

# Astrology

- [Astrology doesn't Work](#)

# Astrology doesn't Work

## Clearer Thinking's Study: Can astrologers truly gain insights about people from entire astrological charts?

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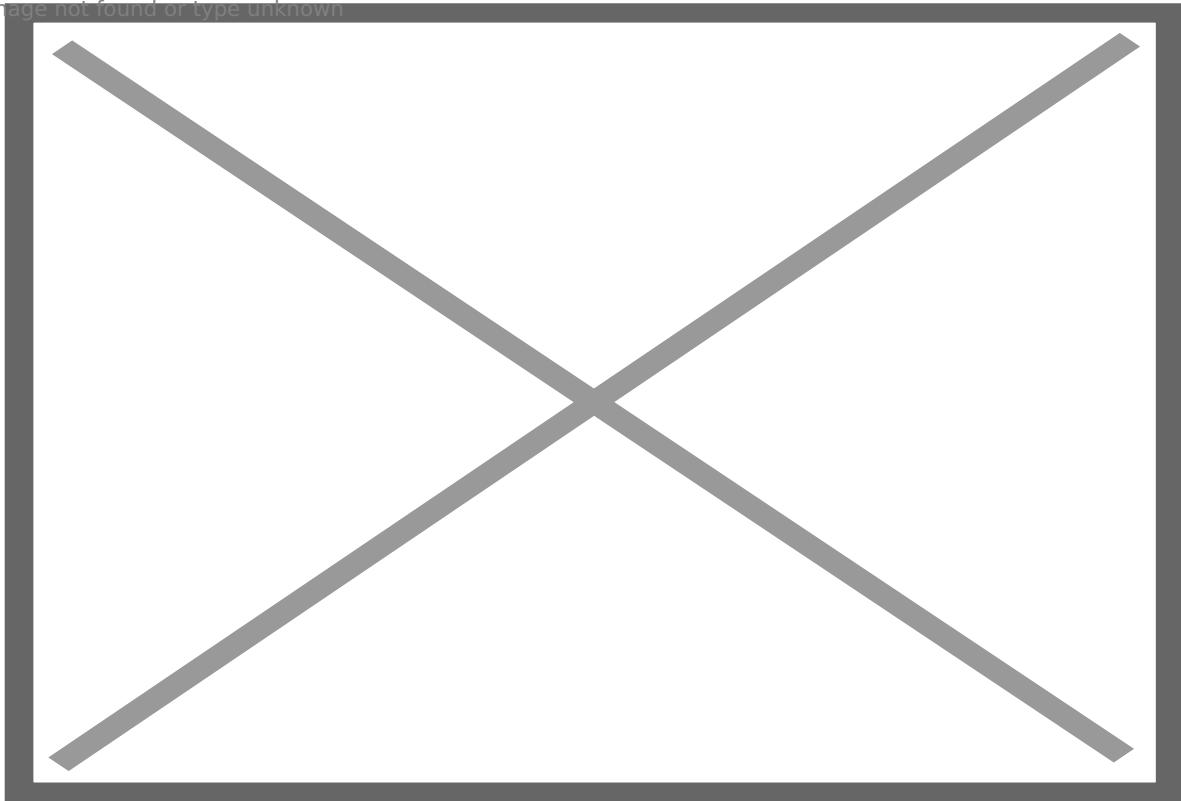
<https://www.clearerthinking.org/post/can-astrologers-use-astrological-charts-to-understand-peoples-character-and-lives-our-new-study-pu>

Astrology is very popular — both [Gallup](#) and [YouGov](#) report that about 25% of Americans believe that the position of the stars and planets can affect people's lives, with an additional 20% of people reporting being uncertain about astrology's legitimacy.

Previously, [we tested](#) whether facts about a person's life can be predicted using their astrological sun signs (such as Pisces, Aries, etc.). A number of astrologers criticized this work, saying that of course we found that sun signs don't predict facts about a person's life, because that's baby or tabloid astrology. Real astrologers use people's entire astrological charts to glean insights about them and their lives.

And they had a good point! Despite sun sign astrology being popular, most astrologers use entire astrological charts, not merely people's sun signs. Here are some examples of the feedback we received:

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Inspired by these critiques, we enlisted the help of six astrologers, and with their feedback and guidance, [we designed a new test to see whether astrologers can truly gain insights about people from entire astrological charts!](#)

If it's true that a person's natal astrological chart contains lots of information about their character or life, then it stands to reason that astrologers should be able to match people to their charts at a rate that is at least moderately better than random chance. If they can do that, then that would provide substantial evidence that astrology really works!

So, how did the study turn out? If you just want the quick highlights, we've provided a summary below. Or you can read on for all the details of the design of the study and the analyses we conducted on the study data. Even if you're not interested in astrology, *per se*, we think that designing a test of astrology serves as a nice example of the scientific method put into practice - that is, how to go from a claim to a scientific test of that claim. We'll explain how that process works.

If you believe you have astrological skill, you can also put yourself to the test [by taking the same challenge](#)

[the anonymized data from our study,](#)

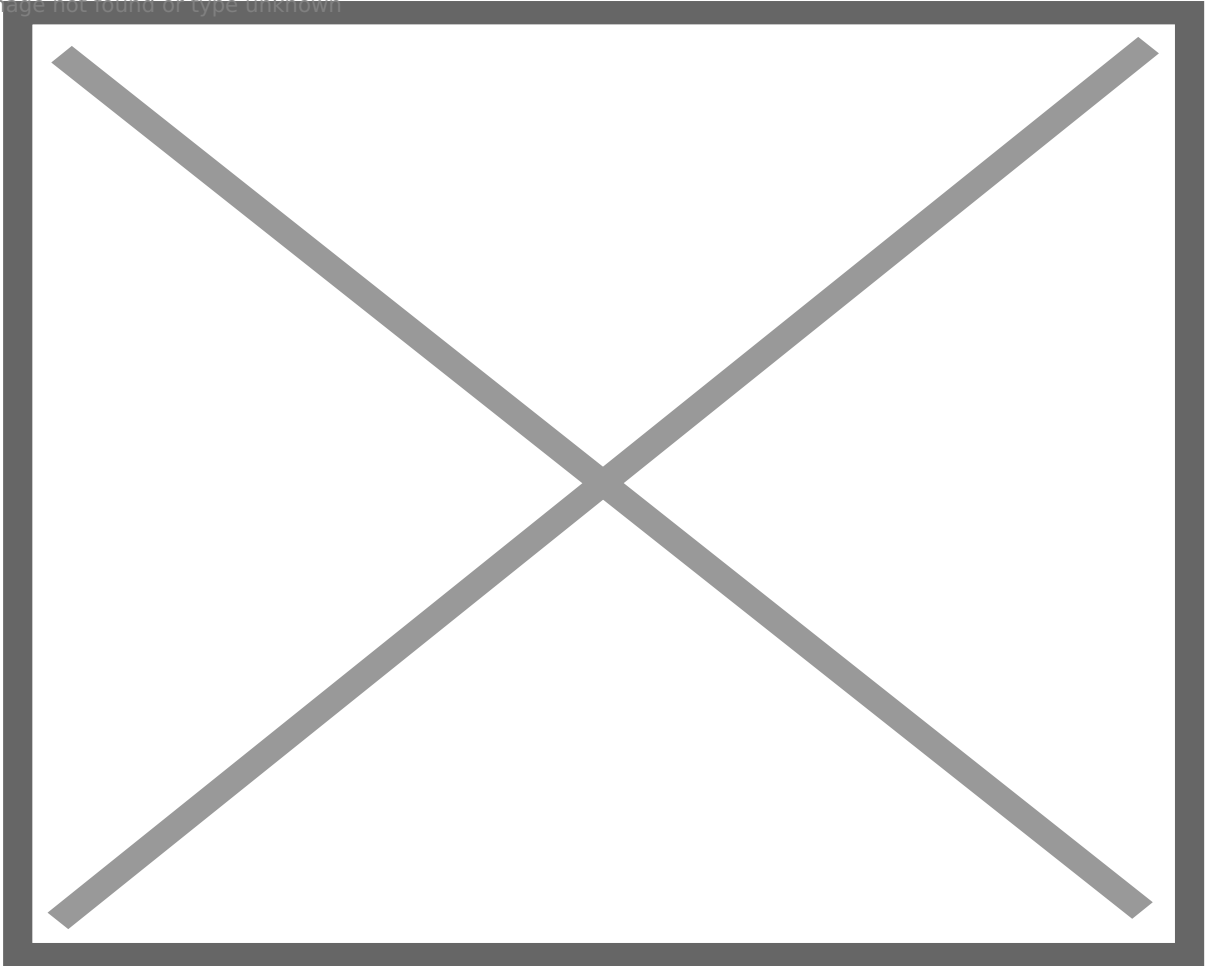
## Summary of Results:

- We tested and analyzed the ability of 152 astrologers to accurately match people to their natal charts. For our primary analyses, we excluded anyone who reported no prior astrology experience as well as anyone who believed they would not do better than random guessing at the task of matching people to their astrological charts.
- The 152 astrologers largely believed that they were capable of doing this task with accuracy well above chance. Whereas a random guesser would, on average, only correctly answer 2.4 questions out of 12, astrologers with the least experience thought they had correctly answered 5 charts after completing the study tasks, and those with the most astrology expertise believed they had gotten 10 right.
- Despite their high-degree of confidence in their performance, astrologers as a group performed no better than chance - that is, their distribution of results closely resembled what you'd see if they had all been guessing at random, and the number of charts they matched correctly, on average, was not statistically significantly different than random guessing either.
- Not a single astrologer got more than 5 out of 12 answers correct - even though, after completing the task, more than half of astrologers believed they had gotten more than 5 answers correct.
- More experience with astrology had no statistically significant association with better performance, and the astrologers with the most experience didn't do any better than the rest.
- If astrologers as a group had been able to do meaningfully better than chance, this study design would have supported the conclusion that astrology works. But, as it turned out, astrologers in the study performed in a manner statistically indistinguishable from random guessing.
- Despite astrologers' belief that they were performing well on the task, there was little agreement among astrologers about which natal chart belonged to each study subject.





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Adapted from charts provided by [astro.com](https://astro.com)

If you've never seen an astrological chart before, you may find that it comes across as quite mysterious. Natal charts are generated based on a birth date, time and location. There are different opinions on the best ways to read such charts, but many astrologers agree on these basics:

- **Houses:** the chart is divided into 12 houses, each representing different areas of life (e.g., some interpret the 2nd house as being related to finances)
- **Signs:** each such house has a zodiac sign, which has an influence on the characteristics of that area of life (e.g., some interpret a "6th House Cusp in Virgo" as being related to a service-oriented approach to health). Though, note that not all astrologers use the same method to assign signs to houses.

- **Planets:** planets are placed in houses and signs, affecting specific life areas or traits (e.g., some interpret Mars in the 3rd house as influencing communication style)

Reading such a chart requires specialized skill. Someone with no experience is not going to be accurate, even if astrology turns out to be effective. An additional challenge, when it comes to study design, is that astrologers differ in how they interpret these charts.

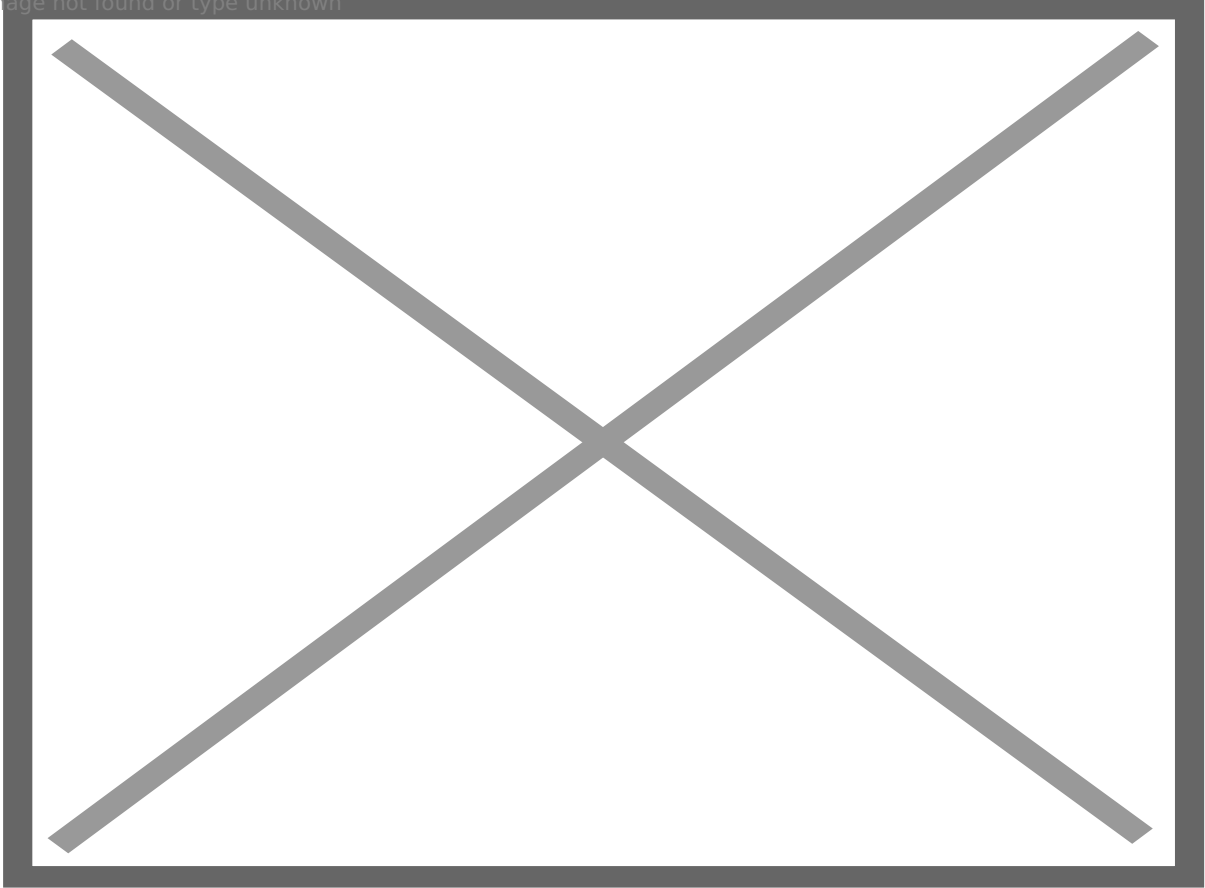
But since nearly all astrologers agree that natal charts can reveal insights about a person's life or character, this is the claim we designed our study around, asking astrologers to identify which chart belongs to a given person from a set of options. What's appealing about testing this core aspect is that mainstream science considers such predictions about a person to be impossible (since none of the known forces of physics could account for the relationships between an astrological chart and a person's life). So if astrologers can actually do this task successfully, that's a strong demonstration that they have a skill that science can't currently explain.

# How did our test for astrologers work?

[Our test for astrologers](#) consists of 12 multiple choice questions. For each, we show lots of information about one real person's life (50 such pieces of information, including some basic factual information like gender and education, as well as lots of answers to open-ended questions, such as how they would describe their personality, what their brief life story is, how lucky or unlucky they feel they've been, what their home life was like growing up, and so on). These questions were chosen by asking astrologers what they would ask someone if they wanted to be able to accurately guess that person's astrological chart.

Here are a few examples of a few of the 50 pieces of information we provided about each study subject:

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After showing this information about a study subject, we showed each astrologer 5 astrological charts. Only one of these is the real natal chart of that person (based on their birth date, time, and location), and the other four are "decoy" charts that were generated based on random dates, times, and locations. The astrologer's task is to predict which one of the five charts is the person's real chart.

Here's an example of the decision the astrologers had to make:

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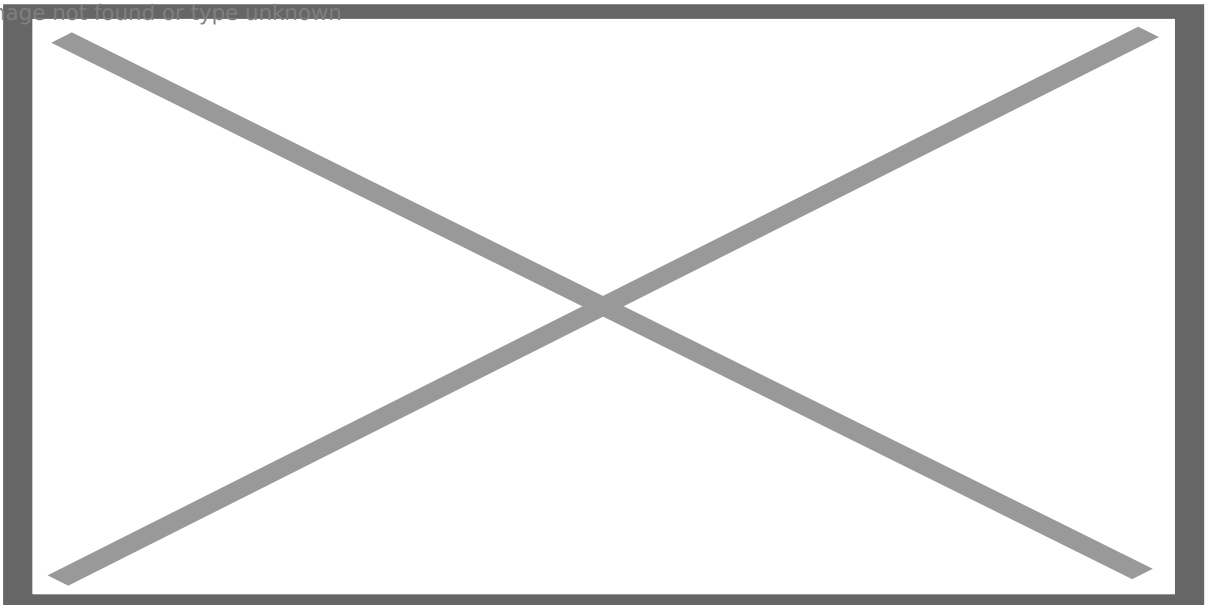
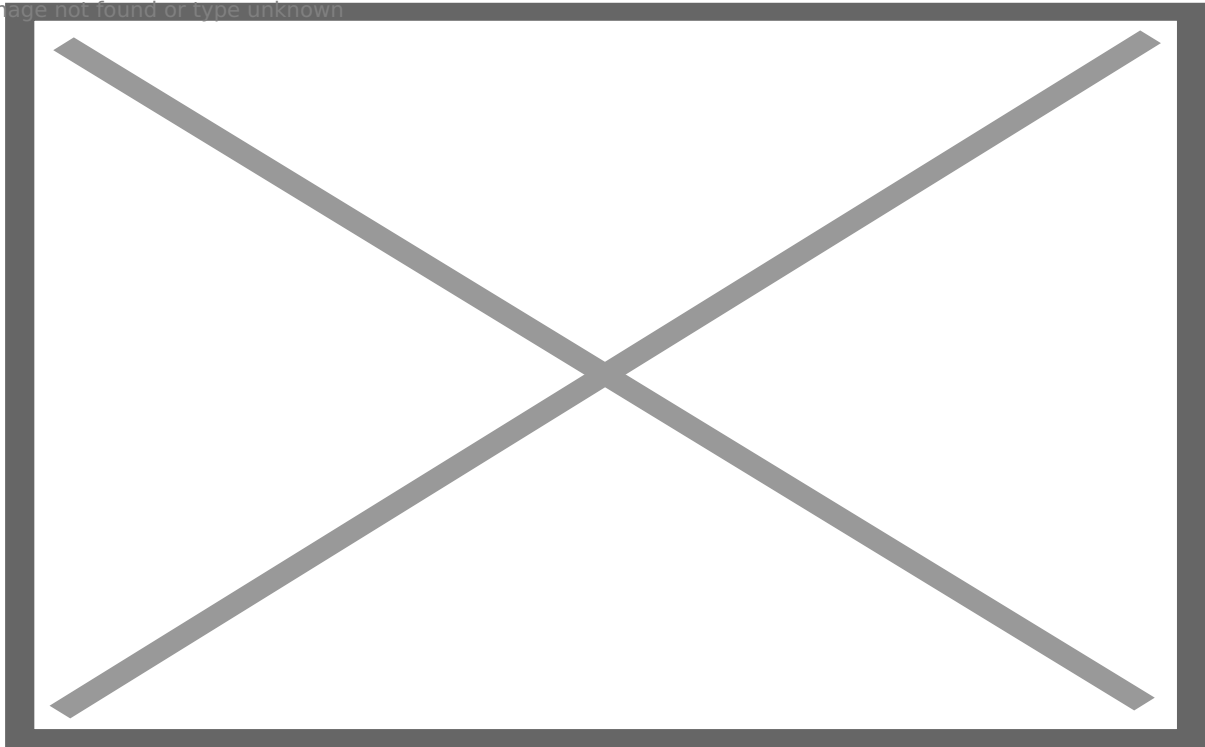


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If astrologers were randomly guessing (i.e., if they had no skill whatsoever), they would get 20% of questions correct (an average of 2.4 out of 12). If, on average, astrologers can get at least, say, 33% correct (4 out of 12) that would provide substantial evidence that astrology works. And even if most astrologers don't do better than chance, but just one astrologer can get at least 11 out of 12 right, that would provide strong evidence that that astrologer has genuine skill. To increase interest and participation in our study, we offered a \$1,000 prize to the first astrologer (if any) who could get at least 11 right during the study period. Just before starting the challenge, 25% of those with astrological experience believed they would win this prize, and right after finishing the challenge 15% believed that they had done well enough to win this prize.

## What do we mean by “astrologer”?

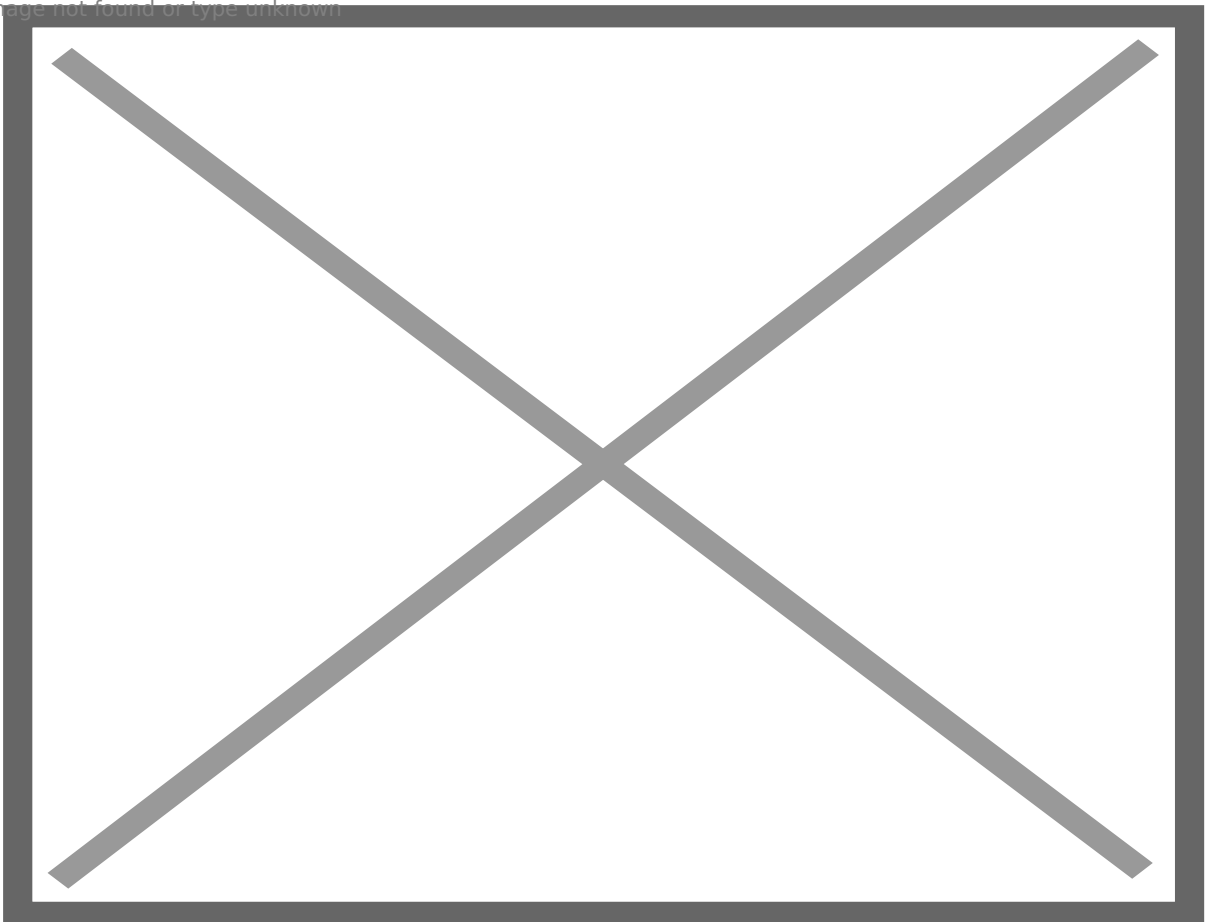
328 participants took our test, including 152 astrologers. We define an astrologer (for these analyses) as a participant with at least some astrology experience who also predicted, just before starting the task (but after the study design was explained to them), that they would perform better than chance (i.e., that they would get at least 3 out of 12 questions correct). The reason for these exclusion criteria are because if someone doesn't have astrological experience, then their performance on this test obviously says nothing about astrology, and if someone with astrological experience does not believe they can do better than random guessing at the task, then it's not fair to use their inability to do the task as evidence that astrology itself doesn't work.



The following chart compares the actual performance of astrologers to what would be expected from random guessing. It shows:

- The percentage of astrologers who got each number of correct answers (from 0 to 12) - as blue bars
- The expected percentage if astrologers were just guessing randomly - as a green line.

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As you can see, the results of all 152 astrologers as a group had a distribution of correct answers that is very similar to what we would have expected to see if none of them had skill and they were all guessing at random.

For example, 5.3% of astrologers got 0 questions correct, compared to 6.9% expected by chance. 28.3% of astrologers got 3 correct, versus 23.6% expected by chance. Importantly, no astrologer got more than 5 questions correct, while random chance predicts a small percentage would get 6

or more correct just by luck.

Correct Answers	% of Astrologers that got this many correct (n = 152)	Expected % if they had no skill and were all guessing at random
0	5.3%	6.9%
1	20.4%	20.6%
2	23.0%	28.3%
3	28.3%	23.6%
4	17.1%	13.3%
5	5.9%	5.3%
6	0%	1.6%
7	0%	0.3%
8	0%	0.01%
9	0%	0.006%
10	0%	0.0004%
11	0%	0.00002%
12	0%	0.0000004%

## Did astrologers with more experience believe they would perform better?

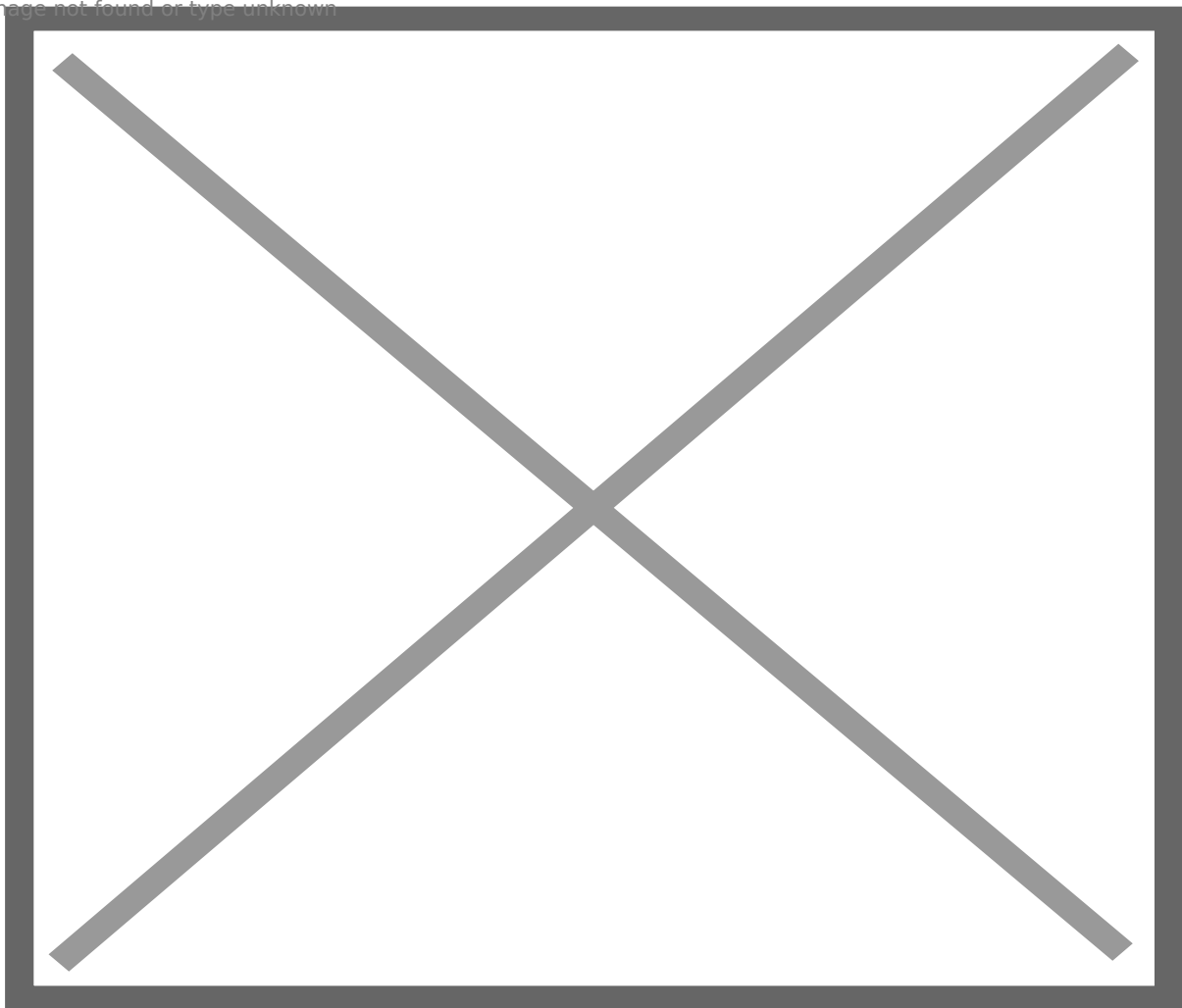
Just before starting the challenge (but after reading how it works) participants were asked "How many of the 12 official challenge questions do you think you will get right?" Additionally, immediately after finishing the challenge, participants were asked "How many of the 12 questions do you think you got right?" Recall that we are excluding from our analysis the "guessers", which are participants who have no astrology experience or who believed (just before starting the challenge) they would get less than 3 questions right (since that means they predicted to perform worse than chance on the challenge).

We see that there is a strong relationship between astrology experience and how many questions astrologers *believed* they would get right. All groups, on average, believed they would do much better than chance (i.e., better than 2.4 questions right out of 12) both before starting and after completing the challenge. The group who believed they would do the worst were those who

reported only "a little experience" with astrology (estimating they'd get 6.4 questions right prior to starting, and 5.0 right after they completed it, both well above chance). In contrast, the most confident group were world-class experts (estimating they'd get 10.4 right before the challenge and 10.2 after).

On average, confidence dropped by about one question across all experience levels after completing the test, except for "world-class experts" whose estimates fell from 10.4 correct answers before the challenge to 10.2 after. So after finishing the challenge astrologers were a little less confident than they were just before starting, but even after the challenge, astrologers were still confident in their abilities.

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<b>Translation</b>	<b>Average number of questions they believed they would get right (before the challenge)</b>	<b>Average number of questions they thought they got right (after the challenge)</b>	<b>Average number of correct answers out of 12</b>
I have a little experience	6.4	5.0	2.3
I'm an experienced amateur	7.6	6.3	2.7

I'm between an amateur and an expert	7.6	6.7	2.4
I'm an expert but not world-class	10.4	9.3	2.6
I'm a world-class expert	10.4	10.2	2.2

If we consider all participants in our study who said they had at least a little astrological experience, including those who didn't believe they would do better than chance (n=172), we see that before starting the test 61% of these participants believed they would get at least 6 questions right (and right after finishing the test 51% believed they had gotten at least 6 questions right). Before starting, 88% of these participants believed they would do better than chance (i.e., get more than 2.4 right), and right after finishing the challenge 80% believed they had done better than chance.

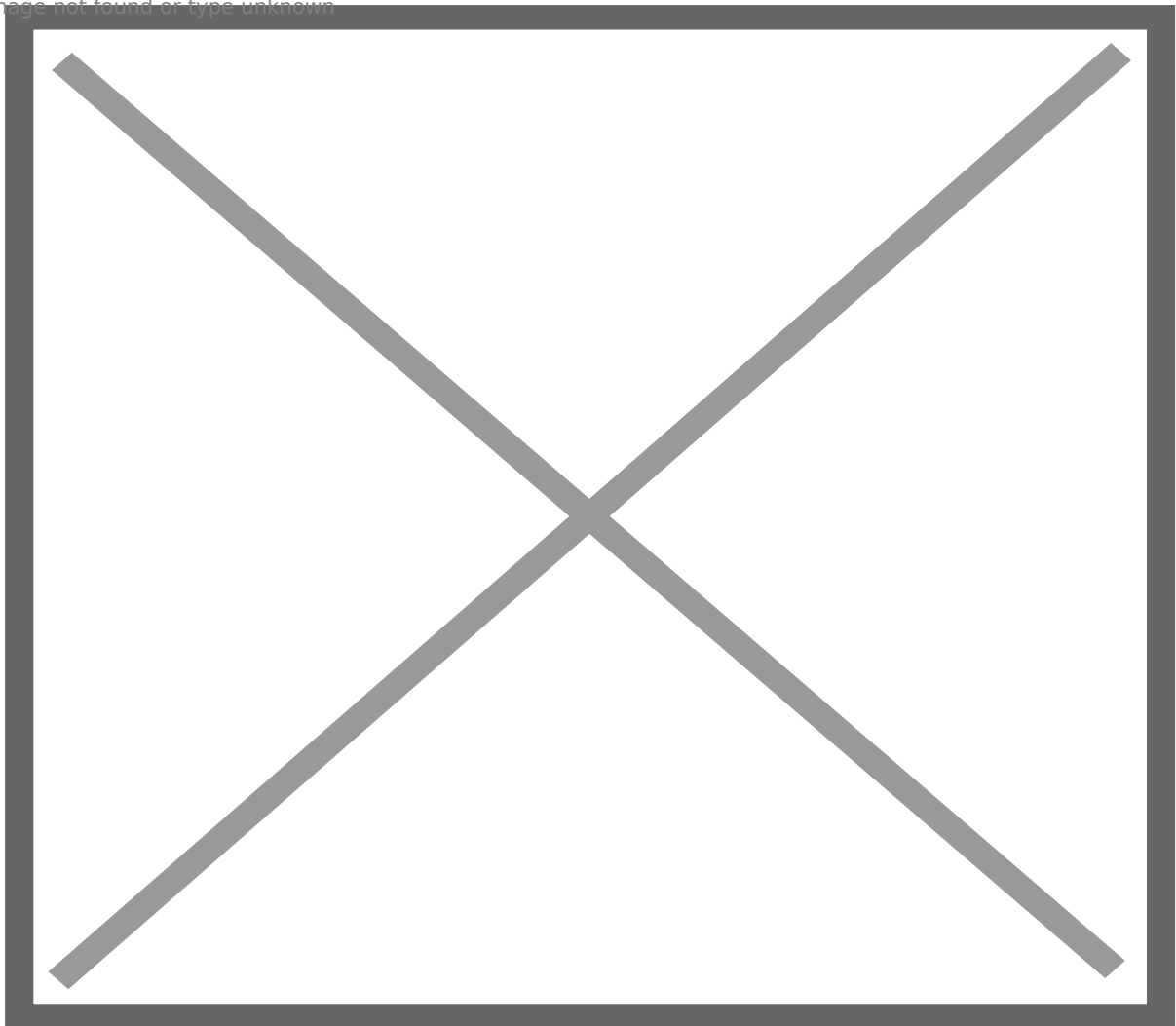
Questions right (what they predicted)	Just before starting the challenge, % of participants that thought they'd get at least this many right	After finishing the challenge, % of participants that thought they had gotten at least this many right
0	100%	100%
1	98%	96%
2	95%	94%
3	88%	80%
4	77%	67%
5	69%	59%
6	61%	51%
7	47%	39%
8	40%	31%
9	34%	24%
10	30%	19%
11	25%	15%
12	10%	6%

# Did astrologers with more experience actually perform better

# than those with less experience?

Experience level did not correlate with improved performance. For example, astrologers that reported having "little experience" got an average of 2.3 questions right, while self-defined "world-class experts" averaged just 2.2 questions right. The best performing group were those with the 2nd lowest amount of experience (i.e., those who reported being "an experienced amateur.") They got 2.7 right, which was not statistically significantly different from random chance.

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Astrology experience	Average number of correct answers out of 12	Number of participants in group	Standard deviation of correct answers	95% confidence interval for average number of correct answers
I have a little experience	2.3	52	1.4	2.0 to 2.7
I'm an experienced amateur	2.7	47	1.3	2.3 to 3.1

I'm between an amateur and an expert	2.4	38	1.2	2.1 to 2.8
I'm an expert but not world-class	2.6	10	1.0	2.0 to 3.2
I'm a world-class expert	2.2	5	1.1	1.2 to 3.2

## How did performance vary based on prior experience with specific types of astrology?

At the start of the challenge, we asked participants to indicate which types of astrology (e.g., Western, Chinese, Traditional, etc.) they were experienced with. The answers were in checkbox format, allowing them to select multiple options. After collecting the data, we analyzed whether astrologers reporting experience in different types of astrology achieved different results.

Considering each group independently, participants with experience in hellenistic astrology got 2.9 correct answers on average (the most correct out of any group), with a p-value of 0.036 in a two-tailed t-test and 0.0178 in a one-tailed t-test (relative to the 2.4 questions right expected from random guessing). None of the other astrology types showed statistically significant results that *positively differ* (i.e. *perform better*) from random guessing.

Since we tested 20 hypotheses (one for each of these 20 types of astrology), we would expect to have one false positive on average meeting a  $p < 0.05$  threshold. If we correct for the number of hypotheses tested, we find that none of the groups are statistically significantly different from guessing at random. After adjusting for 20 hypotheses with a Bonferroni correction, the one-tailed p-value for Hellenistic astrology increases to 0.356, indicating no statistically significant deviation from random guessing.

Note that each participant could indicate being experienced with more than one type of astrology (so the same participant can

Types of astrology they reported being experienced with	Average number of correct answers out of 12	Number of participants in group	Standard deviation of correct answers	95% Confidence Interval for the average of correct answers
Hellenistic	2.9	29	1.22	2.4 to 3.3

Horary	2.8	18	1.31	2.2 to 3.4
Psychological	2.8	45	1.25	2.4 to 3.1
Mundane	2.7	27	1.10	2.3 to 3.1
Western	2.5	131	1.21	2.3 to 2.7
Evolutionary	2.5	23	1.44	1.9 to 3.1
Degree Theory	2.5	10	1.18	1.8 to 3.2
Medical	2.5	12	1.45	1.7 to 3.3
Humanistic	2.5	12	1.51	1.6 to 3.4
Uranian	2.5	8	1.31	1.6 to 3.4
Chinese	2.4	27	1.55	1.9 to 3
Electional	2.4	14	1.28	1.8 to 3.1
Mayan	2.4	5	1.14	1.4 to 3.4
Traditional	2.4	94	1.27	2.1 to 2.6
Vedic	2.2	22	1.10	1.7 to 2.6
Esoteric	2.1	22	1.32	1.6 to 2.7
Medieval	2.0	11	1.34	1.2 to 2.8
Cosmobiology	2.0	8	1.41	1 to 3
Renaissance	1.9	10	1.29	1.1 to 2.7
Egyptian	1.6	10	1.51	0.7 to 2.5

## Do astrologers at least agree with each other?

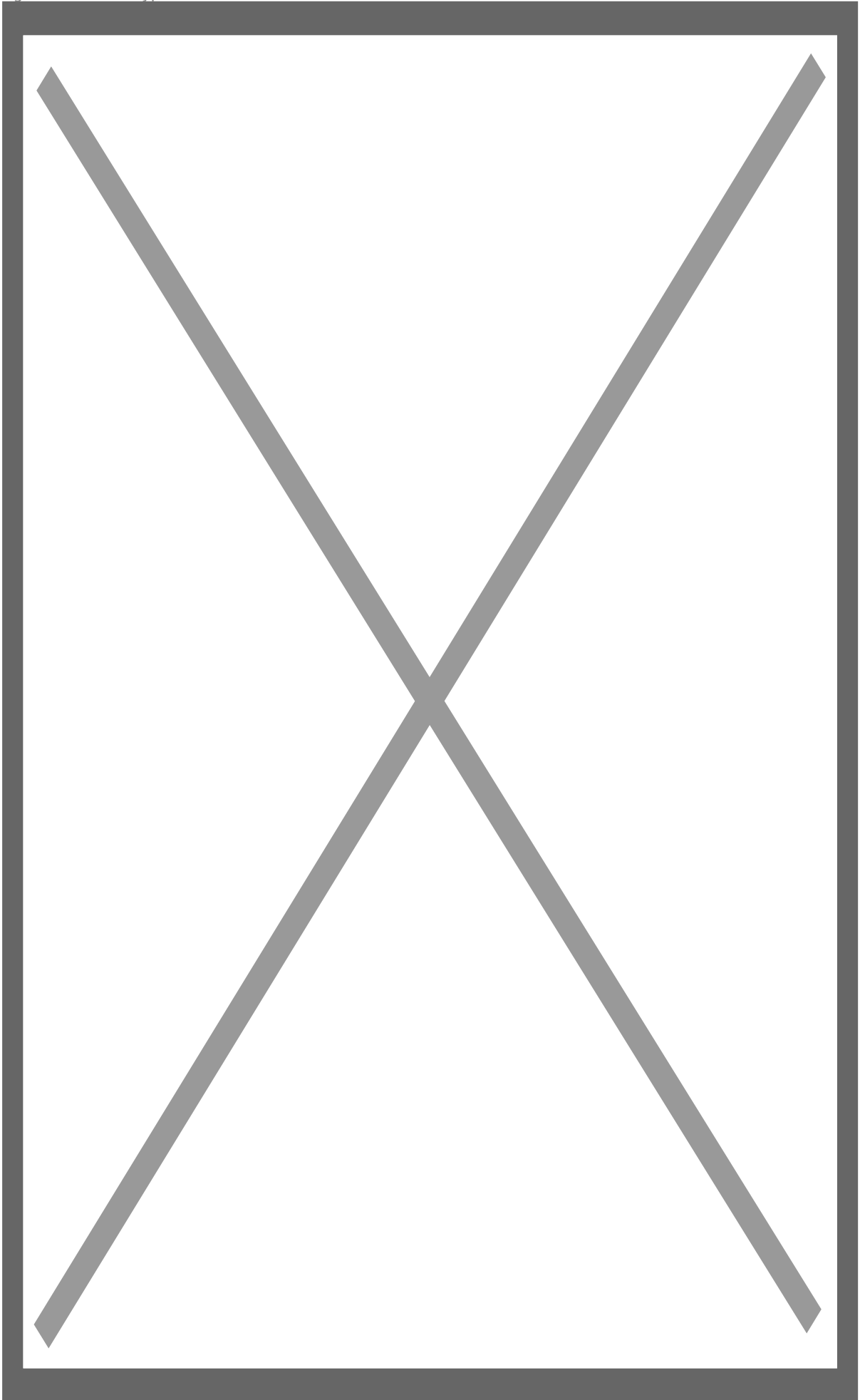
Each graph in the following chart represents a different question (1 through 12) in the astrology test, with the correct answer indicated in blue. The bars show the percentage of astrologers who chose each option (A through E) for that question.

If astrologers strongly agreed with each other, we would expect to see one bar that is much higher than the others in each graph, indicating consensus. However, what we actually see is:





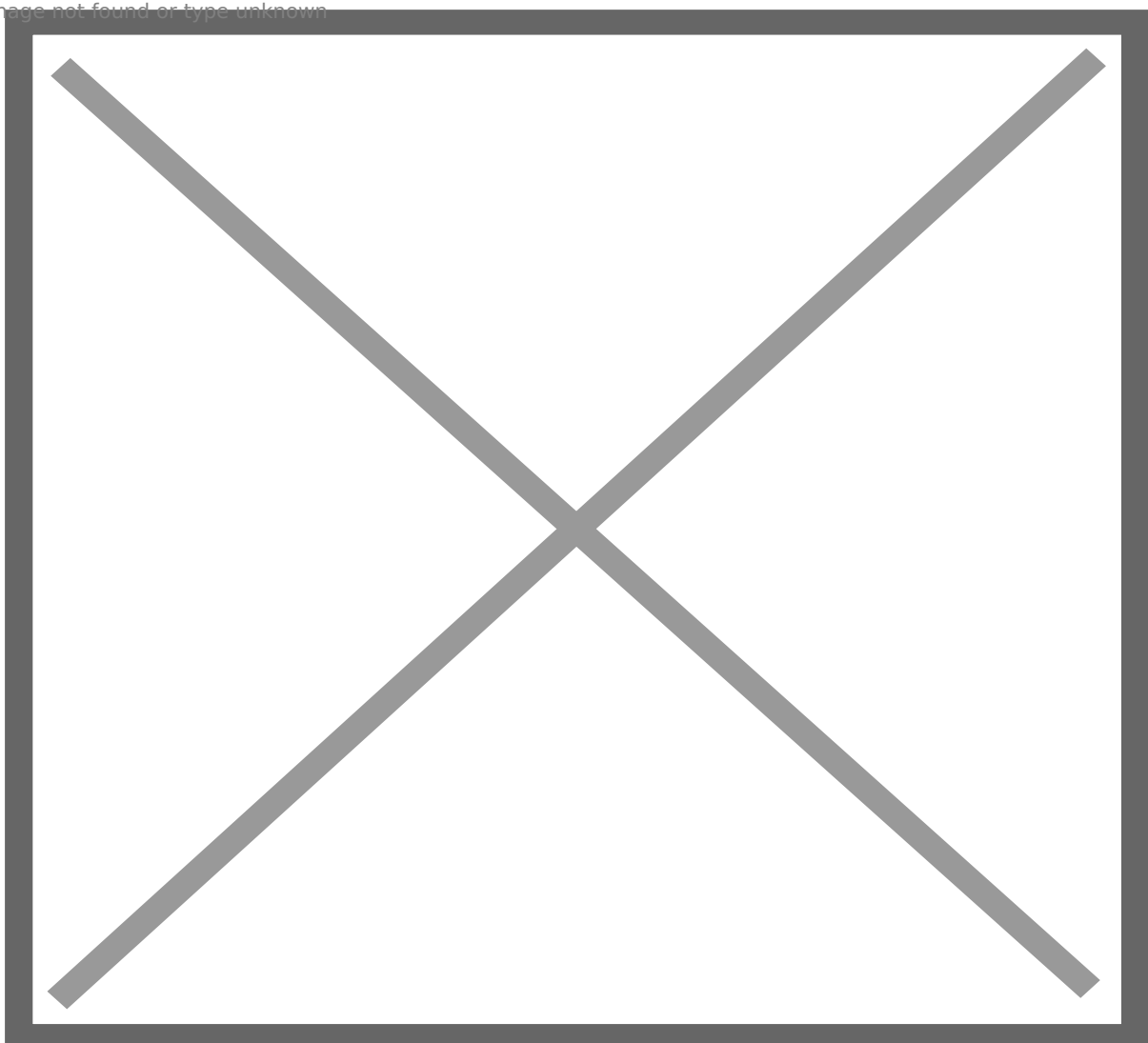
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To assess the level of agreement among astrologers, we calculated the average pairwise agreement rate for different experience levels. This rate represents the percentage of questions for which two randomly-selected participants in each group gave the same answer.

The agreement rates among astrologers are very low, ranging from about 21% to 28% depending on experience level. This suggests there is little consensus among astrologers when interpreting the same charts, even among those with high levels of experience.

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**Note:** For each astrological experience group, we first calculated the percentage of answers in common between all possible pairs of group members. This percentage was then averaged across







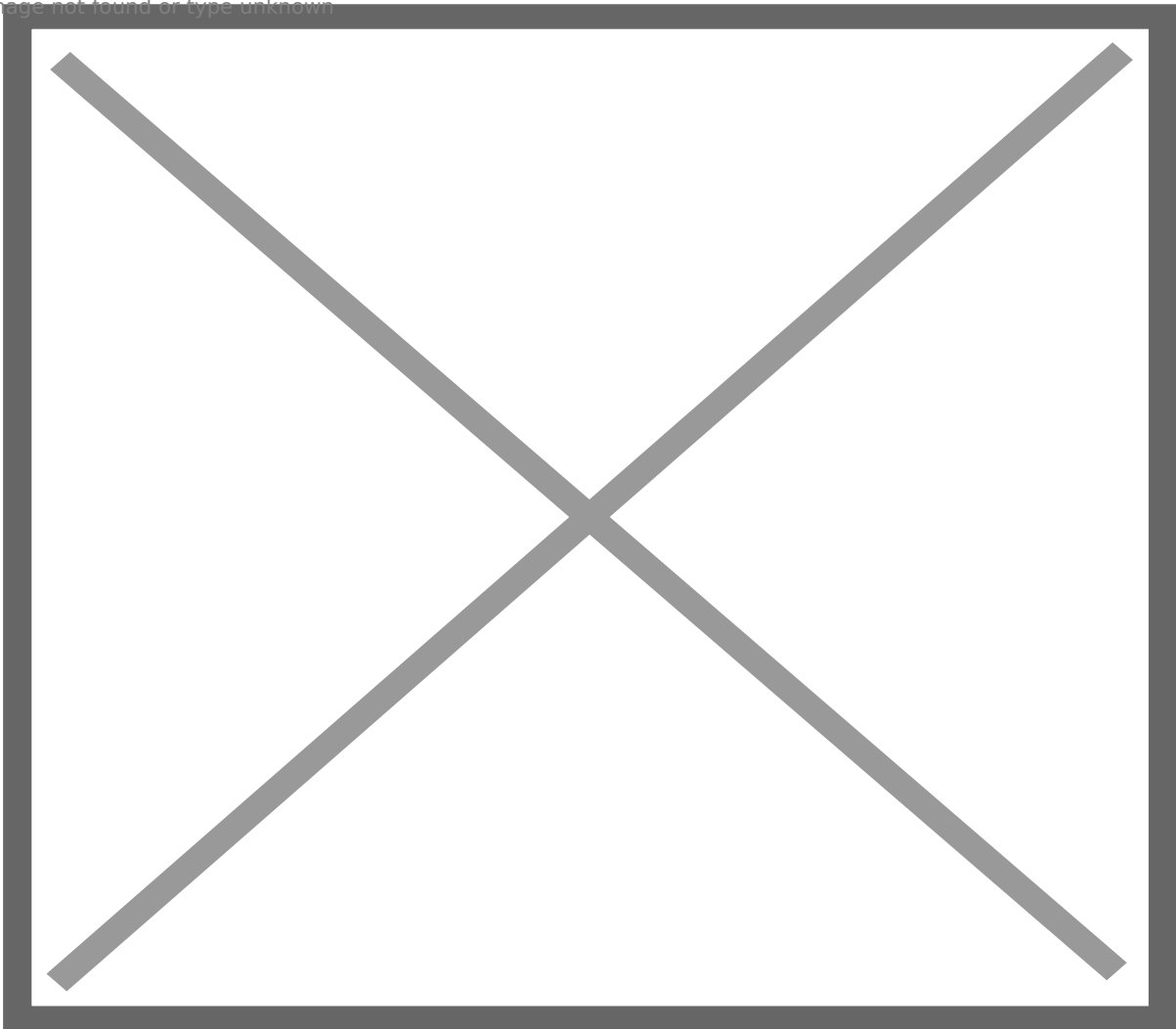






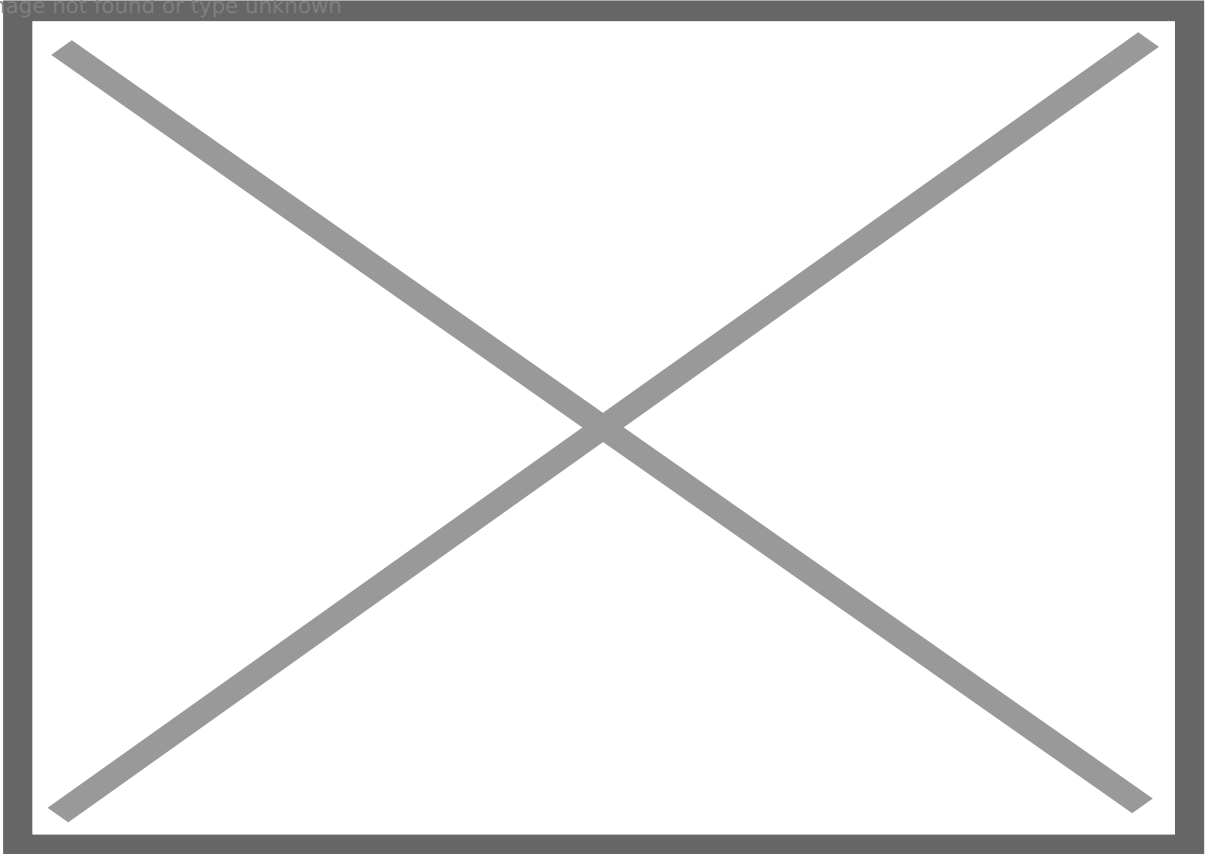
Intercept	Correlation	Degrees of freedom	t-statistic	p-value
2.28	0.06	134	0.68	0.499

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The number of correct answers was not meaningfully better than chance levels, regardless of participant's self reported belief in astrology, in response to the question "How strongly do you believe in the main claims of astrology (e.g., that the positions and motions of celestial bodies can be usefully used to understand and predict human lives and events)?" The following chart includes all 328 participants, including both astrologers and "guessers" (i.e., participants not counted as astrologers):

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With this study design, how well would astrologers have to have performed for us to be able to conclude their responses were not merely random?

