



# ASA24

Automated Self-Administered 24-Hour Dietary Assessment Tool

## **Overview of the ASA24® Respondent Website and Considerations Related to Data Security and Respondent Confidentiality**

**Updated February 2021**

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Extensive evidence has demonstrated that 24-hour dietary recalls provide the highest quality, least biased dietary data. Traditional 24-hour recalls, however, are expensive and impractical for large-scale research because they rely on trained interviewers and multiple administrations to estimate usual intakes. As a result, researchers often make use of food frequency questionnaires, which are less expensive but contain substantial error.

To address this challenge, investigators at the National Cancer Institute (NCI) created the Automated Self-Administered 24-hour Dietary Assessment tool (ASA24), a freely-available, web-based tool that enables multiple, automatically coded, self-administered 24-hour recalls and food records. The ASA24 system was developed under contract with Westat®, a social science research firm located in Rockville, MD, and builds on the Food Intake Recording Software System (FIRSSt) developed by Dr. Tom Baranowski of the Baylor College of Medicine. An External Working Group provided advice about the needs and interests of potential users.

The ASA24 system consists of a respondent website used to collect 24-hour recall and food record data and a researcher website used to manage study logistics and obtain data analyses. The ASA24-2020 respondent website is compatible with mobile devices and is available in English and Spanish. This document provides an overview of the methodology and main features of the ASA24-2020 respondent website, as well as information on security of the data collected and protections to the confidentiality of the respondents of studies that make use of the ASA24 system. Images of the main respondent website screens are also included.

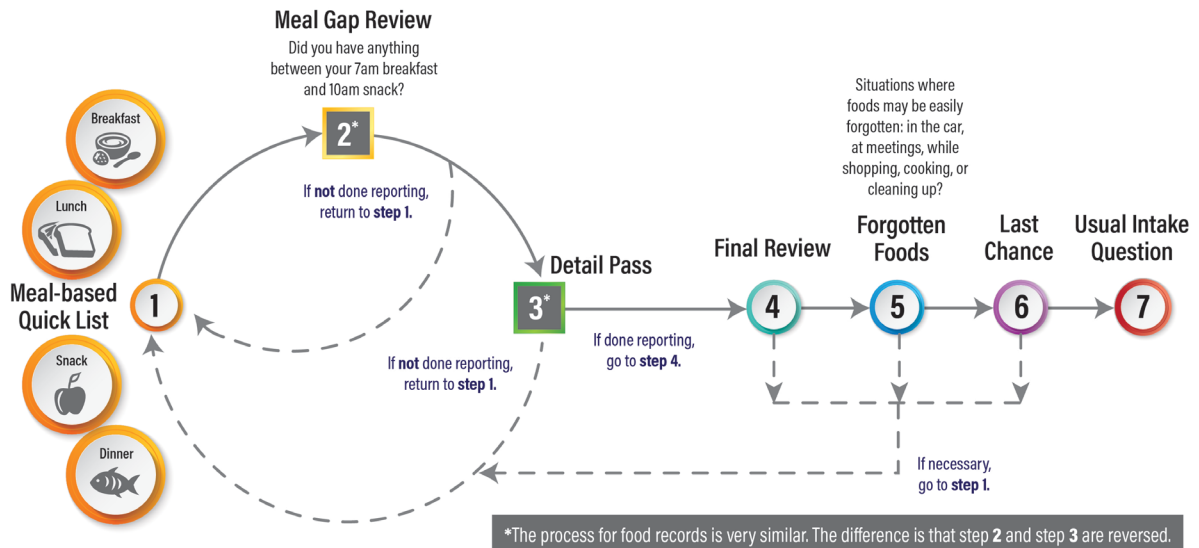
### **ASA24 Respondent Website Methodology**

The ASA24 guides respondents through a 24-hour recall or food record using a modified version of the United States Department of Agriculture's (USDA) [Automated Multiple-Pass Method \(AMPM\)](#).

The steps (i.e. passes) in the 24-hour recall process are:

1. [Meal-based Quick List](#)
2. [Meal Gap Review](#)
3. [Detail Pass](#)
4. [Final Review](#)
5. [Forgotten Foods](#)
6. [Last Chance](#)
7. [Usual Intake Question](#)

# Steps for Completing 24-Hour Food Recall



A food record consists of one or more days as determined by the researcher during study setup. Respondents are instructed to complete a food record in real time. The methodology for food records was adapted from the ASA24 methodology for 24-hour recalls described above.

The steps in the food record process are:

1. [Meal-based Quick List](#)
2. [Detail Pass](#)
3. [Meal Gap Review](#)

After each meal is reported, respondents are asked if they are finished reporting for the day. If not, on their next login, they return to step 1 to report another meal. If they are finished for the day, they move to step 4.

4. [Final Review](#)
5. [Forgotten Foods](#)
6. [Last Chance](#)
7. [Usual Intake Question](#)

## Meal-based Quick List

In the first pass of a 24-hour recall, respondents are asked to provide a list of the foods, drinks and supplements consumed at each meal occasion during the recall period. The researcher specifies the recall period to be from midnight-to-midnight on the previous day or for the past 24-hours starting at the time of the first login.

For food records, respondents first provide a list of foods, drinks and supplements for the meal they are reporting. After reporting all foods, drinks and supplements for that meal, they immediately proceed to the Detail Pass.

Respondents search to find their foods, drinks, or supplements; search results can then be filtered if desired. Since the 2018 version, respondents can also report, save, and modify recipes. Foods, drinks, and supplements reported at each meal are recorded in the My Foods and Drinks panel within the instrument. In addition to selecting an eating occasion (e.g., breakfast, lunch, snack), respondents are also prompted to specify the time of the occasion before reporting the foods and drinks consumed. The researcher can opt to collect contextual information including where meals were eaten, television and computer use during meals, and whether the meal was eaten alone or with others by turning on the corresponding module during study setup.

### **Meal Gap Review**

For 24-hour recalls, once respondents indicate that they have finished creating their My Foods and Drinks list at the end of the Quick List step, they are asked if they consumed anything during any 3-hour gaps between eating occasions. For a food record, the Meal Gap Review follows the Detail Pass. During the Gap Review, respondents can add snack(s) and meal(s) and the corresponding foods, drinks, and supplements.

### **Detail Pass**

During the Detail Pass, respondents are asked for details about the foods, drinks and supplements they recorded during the Quick List, including form (e.g., raw or cooked), preparation methods (e.g., grilled or roasted), the amount consumed, and any additions (e.g., sugar, coffee cream, salad dressing). An option is available to probe respondents about the source (e.g., grocery store, farmer's market, etc.) of all or most of their reported foods and drinks.

### **Final Review**

The Final Review prompts respondents to review all of the foods, drinks and supplements reported for the intake day. If they want, respondents can return to the My Foods and Drinks List to edit existing items or to add meals, foods, drinks, and supplements.

### **Forgotten Foods**

Following the Final Review, respondents must respond to questions probing about the consumption of commonly forgotten foods and drinks (e.g., snack foods, fruits, vegetables, cheese, water, coffee, tea) and supplements. Respondents must select either "Yes" or "No" for each food or drink probed. For any "Yes" response, the respondent will be returned to the My Foods and Drinks List to add the forgotten item(s).

## **Last Chance**

After Forgotten Foods, respondents are asked if they have reported all foods, drinks and, if the supplement module is turned on, supplements. If not, respondents are returned to the My Foods and Drinks List to add more items; otherwise, they move to the Usual Intake Question.

## **Usual Intake Question**

The final question asks the respondent to indicate whether the amount of food and drink reported was more than usual, usual, or less than usual.

## **Supplement Module**

Supplements include vitamins, minerals, and other supplements including prescription supplements. Supplements included in ASA24 are based on those reported in the National Health and Nutrition Examination Survey (NHANES). This module can be turned on or off by the researcher during study setup. Respondents are able to report supplements similar to how they report foods and drinks throughout the day as part of a meal regardless of whether the module is turned on or off. However, if the module is turned on, respondents are cued in several places to include supplement intakes in their report.

## **Respondent Nutrition Report**

Researchers can select an optional module to allow respondents to receive a Respondent Nutrition Report. This report provides information to respondents regarding how their intake on a single reporting day compares to U.S. dietary guidance and nutrient requirements. Note that at this time, the Respondent Nutrition Report is available in English and Spanish for 24-hour recalls; however, for food records, it is currently only available in English.

When researchers turn this module on, respondents are asked if they would like to obtain a Nutrition Report after they have completed their 24-hour recall or record. Respondents who answer affirmatively are asked their age and sex, and if female, if they are pregnant or lactating. The ASA24 system then presents respondents with a Nutrition Report for the intake just reported. Respondents may print the report before exiting the ASA24. The Respondent Nutrition Report provided to respondents is also available to researchers on the researcher website. Note that the Respondent Nutrition Report will only be generated if the respondent provides their age, sex, and pregnancy/lactation status. A report cannot be generated for respondents under the age of 3.

## **ASA24 Respondent Website Features**

The ASA24 respondent website guides the participant through the completion of either a 24-hour recall for the previous day or a single or multiple day food record. The ASA24 instrument:

- Flows as per a modified version of the United States Department of Agriculture (USDA) [Automated Multiple-Pass Method \(AMPM\)](#) for 24-hour recalls, which was further adapted for collection of food records;
- Allows researchers to specify timing of the 24-hour recall, either from midnight-to-midnight or for the past 24-hours from time of login;
- Asks respondents to report eating occasions and time of consumption;
- Enables respondents to search to find foods, drinks and supplements;
- Allows respondents to report, save and modify recipes for use in subsequent 24-hour recalls or records;
- Presents respondents with search results that includes misspelled and related food items;
- Asks detailed questions about food form, preparation, portion size, and additions using an extensive branching question database with greater than 13 million unique pathways so that specific food codes can be assigned;
- Uses images to assist respondents in reporting portion size;
- Allows respondents to add or modify food, drink, and supplement choices at multiple points during the 24-hour recall or record;
- Includes optional modules to query where meals were eaten, whether meals were eaten alone or with others, television and computer and mobile device use during meals, and source of foods consumed;
- Includes an optional module to query dietary supplement intake;
- Is available in English and Spanish;
- Offers an optional Respondent Nutrition Report that researchers can choose to make available to respondents. The Respondent Nutrition Report provides feedback on nutrient and food group intake in comparison with U.S. dietary guidance. This report is available in English or Spanish for respondents completing 24-hour recalls, and English only for respondents completing food records.
- Is accessible by individuals using assistive technologies, such as screen readers.

### **Data Security and Protections to Confidentiality of ASA24 Users**

Researchers do not provide NCI, Westat, or the ASA24 system with any identifying data for their study participants. Rather, researchers specify a unique numeric identifier for each respondent and download system-generated ASA24 usernames and strong passwords that they provide to respondents so that they may access the application. Researchers must track the link between ASA24 usernames and their study participants outside the ASA24 system.

The ASA24 system also does not collect any identifying data directly from respondents. IP address information is accessed for the purpose of routing information between the server and the respondent's computer though often the IP address is that of the user's Internet Service Provider (ISP). IP addresses are not stored or tracked by the ASA24 system. However, logs of connections are kept in the hosting environment for audit trail purposes. This information is not mined in any way but would be available if there were a legal obligation to release.

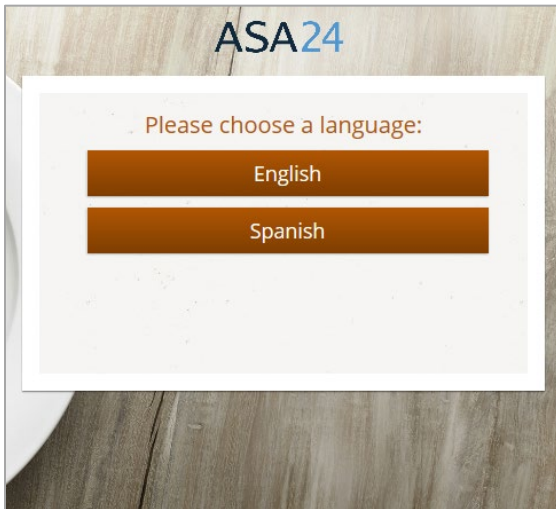
Response data are secured at the hosting site using industry standard security controls, including firewalls and encryption. All data entered into the ASA24 system at the respondent's computer is encrypted by the internet browser (e.g., Edge, Firefox, Chrome) before they are transmitted to the servers using Transport Layer Security (TLS) Technology. TLS allows for the authentication of the sending and receiving computers.

Only a particular study's researcher(s) and the ASA24 operations team can access response data.

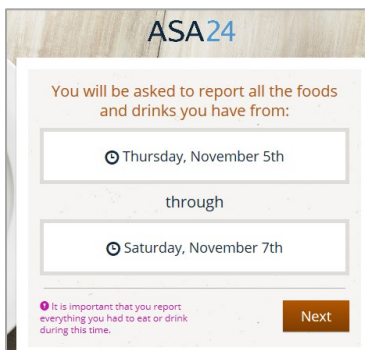
### ASA24 Respondent Website Screen Shots

Screen layouts will vary depending upon the screen size of the device.

**Figure 1: The respondent can choose to complete the ASA24 records or 24-hour recalls in English or Spanish.**



**Figure 2: An introductory screen prompts the respondent to report everything they had to eat or drink for the designated period.**



**Figure 3: The Meal Details screen collects information on the eating occasion and time, and displays optional modules to query where meals were eaten, whether meals were eaten alone or with others, and television and computer use during meals. This is the first step in the meal-based Quick List.**



Report Meals and Snacks

Find Food and Drinks

Add Details

Review

### Report a Meal or Snack

All fields are required

Select a meal or snack:

Brunch

Day of the Brunch:

Monday, September 24th

Time of the Brunch:

(Select a time between Monday, September 24th - 12:00am and Monday, September 24th - 11:59pm)

12 : 00 AM

Location:

Please select one

TV and computer use while eating and drinking (Select all that apply):

- Watching TV
- Using a computer or laptop
- Using a mobile phone or tablets
- None of these

Did you eat with anyone?

- Yes
- No

Help

Cancel

Find Foods and Drinks



Figure 4: The Find Foods & Drinks screen is used to select foods, drinks, and supplements to be added to a meal during the Quick List Pass. The food, drink, and supplement terms are based on the National Health and Nutrition Examination Survey (NHANES).

The screenshot displays the ASA24 'Find Foods & Drinks' interface. At the top, the ASA24 logo is on the left, and 'Show Tips', 'A A', and 'Finish Later' are on the right. Below the logo is a navigation bar with four buttons: 'Report Meals and Snacks', 'Find Food and Drinks' (highlighted), 'Add Details', and 'Review'. The main heading is 'Find Foods & Drinks' with a sub-heading 'Brunch, Monday, September 24th'. A search bar contains the text 'bage' and a 'Search' button. To the right of the search bar is a box titled 'What I ate and drank for Brunch, Monday 12:00am'. Below the search bar, the left sidebar shows 'Filter your results:' with various categories and their counts: Breads, Cereals, Bakery products & Salty snacks (6 items); Dairy Products (2 items); Fast Food (5 items); Food Groups (1 item); Fruit (1 item); Main dishes & Entrees (2 items); Meat, Poultry, Fish, Eggs & Nuts (3 items); Snack foods (2 items); and Vegetables, Beans & Salad (1 item). The main area shows '33 Results:' with a list of food items including Bagel, Dunkin' Donuts Bagel Egg Bacon Cheese Sandwich, McDonald's Ham, Egg and Cheese on Bagel, and others. At the bottom, there are 'Help' and '★' buttons on the left, and a 'Finish with This Meal' button on the right.

Figure 5: Respondents complete the Quick List pass by adding meals and selecting foods, drinks, and supplements.

**ASA24** Show Tips A A Finish Later

**Report Meals and Snacks** **Find Food and Drinks** **+ Add Details** **✓ Review**

### My Foods & Drinks

*starting Wednesday, November 4th - 12:00am*

#### BREAKFAST

*Wednesday 8:05am*

**+ Add Foods**

Bagel	Tools
Orange juice	Tools
Coffee	Tools

#### JUST A DRINK

*Wednesday 10:15am*

**+ Add Foods**

Tea, hot or iced	Tools
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#### LUNCH

*Wednesday 12:30pm*

**+ Add Foods**

Turkey sandwich	Tools
Water	Tools
Apple	Tools

*ending Wednesday, November 4th - 11:59pm*

[Help](#) **+ Report a Meal** **↻ Next**

Figure 6: In a 24-hour recall, after the respondent reports the foods, drinks and supplements consumed and selects the Next button in Figure 5, gaps between meals are identified (Meal Gap Review pass) After reviewing the gaps, the respondent selects the 'Add Details' button.

## My Foods & Drinks

starting Wednesday, November 4th - 12:00am

**GAP** + Report a Meal

Wednesday 12:00 am to Wednesday 8:05am Dismiss This Gap x

**BREAKFAST** + Add Foods ✎ 🗑️

Wednesday 8:05am

Bagel	Tools
Orange juice	Tools
Coffee	Tools

**JUST A DRINK** + Add Foods ✎ 🗑️

Wednesday 10:15am

Tea, hot or iced	Tools
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**LUNCH** + Add Foods ✎ 🗑️

Wednesday 12:30pm

Turkey sandwich	Tools
Water	Tools
Apple	Tools

**GAP** + Report a Meal

Wednesday 12:30 pm to Wednesday 11:59pm Dismiss This Gap x

ending Wednesday, November 4th - 11:59pm

Help

+ Report a Meal
➡ Add Details

Figures 7a-c: The detail pass prompts the respondent to report the details of each food, drink, and supplement including the specific type or how it was prepared, anything added to it, and the amount that was consumed.

Figure 7a.

**Add details to your Bagel**  
🕒 Lunch Wednesday, November 4th - 8:05am

Bagel: Did it have any fruit or vegetable?

Select an option

- Plain
- Apple
- Blueberry
- Cranberry
- Garlic
- Onion
- Raisins
- Other
- Don't know

Help Back Next

Figure 7b.

**Add details to your Bagel**  
🕒 Lunch Wednesday, November 4th - 8:05am

Bagel: How much did you actually eat? 🟡

Don't know Less than 1/4 bagel 1/4 bagel 1/2 bagel 3/4 bagel 1 bagel More than 1 bagel

AMOUNT: 1/2 bagel

Help Back Next

Figure 7c.

### Add details to your Bagel

🕒 Lunch Wednesday, November 4th - 8:05am

Bagel: Did you add anything to your Bagel that you haven't already reported?

Yes  
 Nothing Added  
 Don't know

Search for additions:

Type a food or drink

**Figure 8: Once the Detail Pass is complete, the Final Review begins. The respondent can make changes to the details for a given food or drink and add more foods and drinks if necessary.**

## Review

starting Wednesday, November 4th - 12:00am

Show food details »

### LUNCH

Wednesday 8:05am

- Bagel » (show details)
- Orange juice » (show details)
- Coffee » (show details)

### JUST A DRINK

Wednesday 10:15am

- Tea, hot or iced » (show details)

### LUNCH

Wednesday 12:30pm

- Turkey sandwich » (show details)
- Water » (show details)
- Apple » (show details)

ending Wednesday, November 4th - 11:59pm

Help

Make Changes Next

**Figure 9: The Forgotten Foods pass queries the respondent about frequently forgotten foods. Responding yes to one or more categories will result in a prompt to add the forgotten foods or drinks.**

**Frequently Forgotten Foods**

Certain foods and drinks are frequently forgotten. In addition to the foods and drinks you already reported, did you have any:

**All fields are required**

Water, including tap, faucet, bottled, water fountain?  
 Yes  No

Coffee, tea, soft drinks, milk or juice?  
 Yes  No

Beer, wine, cocktails or other drinks?  
 Yes  No

Cookies, candy, ice cream or other sweets?  
 Yes  No

Chips, crackers, popcorn, pretzels, nuts or other snack foods?  
 Yes  No

Fruits, vegetables or cheeses?  
 Yes  No

Breads, rolls or tortillas?  
 Yes  No

Supplements  
 Yes  No

Anything else?  
 Yes  No

[Help](#) [Next](#)

**Figure 10: The Last Chance Pass provides respondents one more opportunity to edit their intake.**

**Last chance** [X]

Did you have anything else to eat or drink between Wednesday, November 4th - 12:00am to Wednesday, November 4th - 11:59pm?

**Figure 11: The final question in the food and drink module asks the respondent whether the amount of foods and drinks consumed yesterday was usual.**

The screenshot shows a web-based survey question titled "Amount of Reported Food". The question text is "How usual was the amount you reported?". Below this, it specifies the time period: "The amount of food and drinks I had from Wednesday, November 4th - 12:00am to Wednesday, November 4th - 11:59pm was:". There are three radio button options: "Much more than usual", "Usual", and "Much less than usual". At the bottom left is a "Help" button, and at the bottom right is a blue "Next" button with a right-pointing arrow.

**Figure 12a: Once the respondent completes their report, the respondent can exit the ASA24 system\*.**

This screenshot shows the ASA24 system interface. At the top, the logo "ASA24" is visible, along with "Show Tips", "A A", and "Fresh Look" options. A navigation bar contains icons and labels for "Report Meals and Snacks", "Find Food and Drinks", "Add Details", and "Review". The main content area displays the "Amount of Reported Food" question, which is partially obscured by a yellow-bordered dialog box. The dialog box is titled "Save and submit" and contains the text "Congratulations! You are done. Thank you for your participation." and a "Finish" button. The "Usual" radio button option is selected in the background question. A "Help" button is at the bottom left, and a "Next" button is at the bottom right.



Figure 12b. If the researcher chose to include the option of providing a Respondent Nutrition Report (RNR) at the end of 24-hour recall or food record entries, respondents are given the option of answering a few basic questions in order to receive a copy of their nutrition report. Questions ask about age, gender, and if female, pregnancy and lactation status in order to determine recommended nutrient reference ranges. To view a sample of an RNR, visit <https://epi.grants.cancer.gov/asa24/respondent/nutrition-report.html>.

The figure displays two screenshots of the ASA24 web application interface. The first screenshot, titled "ASA24<sup>®</sup> Nutrition Profile", asks the user: "Would you like to view your nutrition profile for the day(s) you just reported on?". Below the question are two blue buttons: "No" and "Yes". The second screenshot, titled "ASA24<sup>®</sup> Nutrition Profile Information", contains the text: "If you provide a few pieces of information, we'll be able to provide you with more accurate guidelines". It includes a text input field for "Age:", a "Sex:" section with radio buttons for "Female" (selected) and "Male", and checkboxes for "Pregnant?" and "Breastfeeding?". At the bottom are two blue buttons: "Exit ASA24" and "Continue".

**Figure 12c. The Nutrition Profile Disclaimer informs respondents how the calorie and nutrient targets for the report were determined. It also informs respondents that the research study staff will have access to their nutrition profile.**

ASA24®

Nutrition Profile Disclaimer

Your specific food and nutrient needs are unique and can change based on your height, weight, and how much you exercise. To give you an idea of how you are doing, the following tables and graphs compare your intake for the day to the Dietary Guidelines for Americans and nutrient requirements from the Institute of Medicine, National Academy of Sciences. Calorie targets in this report assume you have a moderate level of activity.

The researcher and his/her staff who requested you to complete ASA24 will have access to this nutrition profile. They will not have access to your responses to the questions about age, sex, if female, pregnancy and breastfeeding.

Note: Calorie requirements vary widely for pregnant and lactating women based on trimester and other factors. As a result, the estimate for daily calorie goal in this report may not reflect your actual calorie needs. However, if you indicated you are pregnant or breastfeeding in ASA24, the nutrient targets in this report will be adjusted to reflect your additional needs.

Exit ASA24

I accept