

# O'Connor Tweezer Dexterity Test

## User's Manual



3700 Sagamore Pkwy N  
Lafayette, IN 47904 USA

Tel: (765) 423-1505

Fax: (765) 423-4111

[info@lafayetteinstrument.com](mailto:info@lafayetteinstrument.com)

[www.lafayetteinstrument.com](http://www.lafayetteinstrument.com)

## Table of Contents

Description	2
Test Administration	3
Scoring	4
Interpretation of Performance	4
Table 1: Early Norms	4
Table 2: Standard Norms	5
Table 3: Standard Norms Summarized	5
Table 4: Statistical Contents for Employed and Unemployed Men and Women	6
References	7

## Description

The O'Connor Tweezer Dexterity Test consists of 5 7/8" W x 11 5/8" L board. Located in the upper half of the board is a pin well measuring 4 3/4" in diameter arranged in 10 rows of 10 holes each spaced 1/2" apart. Into these holes, the subject can insert one pin 1" long and 1/16" in diameter.

This test measures the speed with which an employee using tweezers or some similar instrument is able to pick up pins or similar small items one at a time and place them in small holes on a board or other metal plate. It very much resembles the Finger Dexterity Test but since a finger eye-hand coordination is required in the Tweezer Dexterity Test, some employees can make good scores in the Finger Dexterity Test, but not in this test. A high score indicates manual aptitude for work involving precision and steadiness in the use of small hand tools, such as the forceps in the hands of the anatomist, or surgeon, or biological laboratory worker, or the tweezers in the hands of a watch repairer or stamp collector.

## Test Administration

1. The subject should be seated comfortably at a table about 30 inches in height. The Tweezer Dexterity Test is placed before him about one foot from the edge of the table with the tray at the right if the right hand is to be used, and at the left if the left hand is preferred. It should be at an angle of about 90 degrees with the subjects working hand, but may be changed if so desired.
2. The examiner should read the following instructions:  
**“The board in front of you consists of 100 holes each large enough to hold one pin. Pick up one pin at a time with the tweezers and fill the holes, placing one pin in each as fast as you can. Pick up the pins by the end opposite or farthest away from you. Use only the hand in which you hold the tweezers.”** (Demonstrate)

Continue giving such explanation so as to give the subject the fullest possible understanding of the best technique for placing the pins. Say, for example:

**“Pick up the pin rather lightly, so it will fall into a vertical position by itself, ready to drop into the hole** (Place a pin in upper left-hand corner from subject). **That is the best way. You see, if you hold the pin tightly like this** (placing pin), **or pick it up by the middle, like this,** (placing pin), **or by the wrong end, like this** (placing pin), **it takes an awkward twist of the wrist to get it in. But this way it goes naturally.** (Demonstrate while you are talking, filling three more holes in the correct manner.) **It is easiest to start in the farthest corner and work toward you like this** (gesturing). **If you can start in this corner** (the nearest) **your sleeve** (or fingers) **will not catch the pins. There are enough extra pins in the tray so that if you drop one or two on the floor you will still have enough left. Do not pick them up.”**

3. Show (by gesturing) that the holes are to be filled from left to right, for a right-handed subject, and each row completed before the next is started. Explain that the elbow may rest on the table, but do not give this or any of the other suggestions in a mandatory form; say, for example, “Some people like to...” Have the subject place ten (10) pins, thus filling the top line of ten holes, for practice.
4. Allow neither more nor less than the prescribed practice of filling the top ten holes, since this affects performance on the test. Tip the pins out, allow a moment's rest, and then time accurately with a stop-watch the number of seconds required to fill the board from placing the first pin to placing the last. Total administration time varies, according to a person's speed, from about 8 to 10 minutes.
5. Instruct the subject to begin. We recommend any of the stopwatches found in Lafayette's General Catalog for accurate timing of the test interval.

## Scoring

The score equals the number of seconds elapsed between the placement of the first and last pins.

## Interpretation of Performance

The early norms were based for the most part on the performance of factory employees and applicants. According to these figures, men scored higher in these early norms and women scored distinctly lower as can be seen in the following tables. Claims have been made that the higher degree of dexterity presumably measured by this test may belong to persons who are successfully engaged in doing very minute work requiring delicate assembling such as in watch-making, in making precision instruments, cutting small dies, making fine glass work, setting jewels, microscopic laboratory work and wood engraving; in fact, all kinds of employment requiring very delicate and skillful manipulation of small tools at a fast rate. With the exception of workers engaged in fine instrument assembling, no norms have been published involving large enough groups of employees that are in any way related to their success or failure.

The majority of manual occupations do not require this degree of dexterity because of semi-skilled workers and even skilled manual operators as a whole make an average standard score of about 5, thus equaling the average of the general population.

The test is adapted for use with individuals above 13 years of age. Therefore, boys and girls as young as 14 years of age can have their scores interpreted as the scores for adults.

**Table 1:  
Early Norms**

	<b>Men</b>	<b>Women</b>
Upper Quartile	300	324
Median	340	372
Lower Quartile	372	438

**Table 2:  
Standard Norms for the  
O'Connor Tweezer Dexterity Test**

Men	Women	Standard Score	Percentile Rank
225	249	7.5	99.4
271	263	7.0	97.7
289	279	6.5	93.3
309	297	6.0	84.1
333	318	5.5	69.1
360	342	5.0	50.0
393	369	4.5	30.9
432	401	4.0	15.9
479	440	3.5	6.7
539	487	3.0	2.3
615	544	2.5	0.6

The standard Error of Measurement is estimated to be about  $\pm .32$  of a unit on the Standard Scale.

For simplicity in scoring, Table 3 presents the information depicted in Table 1 in compact summarized form.

**Table 3:  
For Men and Women**

Men	Women	Mid Sigma Score	Percentile Range
- 289	- 279	7.0	93.4 - 100.0
290 - 333	280 - 318	6.0	69.2 - 93.3
334 - 393	319 - 369	5.0	30.9 - 69.1
394 - 479	370 - 440	4.0	6.7 - 30.8
480 -	441 -	3.0	0.0 - 6.6

**Table 4:**  
**Statistical Constants and Difference Ratios for Groups of**  
**Employed and Unemployed Men and Women - Tweezer**  
**Dexterity Test\***

Group	Men				Women			
	N	M	S	R	N	M	S	R
<i>Clerical Workers</i>								
Unemployed	275	16.7	2.7	....	181	17.2	2.4	....
Employed								
Sample I	24	18.8	2.9	3.36	219	18.5	2.7	5.09
Sample II	51	17.6	2.6	2.22	32	18.8	2.0	3.95
<i>Store Salespeople</i>								
Unemployed	54	17.2	2.4	....	29	16.6	2.1	....
Employed								
Sample III	....	....	....	....	31	17.6	2.1	1.81
<i>Mechanical Workers</i>								
B Unemployed	46	17.0	3.0	....				
Employed	40	18.1	2.1	1.95				
C Unemployed	30	17.2	2.3	....				
Employed	41	16.7	2.4	1.00**				
D Unemployed	58	16.6	2.3	....				
Employed	37	16.8	2.5	.38				

N: number of cases; M: mean; S: standard deviation; R: difference ratio between employed and unemployed groups.

\*The statistical constants are expressed in terms of reciprocals whenever the score is in terms of time.

\*\* Indicates that the difference is in favor of unemployed.

## References

- Bingham, W.V.D., Aptitudes and Aptitude Testing, New York and London, Harper Brothers, 1937, pp. 284-286.
- Green, Helen J. & others, Manual of Selected Occupational Tests, Minneapolis: university of Minnesota Press, 1933.
- Hayes, E.G., "Selecting Women for Shop Work," Personnel Journal, 11, 1932, pp. 69-85.
- Hines, Mildred & Johnson O'Connor, "A Measure of Finger Dexterity," Personnel Journal, 4, 1926, pp. 379-382.
- O'Connor, Johnson, Born That Way. Baltimore: Williams & Wilkins, 1928.
- Paterson, D.G., ed. Research Studies in Individual Diagnosis, Minneapolis: University of Minnesota Press, 1934.

# Terms and Conditions

## LIC Worldwide Headquarters

Toll-Free: (800) 428-7545 (USA only)

Phone: (765) 423-1505

Fax: (765) 423-4111

[sales@lafayetteinstrument.com](mailto:sales@lafayetteinstrument.com)

[export@lafayetteinstrument.com](mailto:export@lafayetteinstrument.com) (Outside the USA)

## Mailing Address:

Lafayette Instrument Company

PO Box 5729

Lafayette, IN 47903, USA

Lafayette Instrument Europe

Phone: +44 1509 817700

Fax: +44 1509 817701

Email: [eusales@lafayetteinstrument.com](mailto:eusales@lafayetteinstrument.com)

## Phone, Fax, Email or Mail-in Orders

All orders need to be accompanied by a hard copy of your purchase order. All orders must include the following information:

- Quantity
- Part Number
- Description
- Your purchase order number or method of pre-payment
- Your tax status (include tax-exempt numbers)
- Shipping address for this order
- Billing address for the invoice we'll mail when this order is shipped
- Signature and typed name of person authorized to order these products
- Your telephone number
- Your email address
- Your FAX number

## Domestic Terms

There is a \$50 minimum order. Open accounts can be extended to most recognized businesses. Net amount due 30 days from the date of shipment unless otherwise specified by us. Enclose payment with the order; charge with VISA, MasterCard, American Express, or pay COD. We must have a hard copy of your purchase order by mail, E-mail or fax. Students, individuals and private companies may call for a credit application.

## International Payment Information

There is a \$50 minimum order. Payment must be made in advance by: draft drawn on a major US bank; wire transfers to our account; charge with VISA, MasterCard, American Express, or confirmed irrevocable letter of credit. Proforma invoices will be provided upon request.

## Exports

If ordering instrumentation for use outside the USA, please specify the country of ultimate destination, as well as the power requirements (110V/60Hz or 220V/50Hz). Some model numbers for 220V/50Hz will have a "\*C" suffix.

## Quotations

Quotations are supplied upon request. Written quotations will include the price of goods, cost of shipping and handling, if requested, and estimated delivery time frame. Quotations are good for 30 days, unless otherwise noted. Following that time, prices are subject to change and will be re-quoted at your request.

## Cancellations

Orders for custom products, custom assemblies or instruments built to customer specifications will be subject to a cancellation penalty of 100%. Payment for up to 100% of the invoice value of custom products may be required in advance. Cancellation for a standard Lafayette Instrument manufactured product once the product has been shipped will normally be assessed a charge of 25% of the invoice value, plus shipping charges. Resell items, like custom products, will be subject to a cancellation penalty of 100%.

## Exchanges and Refunds

Please see the cancellation penalty as described above. No item may be returned without prior authorization of Lafayette Instrument Company and a Return Goods Authorization (RGA#) number which must be affixed to the shipping label of the returned goods. The merchandise should be packed well, insured for the full value and returned along with a cover letter explaining the reason for return. Unopened merchandise may be returned prepaid within thirty (30) days after receipt of the item and in the original shipping carton. Collect shipments will not be accepted. Product must be returned in saleable condition, and credit is subject to inspection of the merchandise.

## Repairs

Instrumentation may not be returned without first receiving a Return Goods Authorization Number (RGA). When returning instrumentation for service, please call Lafayette Instrument to receive a RGA number. Your RGA number will be good for 30 days. Address the shipment to:

Lafayette Instrument Company

3700 Sagamore Parkway North

Lafayette, IN 47904, USA.

Shipments cannot be received at the PO Box. The items should be packed well, insured for full value, and returned along with a cover letter explaining the malfunction. An estimate of repair will be given prior to completion ONLY if requested in your enclosed cover letter. We must have a hard copy of your purchase order by mail or fax, or repair work cannot commence for non-warranty repairs.

## Damaged Goods

Damaged instrumentation should not be returned to Lafayette Instrument prior to a thorough inspection. If a shipment arrives damaged, note damage on delivery bill and have the driver sign it to acknowledge the damage. Contact the delivery service, and they will file an insurance claim. If damage is not detected at the time of delivery, contact the carrier/shipper and request an inspection within 10 days of the original delivery. Please call the Lafayette Instrument Customer Service Department for repair or replacement of the damaged merchandise.

## Limited Warranty

Lafayette Instrument Company warrants equipment manufactured by the company to be free of defects in material and workmanship for a period of one year from the date of shipment, except as provided hereinafter. The original manufacturer's warranty will be honored by Lafayette Instrument for items not manufactured by Lafayette Instrument Company, i.e. resell items. This assumes normal usage under commonly accepted operating parameters and excludes consumable products.

Warranty period for repairs or used instrumentation purchased from Lafayette Instrument is 90 days. Lafayette Instrument Company agrees either to repair or replace, at its sole option and free of part charges to the customer, instrumentation which, under proper and normal conditions of use, proves to be defective within the warranty period. Warranty for any parts of such repaired or replaced instrumentation shall be covered under the same limited warranty and shall have a warranty period of 90 days from the date of shipment or the remainder of the original warranty period whichever is greater. This warranty and remedy are given expressly and in lieu of all other warranties, expressed or implied, of merchantability or fitness for a particular purpose and constitutes the only warranty made by Lafayette Instrument Company.

Lafayette Instrument Company neither assumes nor authorizes any person to assume for it any other liability in connection with the sale, installation, service or use of its instrumentation. Lafayette Instrument Company shall have no liability whatsoever for special, consequential, or punitive damages of any kind from any cause arising out of the sale, installation, service or use of its instrumentation. All products manufactured by Lafayette Instrument Company are tested and inspected prior to shipment. Upon prompt notification by the Customer, Lafayette Instrument Company will correct any defect in warranted equipment of its manufacture either, at its option, by return of the item to the factory, or shipment of a repaired or replacement part. Lafayette Instrument Company will not be obliged, however, to replace or repair any piece of equipment, which has been abused, improperly installed, altered, damaged, or repaired by others. Defects in equipment do not include decomposition, wear, or damage by chemical action or corrosion, or damage incurred during shipment.

## Limited Obligations Covered by this Warranty

1. In the case of instruments not of Lafayette Instrument Company manufacture, the original manufacturer's warranty applies.
2. Shipping charges under warranty are covered only in one direction. The customer is responsible for shipping charges to the factory if return of the part is required.
3. This warranty does not cover damage to components due to improper installation by the customer.
4. Consumable and/or expendable items, including but not limited to electrodes, lights, batteries, fuses, O-rings, gaskets, and tubing, are excluded from warranty.
5. Failure by the customer to perform normal and reasonable maintenance on instruments will void warranty claims.
6. If the original invoice for the instrument is issued to a company that is not the company of the end user, and not an authorized Lafayette Instrument Company distributor, then all requests for warranty must be processed through the company that sold the product to the end user, and not directly to Lafayette Instrument Company.

## Export License

The U.S. Department of Commerce requires an export license for any polygraph system shipment with an ULTIMATE destination other than: Australia, Japan, New Zealand or any NATO Member Countries. It is against U.S. law to ship a Polygraph system to any other country without an export license. If the ultimate destination is not one of the above listed countries, contact us for the required license application forms.