

# SINGLES TEST

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## Definition and Context of the Singles Test

The Singles Test is a fundamental experimental protocol utilized within the field of **parapsychology**, specifically designed to investigate the phenomenon of **psychokinesis (PK)**, which is defined as the purported ability of the mind to influence physical matter or energy without direct physical contact. This test method is one of the earliest and most straightforward procedures developed for the controlled, quantitative assessment of macro-PK--the influence exerted upon macroscopic objects. The core mechanism involves a participant attempting to mentally influence the outcome of a physical random event, typically the throw of a standard six-sided die. The explicit goal is for the participant to exert mental force sufficient to cause a predetermined target face, or "single," to appear more frequently than dictated by the laws of statistical probability. The simplicity of the setup allowed early researchers to standardize testing conditions and apply rigorous statistical analysis, aiming to move the study of psychic phenomena from anecdotal observation into the realm of empirical science.

In essence, the Singles Test provides a quantifiable measure of intent versus outcome, serving as a critical tool for operationalizing the concept of psychokinesis for laboratory study. The procedure isolates the variable of mental intention by requiring the subject to focus on a single, specific outcome, thereby maximizing the clarity of the experimental hypothesis. For instance, the participant might be instructed, "Attempt to make the 'four' come up." This focused intention distinguishes the Singles Test from more complex PK protocols that might involve influencing multiple variables simultaneously. The integrity of the test relies heavily on ensuring the randomness of the initial physical event; thus, great care is taken in the preparation and manipulation of the dice, often involving mechanical shakers or automated throwing apparatuses to minimize the possibility of physical manipulation or bias introduced by the experimenter or the participant.

The historical significance of the Singles Test cannot be overstated, as it represents a pioneering effort to bring mathematical rigor to highly speculative claims regarding mental influence. Before the development of such systematic protocols, evidence for PK often relied on anecdotal accounts of poltergeist activity or subjective impressions, which lacked the necessary empirical support for scientific acceptance. By focusing on a simple, binary result--a hit or a miss--the Singles Test offered a clear framework for data collection, allowing researchers to calculate deviation from chance expectation precisely. The fundamental challenge inherent in this test, and indeed all PK research, is establishing conclusive evidence that any observed deviation is genuinely attributable to mental influence rather than subtle environmental factors, flaws in randomization, or statistical anomaly. The clear, defined nature of the Singles Test, however, makes it an excellent model for addressing these methodological challenges.

## Historical Development and Early Psychokinesis Research

The Singles Test emerged prominently during the foundational period of modern parapsychology, largely spearheaded by the research conducted by J.B. Rhine and his colleagues at Duke University in the 1930s and 1940s. While Rhine is perhaps most famous for his work on extrasensory perception (ESP) using Zener cards, the effort to quantify psychokinesis required the development of analogous, controlled methodologies. The selection of dice as the experimental medium was strategic: dice are inexpensive, readily available, produce mathematically predictable outcomes, and the results of their throws are objectively observable and easily recorded. Early experiments often involved participants attempting to influence the outcome of the dice thrown either by hand or, later, via mechanical devices designed to reduce experimenter artifacts.

The initial phase of PK research using dice was crucial for establishing the baseline methodology that would evolve into the formal Singles Test. Researchers realized quickly that uncontrolled hand-throwing introduced too many variables, including subtle muscle movements or variations in throwing force that could potentially bias the results without invoking true PK. Consequently, the methodology matured, leading to highly standardized procedures where the dice were often thrown from a cup onto a padded surface, or even mechanically released down a chute. This methodological refinement was essential for isolating the purported mental effect from ordinary physical variables. The formal designation of the "Singles Test" refers explicitly to the condition where only one side of the six-sided die is designated as the target, simplifying the statistical model necessary for analysis.

Furthermore, the historical context reveals that the development of the Singles Test was driven by the necessity to address mounting skepticism regarding the feasibility of PK. By adopting a quantifiable approach rooted in probability theory, Rhine and his contemporaries sought to provide evidence that could withstand scientific scrutiny. The long series of trials conducted using the Singles Test accumulated substantial datasets, often involving thousands of individual throws by multiple participants. These early, large-scale studies provided the initial, controversial body of evidence that suggested small but statistically significant deviations from chance expectation were possible, thereby cementing the Singles Test as a cornerstone method in the nascent field of experimental parapsychology, despite persistent lack of acceptance by mainstream science.

### Detailed Methodology: Conducting the Singles Test

The execution of the Singles Test follows a highly regimented protocol designed to maximize experimental control and ensure the integrity of the randomization process. The primary material used is typically one or more standard casino-grade dice, ensuring balance and minimizing structural defects that could introduce bias. Before any testing begins, the dice are usually examined for flaws and weighed to confirm uniformity. The experimental setup typically involves

the dice being thrown, rolled, or dropped in a standardized manner, often utilizing a mechanical cup, cage, or apparatus to ensure a consistent velocity and trajectory, minimizing the direct physical contact or skill of the participant. The participant is seated near the throwing mechanism and is clearly informed of the specific target face--the "single"--they must attempt to influence. For example, if the number '6' is the target, the participant's sole mental effort must be directed toward making the '6' appear face-up.

A crucial element of the methodology is the definition and execution of a "run" or "series." A single run consists of a predetermined number of throws, often set at 24, 50, or 100 throws, depending on the experimental design. This fixed structure allows for consistent statistical comparison across different subjects and sessions. During the throws, strict recording procedures are enforced. An independent observer, often blinded to the participant's target face or hypothesis, meticulously records the outcome of every single throw. This dual-verification system is necessary to prevent recording errors or unconscious bias from affecting the data integrity. The subject's role is purely focused on mental concentration, while the physical manipulation and recording are handled under controlled conditions, ensuring that the critical step--the act of a person trying to throw a die to a specific outcome--is isolated for measurement.

Furthermore, methodological considerations often include controls for environmental factors and subject state. Experiments may incorporate shielding to mitigate external electromagnetic interference, and procedures may be implemented to monitor the psychological state of the participant, as some researchers hypothesize that factors such as mood, motivation, or belief may correlate with PK success rates. The detailed methodology ensures that every aspect, from the handling of the dice to the recording of the final data, is standardized. This level of detail is necessary because the expected effect size in PK research is often very small; thus, any slight deviation in procedure could potentially contaminate the results, leading to false positives or masking a genuine, albeit weak, psychokinetic effect. The rigor applied to the Singles Test methodology reflects the challenging nature of proving subtle mental influence on physical reality.

## Statistical Principles and Chance Expectation

The statistical backbone of the Singles Test relies fundamentally on the principles of probability theory applied to random events. When using a standard, six-sided die, the probability of any single face appearing on a given throw, assuming perfect randomness and balance, is precisely one in six ( $1/6$ ), or approximately 16.67%. This baseline probability establishes the **chance expectation (CE)**, which serves as the null hypothesis for the experiment. If a participant performs 600 throws in total, the chance expectation is that they will achieve 100 hits (600 multiplied by  $1/6$ ). Any observed score significantly above this expected value is deemed evidence supporting the influence of psychokinesis, while scores falling significantly below chance expectation might suggest psychokinetic avoidance, or "psi-missing."

To determine if the observed results genuinely deviate from chance, researchers employ the binomial distribution model, which is appropriate for experiments involving a fixed number of independent trials (throws) where the outcome is dichotomous (hit or miss). Statistical metrics, such as the Z-score and the associated p-value, are calculated to quantify the magnitude and significance of the deviation. The Z-score measures how many standard deviations the observed score is away from the chance expectation. A small p-value (typically less than 0.05) indicates that the probability of achieving the observed score purely by chance is very low, leading researchers to reject the null hypothesis and tentatively accept the possibility of a psychokinetic effect.

It is crucial to recognize that the strength of the statistical inference depends heavily on the volume of data collected. Since PK effects, if they exist, are generally thought to be very weak, large sample sizes--often tens of thousands of individual throws--are required to achieve statistical significance. Furthermore, researchers must account for the problem of multiple comparisons. If hundreds of researchers conduct the Singles Test, some are bound to find significant results purely by chance (the "file drawer problem"). Therefore, emphasis is placed not just on achieving a single statistically significant result, but on the demonstration of consistent, replicable effects across multiple independent studies. The robust statistical framework, though frequently criticized regarding its application in parapsychology, is what initially allowed the Singles Test to be considered a viable scientific protocol for studying alleged psychic abilities.

## Scoring and Interpretation of Results

Scoring in the Singles Test is straightforward: every throw that results in the designated target face appearing is counted as a "hit," while all other outcomes are recorded as a "miss." The primary datum analyzed is the total number of hits achieved within a given run or series. Interpretation begins by comparing this observed score (OS) directly against the chance expectation (CE) derived from the total number of throws. If the Observed Score is higher than the Chance Expectation, the difference is referred to as a "deviation above chance," which is the hypothesized outcome indicative of successful PK influence. Conversely, a score significantly below CE is noted as "psi-missing," suggesting that the subject's mental influence actively worked against the desired outcome.

Advanced interpretation involves applying meta-analysis techniques when combining data from multiple subjects or experiments. Since individual subjects rarely produce overwhelmingly powerful results, the cumulative evidence gathered through the Singles Test often relies on pooling results to establish a small but persistent overall effect. For results to be taken seriously within the field, the level of significance must typically exceed the conventional  $p < 0.05$  threshold, often aiming for much lower p-values to compensate for the inherent low probability of the phenomenon under investigation. Consistency of results--such as finding that a specific participant consistently scores slightly above chance over many sessions--is often considered stronger evidence than a single,

high-scoring outlier session.

However, the interpretation must also address the common occurrence of the **decline effect**, a phenomenon frequently reported in PK research where high scores achieved early in a testing series gradually diminish toward chance level as the experiment progresses. Researchers have debated whether this decline is due to subject fatigue, loss of motivation, loss of novelty, or simply a statistical artifact. Proper interpretation thus requires careful analysis of the scoring patterns over time, differentiating between genuine high scoring related to mental effort and random fluctuations that may appear significant in short bursts. Ultimately, the successful interpretation of the Singles Test results seeks to isolate the subtle signal of psychokinesis from the considerable noise generated by random chance and human error, a task that remains central to parapsychological methodology.

## Comparison with Other PK Methodologies

While the Singles Test provided the initial framework for quantifiable PK research, it stands in methodological contrast to other protocols developed subsequently. One immediate variation is the **Doubles Test**, where the participant attempts to influence the die to land on one of two predetermined target faces (e.g., either a '1' or a '6'). Statistically, the chance expectation for the Doubles Test is 2/6 (or 1/3), making the probability of success higher than the 1/6 chance associated with the Singles Test. Although mathematically similar, the cognitive demand might differ, as the subject is focusing on a broader set of outcomes. However, the Singles Test remains the purest form of targeting a single, precise physical manifestation.

A more significant divergence occurred with the shift toward **Micro-PK research**, which utilizes electronic random number generators (RNGs) instead of macroscopic objects like dice. In micro-PK tests, the participant attempts to influence the output of a micro-electronic device, forcing it towards a target binary outcome (e.g., more '1s' than '0s'). The advantages of RNGs over the Singles Test are substantial: RNGs are faster, allowing for millions of trials to be conducted quickly; they eliminate the possibility of subtle physical manipulation of the dice; and the randomization process is often considered more robust and less susceptible to environmental variables. Despite these advantages, the Singles Test holds historical importance as the bridge between qualitative observation and controlled experimentation.

The Singles Test, being a macro-PK protocol, focuses on a direct, observable influence on a physical object, making the results highly intuitive and easier for laypersons to understand. Conversely, micro-PK tests measure influence on fundamental, quantum-level processes, often yielding results that are statistically significant but physically imperceptible to the observer. While modern parapsychology overwhelmingly favors the high control and data volume of RNG tests, the Singles Test established the foundational requirement--the need for a fixed target, a known chance

baseline, and rigorous statistical evaluation--that continues to govern all subsequent PK research methodologies.

## Criticisms and Methodological Challenges

The Singles Test, like all early PK methodologies, has faced intense scrutiny and sustained criticism from the scientific community, primarily focusing on methodological rigor and the interpretation of statistical results. One major point of contention centers on the potential for **subtle physical artifacts**. Even with mechanical throwing devices, skeptics argue that minute variations in the dice material, throwing surface consistency, or even slight imperfections in the dice manufacturing could introduce non-random biases that mimic a genuine PK effect. Furthermore, in early, less controlled studies where participants handled the dice, concerns were raised about highly skilled, unconscious manipulation or outright fraud.

Another significant challenge involves the issues of **experimenter effects and recording bias**. Although protocols require independent recording, the experimenter's expectations or beliefs might subtly influence the testing environment or the participant's performance. More fundamentally, statistical criticisms center on the concepts of optional stopping and data selection. If researchers continue testing until a statistically significant result is achieved, or if they only publish positive results while filing away negative ones (the file drawer problem), the reported significance levels become inflated and misleading. The Singles Test, being an easily repeatable protocol, is particularly susceptible to these meta-statistical issues if the cumulative evidence is not properly synthesized.

Finally, the inherent nature of the Singles Test--measuring a very small deviation from chance--means that any claimed effect is extremely fragile. The lack of a robust, replicable, and independently verifiable mechanism for psychokinesis remains the most powerful critique. While participants might achieve scores statistically above chance in a given run, the inability of subsequent studies (especially those conducted by skeptical investigators) to consistently replicate these results diminishes the overall scientific credibility of the findings. The methodological challenges inherent in proving that mental intent, rather than subtle environmental or statistical factors, is responsible for influencing the throw of a die have led many researchers to transition to more tightly controlled, automated micro-PK tests, though the historical significance of the Singles Test remains unchallenged.

## The Legacy of the Singles Test in Modern Parapsychology

Despite the contemporary preference for automated micro-PK methodologies utilizing random number generators, the Singles Test holds a profound legacy within parapsychology. It served as the crucial conceptual and experimental bridge that allowed researchers to transition the study of

psychokinesis from anecdotal reports into a structured, laboratory-based discipline. The test established the fundamental criteria necessary for any quantitative psi research: the requirement for a clearly defined target outcome, the establishment of a known chance baseline, the necessity of large datasets, and the application of rigorous statistical methods derived from probability theory. Without the initial standardization provided by the dice-throwing protocols, the field's later adoption of electronic methods would have lacked a clear methodological foundation.

The Singles Test also provided the initial framework for exploring complex psychological variables related to PK performance. The data gathered from decades of dice experiments yielded observations regarding subject profiles--determining which types of individuals might be better PK performers--and highlighted the importance of psychological factors such as belief, motivation, and the previously mentioned decline effect. These behavioral insights, derived directly from the quantifiable results of participants attempting to influence the throw of a single die, continue to inform modern experimental design, particularly in attempts to enhance the often elusive and weak nature of the purported psychokinetic effect.

In conclusion, while the physical apparatus of the Singles Test--the cup and the die--may have largely been replaced by sophisticated electronic hardware, the underlying statistical and methodological principles it pioneered endure. The concept of focusing mental intent on a single, quantifiable deviation from randomness remains the operational definition of PK experimentation. The Singles Test, exemplified by the simple yet profound act of a participant trying to throw a die to a specific outcome, thus stands as a vital historical artifact and a foundational element in the ongoing scientific effort to explore the boundaries between mind and matter.