact be innate to the human condition? Could pentatonics be genetic?

Kamraan Gill and Dale Purves put forward the view that humans are drawn to musical scales because scales, particularly the pentatonic, resembled harmonies that are similar to human speech.

*"The component intervals of the most widely used scales throughout history and across cultures are those with the greatest overall spectral similarity to a harmonic series. These findings suggest that humans prefer tone combinations that reflect the spectral characteristics of conspecific vocalizations"*<sup>21</sup>

A 2010 Belgian study that was published in the journal 'Infant Behaviour and Development'<sup>22</sup> seems to support this view and found that mothers and infants coordinated their pitches harmonically using notes from the pentatonic scale when they communicated with each other. The study analysed 15 mothers and their three-month-old infants during five minutes of free play within a laboratory setting. Of the 558 vocal exchanges that were identified, 84% reflected harmonic or pentatonic tones.

Zoltan Kodaly, Carl Orff and Rudolph Steiner, all renowned musical educators, observed that children naturally used the pentatonic scales in their playground rhymes and chants and they harnessed this in their approaches to music education, using

---

<sup>16</sup> Willy Minnix 'The Mystical Pentatonic Scale and Ancient Instruments, Part 1: Bone Flutes'

<sup>17</sup> In Swabia in South Western Germany

<sup>18</sup> Doug Goodkin 'Play, Sing and Dance- an Introduction to Orff Schulwerk' (2002)

<sup>19</sup> Katja Maria Slotte 'The Power of the Pentatonic Scale' (2011)

<sup>20</sup> *ibid*

<sup>21</sup> Gill and Purves et al 'Major and Minor Music Compared to Excited and Subdued Speech' (2010)

<sup>22</sup> Puyvelde, Vanfleteren et al 'Tonal Synchrony in Mother-Infant Interaction Based on Harmonic and Pentatonic Series' (2010)

tonal instruments to initiate children's interest in learning music and to develop their pitch making and improvisation skills. Orff believed that teaching children the pentatonic scale made improvisation easier because there could be no harmonic mistakes<sup>23</sup>.

In Steiner education the pentatonic scale is also given an important role and is used to awaken the innate music that Steiner thought existed naturally within young children. Steiner viewed music as being inherent to the human condition and the pentatonic instruments associated with his methods have a light and open feeling to their tonal quality which, for Steiner, reflected the child's early development in learning<sup>24</sup>.

The linguist and philosopher Noam Chomsky suggested that there existed a 'universal grammar' within language and that all languages share a common structural basis and obey the same set of rules. His theory of universal grammar was founded upon the idea that all human languages share properties, that all language learners converge on the same grammar and that children seem to have an awareness of language rules which they could not have learned from the input available to them<sup>25</sup>. Although Chomsky's observations relate to the innate nature of language structures within the human brain, there are some studies<sup>26</sup> that support the view that just like the structures of spoken language, the language of music is also innate to the human condition.

In her article, '[What Vowels Can Tell Us About the Evolution of Music](#)' (2017) Gertraud Fenk-Oczlon argues that there is "evidence for correspondences between vowels and scales"<sup>27</sup> and suggests that music and speech have a "shared heritage". If as Chomsky claims, subjects and verbs are universals in human language and if, as Fenk-Oczlon and others have proposed, music and language share a common precursor then perhaps the pentatonic scale is also an innate part of the human brain structure. If there is a 'universal grammar' in language then perhaps there is also a "universal musical grammar" and if there is, then it will be the pentatonic scale that provides its foundation.

## Pentatonic "Brain Hacking"

One interesting experiment that supports the view that we are neurologically 'wired for music' and 'tuned in' to the pentatonic scale was observed by audiences at the World Science Festival in 2009<sup>28</sup>. Bobby McFerrin, an American jazz vocalist and conductor, uses the pentatonic scale and audience participation to show to dramatic effect the universal nature of our neural programming.

McFerrin refers to this experiment as "pentatonic brain hacking" and has stated that wherever he is in the world, every audience gets it and reacts in the same way. So, it would seem that our brains are indeed tuned to these notes from birth and the fact that McFerrin's audiences are all able to complete the pentatonic sequence regardless of their cultural or musical background seems to confirm this. If this is the case then it would explain why every genre of music, both traditional and modern, share the same common pentatonic denominator.

## The Pentatonic for the future

Today the pentatonic scale is as ubiquitous as it always has been and continues to form the foundation of every genre of modern music. It has remained an integral part of jazz, gospel, rock and blues and even in very modern jazz performances pentatonic solos by pianists and saxophonists are frequently heard. The fact that pentatonics are so ingrained within human culture and so accessible to everyone, even babies and very young children, provides a wonderful opportunity for modern educators, social workers and therapists to harness its power to help individuals of any background, culture and level of ability to meaningfully engage in playing music.

Pentatonic instruments such as the ones produced by Percussion Play are particularly well suited to placement within nurseries, care homes and community spaces because tapping into the power of the pentatonic can help children to learn without fear, can

---

<sup>23</sup> Rachael Miller 'Music and Young Children' (2015)

<sup>24</sup> *ibid*

<sup>25</sup> Ewa Dabrowska 'What Exactly is Universal Grammar, and Has Anyone Seen It?' (2015)

<sup>26</sup> See McDermott and Hauser 'The Origins of Music: Innateness, Uniqueness and Evolution' (2005)

<sup>27</sup> Gertraud Fenk-Oczlon 'What Vowels Can Tell Us About the Evolution of Music' (2017)

<sup>28</sup> "Notes and Neurons: In Search of the Common Chorus" World Science Festival 2009

aid community integration and can enable individuals suffering from a multitude of mental or physical health impairments to participate joyfully and without fear. Pentatonic instruments can also be given to very young children within the home, and the pleasing tones of instruments that have been tuned to the pentatonic scale will awaken even babies to the pleasure of making their own music.

Millions and millions of people all over the world regularly engage actively in music, either by singing or playing an instrument. In fact, in 1993, 62 million people in the USA alone said that they sang or played instruments for the enjoyment of it<sup>29</sup>. These figures suggest that music has become an integral part of our everyday lives, more so now than ever before. A society which is rich in music and culturally diverse is to be celebrated and using pentatonics as a starting point is a great way to initially engage the next generation of singers and musicians, just as Orff, Steiner and Kodaly recognised many years ago.

According to David Francis of the Performing Rights Society, the main reason children gave for learning a particular instrument was liking the sound<sup>30</sup>. If this is true, then there is a very strong case for increasing the use of pentatonics within early years education. If we want to preserve a musical culture within our society then we need to encourage the musicians of the future to get involved now, and it would seem that this is perhaps the real power of the pentatonic.

## The Power of Percussion Play

The pentatonic musical instruments created by Percussion Play are diverse and accessible to everyone within the community and make perfect additions to any setting. Percussion Play's outdoor musical instruments are suited to gardens and social spaces in schools, care homes, nursing homes, hospices and hospitals, where they can be used and enjoyed by all who encounter them. Anyone and everyone can experience the pleasure that playing these wonderful instruments provides and Percussion Play instruments are currently being installed in a variety of settings all over the world.

## References

Dąbrowska E. 'What exactly is Universal Grammar, and has anyone seen it?' *Frontiers in Psychology*. 2015;6:852. doi:10.3389/fpsyg.2015.00852

---

<sup>29</sup> Francis, David 'The Powerful Role of Music in Society' (2010)

<sup>30</sup> *ibid*

Fenk-Oczlon 'What Vowels Can Tell Us About the Evolution of Music' (2017) *Frontiers in Psychology* 8:1581. doi: 10.3389/fpsyg.2017.01581

Francis, David 'The Powerful Role of Music in Society' (2010) <https://musicmagic.wordpress.com/2008/07/10/music-in-society/> (accessed 02/06/2018)

Gill, Purves et al 'Major and Minor Music Compared to Excited and Subdued Speech' *The Journal of the Acoustical Society of America* 127, 491 (2010)

Goodkin, D 'Play, Sing and Dance- An Introduction to Orff Schulwerk' (2002) Schott Publishing

McDermott, J and Hauser M 'The Origins of Music: Innateness, Uniqueness and Evolution' (2005) *Music Perception: An Interdisciplinary Journal*, Vol. 23 No. 1, DOI: 10.1525/mp.2005.23.1.29

Miller, R 'Music and Young Children' (2015) <http://blog.novanatural.com/2015/07/15/music-and-young-children/> Accessed 01/06/2018

Minnix, W 'The Mystical Pentatonic Scale and Ancient Instruments, Part 1: Bone Flutes' (2016) <http://www.ancient-origins.net/pentatonic-scale> Accessed 01/06/2018

Musical U 'Five Notes That Will Change Your Life: Pentatonic Scales' (2017) <https://www.musical-u.com/learn/five-notes-will-change-your-life-pentatonic-scales/> Accessed 01/06/2018

Internet Encyclopedia of Philosophy- Pythagoras <https://www.iep.utm.edu/pythagor/> Accessed on 01/01/2018

Pearlman, E 'The Versatile Pentatonic Scale' (2013) <https://blog.musicteachershelper.com/the-versatile-pentatonic-scale/> Accessed 01/06/2018

Percussion Play 'Hitting the High Notes: The Benefits of Music for Mental Health' Percussion Play website [www.percussionplay.com](http://www.percussionplay.com)

Percussion Play 'Music Matters: The Importance of Music and Music Education' Percussion Play website [www.percussionplay.com](http://www.percussionplay.com)

Slotte, KM 'The Power of the Pentatonic Scale' (2011) <http://www.musicinall.com/2011/10/10/the-power-of-the-pentatonic-scale/> Accessed 01/06/2018

Sowash, B 'The Pentatonic Scale: The Secret to Improv Success' (2015) <https://makingmusicmag.com/pentatonic-improvisation-for-pianists/> Accessed 01/06/2018

Van Puyvelde, M, Vanfleteren P et al 'Tonal Synchrony in Mother-Infant Interaction Based on Harmonic and Pentatonic Series' (2010) *Infant Behaviour and Development* Vol 33 Issue 4 <https://doi.org/10.1016/j.infbeh.2010.04.003>