Baseline Water Mass on Freshly Washed Hands: Establishing Reference Values

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Abstract

No published study has ever quantified how much water hands carry after washing—a remarkable oversight given that residual moisture determines bacterial transfer rates. This study establishes the first quantitative reference values through systematic measurement across 73 baseline trials using two distinct protocols: direct sink-to-towel measurement (n=31) and the 5-second drip interval used in industry certification testing (n=42). Our findings are definitive: hands carry 7.31g of water immediately after washing (95% CI: 7.10-7.52g), with individual measurements ranging from 6.08g to 8.78g. Using existing residual water testing protocols that incorporate a 5-second drip interval reduces baseline water by 0.81g ($p < 0.001$, Cohen's $d = 1.52$), demonstrating significant procedural sensitivity with implications for testing standards. Individual hand geometry measurements (553mL volume, 642cm^2 wetted surface area) validate population parameters and establish retention ratios of 13.2 mg/mL and 11.4 mg/cm^2 as calibration standards. Reference intervals demonstrate that 95% of individuals fall between 6.14g and 8.48g, providing essential parameters for drying evaluations requiring 96-99% water removal to achieve standard compliance. This quantification fills a fundamental measurement gap in hand hygiene research while establishing the methodological framework for population-based technology assessment and evidence-based facility planning in public health applications.

This paper is part of an eleven-study series examining hand hygiene practices in public restrooms. The papers were written in chronological order as testing evolved. Earlier papers are left largely as they were written at the time for detail, historicity, and clarity. Studies in this series may be referenced in each document by series number (Paper 1-11) or by citation number in the reference list:

Transmission of Bacteria and Fungus via Dyson and Xlerator Hand Dryers in Starbucks, Home Depot and Whole Foods Restrooms: A Comparative Analysis; Blouch, R. A. Jr. (2025) MAIN STUDY [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.15504115 PAPER [1]

Testing the Validity of Hand Dryer Drying Time Specifications: A Quantitative Study of Residual Water on Dyson and Xlerator Dryers in Retail Store Environments; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.15503698 PAPER [2]

Visual Analysis of Water Dispersion Patterns During Hand Drying: A Qualitative Comparison of High-Speed Air Dryers and Paper Towels; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.15503304 PAPER [3]

Bacterial and Fungal Contamination Assessment of Paper Towel Types: A Quantitative Analysis of White versus Brown Varieties in Retail Restrooms; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.15504144 PAPER [4]

Systematic Performance Failure in Commercial Hand Dryers: A Large-Scale Quantitative Analysis of Time-To-Dry on Hands in Dyson and Xlerator Hand Dryers in Public Restrooms; Blouch, R.A Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17858443 PAPER [5]

Baseline Water Mass on Freshly Washed Hands: Establishing Reference Values; Blouch R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17858834 PAPER [6]

An Empirical Refutation of Green Energy Claims for Dyson and Xlerator Hand Dryers in Use in Public Restrooms; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17859198 PAPER [7]

Catastrophic Time-To-Dry Failures by Dyson, Excel and World Dryer Hand Dryers via the Bi-Modal Loose Water and Bound Water Mechanism: A Comprehensive Definitive Analysis; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17869567 PAPER [8]

Validation of Hand Dryer Microbial Amplification Using Broad-Spectrum Growth Media: A Replication Study with Enhanced Detection Methodology; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17859894 PAPER [9]

The Wandering Plume of Filth: A Randomized, Empirical Assessment of Visible Wall Contamination Radiating from Commercial Hand Dryers Versus Paper Towel Dispensers in Functioning Public Restrooms; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.17860971 PAPER [10]

Performance Failures in Commercial Hand Dryers: An Historical Synthesis and Sequential Summary Review of an Eleven-Study Research Program; Blouch, R. A. Jr. (2025) [Preprint] Retrieved from www.handdryerstudy.com/. DOI: 10.5281/zenodo.18322481 PAPER [11]

Introduction

Hand hygiene research has extensively documented the critical relationship between residual moisture and pathogen transfer, yet no published study has quantified the absolute mass of water on hands immediately after washing. This fundamental measurement gap represents a striking oversight in a field where residual moisture levels determine bacterial transfer rates by factors exceeding 400-fold between wet and dry hands.

Patrick et al. established in 1997 that residual moisture on hands "determines the level of touch-contact-associated bacterial transfer following hand washing," demonstrating that wet hands transfer up to 68,000 organisms compared to properly dried hands transferring as few as 140 organisms [1]. This foundational research quantified the critical importance of effective hand drying but measured residual moisture as percentages during the drying process rather than absolute baseline water mass immediately post-washing. Subsequent research has consistently cited Patrick's percentage-based findings while leaving the fundamental baseline parameter unmeasured.

This measurement gap has practical consequences for hand dryer evaluation and public health facility planning. It also creates a communicative distortion. Absolute values are necessary to contextualize calculated derivatives. Current testing standards, including NSF Protocol P335 and UL Product Category Rules for Hand Dryers, define "dry hands" as achieving residual moisture thresholds of 0.1g or 0.25g respectively [2,3]. These thresholds represent performance targets without establishing the baseline water mass that drying technologies must remove to achieve compliance. The absence of baseline quantification obscures the actual challenge these devices face and prevents realistic assessment of manufacturer performance claims.

Our comprehensive literature search confirmed this measurement gap extends across decades of hand hygiene research. While studies extensively measure drying efficiency, bacterial reduction, and environmental contamination associated with different hand drying methods [5, 6, 7], none report absolute baseline water mass on freshly washed hands. We are presenting a fundamental parameter essential for interpreting all subsequent drying performance data for the first time in a set of simple tests replicable by almost anyone.

The measurement challenge is methodologically straightforward yet apparently overlooked: quantifying water mass on hands should begin with direct measurement and absolute values, reserving inferential calculation for analysis. We developed a novel paper towel weighing technique from scratch specifically for this investigation, later discovering our methodology almost perfectly mapped onto already established testing protocols detailed in UL Product Category Rules for Hand Dryers [3] and the NSF P335 [2]. This convergence validates our methodology.

This study established definitive reference values for residual water mass on washed hands through systematic measurement across different protocol conditions. The research questions were direct: How much water do hands carry immediately after washing? How does standardized drip time affect baseline water loads? What reference ranges should guide future research and technology evaluation?

Materials and Methods

Measurement Protocol Development

A standardized testing procedure to quantify residual water mass on hands immediately after washing was developed through systematic methodology refinement. The approach centers on precision paper towel weighing using digital scales accurate to 0.01g, providing direct measurement of water mass transfer from hands to absorbent material.

The methodology evolved through two distinct experimental series designed to address different aspects of baseline water quantification. Series 1 employed direct sink-to-towel measurement to establish real-world baseline water loads, while Series 2 incorporated standardized drip protocols to assess the impact of testing standard procedures on measured values. These baselines were developed during testing manufacturers' and certifying companies' claims regarding hand dryer drying effiency as detailed in the other 1o papers in this series.

Series 1: Direct Measurement Protocol (31 trials)

Test Conditions: Testing conducted across 15 retail locations in Central Pennsylvania during March and December 2025, representing diverse sink types, water pressures, and facility conditions encountered in commercial restrooms.

Measurement Procedure:

- Hand Washing: Hands washed thoroughly in sink without soap to maximize water loading while maintaining procedural consistency
- Direct Water Transfer: Hands immediately transferred from sink to pre-weighed paper towels with no intervening drip time
- Complete Drying: Paper towels used to completely dry hands through systematic wiping motions
- Mass Calculation: Residual water mass determined as difference between wet and dry paper towel masses (wet mass - dry mass = water mass)

Quality Control:

- Digital scale precision: 0.01g accuracy verified before each measurement
- Paper towel standardization: Identical towel types used across all trials
- Drying completeness: Visual and tactile confirmation of hand dryness achieved
- Environmental consistency: Measurements completed within 30 seconds of hand washing

Series 2: Standardized Drip Protocol (42 trials)

Test Conditions: Testing conducted across multiple retail locations in Central Pennsylvania between August and December 2025, incorporating baseline measurements (0.0 second exposure time) extracted from a larger timed drying study to establish protocol standardization effects.

Measurement Procedure:

- Hand Washing: Standardized hand washing procedure without soap following consistent technique across all trials
- Drip Standardization: Hands held stationary for exactly 5 seconds to allow gravitational water removal, standardizing initial moisture levels consistent with UL protocol guidelines [3]

- Baseline Measurement: Pre-weighed paper towels used to absorb water at time zero (immediately after 5-second drip interval)
- Mass Calculation: Baseline water mass calculated as difference between wet and dry paper towel masses

Reference Hand Geometry Validation

To validate measurement methodology and provide calibration standards, hand volume and surface area were measured using water displacement and direct linear measurement. A 2-liter graduated vessel filled to 1.000L was used for volume displacement, with each hand inserted separately to the dorsal wrist crease. Five trials per hand yielded 553mL ± 5mL total volume with consistent replicability.

Hand length and breadth measurements were performed using standard anthropometric techniques: length measured from distal wrist crease to middle fingertip, breadth measured across metacarpal heads. Projected area calculated as 0.98 × length × breadth per established protocols, with wetted surface area estimated as twice the projected area to account for palmar and dorsal surfaces [4].

Data Analysis

Statistical analysis calculated mean, standard deviation, 95% confidence intervals, and range of baseline water mass across combined datasets and by protocol series. Population parameter estimation employed standard statistical techniques with confidence interval calculations for all point estimates. Protocol comparison used independent samples t-testing to assess significance of drip time effects, with effect sizes calculated using Cohen's d.

Reference hand geometry analysis included correlation of individual measurements with population parameters and calculation of water retention ratios (mg/mL and mg/cm^2) to establish calibration standards. Statistical significance assessed at $\alpha = 0.05$ with complete analytical methodology detailed in Appendix 1.

Results

Reference Baseline Water Parameters

Systematic measurement across 31 direct sink-to-towel trials established definitive reference parameters for post-wash water loads. Human hands carry 7.31g of water immediately after washing (±0.60g, 95% CI: 7.10-7.52g). Individual measurements ranged from 6.08g to 8.78g, demonstrating meaningful individual variation around consistent central tendency.

Population Reference Intervals: The distribution of baseline water loads across the population shows 95% of all hands fall between 6.14g and 8.48g (reference interval). The coefficient of variation (8.1%) indicates moderate individual differences consistent with biological measurement expectations.

Protocol-Specific Results

Series 1: Direct Measurement (Real-World Protocol)

Average water mass: 7.307g (±0.595g, 95% CI: 7.097-7.516g) immediately following sink washing without drip interval (n=31). Individual measurements ranged from 6.08g to 8.78g, establishing reference parameters for typical post-wash water retention under real-world conditions representative of actual hand dryer usage.

Series 2: Standardized Drip Protocol

Average water mass: 6.494g (±0.462g, 95% CI: 6.355-6.634g) following standardized 5-second drip interval (n=42). The reduced variability (standard deviation 0.462g vs 0.595g) demonstrates improved measurement consistency through protocol standardization, while the substantially lower mean reveals the artificial reduction in water load imposed by testing standards.

Protocol Effect Analysis

Direct measurement protocol averaged 7.307g compared to 6.494g for standardized drip protocol, representing a 0.813g reduction (11.1% decrease) attributable to gravitational water removal during the drip interval. Independent samples t-test confirmed significant difference ($t(71) = 6.89$, $p < 0.000001$, Cohen's $d = 1.52$), indicating very large effect size with practical significance for testing standardization.

Reference Hand Geometry Validation

Individual hand measurements validated population parameters and established calibration standards. Hand volume (553mL both hands) and wetted surface area (642cm^2) yielded water retention ratios of 13.2 mg/mL and 11.4 mg/cm^2. Individual baseline measurement (7.31g from direct protocol mean) confirmed normal range positioning and validated measurement methodology.

Geometric Analysis:

- Hand volume: 553mL ± 5mL (0.9% measurement precision)
- Projected surface area: 321cm^2 (combined hands)
- Wetted surface area: 642cm^2 (two-sided estimate)
- Water retention density: 13.2 mg/mL (reference standard)
- Surface loading: 11.4 mg/cm^2 (reference standard)

These measurements provide concrete calibration values enabling future researchers to normalize their findings and validate measurement techniques through geometric correlation.

Statistical Power and Reliability

Sample size analysis demonstrates adequate power for population inference. With N=31 for the reference protocol, the study achieves >99% power to detect 0.5g differences and >95% power for 0.3g differences. Margin of error (±0.21g) represents 2.9% relative precision, meeting standards for biological measurement characterization.

Discussion

Establishment of First Reference Parameters

These measurements establish the first published reference values for absolute baseline water mass on hands immediately after washing. The finding that hands carry 7.31g of water (95% CI: 7.10-7.52g) fills a fundamental measurement gap that has persisted for decades despite extensive research on hand hygiene effectiveness.

This quantification transforms abstract discussions of "residual moisture" into concrete physical parameters. When Patrick et al. demonstrated that residual moisture determines bacterial transfer rates, they established the critical importance of effective drying without quantifying the baseline challenge [1]. **Our measurements reveal that effective hand drying must remove over 7 grams of water to achieve the low residual moisture levels associated with minimal bacterial transfer.**

The reference intervals demonstrating that 95% of individuals fall between 6.14g and 8.48g provide essential context for technology evaluation and facility planning. This 2.3g variation range represents the individual differences that robust hand drying technologies must accommodate to achieve consistent performance across diverse user populations.

Protocol Sensitivity and Testing Implications

The 0.81g difference between direct measurement and 5-second drip protocols demonstrates that baseline water loads are highly sensitive to procedural specifications. This finding has immediate implications for hand dryer testing standards and manufacturer performance claims. Testing protocols that incorporate drip intervals systematically reduce the water removal challenge by approximately 11%, inflating apparent drying performance relative to real-world conditions.

Current testing standards, including NSF Protocol P335 and UL Product Category Rules, specify drip intervals without quantifying their impact on baseline water loads [2,3]. Our measurements demonstrate that these procedural choices significantly affect the fundamental measurement being evaluated. Manufacturer performance claims citing testing protocols with drip intervals cannot be directly compared to real-world performance where users proceed directly from sink to dryer without artificial pauses.

The practical implication is substantial: a hand dryer tested under standardized conditions with a 5-second drip faces a 6.49g removal challenge, while the same dryer in actual use faces a 7.31g challenge—a 12.6% increase in required water removal that may push marginally-compliant devices into failure.

Implications for Hand Dryer Performance Evaluation

These baseline measurements provide essential context for evaluating manufacturer performance claims. Hand dryers claiming to achieve 0.1g or 0.25g residual moisture must remove over 7 grams of baseline water to reach these thresholds under real-world conditions. This represents a 96-99% water removal requirement, with actual removal challenges ranging from 5.8g (minimum baseline to maximum threshold) to 8.7g (maximum baseline to minimum threshold).

The magnitude of this water removal challenge explains performance patterns documented in our companion studies of commercial hand dryers. Devices that systematically fail to achieve claimed performance levels face a quantifiable baseline challenge that has been unmeasured until this investigation. Future performance assessments can now incorporate realistic baseline water loads rather than assuming artificially reduced starting conditions.

Limitations and Scope

This study was conducted in Pennsylvania retail locations and may not represent all geographic regions, water conditions, or user populations. While our methodology was designed for objectivity, some variability in individual hand washing and drying techniques is inherent to real-world conditions.

However, the statistical power provided by 73 total baseline measurements, the consistency of results across multiple locations, and the convergence with established testing protocols suggest that our findings reflect genuine baseline characteristics rather than regional artifacts or methodological limitations. The individual geometric validation through displacement measurement provides additional confidence in methodological reliability.

Conclusion

This study establishes the first quantitative reference values for residual water mass on human hands immediately after washing: 7.31g ± 0.21g, validated through individual geometric measurement and comprehensive statistical analysis of 31 direct measurements across 15 locations. Reference intervals demonstrate that 95% of individuals fall between 6.14g and 8.48g, providing essential parameters for population-based technology evaluation and evidence-based facility planning.

The protocol sensitivity analysis reveals that standardization procedures significantly affect baseline measurements, with 5-second drip intervals reducing water loads by 0.81g ($p < 0.001$). This finding challenges current testing standards that incorporate drip intervals, as such procedures give manufacturers an artificial 11% advantage in apparent water removal performance relative to real-world conditions where users proceed directly from sink to dryer.

Individual hand geometry validation through volume displacement (553mL) and surface area measurement (642cm^2) confirms methodological reliability while establishing calibration standards (13.2 mg/mL, 11.4 mg/cm^2) for future research. This geometric framework enables volume and area normalization of baseline water data, transforming individual measurements into predictive parameters for cross-study standardization.

These measurements fill a fundamental gap in hand hygiene research where decades of investigation into drying effectiveness proceeded without quantifying the baseline water loads that drying technologies must remove. The finding that effective hand drying requires

96-99% water removal of ~7 grams of water to achieve standard compliance thresholds provides essential context for evaluating drying performance of all drying methods.

References

[1] Patrick, D. R., Findon, G., & Miller, T. E. (1997). Residual moisture determines the level of touch-contact-associated bacterial transfer following hand washing. Epidemiology & Infection, 119(3), 319-325.

[2] NSF International (2007). NSF Protocol P335: Hygienic Commercial Hand Dryers. NSF International, Ann Arbor, MI.

[3] Underwriters Laboratories (2016). ULE_HandDryer_PCR_7-13-16. Product Category Rules for Hand Dryers. Appendix II: Hand Dryer Testing Methods.

[4] Amirsheybani, H. R., Crecelius, G. M., Timothy, N. H., Pfeiffer, M., Mostafavi, A., et al. (2001). The natural history of the growth of the hand: muscle, tendon, and bone. Plastic and Reconstructive Surgery, 107(2), 346-352.

[5] Huang, C., Ma, W., & Stack, S. (2012). The hygienic efficacy of different hand-drying methods: a review of the evidence. Mayo Clinic Proceedings, 87(8), 791-798.

[6] Best, E. L., Parnell, P., & Wilcox, M. H. (2014). Microbiological comparison of hand-drying methods: The potential for contamination of the environment, user, and bystander. Journal of Hospital Infection, 88(4), 199-206.

[7] Gammon, J., & Hunt, J. (2019). The neglected element of hand hygiene - significance of hand drying, efficiency of different methods and clinical implication: A review. Journal of Infection Prevention, 20(2), 66-74.

APPENDIX 1: COMPREHENSIVE BASELINE WATER STATISTICAL ANALYSIS

First Quantitative Assessment of Post-Wash Hand Water Loads

Dataset Characteristics

Parameter	Value
Series 1 - Direct Protocol	n = 31
Series 1 - Protocol description	Hands immediately transferred from sink to paper towels
Series 1 - Testing period	March and December 2025
Series 1 - Locations	15 retail facilities, Central Pennsylvania
Series 2 - Drip Protocol	n = 42
Series 2 - Protocol description	5-second gravitational drip before measurement
Series 2 - Testing period	August - December 2025
Combined total measurements	N = 73
Measurement precision	±0.01g digital scale accuracy

Reference Water Mass Parameters (Series 1 - Direct Protocol)

Statistic	Value
Reference mean	7.307g
Standard deviation	0.595g
Standard error	0.107g
95% Confidence interval	7.097g - 7.516g
Overall range	6.08g - 8.78g
Coefficient of variation	8.1%
Margin of error	±0.21g (±2.9%)
95% Reference Interval	6.14g - 8.48g

Protocol Comparison

Statistic	Series 1 (Direct)	Series 2 (5-sec Drip)

Sample size	n = 31	n = 42
Mean	7.307g	6.494g
Standard deviation	0.595g	0.462g
95% CI	7.097 - 7.516g	6.355 - 6.634g
Range	6.08 - 8.78g	5.55 - 7.63g

Protocol Effect Analysis

Test	Result
Mean difference	0.813g (11.1% reduction)
t-statistic	$t(71) = 6.89$
p-value	$p < 0.000001$
Cohen's d	1.52 (very large effect)

Water Removal Requirements

Threshold	Removal Required
To achieve 0.25g (UL threshold)	7.1g (97% removal)
To achieve 0.10g (NSF threshold)	7.2g (99% removal)
Minimum removal (min baseline → max threshold)	5.8g
Maximum removal (max baseline → min threshold)	8.7g

Reference Hand Geometry

Measurement	Value
Hand volume (both hands)	553mL ± 5mL
Projected surface area	321cm^2
Wetted surface area	642cm^2
Water retention density	13.2 mg/mL
Surface loading	11.4 mg/cm^2

APPENDIX 2: RAW DATA

Series 1: Direct Measurement Protocol (n=31)

Protocol: Wash without soap, immediate paper towel dry (no drip interval)

Trial	Location	Date	Water Mass (g)
1	Starbucks	2025-03-06	6.87
2	Starbucks	2025-03-06	7.93
3	Starbucks	2025-03-06	8.66
4	Starbucks	2025-03-06	6.75
5	Starbucks	2025-03-06	7.06
6	Starbucks	2025-03-07	7.19
7	Crunch Fitness	2025-03-07	7.19
8	Crunch Fitness	2025-03-07	7.16
9	Crunch Fitness	2025-03-07	7.90
10	Crunch Fitness	2025-03-07	7.90
11	Giant	2025-03-06	6.08
12	Home Depot	2025-03-06	6.70
13	7-Eleven	2025-03-06	7.25
14	Giant	2025-03-06	7.29
15	Chipotle	2025-03-06	7.10
16	Starbucks	2025-03-06	7.46
17	Starbucks	2025-03-06	7.02
18	Home Depot	2025-03-06	7.03
19	Starbucks	2025-03-07	6.80
20	Target	2025-03-07	7.24
21	REI	2025-03-07	8.78
22	Lowe's	2025-12-05	6.39
23	Lowe's	2025-12-05	6.83
24	Dunkin Donuts	2025-12-05	7.40
25	Dunkin Donuts	2025-12-05	7.73

26	Dunkin Donuts	2025-12-05	7.11
27	Dunkin Donuts	2025-12-05	6.87
28	Dunkin Donuts	2025-12-05	7.97
29	Dunkin Donuts	2025-12-05	7.31
30	Dunkin Donuts	2025-12-05	8.09
31	Dunkin Donuts	2025-12-05	7.45

Series 2: Standardized Drip Protocol (n=42)

Protocol: 5-second gravitational drip interval before measurement

Trial	Location	Date	Water Mass (g)
1	Crunch Fitness	2025-08-06	6.31
2	Crunch Fitness	2025-08-06	7.06
3	Crunch Fitness	2025-08-06	6.80
4	Crunch Fitness	2025-08-06	6.83
5	Crunch Fitness	2025-08-06	6.55
6	Starbucks	2025-08-08	6.10
7	Starbucks	2025-08-08	5.82
8	Starbucks	2025-08-08	5.55
9	Starbucks	2025-08-08	6.00
10	Starbucks	2025-08-08	6.34
11	Starbucks	2025-08-25	6.34
12	Starbucks	2025-08-25	6.14
13	Starbucks	2025-08-25	6.84
14	Starbucks	2025-08-25	6.72
15	Starbucks	2025-08-25	6.44
16	Starbucks	2025-08-26	6.31
17	Starbucks	2025-08-26	7.06
18	Starbucks	2025-08-26	6.47
19	Starbucks	2025-08-26	7.63
20	Starbucks	2025-08-26	6.61
21	Starbucks	2025-09-03	6.07
22	Starbucks	2025-09-03	6.36
23	Starbucks	2025-09-03	6.70
24	Starbucks	2025-09-03	7.45
25	Starbucks	2025-09-03	6.50
26	Giant	2025-09-04	7.61

27	Giant	2025-09-04	6.74
28	Giant	2025-09-04	6.76
29	Giant	2025-09-04	6.27
30	Giant	2025-09-04	6.39
31	Crunch Fitness	2025-09-05	5.96
32	Crunch Fitness	2025-09-05	6.40
33	Crunch Fitness	2025-09-05	6.50
34	Crunch Fitness	2025-09-05	6.69
35	Crunch Fitness	2025-09-05	6.67
36	Starbucks	2025-09-06	5.78
37	Starbucks	2025-09-06	5.64
38	Starbucks	2025-09-06	6.41
39	Starbucks	2025-09-06	6.34
40	Starbucks	2025-09-06	6.30
41	Lowe's	2025-12-05	6.90
42	Lowe's	2025-12-05	6.40