

User Guide for ActivCollector

1. Go to the "ActivCollector" website

<https://activcollector.clermont.inra.fr/home>



What is new in our research?

A physically active lifestyle reduces the risk of developing chronic diseases and improves cognitive abilities and mood.

There are several methods to evaluate physical activity in free-living conditions. The doubly-labelled water technique is the reference method to measure mean total energy expenditure. The accuracy of the other methods varies depending on the technological tool. The main methods to collect physical activity data are activity questionnaires, pedometers, heart rate monitors and research devices dedicated to energy expenditure. These last tools are accurate but remain expensive for the general public and their use requires scientific and technical skills. Moreover the recording duration is limited (8-15 days). The development of cheap portable monitoring devices not only makes it possible to provide information about physical activity but also facilitates interactions with the user. We therefore use new technologies to develop health and nutrition applications.

eMouveResearch Android App

The National Institute of Agricultural Research - Human Nutrition Unit in collaboration with Almerys, the G. Monpied Hospital and LIMOS developed an Android application dedicated to the assessment of four levels of physical activity and energy expenditure in free-living conditions.



2. Authentication

On the home page, click on the following icon to log in:



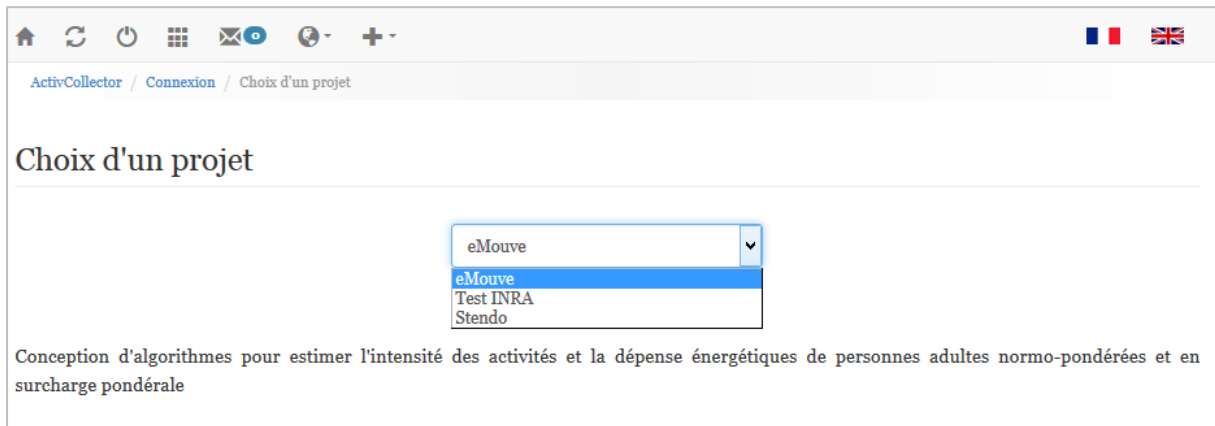
Enter your username and password and click on "Connexion" to log in.

Connexion

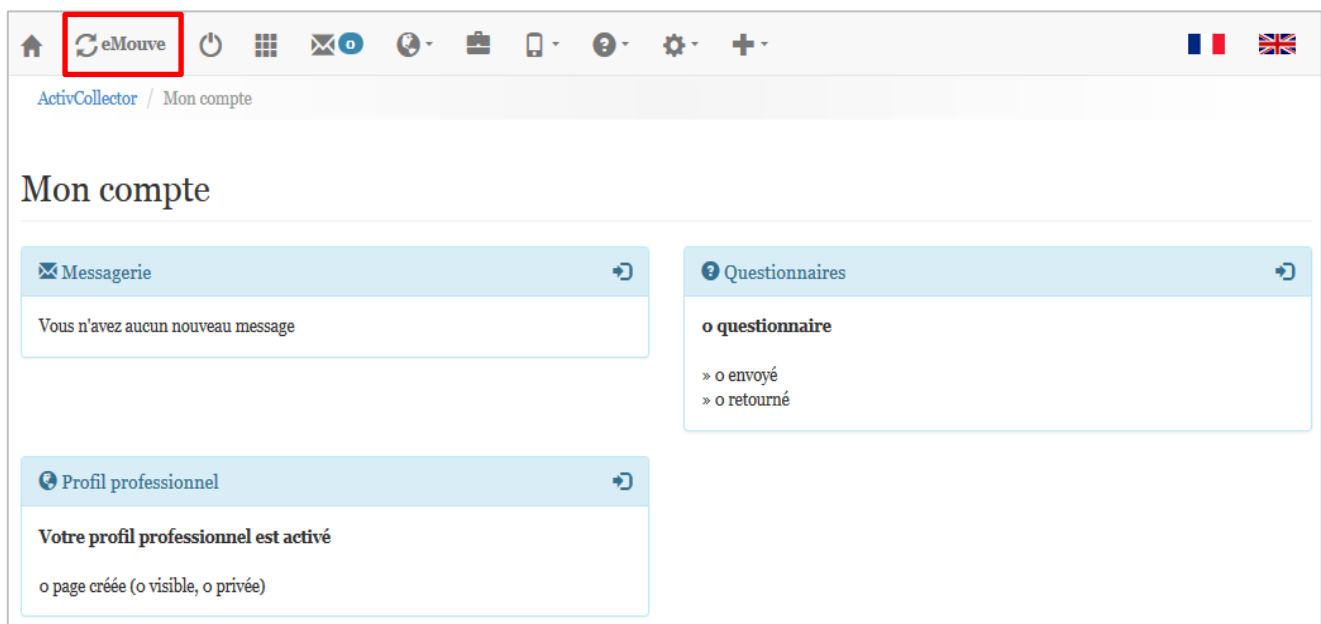
[J'ai oublié mon mot de passe !](#)

3. Choose a research project





After authentication, choose a project using the dropdown menu and validate. A short description of the project is displayed below this menu.










After having selected a project ("eMouve" here), you arrive at your home page, called "Mon compte" ("My Account").




From your home page, you have access to various functionalities:

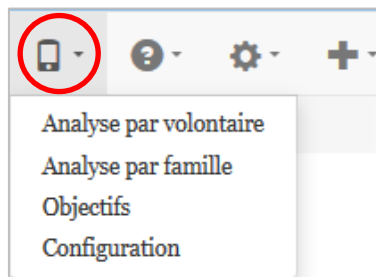
-  - Back to Home: Returns to the main home page of ActivCollector.
-  - Change project: Returns to the "Choosing a project" page.
-  - Log out.
-  - My account: Returns to your home page.

-  - Mailbox: this internal messaging service allows you to communicate with both volunteers and research staff associated with the project.
-  - My professional space: this page shows your skills, experience and expertise.
-  - Project: this page provides information about the project, such as the start and end dates of the project, the instigators, research staff and a short description.
-  - "eMouve" menu: analyses accelerometer data collected by smartphones and provides results of the intensity of physical activity and energy expenditure, defines goals and sets up the feedback for volunteers.
-  - "Questionnaire" menu: creates questionnaires intended for volunteers.
-  - "Administration" menu: provides access to various project management pages, modules, research staff and volunteers.
-  - "Other" menu: provides access to scientific publications, reports, directory, etc.

4. Accessing a module: eMouve, for example

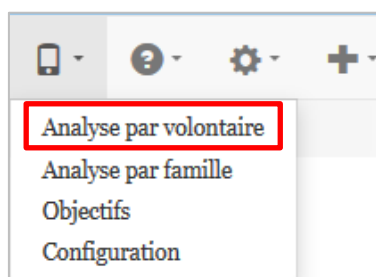
Access the "eMouve" module by clicking on the icon 

A dropdown menu then proposes either the results analysis, the definition of physical activity goals or the setting up of the feedback for volunteers.



5. Analysis per volunteer

Choose from the dropdown menu "Analyse par volontaire" ("Analysis per volunteer").





Analyse de données par volontaire

The screenshot shows a web interface for data analysis. It is divided into three main sections:

- Frame 1: Sélection de données** (Data selection): Contains a dropdown menu for 'Volontaire' (Volunteer) with the value '6' selected. Below it is a list of recording days ('Jours d'enregistrement') from J1 to J10. A 'Filtrer' (Filter) button is at the bottom right.
- Frame 2: Infos volontaire** (Volunteer characteristics): Displays information for the selected volunteer as of 25/03/2014, including gender (Femme), date of birth (08/09/1987), height (174 cm), weight (62 kg), and BMI (20.48 kg/m²).
- Frame 3: Unité de la dépense énergétique** (Unit of energy expenditure): Shows radio buttons for 'Kilocalories (kcal)' (selected) and 'Kilojoules (kJ)'.













This new page is divided into three frames:

- 1) "Sélection de données" (Data selection): you choose a volunteer from the first dropdown menu. After this choice is made, recording days appear in a second dropdown menu. You can choose one or more recordings and then analyse them by clicking on "Filter" (see below for data analysis).
- 2) "Infos volontaire" (Volunteer characteristics): this frame gives the main characteristics about selected volunteers (1st dropdown menu in frame 1. The 1st icon  downloads these data on Excel and the 2nd icon  provides access to weight and BMI graphs, etc.
The most recent information is displayed: either the inclusion data or the data reported by the volunteer in the smartphone eMouveRecherche application.
- 3) "Unité de la dépense énergétique" (Unit of energy expenditure): By default, kilocalories are selected but you can choose kJ.

Data analysis: choose, for example, J10 - 25/03/2014 ("D10 – 2014/03/25") for volunteer 6.



Clicking on "Filtrer" displays recordings of the selected day.

3 enregistrement(s)

<input type="checkbox"/>	Jour	#	Début	Fin	🕒	I	Ī	DE	DĒ			
<input type="checkbox"/>	25/03/2014	1	13:49	14:49	1h 0m	106.07	1.77	114.94	1.92			
<input type="checkbox"/>	25/03/2014	2	14:49	15:49	1h 0m 1s	81.63	1.36	88.46	1.47			
<input type="checkbox"/>	25/03/2014	3	15:49	16:00	10m 47s	12.99	1.2	14.08	1.31			



Each record is associated with a start ("Début") and end ("Fin") time, a duration, the total Intensity (I) of the physical activity (expressed in MET), the mean intensity \bar{I} (in MET/min), the Total Energy Expenditure ("DE" in kcal or kJ, according to your choice) and the mean TEE (DE in kcal/ \bar{I} min).

You can download the raw data in Excel  and have access to detailed activities  (% , duration, TEE).

Catégories			
Catégorie	Proportion	Durée	DE (kcal)
Activités immobiles	65.2%	39m 7s	47.16
Activités légères	31.19%	18m 42s	57.24
Activités modérées	3.57%	2m 8s	10.31
Activités vigoureuses	0.04%	1s	0.24

When you select one or more records, you find this information in a table and in pie charts. These graphs are dynamic and provide information by category when you mouse over them.

<input checked="" type="checkbox"/>	25/03/2014	1	13:49	14:49	1h 0m	106.07	1.77	114.94	1.92			
<input type="checkbox"/>	25/03/2014	2	14:49	15:49	1h 0m 1s	81.63	1.36	88.46	1.47			
<input type="checkbox"/>	25/03/2014	3	15:49	16:00	10m 47s	12.99	1.2	14.08	1.31			

Télécharger : [Données brutes](#) | [Analyses](#)

Résultats de l'analyse

1 enregistrement(s) et 0 activité(s) supplémentaire(s) sélectionné(s)

\odot	Durée totale	1h 0m
\bar{I}	Intensité moyenne (MET/min)	1.77
$\sigma(I)$	Ecart-type de l'intensité (MET/min)	0.00
DE	Dépense énergétique (kcal ou kJ)	114.94
\overline{DE}	Dépense énergétique moyenne (kcal/min ou kJ/min)	1.92
$\sigma(DE)$	Ecart-type de la dépense énergétique (kcal/min ou kJ/min)	0.00

DE (en kcal)



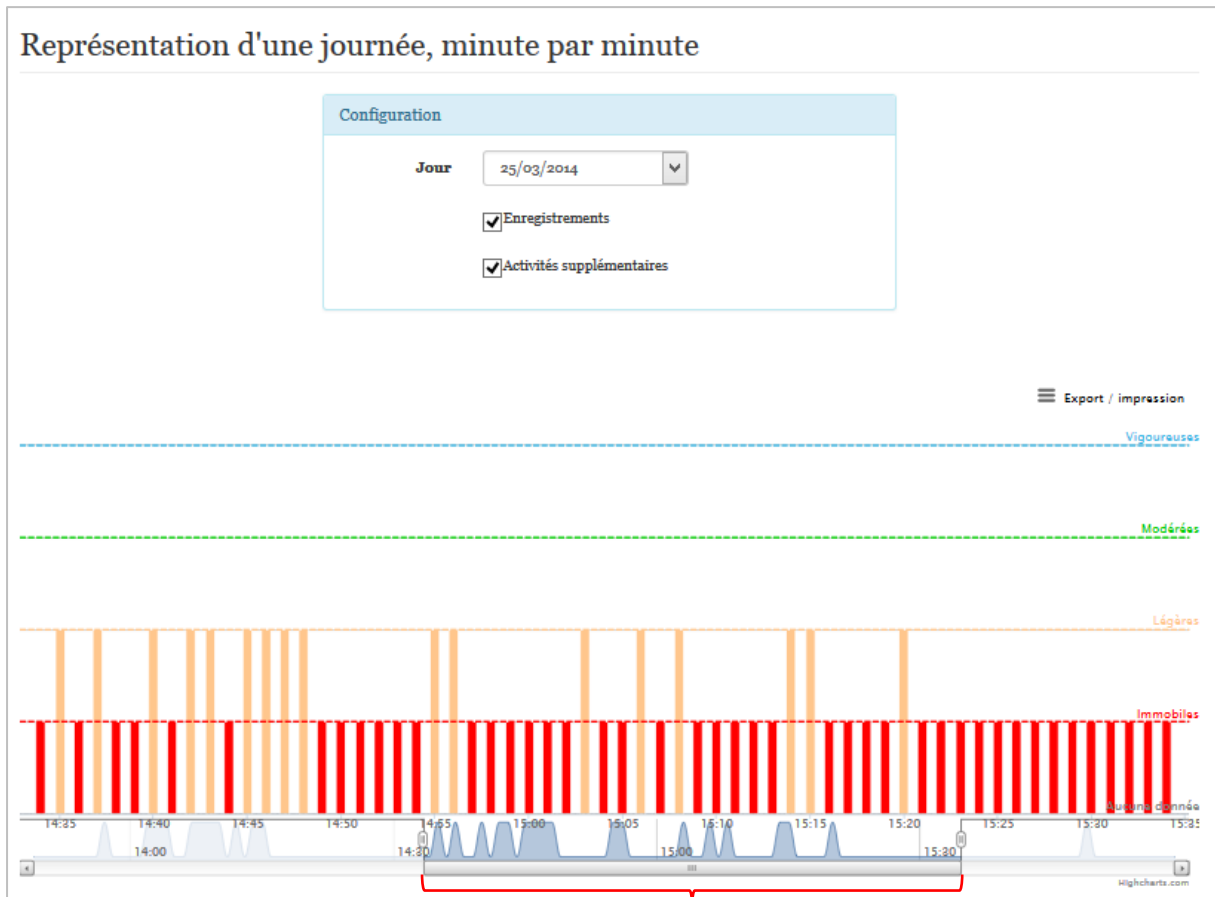
Durée (en min)



- Activités immobiles
- Activités légères
- Activités modérées
- Activités vigoureuses

The first pie chart provides information about Total Energy Expenditure ("DE" in kcal) associated with sedentary, light-, moderate- and vigorous-intensity activities. These TEE are also expressed in percentages.

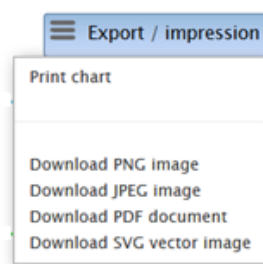
The second pie chart is based on the same principle. It shows the time spent in each activity category ("Durée" in min).



Zoom between 2:35 p.m. and 3:35 p.m.

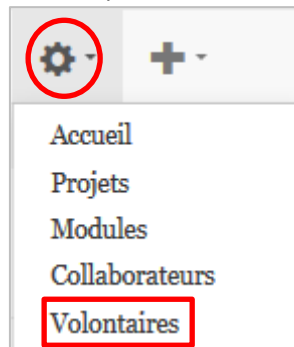
The analysis of the results per volunteer also provides information about physical activity, minute-by-minute. The intensity of activities is revealed by the size of the peaks and the colour code, which is the same as that used for the pie charts. The advantage of this graph is to be able to zoom into a specific time slot, between 2:35 p.m. and 3:35 p.m., in this case.

You can also download or print this image.

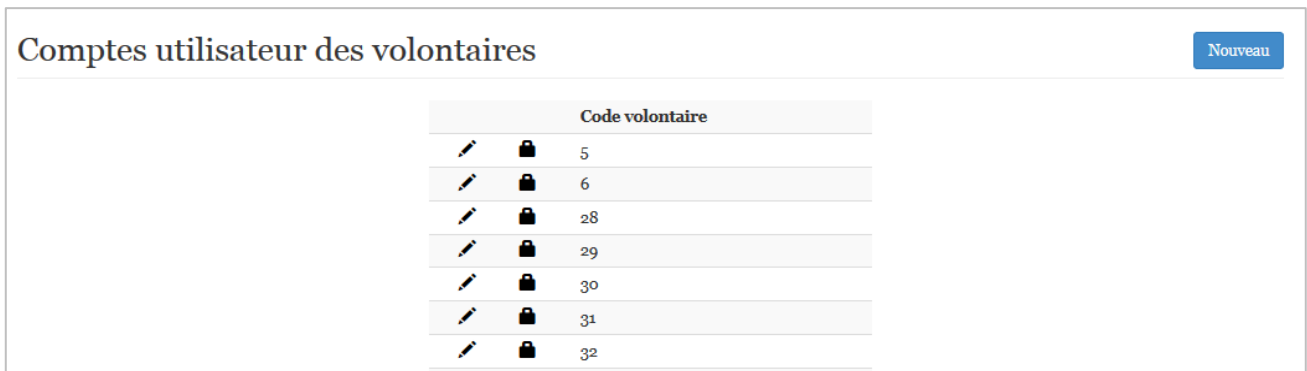




6. Create a volunteer account

To create a volunteer account, you have to use the "Administration" menu and choose from the dropdown "Volontaires" ("Volunteers") menu.



You then access the volunteers account management page:



Each volunteer is identified by a code to ensure anonymity. Using the list above, you can change the volunteer data  and change his/her password . You can also create a new account by clicking on the button "Nouveau" (New).

A screenshot of a web form titled 'Nouveau volontaire'. At the top, there is a checkbox labeled 'Générer un mot de passe aléatoire' which is checked. Below this, there are two input fields for 'Mot de passe' (password) and 'Retaper le mot de passe' (retype password). Below these is an input field for 'Adresse email'. At the bottom, there is a label 'Langue par défaut' followed by three flags: France, Germany, and United Kingdom. A green button labeled 'Créer' is highlighted with a red rectangular box.

From the "Nouveau volontaire" ("New volunteer") menu, you can choose a password or randomly generate a password that the volunteer will have to use to authenticate at the website. He/she will receive his/her login and password by email. Confirm this information by clicking on "Créer" (Create).

A message appears to confirm the creation of the user account ("Succès"). This message also gives you the volunteer code, which is also his/her login (156 here).

Succès

Utilisateur créé avec succès. N'oubliez pas de l'associer à un projet.


Le code de ce volontaire (qui est aussi son login) est le suivant : **156**




Veillez le noter et utiliser le logiciel *Volunteer Seeker* afin d'enregistrer ce volontaire et son code dans le fichier Excel des volontaires.

As stated in the message, the new volunteer is not yet associated with a project.

7. Associate a volunteer with a project.





Including a volunteer in a project requires you to be logged in and to have selected a project ("eMouve", for example). You are therefore on your project's home page.

Access the Project menu by clicking on the icon 










eMouve Modifier   

Statut	P O V T
Code	Non renseigné
Code "Clinical Trials"	Non renseigné
Nom	eMouve
Date de début	14/10/2013 12:05
Date de fin	31/08/2015 23:59
Site(s)	Clermont-Ferrand
Promoteur	INRA
Partenaires(s)	-
Description	Conception d'algorithmes pour estimer l'intensité des activités et la dépense énergétique de personnes adultes normo-pondérées et en surcharge pondérale

From this page, you can:

-  - Modify information about the project
-  - Manage research staff
-  - Manage volunteers associated with the project
-  - Save inclusion data

Then, select the volunteers' management menu.

Code vol.	Volontaire	Fin d'accès	Sexe	Date de naissance	Taille (cm)	Poids (kg)	
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	08/09/1987	170	60	
30	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H	17/01/1986	176	68	
141	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	20/01/1962	170	60	
142	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	09/04/2014	170	60	
146	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	29/07/2014	170	60	
147	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	31/01/1972	170	60	
148	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	11/08/2014	170	60	
152	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	04/12/1932	164	60	
155	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F	23/04/1979	162	55	
156	<input type="checkbox"/>	<input type="checkbox"/>	H	jj/mm/aaaa			

In order to add the volunteer that you created (n° 156), simply check the "volunteer box" and enter his/her sex, birthdate (date de naissance), height (taille) and weight (poids). Finally, confirm by clicking on "Enregistrer" ("Save"). A message confirms the modification of the project.