

INTRODUCTION TO THE D-KEFS AND D-KEFS ADVANCED

This book provides comprehensive guidance for using two of the most sophisticated executive function assessment instruments available: the Delis-Kaplan Executive Function System (D-KEFS; Delis et al., 2001) and the D-KEFS Advanced (Delis & Kaplan, 2025). Whether you are new to these measures or have used them extensively, this guide will deepen your understanding of what they assess, how to interpret the rich data they provide, and how to translate findings into meaningful clinical recommendations.

The D-KEFS represented a significant advancement when it was published in 2001, applying process-oriented assessment principles to executive function measurement in ways that previous instruments had not. The D-KEFS Advanced, released in 2025, extends these capabilities through digital administration, enhanced process scores, and explicit attention to both “hot” and “cold” executive functions. Together, these instruments offer clinicians powerful tools for understanding the complex cognitive processes that enable—or impair—goal-directed behavior across the lifespan.

DON'T FORGET

Rating scales for children and adults, like the Behavior Rating Inventory of Executive Function, Second Edition (BRIEF-2), Delis Rating of Executive Functions (D-REF), and Comprehensive Executive Functions Inventory (CEFI), provide valuable information about how executive functions manifest in daily life, but they cannot identify the underlying cognitive mechanisms driving those difficulties. Direct assessment reveals *why* someone struggles—whether the issue is processing speed, working memory capacity, inhibitory control, cognitive flexibility, or some combination. This mechanistic understanding is essential for targeted intervention. A student who appears inattentive on rating scales might have primary inhibition deficits, working memory limitations, or slow processing speed, each requiring different intervention approaches. Only direct assessment can make these distinctions.

THE ASSESSMENT IMPERATIVE

Executive function concerns appear across virtually every type of psychological referral—the child who cannot organize homework despite adequate intelligence, the adolescent whose decision-making deteriorates in the presence of peers, the adult professional who excels in structured meetings but flounders with independent project management, and the older adult whose family notices increasing difficulty with financial decisions. Each presentation invokes questions about executive functioning—that collection of higher-order cognitive processes enabling goal-directed behavior, adaptive problem-solving, and successful navigation of complex environments.

Yet assessing executive functions presents unique challenges. Unlike memory or language—domains with relatively clear operational definitions—executive functioning encompasses a heterogeneous collection of processes that develop along different trajectories, rely on distributed neural networks, and manifest differently across developmental periods and contexts. This complexity has significant clinical consequences. When a patient performs poorly on an executive function measure, the clinician faces a fundamental interpretive question: Does this reflect true executive dysfunction, or could foundational processes, such as basic attention, motor speed, or language comprehension, contribute to the poor performance?

This question matters enormously for intervention. Teaching metacognitive strategies to someone whose poor Tower Test performance stems from visual-spatial processing deficits wastes time and

resources. Recommending executive function coaching for a patient whose Trail Making difficulties reflect motor slowing rather than cognitive inflexibility misses the actual problem. Accurate assessment requires tools that can parse the complex contributors to task performance, distinguishing true executive dysfunction from the many foundational processes that support—but are not themselves—executive functions.

The D-KEFS and its recently released companion, the D-KEFS Advanced, were designed specifically to address this challenge. This chapter introduces these instruments and the interpretive framework that guides their use throughout this book. Through an interview with Dean Delis, the tests' lead author and a pioneer in process-oriented neuropsychological assessment, we explore the clinical needs that drove the D-KEFS development, the design philosophy that distinguishes it from earlier executive function measures, and how the D-KEFS Advanced extends these capabilities for contemporary clinical practice. Delis's perspective offers readers a unique window into the intentions behind these measures—knowledge that enriches interpretation and clinical application.

THE D-KEFS: A PROCESS-ORIENTED APPROACH

Origins and Development

The D-KEFS emerged from a convergence of clinical need and scientific innovation. In the early 1990s, Dean Delis developed a sorting test incorporating Edith Kaplan's process approach—an assessment philosophy emphasizing the breakdown of complex tasks into component processes. Research with patients who had frontal lobe lesions demonstrated the clinical value of this approach, leading to a publication in *Neuropsychologia* (Delis et al., 1992) that caught the attention of test publisher Pearson.

From Our Interview with Dean Delis:

“We started talking about doing a battery using the process approach, where you include not only core achievement scores but lots of process scores, because that approach had not been incorporated in existing executive function tests. Take the original Trail Making Test—the only thing scored was completion time. It didn't score errors or other strategies. The exception was the Wisconsin Card Sorting Test, a really brilliant test with incredible process scores. But most other executive function tests weren't rich in process data. And yet the process scores are so important, because these tests are so complex. It's really the process scores that allow you to get down to the mechanism of impairment on a task.”

The intellectual foundation for this work traced back to Delis's training with Edith Kaplan and Harold Goodglass at the Boston VA. Delis describes a formative experience that shaped his entire approach to assessment:

From Our Interview with Dean Delis:

“I was in graduate school taking my first course on IQ testing while simultaneously taking an elective in cognitive science. In the cognitive science course, they were doing incredible process analysis of cognition—looking at memory in terms of strategies, processes, errors. But when I gave the original Wechsler Memory Scale, it yielded one score for the whole battery. I had a career crisis. This seemed so simplistic compared to what cognitive science was doing.

Then I happened to pull a book off the library shelf: The Assessment of Aphasia and Related Disorders by Goodglass and Kaplan [1972]. It used psycholinguistic principles to assess language disorder. It totally blew my mind. From that moment, I knew I needed to be a neuropsychologist, and I needed to work with Goodglass and Kaplan.

I wrote a letter to Harold Goodglass asking to come out for a summer externship. When I didn't hear back, I set my alarm for 5 a.m.—I was in Wyoming—so I could call the Boston VA. Goodglass picked up the phone, told me they had my letter, and said he'd bring it up at their staff meeting in ten minutes. I later heard they were shocked that anyone from Wyoming would be interested in neuropsychology. They said, ‘This guy is really desperate—he had to get up at 5 a.m. Let's invite him out.’

When I got there, I clicked with everybody. It turned out my master's thesis was remarkably similar to a study Edith had done as a graduate student. It was like fate. We developed the California Verbal Learning Test together, taking principles from cognitive science and incorporating them into assessment. That's the foundation of everything.”

Design Philosophy

The D-KEFS applies this process-oriented philosophy to executive function assessment through several key design features. First, each subtest includes baseline conditions that assess the foundational abilities required for higher-level task performance. On the original D-KEFS's Trail Making, for example, examinees complete visual scanning, number sequencing, and letter sequencing conditions before attempting the number-letter switching condition that assesses cognitive flexibility. This structure allows clinicians to determine whether poor switching performance reflects true executive dysfunction or limitations in prerequisite skills.

From Our Interview with Dean Delis:

"You look at the traditional Trail Making Test, and there are obviously some key component processes. There's a motor speed component. There's the number sequencing component. There's also a letter sequencing component. And when you get to the switching part of the task, all of those basic components have to be intact in order to get a more pure assessment of cognitive switching. If any of those component processes are impaired, that will compromise performance on the higher-level task, but it won't be an executive function deficit necessarily."

Second, the D-KEFS provides rich process scores and error analyses that reveal *how* examinees approach tasks, not just whether they succeed. Error patterns often prove more diagnostically informative than achievement scores, particularly for higher-functioning individuals whose global scores fall within normal limits.

From Our Interview with Dean Delis:

"Edith always said errors are the best window into brain function, and it's really true. There are a lot of tests where you look at number correct and normal performance, but there's an elevated error rate. That elevated error rate is so clinically essential to factor in. One thing we've always tried in all our process approach tests was to quantify the qualitative—that was a phrase Edith used to use."

Third, the battery includes multiple measures of similar constructs using different modalities and task demands. For example, Verbal Fluency and Design Fluency both assess generativity and cognitive flexibility, but through verbal and visual-motor channels, respectively. This design helps clinicians distinguish domain-general executive deficits from modality-specific limitations.

The Nine Original Subtests

The D-KEFS comprises nine subtests assessing different aspects of executive functioning, listed here in alphabetical order:

Color-Word Interference Test is the D-KEFS version of the Stroop paradigm, measuring inhibition and cognitive flexibility through color naming, word reading, inhibition, and inhibition/switching conditions.

Design Fluency Test assesses nonverbal fluency and cognitive flexibility through novel design generation under varying rule constraints.

Proverb Test assesses verbal abstract thinking through interpretation of common and uncommon proverbs.

Sorting Test evaluates concept formation, problem-solving, and verbal explanation abilities through free sorting and sort recognition conditions.

Tower Test evaluates spatial planning, rule learning, and problem-solving through a task requiring examinees to move disks across pegs to build target configurations in the minimum number of moves.

Trail Making Test assesses visual scanning, number sequencing, letter sequencing, number-letter switching, and motor speed through five conditions that systematically isolate component processes.

Twenty Questions Test assesses abstract thinking, hypothesis testing, and question formulation through a categorical guessing paradigm.

Verbal Fluency Test measures letter fluency, category fluency, and category switching, providing insight into generativity, lexical access, and cognitive flexibility in the verbal domain.

Word Context Test measures deductive reasoning and verbal comprehension by requiring examinees to discover word meanings through contextual clues.

Each subtest chapter in this book (Chapters 4–14) provides detailed guidance on administration, scoring, and interpretation for both original and Advanced versions where applicable, applying the hierarchical framework introduced in Chapter 3.

Rapid Reference 1.1

D-KEFS Subtests Overview

Subtest	Primary Constructs	Key Conditions/Features
Color-Word Interference	Inhibition, cognitive flexibility	Color naming, word reading, inhibition, inhibition/switching
Design Fluency	Nonverbal generativity, cognitive flexibility	Novel design generation under varying rules
Proverb	Verbal abstract thinking	Common and uncommon proverb interpretation
Sorting	Concept formation, problem-solving	Free sorting and sort recognition
Tower	Spatial planning, rule learning	Building target configurations in minimum moves
Trail Making	Visual scanning, sequencing, cognitive flexibility	Five conditions isolating component processes
Twenty Questions	Abstract thinking, hypothesis testing	Categorical guessing paradigm
Verbal Fluency	Generativity, lexical access, cognitive flexibility	Letter, category, and category switching
Word Context	Deductive reasoning, verbal comprehension	Word meaning discovery through context

THE D-KEFS ADVANCED: EXTENDING THE FRAMEWORK

Motivation for Development

The original D-KEFS established itself as a valuable clinical tool, but limitations emerged over years of use. Several subtests showed ceiling effects that reduced sensitivity to mild impairment in higher-functioning populations. The paper-and-pencil format constrained the complexity of administered tasks and the precision with which responses could be measured. And administering certain subtests—particularly the Tower Test—placed substantial demands on examiners that could compromise standardization.

From Our Interview with Dean Delis:

“Several of the original D-KEFS tests, although very helpful from a process approach, unfortunately have ceiling effects. They’re not as sensitive as I would have wanted. Some worked out beautifully—Color-Word is a very sensitive test, and the switching conditions we added were very sensitive. But the Tower Test has a ceiling effect. Twenty Questions has a ceiling effect. Our Sorting Test has a ceiling effect. It’s really great for moderate to severely impaired children and adults because you can do great process analysis, but it’s not sensitive to subtle to mild impairment.”

Around 2009, discussions began about developing an advanced version. The emergence of tablet-based assessment opened possibilities that paper-and-pencil administration could never achieve.

From Our Interview with Dean Delis:

“From the get-go, Pearson staff and I were exactly on the same page. Let’s do something radically different. Let’s forget print. The iPad had just come out, and we thought, let’s try to do this all digital. We were immediately brainstorming all the advantages and exciting things you could do. There was no hesitation that we wanted to do more complex tests and do all digital.

One of the reasons we were excited about going all digital is that we could make cognitively demanding tasks that wouldn’t be possible with just paper. We started this project in 2009 and never wavered from it.”

The Six D-KEFS Advanced Subtests

The D-KEFS Advanced is made up of six subtests—four enhanced versions of original D-KEFS measures and two entirely new tests:

Color-Word Interference Test uses a matching rather than naming format for baseline conditions, while the inhibition condition creates a stronger stimulus-bound pull through response options that magnify the prepotent response.

Risk-Reward Decision Test is a new measure assessing “hot” executive functions—decision-making under conditions of motivational salience—with explicit risk-reward contingencies that minimize the learning demands of similar tests.

Social Sorting Test is a new measure of concept formation using ecologically valid social stimuli rather than abstract geometric shapes, with more challenging concept identification demands than traditional card sorting tasks.

Tower Test captures previously unscorable process data, including zero-back, one-back, and two-back responses that reveal trial-and-error problem-solving approaches, while increasing task complexity through the introduction of striped discs and their accompanying rules alongside the standard solid discs.

Trail Making Test omits the original’s visual scanning and motor speed conditions for efficiency while adding three switching conditions that isolate shifting, inhibition, and working memory contributions to multitasking performance. Clinicians can still administer the baseline conditions from the original D-KEFS if needed.

Verbal Fluency Test replaces the original’s category-to-category switching with more demanding category-to-phonemic switching, increasing sensitivity to frontal involvement.

Advances in the Digital Format

The all-digital format of the D-KEFS Advanced enables several significant improvements. Response timing achieves millisecond precision, allowing for fine-grained analysis of processing speed and response patterns. The system captures process data that would be impossible to score reliably by hand, such as the “zero-back,” “one-back,” and “two-back” responses on the Tower Test that reveal trial-and-error problem-solving approaches.

From Our Interview with Dean Delis:

“The Tower Test is notoriously difficult to administer. The working memory demands on the examiner are enormous—you’re counting moves, looking for rule violation errors, having to stop impulsive examinees, remembering what prompt to give. It’s probably more difficult than manual administration of the Wisconsin Card Sorting Test.

When I would give the Tower Test, I could see incredible process data being lost. A kid or adult would pick up a chip, put it on another peg, pick it up, put it back—that’s trial and error responding. Some people lift it up and put it right back on the same peg. Some put it on one peg, then another, then bring it back to the original. These are really neat qualitative features, but you’re so busy trying to track everything that it’s impossible to capture them reliably.

The all-digital approach allowed us to keep all the process scores we had before and add even more. It was process score heaven. Plus, it completely eliminates almost everything the examiner has to do other than read instructions. As far as observing behavior, it’s incredible now. You can really focus on watching the examinee. When you need to give a prompt, it shows up on the practitioner device exactly when you’re supposed to give it and exactly what to say. It freezes the client iPad so impulsive people can’t keep going.”

The digital format also enables more sophisticated scoring approaches, including speed-accuracy trade-off analysis—a clinically important variable seldomly formally incorporated in neuropsychological measures.

From Our Interview with Dean Delis:

“I read about speed-accuracy trade-off analysis, something rarely included in neuropsych tests. Patients with pre-frontal involvement or a subgroup of ADHD are so impulsive they sacrifice accuracy for speed. It’s such a critical variable, and hardly any tests incorporate it. That’s something I really wanted in the D-KEFS Advanced, and we were able to include it on three of the tests with contrast scores based on regression models that tell you with clinical significance whether there’s a meaningful difference.”

New and Enhanced Subtests

The D-KEFS Advanced includes enhanced versions of Color-Word Interference, Tower, Trail Making, and Verbal Fluency, along with two new subtests: the Risk–Reward Decision Test and the Social Sorting Test.

The enhanced Trail Making now includes three switching conditions designed to isolate different executive components of multitasking performance:

From Our Interview with Dean Delis:

“Reading the literature and testing patients clinically, you could see that patients fail the Trail Making Test for different higher-level reasons. You can fail it for different types of executive function problems. So we wanted to build in more sophisticated assessment to parse out not only baseline abilities but different higher-level abilities.

To do the switching task—1, A, 2, B, 3, C—you need cognitive flexibility to switch between number sequencing and letter sequencing. But there’s also an inhibition component. When you’re at 3 and need to go to C, the semantic network activates the next automatized unit—4—and that has to be inhibited. Patients with frontal lobe lesions get pulled to that 4; they’re stimulus-bound. And there’s a working memory component, especially later in the sequence when you have to remember where you are.

So we developed three switching conditions to help isolate the mechanism of impairment. I tested a TBI patient with significant left temporal involvement and severe verbal memory impairment. He did well on the standard switching condition, did well on switching with distraction, but bombed the switching with working memory condition. So you could say this person has good shifting, good inhibition, but is impaired in multitasking when the demands are on working memory.”

The Risk–Reward Decision Test represents an effort to assess “hot” executive functions—executive processes operating in emotionally or motivationally salient contexts—more comprehensively. Chapter 2 discusses the hot–cold distinction in detail; here we note that Delis and colleagues specifically designed this subtest to address a gap in traditional neuropsychological assessment.

From Our Interview with Dean Delis:

“Research on hot versus cold executive function has really grown in the last 20–25 years, and we wanted to include something on that. A problem I’ve seen with existing tests like the Iowa Gambling Task is that patients have to learn the contingencies. Patients with memory or learning impairment might struggle on that test because of the learning component, not the risk-reward decision-making itself.

So we designed our test to be very explicit on the risk-reward contingencies. If you pick the top horse to win, it’s high risk because it starts furthest from the finish line, but you’ll win more money. If you pick the bottom horse to win, it starts closer to the finish line but pays less. We had the contingencies right there.

It was probably the most difficult test to develop. We ran numerous pilot studies changing the risk-reward contingencies. People were all over the place; it was really hard to get consistent findings. The kid version just didn’t work—results made no sense whatsoever—so painfully we had to drop it. But the adult version has clear clinical utility for TBI and other groups. It’s helpful for adults who have problems with impulsivity and tolerating boredom, because you have to tolerate picking the boring, conservative option across 60 races.”

The Social Sorting Test provides an ecologically valid measure of concept formation using real-world social stimuli (people, facial expressions, and hats) rather than the abstract geometric shapes of the Wisconsin Card Sorting Test.

From Our Interview with Dean Delis:

“The Wisconsin Card Sorting Test is an extraordinarily sensitive, elegant test—one of the greatest tests ever developed. We wanted to create something that could serve as an alternate form but be more ecologically valid in terms of stimuli and more challenging in concept identification. On the Wisconsin, the concepts are super high frequency—color, shape, number. Being able to do concept identification and flexibility with real-world stimuli, we felt, would be a helpful measure to have in your arsenal.”

Rapid Reference 1.2

D-KEFS Advanced Subtests Overview

Subtest	Primary Constructs	Key Conditions/Features
Color-Word Interference	Inhibition, cognitive flexibility	Matching format with enhanced inhibition demands; speed-accuracy trade-off analysis
Risk-Reward Decision	Hot executive function, decision-making under motivational salience	Explicit risk-reward contingencies across 60 trials; assesses impulsivity and boredom tolerance
Social Sorting	Concept formation, cognitive flexibility, social reasoning	Ecologically valid social stimuli; derailment score and global performance measure
Tower	Spatial planning, rule learning, problem-solving efficiency	Automated administration capturing zero-back, one-back, and two-back responses; varying disc types and rules
Trail Making	Sequencing, cognitive flexibility, working memory	Number and letter sequencing plus three switching conditions isolating shifting, inhibition, and working memory
Verbal Fluency	Generativity, lexical access, cognitive flexibility	Letter, category, and category-to-phonemic switching

The Tier Framework

The D-KEFS Advanced manual introduced an explicit tiered framework for understanding the processes involved in each subtest. This framework recognizes that cognitive processes exist on a continuum from basic, nonexecutive abilities to complex executive control. Tier 1 encompasses foundational processes—sensory, motor, and basic cognitive abilities that are prerequisites for higher-level functioning but are not themselves executive functions. Tier 2 includes bridging processes that integrate foundational abilities with emerging executive control. Tiers 3 and 4 represent core and higher-order executive functions, respectively.

This book applies the tier framework systematically to both the original D-KEFS and D-KEFS Advanced subtests. Chapter 3 provides the full operational framework, explaining how to use hierarchical analysis for differential diagnosis. Each subsequent subtest chapter (Chapters 4–14) applies this framework to that specific measure.

The Interpretive Challenge

The process-oriented design of the D-KEFS helps clinicians navigate what researchers call the “impurity problem” in executive function assessment: the reality that any task designed to measure executive functions inevitably

requires multiple cognitive processes. Poor performance could reflect deficits in any of these contributing processes rather than specifically indicating executive dysfunction.

From Our Interview with Dean Delis:

“In the original D-KEFS manual, we stated [the impurity problem] in an early chapter, but it didn’t sink in. When I read others’ reports, there’s such a high frequency of psychologists interpreting even baseline scores as executive function and not interpreting the higher-level, more difficult tasks relative to all the test scores in the whole battery. That’s when I thought, I have to put some flowcharts in here and drive this point—even include those flowcharts in the score reports so practitioners have it right in front of them.”

The interpretive challenge extends beyond distinguishing foundational from executive processes. Clinicians must also consider ecological validity—the relationship between test performance under optimal conditions and real-world functioning.

DON’T FORGET

The D-KEFS measures processes across a hierarchy—not all are executive functions. Poor performance on any subtest might reflect Tier 1 foundational deficits (e.g., motor speed, visual scanning, language comprehension), Tier 2 bridging process limitations (e.g., basic working memory, basic inhibition), or true Tier 3–4 executive dysfunction (e.g., cognitive flexibility, complex planning, emotional regulation under cognitive load). Chapter 3 provides the systematic framework for making these distinctions.

From Our Interview with Dean Delis:

“One of the big criticisms of neuropsych testing is that it’s conducted in a quiet, controlled, one-on-one structured setting. But in the real world, that’s not the case. We wanted to try to add features that would systematically assess that variable.

The switching with distraction condition [on the Advanced version of Trail Making] was the single hardest test for us to develop. Our original approach used real-world stimuli—phones ringing, people talking, doors shutting. We did pilot study after pilot study with kids and older adults, trying to get as many ADHD kids as we could. And every pilot study showed no effect of the distraction. Zero.

We made it more distracting—different voices saying random numbers and letters. No effect. Our programmers had fireworks and things flying across the screen. Zero.

I woke up in the middle of the night thinking, ‘Stroop effect—that’s what we need.’ I came up with the idea that when you hit the 4, a voice says ‘5’ and a 5 appears on screen—instantly triggered to magnify the prepotent response. We finally got a significant effect. We had to incorporate principles of brain-behavior relationships to make the distraction clinically effective.”

 Rapid Reference 1.3

Key Advances in D-KEFS Advanced

Feature	Advantage
Digital administration	Millisecond timing precision; standardized prompts; reduced examiner burden
Enhanced process scores	Captures qualitative features impossible to score manually (e.g., trial-and-error patterns on Tower)
Explicit tier framework	Systematic distinction between foundational processes and executive functions
Multiple switching conditions (Trails)	Isolates shifting, inhibition, and working memory contributions to multitasking
Risk–Reward Decision Test	Assesses hot executive function—decision-making under motivational salience
Social Sorting Test	Ecologically valid concept formation with real-world social stimuli
Speed-accuracy trade-off analysis	Quantifies impulsive responding with regression-based contrast scores

Guidance from the Source

Beyond the structure and scores, effective D-KEFS interpretation requires attention to process—how examinees approach tasks, not just whether they succeed. Delis emphasizes that process scores and qualitative observations often yield the most clinically meaningful information, particularly for higher-functioning individuals.

From Our Interview with Dean Delis:

“Global scores are very helpful, but if there’s a good global score with an elevated process score or qualitative feature, that can be among the most important findings, especially in high-functioning kids and adults. We tend to focus on global performance, yet some of the most meaningful clinical data are the process data.

Take someone with a slow completion time. You look at why, and it’s because they were making errors and self-correcting, and the self-corrections take extra time. That’s a different interpretation than someone who takes longer and doesn’t make errors or takes longer and makes errors but doesn’t recognize them. You get at least three different categories of people with a slow score but really different performance.

If someone’s making an error and catching it, that catching is a cognitive strength—they’re monitoring their performance. It explains the extended completion time; it’s not just slow processing. The mechanism of that profile is probably impulsivity: they make errors but have the ability to catch them, yet they keep making them because they’re not modulating their speed-accuracy trade-off.”

The D-KEFS Advanced validation studies revealed some surprising clinical patterns that inform interpretation. Each chapter covering an Advanced subtest includes a detailed discussion of these validation findings, but several highlights deserve mention here:

From Our Interview with Dean Delis:

“The Color-Word Interference Test—the baseline conditions are actually easier in the Advanced version because you’re simply matching from three options rather than naming. But condition three is actually harder because when you see the word ‘red’ in green ink and are asked to touch the ink color instead of the word, you also see the word ‘red’ in black ink as a response option. It creates a stronger stimulus-bound pull. You’re magnifying the prepotent response that has to be inhibited.

When we got the ADHD data back, that test was extraordinarily sensitive, even on the baseline conditions. The effect sizes were especially high for condition three, inhibit—you just don’t see those effect sizes in that population on cognitive tests. I kept thinking during development that the baseline conditions are like a mini continuous performance test—simple and boring but you have to sustain attention. Combined with inhibition, that’s where ADHD breaks down.

Another surprise: kids with math learning disability bombed the Tower Test while ADHD kids did pretty well. The effect sizes for math LD were really large. When you think about it, a key aspect of math disability for a significant subgroup involves nonverbal skills and spatial analysis. The Tower Test is spatial planning—so that makes sense, but it was surprising.”

Cultural and linguistic diversity affects performance on any measure, and the D-KEFS is no exception. Clinicians should consider these factors when interpreting results:

From Our Interview with Dean Delis:

“Some tests like Tower and Social Sorting are very nonverbal, so they’re obviously useful with linguistically diverse groups. Other tests like Verbal Fluency have a significant verbal IQ component, so linguistic and cultural factors can play a really significant role, like with any verbal test.

I was on the advisory committee for the WISC-V and WAIS-5, and what we found was that even independent of language, cultural diversity and different ethnic groups still played a significant role on scores. For some of the D-KEFS Advanced tasks like Social Sorting and Tower, there’s still a little bit of cultural or ethnic group difference, but it’s pretty minimal and significantly less than on IQ measures. We haven’t published that data yet, but it would be good to get it out there.”

HOW THIS BOOK IS ORGANIZED

This book provides comprehensive guidance for using the D-KEFS and D-KEFS Advanced in clinical practice. The chapters are organized to build understanding systematically.

Part I: Foundations

Chapter 1 (this chapter) introduces the D-KEFS and D-KEFS Advanced, their development, design philosophy, and the interpretive challenges they address.

Chapter 2 examines executive functioning across the lifespan, providing the developmental and neurobiological context essential for interpreting performance at different ages. This includes the distinction between “hot” executive functions (operating in emotionally or motivationally salient contexts) and “cold” executive functions (operating in emotionally neutral conditions)—a distinction with significant implications for understanding the gap between test performance and real-world functioning.

Chapter 3 presents the hierarchical tier framework in full operational detail. This chapter is the methodological heart of the book, providing step-by-step guidance for using tier-based analysis to distinguish foundational deficits from true executive dysfunction.

Part II: Subtest Chapters

Chapters 4–14 cover individual subtests, with some chapters addressing both original D-KEFS and D-KEFS Advanced versions of the same measure. Each chapter follows a consistent structure: clinical vignette, test description, tier-by-tier analysis of processes involved, administration guidance, behavioral observations, scoring, common administration errors, interpretation using the hierarchical framework, strengths and weaknesses, alternative measures, and summary.

Part III: Integration

Chapter 15 addresses cross-subtest integration and synthesis—how to build coherent executive function profiles when multiple D-KEFS measures yield convergent or divergent patterns, and how to use the tier framework diagnostically across the battery.

Chapter 16 moves from assessment to action, providing guidance on translating tier-based profiles into functional understanding and recommendations. This includes explaining the tier framework to non-clinicians, clients, parents, educators, and treatment providers, and linking tier identification to appropriate intervention approaches.

Chapter 17 extends the tier framework beyond D-KEFS assessment, illustrating how this way of thinking about the impurity problem applies to assessment more broadly. The chapter closes with reflections from Dean Delis on the clinical philosophy underlying these instruments.

Throughout the book, you will encounter formatting conventions from the Essentials series:

Rapid Reference tables summarize key information in table format for quick access.

Caution boxes highlight critical confounds or common misinterpretations to avoid.

Don't Forget boxes emphasize essential clinical points that could easily be overlooked.

SUMMARY

The D-KEFS and D-KEFS Advanced provide clinicians with sophisticated tools for parsing the complex processes underlying executive function task performance. Their process-oriented design—baseline conditions isolating foundational abilities, rich error analyses, and multiple measures of similar constructs—addresses the impurity problem that has long plagued executive function assessment. The D-KEFS Advanced extends these capabilities through digital administration, enabling greater measurement precision, more complex task demands, enhanced process scores, and explicit attention to hot executive functions through the Risk–Reward Decision Test.

Yet tools are only as valuable as the interpretive framework guiding their use. This book provides that framework through hierarchical tier analysis that systematically distinguishes foundational processes from true executive functions, combined with attention to developmental context (Chapter 2) and the hot–cold distinction that explains why test performance may diverge from real-world functioning.

As Delis reflected on the D-KEFS Advanced development:

From Our Interview with Dean Delis:

“This approach allows us to capture and score such a rich variety of process and qualitative data that would be impossible to do otherwise. It reduces measurement error, increases reliability, and lets you address really complex cognitive questions: What is the mechanism of your multitasking deficit? Is it inhibition? Is it shifting? Is it working memory? That combination is what we’re most excited about.”

The chapters that follow translate this potential into practical clinical guidance, equipping you to use these instruments with the sophistication their design deserves. Chapter 2 provides the developmental and neurobiological foundation essential for interpreting executive function performance across the lifespan—from the rapid changes of childhood through the gradual declines of older adulthood. Chapter 3 then operationalizes the hierarchical tier framework into a systematic clinical method, showing how to distinguish foundational deficits from true executive dysfunction. Together, these three chapters establish the conceptual architecture for the subtest-specific guidance that follows.



TEST YOURSELF



1. The original D-KEFS was published in which year?

- (a) 1995
- (b) 2001
- (c) 2016
- (d) 2025

2. According to Dean Delis, which assessment philosophy was central to the D-KEFS development?

- (a) Behavioral observation approach
- (b) Process approach
- (c) Ecological validity approach
- (d) Functional assessment approach

3. The “impurity problem” in executive function assessment refers to:

- (a) Contamination of test materials affecting standardization.
- (b) Examiner bias influencing scoring decisions.
- (c) Any executive function task inevitably requiring multiple cognitive processes.
- (d) Cultural factors invalidating normative comparisons.

4. How many subtests comprise the original D-KEFS?

- (a) Six
- (b) Seven
- (c) Eight
- (d) Nine

5. **Which D-KEFS Advanced subtest was specifically designed to assess “hot” executive functions with explicit risk–reward contingencies?**
 - (a) Social Sorting Test
 - (b) Tower Test
 - (c) Risk–Reward Decision Test
 - (d) Color-Word Interference Test
6. **Dean Delis trained with Edith Kaplan and Harold Goodglass at which institution?**
 - (a) UCLA Medical Center
 - (b) Boston VA
 - (c) Mayo Clinic
 - (d) National Institutes of Health
7. **Which process data do the D-KEFS Advanced Tower Test capture that were impossible to score reliably with manual administration?**
 - (a) Verbal mediation strategies
 - (b) Eye movement patterns
 - (c) Zero-back, one-back, and two-back responses
 - (d) Hemispheric lateralization indices
8. **The D-KEFS Advanced Color-Word Interference Test differs from the original version primarily by:**
 - (a) Eliminating the switching condition.
 - (b) Using a matching format for baseline conditions.
 - (c) Reducing the number of items per condition.
 - (d) Removing time limits.
9. **According to the hierarchical tier framework introduced in Chapter 1, poor performance on a D-KEFS subtest might reflect all of the following EXCEPT:**
 - (a) Tier 1 foundational deficits.
 - (b) Tier 2 bridging process limitations.
 - (c) Tier 3–4 executive dysfunction.
 - (d) Tier 5 metacognitive integration failure.
10. **What key advantage does the D-KEFS Advanced’s digital format provide for measuring impulsive responding?**
 - (a) Automatic discontinue rules
 - (b) Reduced examiner training requirements
 - (c) Speed-accuracy trade-off analysis with regression-based contrast scores
 - (d) Real-time normative comparisons

Answer Key: 1-b, 2-b, 3-c, 4-d, 5-c, 6-b, 7-c, 8-b, 9-d, 10-c

REFERENCES

- Delis, D. C., & Kaplan, E. (2025). *Delis-Kaplan Executive Function System Advanced*. NCS Pearson.
- Delis, D. C., Kaplan, E., & Kramer, J. H. (2001). *Delis-Kaplan Executive Function System*. The Psychological Corporation.
- Delis, D. C., Squire, L. R., Bihrl, A., & Massman, P. (1992). Componential analysis of problem-solving ability: Performance of patients with frontal lobe damage and amnesic patients on a new sorting test. *Neuropsychologia*, 30, 683–697.
- Goodglass, H., & Kaplan, E. (1972). *The Assessment of Aphasia and Related Disorders*. Philadelphia: Lea & Febiger.