

Diet & -Omics Workshop FDA, NIH, and USDA/ARS

Researcher Tools Workbench

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Workbench Concept

- Create an environment to foster a world-wide collaborative culture
- Establish standards for diet, physical activity, omics data interfaces
- Technology infrastructure for:
 - Access to best of class tools, establish Application Programming Interfaces (API)
 - Establish protocol workflow management
 - Sharing of data for cross-study comparisons
- Existing examples of workbenches:
 - Entrez Genome
 - caBIG
 - BIRN
 - PhenX

Entrez Genome – All Databases

Integrates the scientific literature, DNA and protein sequence databases, 3D protein structure and protein domain data, population study datasets, expression data, assemblies of complete genomes, and taxonomic information into a tightly interlinked system

NCBI Entrez, The Life Sciences Search Engine

HOME SEARCH SITE MAP PubMed All Databases Human Genome GenBank Map Viewer BLAST

Search across databases GO Clear Help

Welcome to the Entrez cross-database search page

- PubMed: biomedical literature citations and abstracts
- PubMed Central: free, full text journal articles
- Site Search: NCBI web and FTP sites
- Books: online books
- OMIM: online Mendelian Inheritance in Man
- OMIA: online Mendelian Inheritance in Animals
- Nucleotide: Core subset of nucleotide sequence records
- EST: Expressed Sequence Tag records
- GSS: Genome Survey Sequence records
- Protein: sequence database
- Genome: whole genome sequences
- Structure: three-dimensional macromolecular structures
- Taxonomy: organisms in GenBank
- SNP: single nucleotide polymorphism
- Gene: gene-centered information
- HomoloGene: eukaryotic homology groups
- GENSAT: gene expression atlas of mouse central nervous system
- Probe: sequence-specific reagents
- Genome Project: genome project information
- dbGaP: genotype and phenotype
- UniGene: gene-oriented clusters of transcript sequences
- CDD: conserved protein domain database
- 3D Domains: domains from Entrez Structure
- UniSTS: markers and mapping data
- PopSet: population study data sets [Go to PopSet Search Page](#)
- GEO Profiles: expression and molecular abundance profiles
- GEO DataSets: experimental sets of GEO data
- Cancer Chromosomes: cytogenetic databases
- PubChem BioAssay: bioactivity screens of chemical substances
- PubChem Compound: unique small molecule chemical structures
- PubChem Substance: deposited chemical substance records
- Protein Clusters: a collection of related protein sequences
- Journals: detailed information about the journals indexed in PubMed and other Entrez databases
- NLM Catalog: catalog of books, journals, and audiovisuals in the NLM collections
- MeSH: detailed information about NLM's controlled vocabulary

Internet 100%

V I O C A R E.

caBIG[®] cancer Biomedical Informatics Grid[™]

- Information network enabling all constituencies in the cancer community – researchers, physicians, and patients – to share data and knowledge
- Technology is widely applicable to other therapeutic areas
- Goals:
 - Connect scientists and practitioners through a shareable and interoperable infrastructure
 - Develop standard rules and a common language to more easily share information
 - Build or adapt tools for collecting, analyzing, integrating, and disseminating information associated with cancer research and care.
- caBIG has funded the development terminology products where the community indicated that gaps existed in current vocabularies:
 - Nutrition Terminology – Lynne Wilkins (CRCH)

caBIG

- Home
- Getting Connected
 - Setting the Stage
 - Finding caBIG® Tools
 - caBIG® Compatibility
 - caCORE
 - caGrid
 - Data Sharing
- Getting Support
 - Knowledge Centers
 - Service Providers
 - Training Portal
- About caBIG®
- Events & Calendar
- Workspaces & SIGs
 - Domain Workspaces
 - Clinical Trials Management Systems
 - Integrative Cancer Research
 - In Vivo Imaging
 - Tissue Banks and Pathology Tools
 - Cross Cutting Workspaces
 - Architecture
 - Vocabularies & Common Data Elements
 - Strategic Level Workspaces
 - Data Sharing & Intellectual Capital
 - Documentation & Training
 - Strategic Planning
- Quick Links
 - National Cancer Institute
 - NCI Center for Bioinformatics
 - NCI CB GEnome

Welcome to the caBIG® Community Website

The National Cancer Institute is launching a 21st century information initiative that will transform the way we do cancer research. We are creating a network that will freely connect the entire cancer community. In doing so, we are leveraging valuable resources and saving precious time toward new discoveries.

New visitors are encouraged to visit [About caBIG®](#). View [caBIG® Essentials](#), an interactive (Adobe Flash) overview, for an introduction to important terminology, key concepts, and different ways of connecting with caBIG®. You can also visit [Getting Connected](#) to learn about key concepts. If you are already familiar with caBIG® but looking for a synopsis of recent activities by the workspaces and SIGs look at [What's BIG This Week](#) and the monthly newsletter [caBIG® Links](#). If you are looking for more information on support and training please visit [Getting Support](#).

caBIG® Spotlight

Enterprise Support Network



caBIG® Wins Bio-IT World's Best Practices Editors' Choice Award

Kenneth Buetow, associate director for bioinformatics and information technology at NCI, believes the Best Practices Editors' Choice award will draw more attention to caBIG, a three-year effort to connect people, organizations, and data through IT: a worldwide cancer web.

[Learn More](#)

caBIG® Enterprise Support Network

View the list of currently licensed caBIG® Support Service Providers and visit the Knowledge Centers for domain-specific resources and expertise.

[Learn More](#)

Upcoming Events

Featured Articles

TCGA Data Analysis Tutorial
at AACR 2009 Annual Meeting
April 21, 2009
REGISTER TODAY

See caBIG® at
Bio-IT World
CONFERENCE & EXPO 09
April 27 - 29, 2009
World Trade Center
Boston, MA
Click here to learn more

caBIG® News

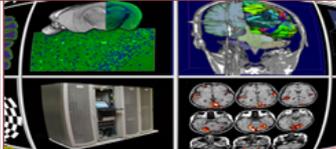
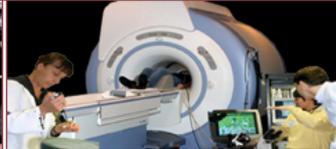
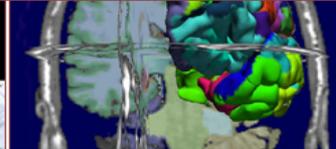
- [03-27-2009](#)
What's BIG This Week - 03/27/09
- [03-26-2009](#)
Call for public review: CTCAE v4.0 Draft
- [03-23-2009](#)
Notice of caGrid Production Outage Wednesday March 25th through Sunday March 29th
- [03-20-2009](#)
Registration Now Open for the Next caBIG® Developer Boot Camp
- [03-18-2009](#)
caBIG® Support Service Providers

[More news >>](#)

Biomedical Informatics Research Network (BIRN)

- Geographically distributed virtual community of shared resources offering tremendous potential to advance the diagnosis and treatment of disease
- A collaborative environment rich with tools that permit uniform access to hundreds of researchers, enabling cooperation on multi-institutional investigations
- Synchronizes developments in wide area networking, multiple data sources, and distributed computing
- Designs, tests, and releases new integrative software tools that enable researchers to pose questions and share knowledge across multiple animal models (mouse, human, and non-human primate)

BIRN

 Biomedical Informatics Research Network <i>fostering a new biomedical collaborative culture and infrastructure</i>					Search <input type="text"/> <input type="radio"/> BIRN <input type="radio"/> WWW	
Home	Research	Tools	Data	Contact Us	Help	BIRN Portal
 <u>BIRN Collaborations</u> BIRN Multi-site Collaborations Information on NIH Program Announcements News and Events Comments and Suggestions	 <u>BIRN Research</u> BIRN Coordinating Center Morphometry BIRN Function BIRN Mouse BIRN	 <u>BIRN Tools</u> Browse Our Tools Use Our Tools Share Your Tools	 <u>BIRN Data Repository</u> View Data Currently Available Preview Data Coming Soon Data Use Share Your Data			
About Us	Copyright	Privacy	Site Map	Contact	User Survey	

BIRN is supported by NIH Grants to the BIRN Coordinating Center (U24-RR019701), Function BIRN (U24-RR021992), Morphometry BIRN (U24-RR021382), and Mouse BIRN (U24-RR021780).



PhenX

- RTI International, in collaboration with the National Human Genome Research Institute (NHGRI), has launched an initiative to contribute to the integration of genetics and epidemiological research
- Project to prioritize **Phenotype** and **eXposure** measures for Genome-wide Association Studies
- Goal: to maximize the benefits of future research by having comparable measures so that studies can be integrated
- Currently includes common complex diseases and conditions; organ systems, and lifestyle factors
- The first three domains being addressed are: demographics; anthropometrics; and alcohol, tobacco, and other substances
- The PhenX Toolkit comprises background information on the measures, standard operating procedures, common data elements, controlled vocabularies, a glossary of terms, standard analytic procedures to harmonize similar measures, and an outline of suggested protocols and methods for analyzing GWAS data

PhenX



Web Site Search Home

[Home](#) [Project](#) [Steering Committee](#) [Working Groups](#) [PhenX Toolkit](#) [Take a Survey](#) [News](#)

Building consensus
for standard
measures of
phenotypes
and exposures



- PhenX is a three year project led by RTI International and funded by the National Human Genome Research Institute (NHGRI) to contribute to the integration of genetics and epidemiologic research
- PhenX has prioritized 20 research domains related to complex diseases and environmental exposures
- Consensus building is being used to develop a recommended minimal set of high priority measures for use in Genome-wide Association Studies (GWAS) and other large-scale genomic research efforts
- High priority measures will maximize benefits of future research by enabling cross-study comparisons and analysis
- Selection and specification of the measures are driven by the scientific community via the PhenX Steering Committee, Working Groups and PhenX Surveys
- The PhenX Toolkit presents the selected high priority measures to the scientific community

[More...](#)

PHENX TOOLKIT



The PhenX Toolkit makes the results of the project readily accessible via The Internet and enable researchers to implement the high priority measures.

The PhenX Toolkit is now available at: www.phenxtoolkit.org

[More...](#)

SURVEYS



Currently the [Cardiovascular Survey](#) is available. We invite the scientific community to review & comment on preliminary selected measures. Please take a Survey at www.phenx.org/surveys.

[Subscribe to Survey Announcements](#) | [More...](#)

STEERING COMMITTEE



A Steering Committee of distinguished experts from the scientific community guides the selection of the measures and promote their use. Research domains include diseases and conditions; lifestyle factors and anthropometrics; and environmental exposures.

[More...](#)

WORKING GROUPS



Working Groups (WGs) are assembled for each research domain. Each WG is responsible for selecting a small set of measures and protocols for obtaining the measure. The measures are vetted with the scientific community through periodic PhenX Surveys accessed on this web site.

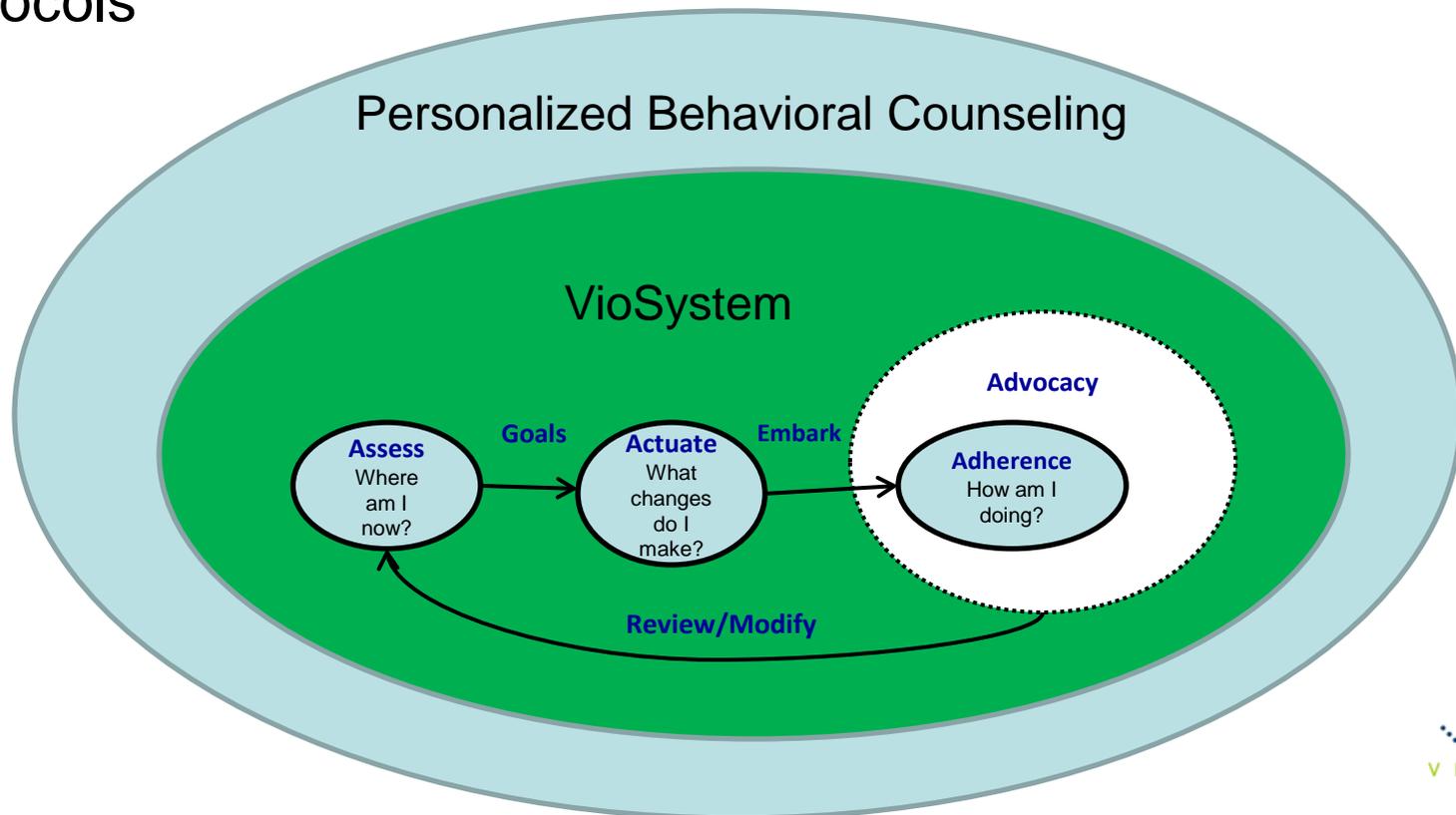
[More...](#) | [How to get involved](#)

Diet and Activity Tools

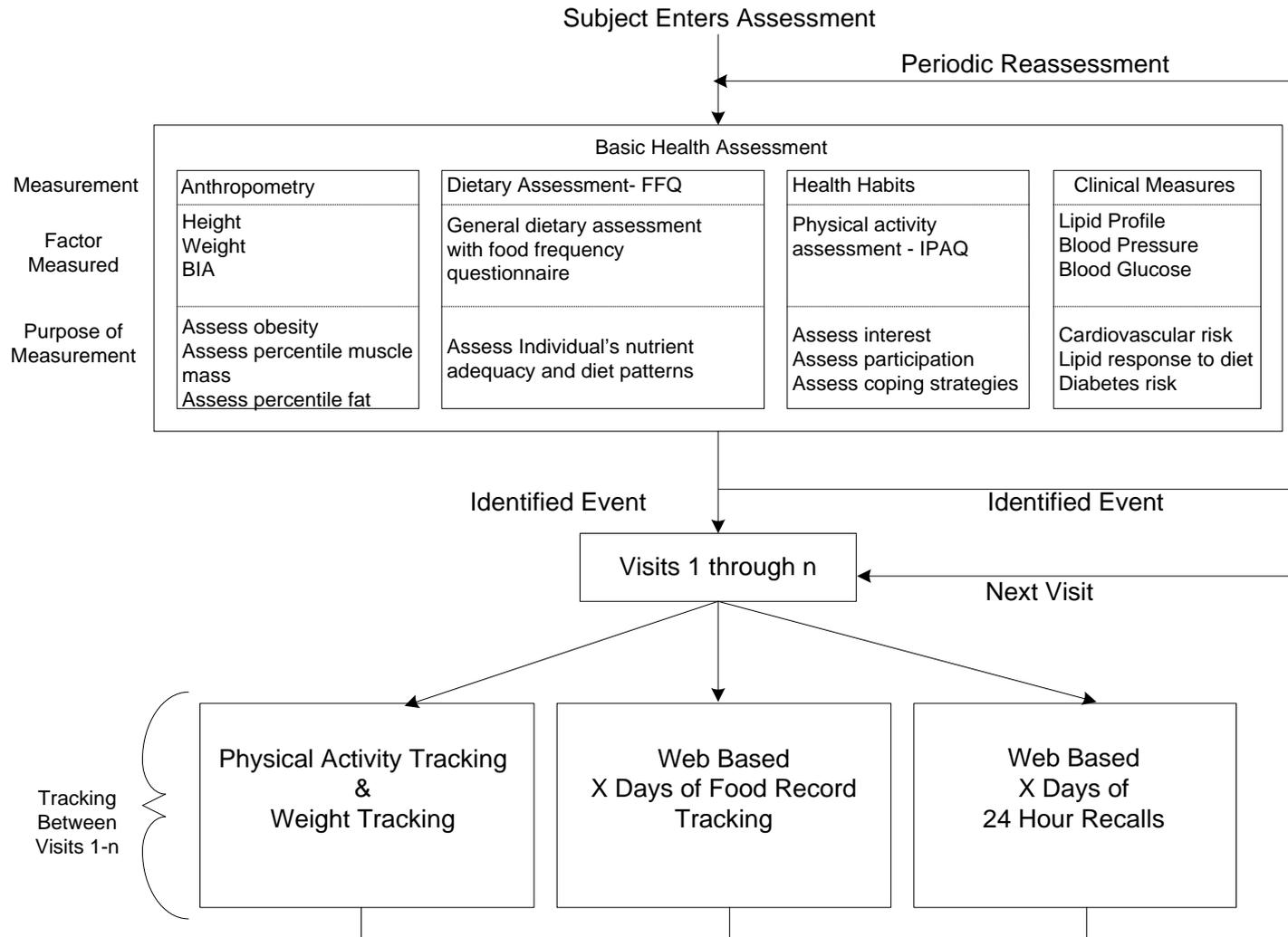
- Anthropometry
- Dietary Assessment (FFQs)
- Physical Activity Assessment (IPAQ)
- Health Habits
- Behavioral Data
- Biometric Data
- Protocol Management
- Physical Activity Tracking Tools
- Food Tracking Tools (food records, 24 hour dietary recalls)
- Weight Tracking Tools
- Online Portal

Viocare's VioWell™ Program

- Personalized wellness program combining web technology with one-on-one counseling to help participants obtain healthier lifestyles
- Toolbox for running dietary and physical activity research protocols



Potential Workbench Flow Diagram



Protocol Management

VioCenter
Administration Tool

Welcome, you are logged in as, **admin**. ([Logoff here...](#))

Protocol Edit - Default Protocol for Your Research Organization

Folder View | Protocol

- Summary
- Edit
- Sessions
- Import
- Export
- Back to Protocol List

General | Reports | Welcome HTML | Review HTML | Finish HTML

Title: *

Abbreviated Title:

Description:

Reference Text:

Example: During the year before [refdate], did you eat...

Questionnaire: *

Default Database: *

Display Units: Standard Metric

Style Sheet:

Start Page:

Code: *

Number:

Approved Date: (mm/dd/yyyy)

Start Date: (mm/dd/yyyy)

End Date: (mm/dd/yyyy)

Visits: *

Visit Span: * (days between visits)

Active:

There are 7 sessions in this protocol.

Note: Fields marked with a * are required

OK Cancel Apply

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Dietary FFQ Session Export

VioCenter

Administration Tool

Welcome, you are logged in as, **admin**. ([Logoff here...](#))

Folder View | Protocol

- Summary
- Edit
- Sessions
- Import
- Export
- Back to Protocol List

Protocol Export - Default Protocol for Your Research Organization

[Search / Filter](#)

Visit Number:

Finished Date Range: (mm/dd/yyyy) through (mm/dd/yyyy)

Note: Hit the 'Search' button after you change search / filter criteria.

[Export Data](#)

Database:

Key Field:

Action:

<input type="checkbox"/>	Description	SubjectId	Time	Created [▲]	Started	Finished	Report
<input type="checkbox"/>	New patient registration session.		125	3/11/2009	3/11/2009	3/11/2009	Report
<input type="checkbox"/>	New patient registration session.		23	2/26/2009	2/26/2009	2/26/2009	Report

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Biometric Data Collection

VioCenter
Administration Tool

Welcome, you are logged in as, **admin**. ([Logoff here...](#))

Folder View Patient

- Account Information
- Patient Data
- Sessions
- Tracking Data ▶
- Back to Patient List

Patient Edit - Jane Test

General Anthropometry Blood Pressure Vascular Profile Diabetes Profile Renal Profile

Display Units: Standard Metric

Height: (in.)

Weight: (lb.)

Date of Birth:  (mm/dd/yyyy)

Gender: * ▼

Activity Level: ▼

Note: Fields marked with a * are required

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Assessment

Step 1: Complete all assessments

Messages

Assessment

Planning

Tracking

Reassessment

The four VioWell assessment tools consist of a series of questions. These web-based self-administered questionnaires offer a quick, effective way to capture critical health, lifestyle, physical activity, and dietary information. The assessments will help you and your Wellness Partner identify where you are at the start of the VioWell program. The assessments will take you approximately 1 to 1 ½ hours to complete.

Assessment questionnaires

ASSESSMENT
Where Am I Now?

goals

PLANNING
What Do I Do To Be Healthy?

action plan

TRACKING
How Am I Doing?

reassessment

Health Screening

These questions ask about your current health status, lifestyle factors, eating patterns, weight, and attitudes toward diet and physical activity.

15 - 30 min.

Start

LW Navigator Screening

These questions identify your barriers to a healthy lifestyle and recommend Living Well Navigator questionnaires and resources to help you overcome these barriers.

5 - 10 min.

Start

VioActive

These questions ask about your current level of physical activity.

10 - 15 min.

Start

VioScreen

These questions ask about the foods you usually ate over the last 3 months.

30 - 45 min.

View

Start assessment

Assessment Questionnaires

Welcome to Health Screening!

Health Screening

Welcome to the Living Well Navigator!

Living Well Navigator Screening

Welcome to VioActive!

VioActive

Standard Questionnaire (V2)

VioScreen

Welcome

- This questionnaire will ask about the foods you usually ate over the last 3 months.

Chicken and Fish

Chicken and Fish

Section 3 of 20

Select those foods you eat at least once a month.
Press the "Next" button if you did not eat any of these foods.

- Fried chicken, including nuggets and tenders
- Chicken and turkey, roasted, grilled, broiled, stewed
- Fried fish, fish sandwiches and fried shrimp and oysters
- Shrimp, oysters, crab, lobster
- Canned tuna and tuna salad
- White fish, broiled or baked, such as cod, halibut, snapper
- Dark fish, broiled or baked, such as salmon, trout, and mackerel

Planning Tools

Assessment **Planning** Tracking Reassessment

Planning occurs when you have a telephone call "visit" with your Wellness Partner. After Visit 1, you and your Wellness Partner will review your progress at each visit and modify your goals and plan according to your needs and successes. At your last visit, you will develop on-going plans once you have completed this program.

Step 2: View plan in VioPlan

ASSESSMENT
Where Am I Now?
where?

PLANNING
What Do I Do To Be Healthy?
what?

TRACKING
How Am I Doing?
how?

goals

action plan

reassessment

VioPlan 1
Your Wellness Partner and you have agreed to meet on the date and time below.
Date: 5/29/2008
Time: 4:00 PM

VioPlan 2
Your Wellness Partner has made your plan available. Please view and agree or disagree to the plan.
Date: 6/12/2008
Time: 9:00 PM

VioPlan 3

VioPlan 4

VioPlan 5

**Before Visit:
View visit date & time**

**During Visit:
Schedule next visit**

**During or After Visit:
View plan when available**

View

Tracking

Assessments Planning **Tracking** Reassessments

Tracking occurs when you use the tools on this website to record your daily physical activity, food intake, and weight. You and your Wellness Partner can view your entries over time to see the progress you have made. Enter notes as you make your entries to keep track of how you feel and what obstacles you are facing.

ASSESSMENT
Where Am I Now?
where?

PLANNING
What Do I Do To Be Healthy?
what?

TRACKING
How Am I Doing?
how?

goals action plan reassessment

LW Navigator

<h3>Activity Tracking</h3> <p>Record and track your physical activity.</p> <p>Go</p>	<h3>Food Tracking</h3> <p>Record and track what you eat.</p> <p>Go</p>	<h3>Weight Tracking</h3> <p>Record and track your weight and calculate your Body Mass Index (BMI). BMI is a reliable indicator of body fat for most people</p> <p>Go</p>	<h3>LWN Recommended</h3> <p>Unlike the other tracking tools, the Living Well Navigator contains recommended questionnaires to help you identify barriers that keep you from making lifestyle changes and discover strategies and resources to address each barrier.</p> <p>Go</p>
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Activity Tracking Tools

To Add an Activity:
1. Select category & activity.

2. Select date.

3. Optionally, add notes.

4. Click Add.

To view activities,
select a time period or
range & click Search.

Click to update
or delete.

My Activity Tracking

Activity Entry

Category: Date:

Activity: Minutes: Weight: lbs.

Description: Notes:

Date Range

Time Period: Start: End:

Records in Date Range

METs=energy expenditure per hour of activity. 1 MET = energy required to sit quietly. The more intense an activity, the higher the METs per hour.

My Activity Tracking

Date	Activity	Weight	Measure	Calories	METs
06-04-2008	walking, 2.5 mph, firm surface	220.00	45 (minutes)	225	3.00
06-03-2008	loading /unloading a car	220.00	15 (minutes)	75	3.00
06-02-2008	walking, for pleasure, work break	220.00	15 (minutes)	88	3.50
06-01-2008	walking for pleasure	220.00	30 (minutes)	175	3.50
05-31-2008	walking for pleasure	220.00	60 (minutes)	350	3.50
05-30-2008	walking, 2.5 mph, firm surface	220.00	45 (minutes)	225	3.00
05-29-2008	walking, 2.5 mph, firm surface	220.00	30 (minutes)	150	3.00

Days: 7, Calories Burned: 1,288. Active Days: 7, Average Calories: 184

Food Tracking Tools

To Add a Food:
1. Select date.

2. Click
Add Item.

3. Enter food &
click Search.

4. Select food.

5. Select measure,
enter amount, &
click Add/Update.

Click food to update.

Click to delete.

Food Tracking

05/29/2008  Total Calories: 238

	KCal	Fat (g)	Carb (g)	Pro (g)	Fiber (g)			
<i>Breakfast</i>	238	14.8	16.9	10.7	2.6			
bread, whole-wheat, toast	1	1 thin slice	58	1.0	10.9	2.3	1.6	
egg omelet, with vegetables	1	1 extra large e...	180	13.8	6.1	8.4	1.1	

Add Item

Find a food:

Get Recent Food

advance options

Total of 2 items found.
Filter by: Food Database My Foods Com

- orange juice
- grapefruit-orange juice

Lunch

Add Item

Dinner

Add Item

Snack

Add Item

Food Name: grapefruit-orange juice

Select Measure: 1 cup

Amount: 1 Add to the favorite

My food name:

Food Note:

Weight Tracking Tools

My Weight Tracking

Your Goal
 Short Term Goal: 209.99 lbs. Date: 05/31/2008
 Long Term Goal: 179.99 lbs. Date: 04/01/2009

Weight Entry
 Height: inches
 Weight: lbs.
 Date:
 Notes:

Date Range
 Time Period: Start: End:

Records in Date Range
Body Mass Index (BMI) = Below 18.5 is Underweight, 18.5-24.9 is Normal Weight, 25-29.9 is Overweight, 30.0 and Above is Obese.

My Weight Tracking			
Date	Height	Weight	BMI
06-05-2008	70	215.50	30.9
06-04-2008	70	216.00	31.0
06-03-2008	70	217.00	31.1
06-02-2008	70	217.50	31.2
06-01-2008	70	218.00	31.3
05-31-2008	70	219.00	31.4
05-30-2008	70	219.50	31.5
05-29-2008	70	220.00	31.6

Minimum Weight: 215.5, Maximum Weight: 220, Average: 217.8
 Beginning Weight: 215.5, Ending Weight: 220, Change: 4.5

Weight Tracking Chart

Weight Tracking Record Short Term Goal Weight Line Long Term Goal Weight Line

To Add a Weight:
1. Enter weight.

2. Select date.

3. Optionally, add notes.

4. Click Add.

To view activities,
select a time period or
range & click Search.

Click to update
or delete.

VioWell Advocacy

- Online community-based wellness module providing social networking component to VioWell
- Components:
 - Community health web portal
 - Interactive tools
 - Community calendar
 - User generated content (forums, blogs)
 - Articles
 - Community listings (“yellow pages”)
 - Microsoft HealthVault Integration (seamless transfer of health data via devices)
 - Online and offline local community presence
 - An incentive based rewards system

Online Community Portal

Tuesday, September 02, 2008 [Sign Out](#) | [My Account](#) | [About Us](#) | [Contact Us](#) | [Sponsors](#) | [Refer Friends](#) | [Help](#)

princeton livingwell
It's your life. Live it well.

Welcome: Rick
Reward Points: 14622

[Home](#) | [Articles](#) | [Calendar](#) | [Community Listings](#) | [Forums](#) | [Health Tools](#) | [Rewards](#) | [Member Discounts](#) | [Toolbox](#)

Resources

- Archives
- Community Calendar
- Health Links
- Health Blogs
- Get Involved
- Looking for Volunteers
- Join the School Discussion
- Kids Corner

Mediterra Restaurant & Bar
29 Hulfish Street, Downtown Princeton
609/252-9680
www.tetramomo.com

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Free health devices* too!!!

Participate in an NIH-funded Wellness Research Project

More information [here](#)

Articles

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My Tracking Tools

Activity Tracking

Weight/BMI Tracking

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Grant Information

This Web site was made possible in part

What's Fresh

Community Calendar

- 09/03 [Early Bird Walk and ... \(Points\)](#)
- 09/03 [Free Fall Open House](#)
- 09/03 [Walk Aerobics 9/3 \(Points\)](#)
- 09/04 [Donate Blood on any ...](#)
- 09/04 [Morning Walk Aerobic... \(Points\)](#)

Workbenches Can

- Reach clinicians with valuable tools
- Support researchers with analytical and report tools
- Share processes and procedures through a worldwide wiki
- Link researchers to available resources and collaborators
- Facilitate collaborations among researchers and clinicians