BEACON 2026

Activation and Growth

How movement, novelty, and engagement support brain health

A PRESENTATION BY
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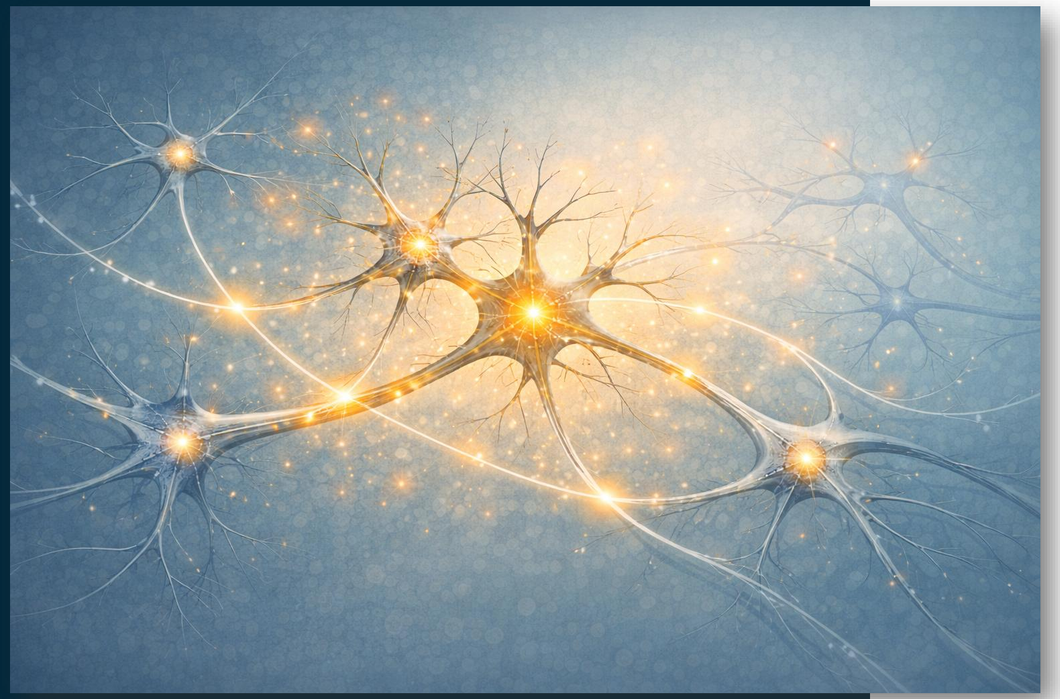

The brain maintains what it uses.

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Why Stimulation Matters Biologically

- Neural circuits are shaped and maintained through activity-dependent plasticity
- Meaningful activity supports adaptive brain networks through trophic signaling
- In practical terms, engagement helps signal which networks **remain useful** and should be **preserved**

Appelbaum et al., 2023;
Bramham & Messaoudi, 2005

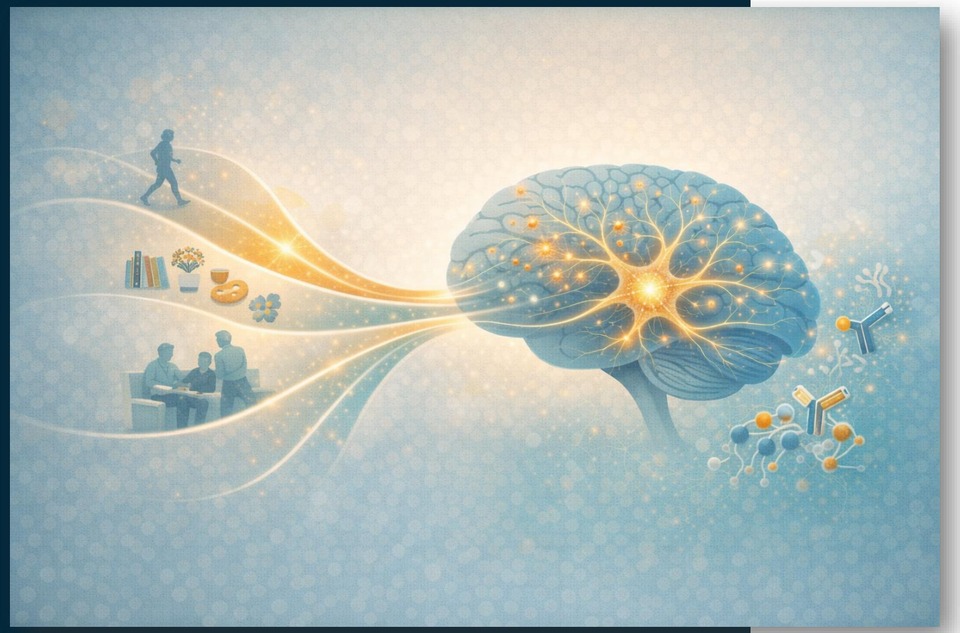
- It is not overstimulation, or exhaustion.
- It is not passive consumption without engagement.
- It is not maximal difficulty for its own sake.
- It is not a substitute for sleep, or recovery.

Lynch et al., 2006;

Appelbaum et al., 2023

Activity, Not Passivity, Shapes the Brain

- The adult and aging brain retains the capacity for structural and functional adaptation, although plasticity becomes more constrained with age
- Repetition alone is not enough; **attention, salience, and behavioral relevance** help determine whether an experience drives plastic change
- This is why **meaningful, goal-directed stimulation** is more powerful than **passive exposure** or rote repetition



The brain responds best to enriched, active, meaningful environments.

What the Research Shows

- In animal models, **environmental enrichment** improves learning and is associated with greater synaptic density, dendritic complexity, and hippocampal plasticity

- In older adults
  - Exercise is one of the most consistent behavioral interventions linked to improved brain health
  - Physical activity is associated with better cognitive outcomes
  - Cognitive training can produce measurable biologic changes in BDNF

Movement, novelty, learning, and engagement work best together as a biologic ecology of stimulation

Kramer et al., 2004;
Zocher et al., 2021;
Iso-Markku et al., 2024;
Aghjayan et al., 2022

Five Drivers of Brain Activation

1. Movement
2. Novelty
3. Structure
4. Social interaction
5. Challenge

Brain health is supported by how we engage with the world.

How the Brain Enters Activation and Growth

- **Meaningful engagement supports cognitive health**
  - SLPs help activate aging brains through functional, goal-directed activities.
- **The aging brain remains adaptable**
  - Even later in life, stimulation, novelty, and structure can support network engagement.
- **Small therapy changes can increase activation**
  - Movement, rule changes, and task variation can enhance participation and learning.
- **Engagement matters more than complexity**
  - Relevance and emotional connection often matter more than difficult tools or tasks.

Effective stimulation is meaningful, not merely complicated.

Learning Opportunities for Clinical Application

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- **Movement, novelty, and structure influence engagement**
  - These shape attention, flexibility, and participation during therapy.
- **SLP strategies already provide cognitive stimulation**
  - Techniques such as spaced retrieval, sequencing, and planning serve as active brain-health interventions.
- **Creative tasks can activate multiple systems at once**
  - Storytelling, role-play, and discussion support cognition, communication, and social interaction together.
- **The goal is real-world carryover**
  - Therapy should support engagement and participation beyond the session itself.

The strongest therapy effects carry into daily life.

Why Brain Activation Is a Core SLP Responsibility

- **Brain activation is central to cognitive-communication care**
  - SLPs help support attention, language, memory, and participation through active engagement.
- **Plasticity remains relevant across the lifespan**
  - The brain continues to adapt through meaningful interaction, even in aging and illness.
- **Meaningful tasks drive more activation than irrelevant difficulty**
  - Goal-directed communication tasks often outperform harder but less meaningful exercises.
- **SLPs help build cognitive resilience**
  - Sessions can combine communication goals with movement, novelty, and structure to support stronger network use.

SLPs do more than treat deficits—they help activate networks.

Movement

Neuroplasticity and Exercise-Based Stimulation

Neuroplasticity

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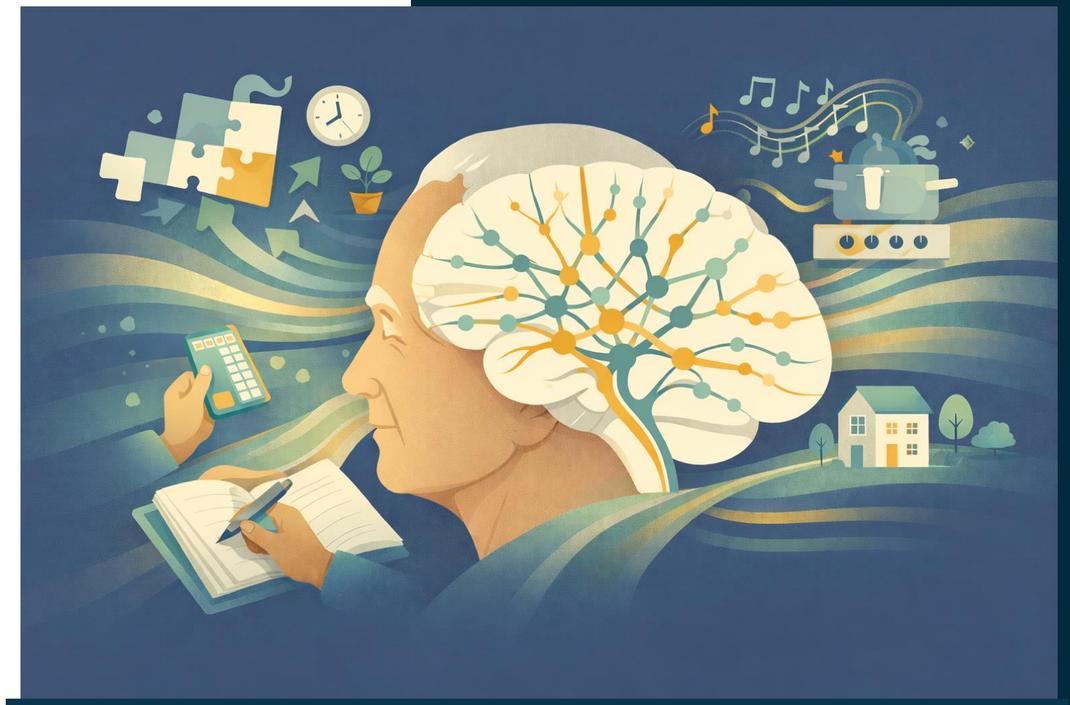
- **The brain can change in response to experience throughout life**
  - This remains true even in older adults.
- **Repetition works best when paired with variation**
  - Small changes prevent rote performance and promote flexible learning.
- **Meaningful functional tasks increase engagement**
  - Real-life relevance helps support stronger learning and better transfer.
- **These principles support the value of therapy**
  - Engagement, repetition, and relevance remain important even in progressive conditions.



Repetition matters most when it stays meaningful.

Appelbaum et al., 2023;
Lynch et al., 2006

Exercise the Cognitive Enhancer

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- **Exercise supports brain health through multiple pathways**
  - Physical activity increases cerebral blood flow and is associated with improved cognitive function.
- **Movement can amplify cognitive activation**
  - Combining motor and cognitive tasks may increase engagement and learning.
- **Even light movement can matter**
  - Standing, stepping, or rhythmic tapping can improve arousal and attention.
- **Movement can be integrated into communication goals**
  - This supports a more holistic and functionally meaningful therapy approach.

Movement is not separate from cognition—it can strengthen it.

Iso-Markku et al., 2024;

Montero-Odasso et al., 2023

Movement in Everyday SLP Sessions

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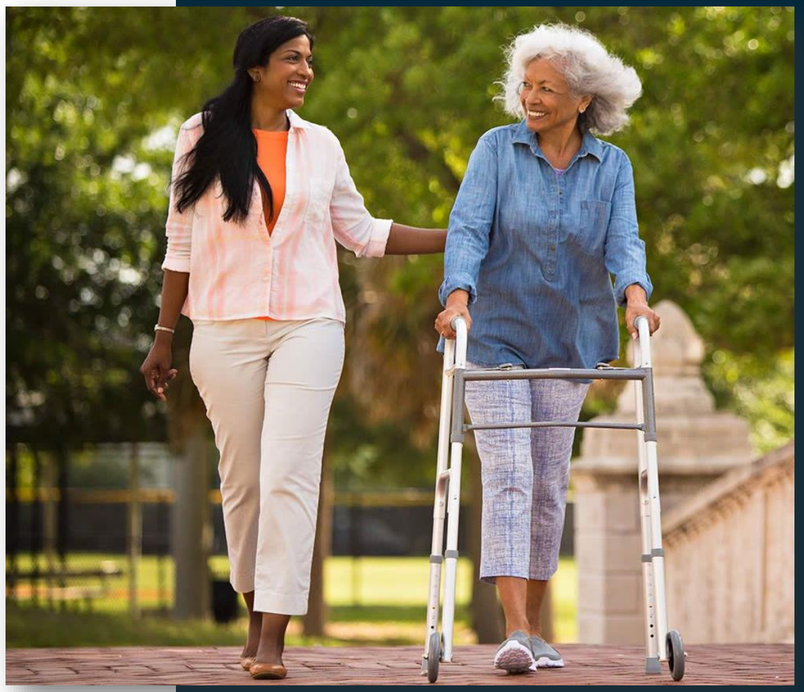
- **Pair movement with language tasks**
  - This can engage attention, working memory, and executive control at the same time.
- **Adapt movement to the person**
  - Tasks can be modified for seated clients, wheelchair users, or group settings.
- **Movement may improve readiness to engage**
  - Increased alertness and reduced restlessness can support participation.
- **Choose movement intentionally**
  - Safe, meaningful actions should be linked to communication goals rather than added randomly.



Small movements can meaningfully change engagement.

Novelty

Creativity, and Engagement

Why Novelty Drives Learning

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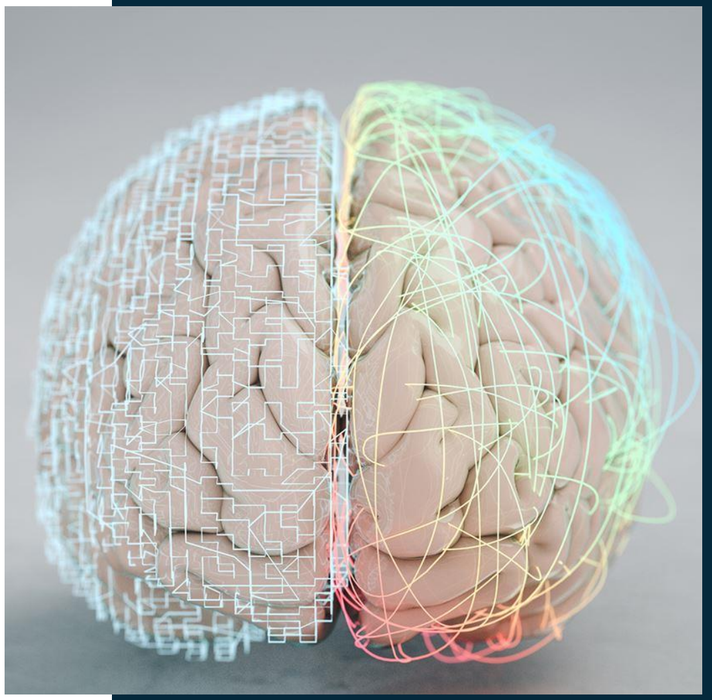
- **Novel stimuli activate attention and memory systems**
  - This helps increase alertness and learning readiness.
- **Predictable tasks can reduce cognitive demand**
  - Overly familiar tasks may drift into automatic responses.
- **Novelty should be manageable, not overwhelming**
  - Small changes within familiar tasks can preserve challenge without causing frustration.
- **Purposeful novelty supports motivation**
  - Relevant variation can improve engagement and sustain effort in therapy.



Novelty interrupts autopilot.

Zocher et al., 2021

Practical Ways to Add Novelty in Therapy

- **Rotate functional materials**
  - Use different menus, maps, photos, or written prompts to refresh semantic and visual demands.
- **Change task rules mid-session**
  - Small rule changes promote flexible thinking and reduce routine responding.
- **Shift roles when appropriate**
  - Asking patients to teach or explain can increase confidence and metacognition.
- **Vary the environment**
  - Small changes in location, posture, or setup can help refresh attention.

Small changes can create real stimulation.

Creative and Nontraditional Approaches

- **Sensory-language tasks support integration**
  - Mystery object descriptions encourage inferencing, description, and sensory processing.
- **Collaborative storytelling activates multiple systems**
  - These tasks support working memory, narrative skills, and group interaction.
- **Music and rhythm can support communication**
  - Rhythm-based activities may improve attention and verbal output.
- **Role-play adds functional complexity**
  - Real-life scenarios and opinion discussions can support executive function and pragmatics.

Creativity can be clinically purposeful.

Novelty

Communication, Connection, and Carryover

The Role of Structure in Cognitive Resilience

- **Structure supports predictability**
  - It can reduce anxiety and guide goal-directed effort.
- **Structure should remain flexible**
  - Pacing and task demands can be adjusted to match performance.
- **Structured tasks can mirror real life**
  - Familiar routines improve carryover and functional independence.
- **Success within structure builds confidence**
  - This can increase willingness to engage and persist.

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Structure supports challenge without chaos.

High-Impact Structured SLP Tasks

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- **Planning daily routines**
  - Supports sequencing, time management, and executive function in a functional context.
- **Functional problem solving**
  - Tasks such as managing schedule changes promote adaptability and real-life thinking.
- **Sequencing real-life activities**
  - Meal preparation or medication routines can support memory and organization.
- **Spaced retrieval and memory aids**
  - These strategies can improve recall and support generalization in daily life.

Functional structure often produces the best carryover.

Social Engagement as Cognitive Therapy

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- **Conversation activates multiple brain systems at once**
  - It engages memory, attention, language, and emotional processing together.
- **Social isolation carries cognitive risk**
  - Reduced interaction is associated with faster decline in many older adults.
- **Therapeutic interaction is itself a form of stimulation**
  - Group therapy and conversation-based tasks provide meaningful cognitive and emotional engagement.
- **Connection supports identity and participation**
  - Validation and reminiscence approaches can strengthen belonging, selfhood, and involvement.

Conversation is one of the brain’s most complex exercises.

Samtani et al., 2022

Clinical Integration and Conclusion

Clinical Takeaways for Everyday Practice

- **Add movement where appropriate**
  - Even minimal movement can boost attention and engagement.
- **Introduce novelty intentionally**
  - A small new element can reduce routine-driven disengagement.
- **Build challenge into functional communication**
  - Cognitive effort works best when tied to meaningful tasks.
- **Measure engagement, not accuracy alone**
  - Participation and strategy use often reflect progress more fully than correct answers.

Engagement is a meaningful clinical outcome.

Group -Focused Applications

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- **Themed discussion groups**
  - Promote turn-taking, experience sharing, and memory recall.
- **Reminiscence activities**
  - Photos and music can support long-term memory and emotional connection.
- **Validation-based communication**
  - Acknowledging emotion may reduce distress more effectively than correction.
- **Peer modeling and social reinforcement**
  - Group settings can sustain participation and encourage engagement.

Group interaction can sustain activation through connection.

Questions, Reflection, and Closing Perspective

- **Where can activation be added more intentionally?**
  - Consider movement, novelty, structure, and social interaction in everyday practice.
- **Small changes can have meaningful effects**
  - Brain activation strategies often fit within existing therapy routines.
- **SLPs help support brain health**
  - This perspective strengthens clinical purpose, advocacy, and interdisciplinary value.

The brain thrives when it stays engaged with the world.

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