AROUSAL

WHAT IS AROUSAL?

Arousal is a seemingly simple concept. Initially I thought it was so basic that it wasn't worth much thought, but the more I think about it, the more I realise that it underpins so much of the other things we usually work on.

Arousal is our level of alertness. When our arousal is optimal we are equally *relaxed* and *alert*.

It's important to note that arousal is part of the human experience. Everyone experiences fluctuations in arousal every single day. And so the aim with arousal is never to make it disappear, but simply to get it to match our needs. For example, to be alert when trying to work or learn, but to be less alert when trying to fall asleep.

As we get older, we find the ways of regulating arousal which work best for us. However, kids are still learning this process, and those with additional needs can find their arousal effecting them in ways that most of us don't have to worry about.

While arousal is a different concept to energy levels, energy and fatigue impact arousal significantly.

Arousal impacts:

- concentration,
- emotion regulation,
- sensory processing,
- ability to learn,
- ability to build neural pathways and
- movement.

In short, its hard to do basically anything with sub optimal arousal.

While these are all impacted by arousal, some of these also can be the one impacting arousal in the first place. Emotions and movement are the main things that have a 'two way street' relationship with arousal.

AROUSAL AND SENSORY PROCESSING

For those with sensory differences, arousal can have additional impacts.

Especially in autistic brains, suboptimal arousal can lead entire sensory systems to 'go to sleep'. Most commonly, the system which is left 'awake' when this happens is the visual system. Vision is the only sense which is exactly the same in autism as in neurotypical brains. As such, many autistic brains naturally begin to place greater emphasis on visual processing than input from other senses.

This means that when most senses go to sleep, vision is left in complete control. This state is called being 'visually-driven' or 'monosensory'. (note: the term comes from autistic lived experience, not formal research). I have documents dedicated solely to visually-driven, so please see those or request them for further information.

AROUSAL AND CONNECTIVITY

Another impact of arousal for autistic individuals is on 'stuck patterns'. Stuck patterns (technically known as 'frontal-striatal loops'; also sometimes called 'sticky thoughts') are over-wired neural pathways in the brain.

In behaviour, stuck patterns look like repetitive movements or speech that seem to get stuck on repeat, regardless of how their answered or interacted with.

While breaking a stuck pattern is hard at the best of times, its even more so the case at times of suboptimal arousal. For this reason, if you notice someone who's stuck in a loop, its probably a sign that its their arousal that needs some attention more than anything else.

AROUSAL AND EMOTION

While emotion is separate to arousal, big emotions are filled with big arousal changes. Some emotions are high arousal (e.g. anger, stress, anxiety) while some emotions are low arousal (e.g. depression, sadness).

While this would be considered controversial by some, NMT has taught me that the first step in regulating emotions (and emotional growth/understanding) is regulating arousal - especially in children. (e.g. waiting for a child who has 'flipped their lid' to calm down before trying to talk to them).

When we use a metronome or rhythm in times of big emotions, we are not negating the emotion (we wouldn't want to, even if we could), we are just aiming to take the arousal (the intensity) out of it. Emotions that continue to exist without extreme levels of arousal are emotions that can be talked about, unpacked and understood.

MEASURING AROUSAL

Because arousal impacts movement, a very neat and consistent way of measuring arousal is to measure walking speed. Without consciously thinking about it, a person will walk slower when their arousal is lower and walk faster when it is higher. Measuring their walking speed when their arousal is most optimal (again, most *relaxed* and *alert*) gives us a way of putting a number that person's 'best self', 'ideal state of being' or 'most grounded & centered'. In NMT we call this number their '*Functional Cadence'.*

TREATING AROUSAL

Music impacts us at a *subcortical* level, and because arousal is a *subcortical* process, music impacts arousal *quickly* and *effectively.*

If a person's arousal is sub-optimal, simply playing their functional cadence will start to impact their arousal and move it towards a more optimal level.

(Think of it like this - if you walk at 120bpm when your most relaxed and alert, and right now you're so tired that you're only walking at 105bpm. Playing a metronome at 120bpm is like the metronome is getting inside your brain, and telling your body to move at 120bpm - even though you're not any less tired. By making your body feel as if it can be working as if it was optimally aroused, it becomes optimally aroused).

Our functional cadence brings us to our 'happy medium' of arousal. But we can also use it to deduce other ways of altering arousal. For example a functional cadence x 2 can wake us up more quickly, and a functional cadence x 0.5 can put us to sleep.

Sometimes we need to match arousal before we can optimise it (like during emotion). In these instances functional cadence x 3 might be necessary.

While rhythm is a powerful tool in treating arousal, it may not be an instant fix (although sometimes it is). The more a person connects with the rhythm the more potent the effect will be. For this reason, adding some movement or touch to the rhythm (which is in time with the rhythm) can help a person embody their cadence more and benefit from it.