Patient Portal

User Manual

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1. Introduction

POWER2DM (Predictive model-based decision support for diabetes patient empowerment) is a Horizon 2020 project funded by the EU (ref. H2020-PHC-689444). The main objective of POWER2DM is to develop and validate a personalized self-management support system for Type 1 and Type 2 diabetes patients that combines and integrates:

1. A decision support system based on leading European predictive personalized models for diabetes interlinked with predictive computer models,
2. An automated e-coaching functionalities based on Behavioural Change Techniques, and
3. Real-time Personal Data processing and interpretation.

More information can be found at the POWER2DM website (http://www.power2dm.eu/about/)

This User Manual provides support for the usage of the POWER2DM patient portal, the so-called Action Plan Engine.

The Action Plan Engine guides the user through his/her diabetes self-management process supporting the specification of self-management goals based on the physicians' treatment goals and treatment plans, and the planning of self-management activities based on these goals. Based on recorded data from the web or mobile app, the Action Plan Engine will provide feedback about how successfully you have met your goals and activities as well as recommend interventions for optimising your self-management activities.

2. Login Patient Portal

The Patient Portal handles highly sensitive personal and medical data. Therefore, the login procedure protects your data from non-authorized access. Both username and password are provided to the patient during the patient registration. Depending on the used POWER2DM installation, either the Netherlands or Spain, the Login Page may differ slightly.
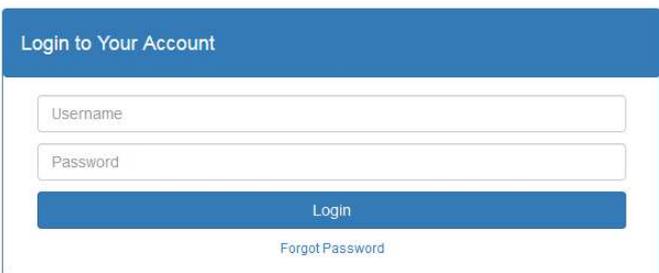
Figure 1: Login Page

Both username and password are provided to the patient during the patient/care provider registration or – depending on the integration with existing PHR system – are used from the external system. For login, please use the following URL:

Installation	URL
English Prototype	https://power2dm.salzburgresearch.at/psmss-secure
Dutch Prototype	
Spanish Prototype	

After successful login, you will be redirected to the POWER2DM Home Screen.

3. Home Page

After a successful login, you will be redirected to the POWER2DM home page.

In the upper area of the screen you find the menu. With the menu bar, all the functions of the POWER2DM patient portal are available.
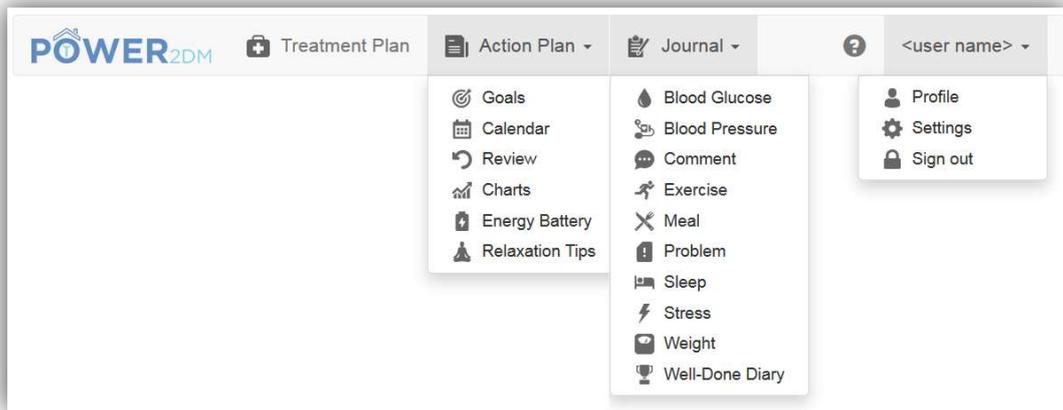

Figure 2: menu bar overview

The main menus also contain several sub-menus as shown in Figure 2. The distinct menu items are as follows:

- **Treatment Plan:** Lists the personal treatment goals and activities from your doctor. The treatment plan cannot be edited; instead, active ones (highlighted in blue) can be adopted to your self-management goals. Your self-management goals are the basis for planning self-management activities that can be scheduled and display in your calendar.
- **Action Plan**: Allows you to review and to specify your personal goals, typically based on the doctor's treatment plan, opens your calendar with your activities, offers you a review of the past activities and give access to charts. In addition, it contains two tools, the Energy Battery and the Relaxation Tips.
- **Journal**: Collects and reviews your data.
- **?**: Provides additional information with respect to diabetes and its implications and includes this user manual
- **<user name>**: Includes the user profile, the settings for the Action Plan Engine and the button to sign out

The POWER2DM logo (see Figure 2) within the menu bar opens the home screen again. The homepage includes a dashboard with an overview of your most important data for the current week. All items are colour coded using the following pattern:
- Green – Everything is complete/okay
- Orange – Something should be in progress at the moment
- Red – Something is incomplete/wrong
- Grey – Something to come up in the future / additional information

The items to be shown at your dashboard can be configured in the settings (see section 8.2.). Figure 3 gives an overview about the dashboard items:

- Time selection window – allows the current time window to be viewed on suitable pages (shown on the top right)
- Overall performance – of the current week
- Upcoming activites - lists current and upcoming events of today and tomorrow. The user can enter results for incomplete events by clicking the corresponding activity.)
- Charts – the user can display a chart for the past week by selecting a chart type
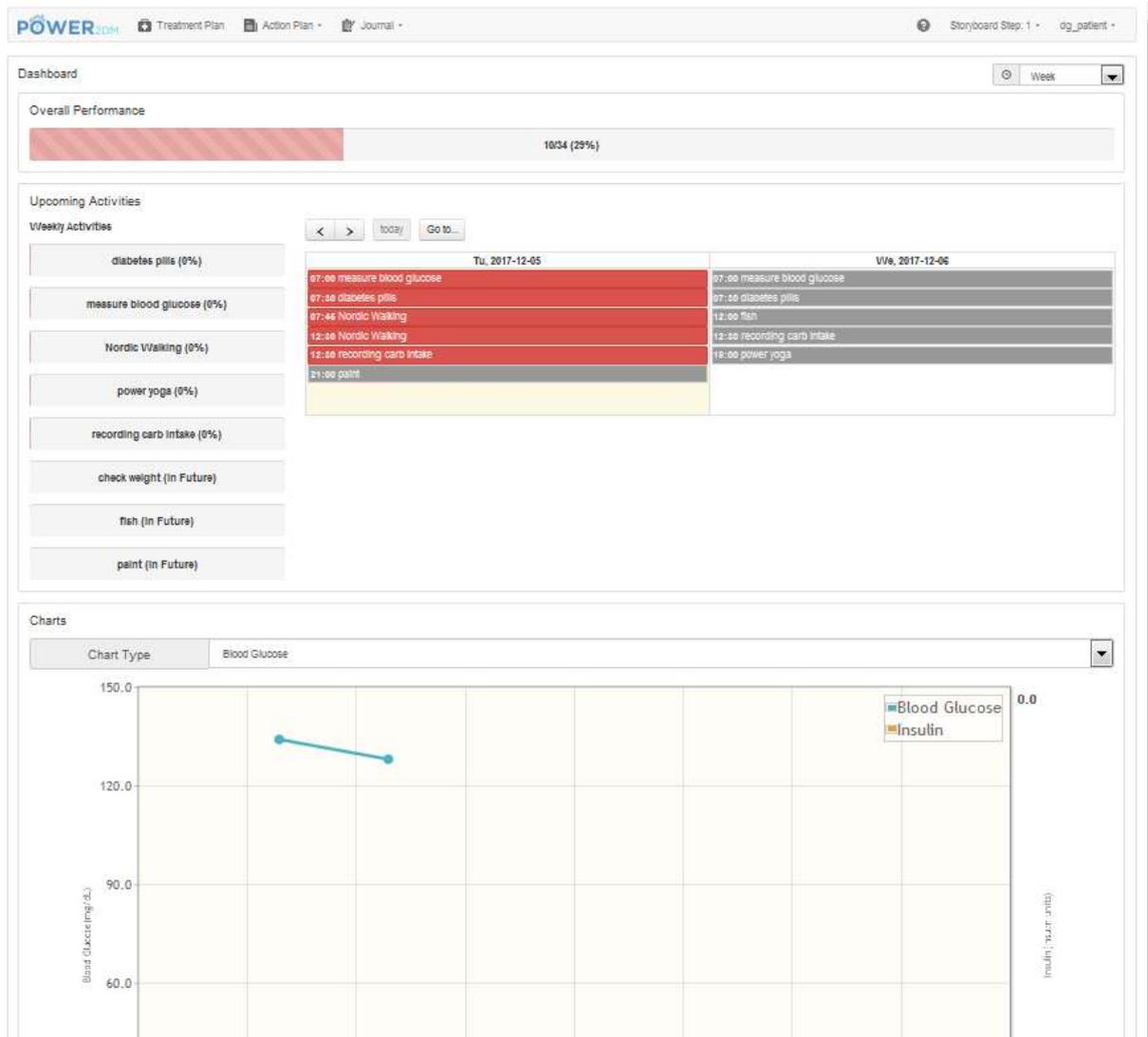
Figure 3: Overview homepage items

4. Treatment Plan

This menu item lists the patient's personal Treatment Plan from his/her doctor (see Figure 4). A Treatment Plan consists of one or more Treatment Goals. A Treatment Goal can in turn include one or more Treatment Activities suggested by your doctor to help achieve your treatment goal. The Start Date and the Target Date indicate the valid period for a Treatment Goal. The Target Value indicates what the Treatment Goal aims to achieve.

The treatment plan lists the personal recommendations from your doctor. Those recommendations can not be edited but active ones (highlighted in blue) can be adopted to your goals and calendar.

Treatment Plan

Start Date	Target Date	Target Value	Treatment Goal	Treatment Activities	Ordered By
2017-01-08	2017-12-31	Medication Adherence 90%	Adhere to your medication plan and log your insulin intakes!	-	Javier Delgado
2017-01-08	2017-12-31	BGM Adherence 90%	Adhere your blood glucose monitoring schedules!	• Measure Blood Glucose	Javier Delgado
2017-01-08	2017-12-31	HbA1c 7%	Our main aim is to decrease your HbA1c to 7.0	-	Javier Delgado
2017-01-02	2017-12-31	Medication Adherence 100%	Adhere to your medication plan and log your insulin intakes precisely...	-	Javier Delgado
2017-01-02	2017-12-31	Average Daily Carbs 90g	Log your carbohydrate intakes precisely!	-	Javier Delgado
2017-01-02	2017-12-31	Log Exercises	Log your exercises (walking, running, swimming, etc)!	-	Javier Delgado
2017-01-02	2017-12-31	HbA1c 7%	Our goal of HbA1c for your next visit	-	Javier Delgado
2017-01-02	2017-12-31	HbA1c 7%	Our goal of HbA1c for your next visit	-	Javier Delgado
2017-01-02	2017-12-31	BGM Adherence 100%	Strictly adhere the KADIS BG monitoring protocol as planned!	• Measure Blood Glucose	Javier Delgado
2017-01-02	2017-12-31	-	Strictly adhere the KADIS Data Collection action plans to be ready for KADIS Metabolic Fingerpring identification process	-	Javier Delgado

Figure 4: Treatment Plan

To adopt a Treatment Goal as one of your personal self-management goals or to schedule a Treatment Activity in your calendar, just click on the Treatment Goal. You can then also refine the planning, e.g. adding a more detailed description to the goal or adapting the schedule for the activity. Afterwards, your scheduled activities will appear in calendar.

5. Action Plan

The Action Plan menu enables you to list, evaluate, edit and review the relevant personal information. This includes the management of personally defined goals, the management of planned activities (to achieve the defined goals), the review for your activities and the charts. Additionally, this menu item includes two tools, the Energy Battery and the Relaxation Tip Editor.

5.1.   Self-Management Goals

Sometimes the treatment goals of the medical care providers are more general, e.g. "Do some sports" or "Reduce weight". To react to those treatment goals, the POWER2DM patient's portal allows you to define concrete individual goals tailored to your specific requirements and needs, e.g. "10 km running each week". To finally achieve your personal goal, you may later assign planned activities to the personal goals.

Some treatment goals from your doctor might be more general (e.g. "reduce weight"). In order to react to those you can set up more specific personal goals tailored to your lifestyle (e.g. "10 km running each week").

Goals

+ Add

Start Date	Target Date	Goal	Related Treatment Goals	Description	Motivation
2017-10-20	2017-12-03	walking 3x	-	-	-
2017-10-19	2017-12-03	Eat fish more often	-	-	-
2017-08-29	2017-12-10	relaxing	-	some relaxation exercises	I want to reduce my stress
2017-01-08	2017-12-03	Adhere to your medication plan and log your insulin intakes!	• Adhere to your medication plan and log your insulin intakes! (Medication Adherence 90%)	-	-
2017-01-08	2017-12-03	Adhere your blood glucose monitoring schedules!	• Adhere your blood glucose monitoring schedules! (BGM Adherence 90%)	daily	-
2017-01-02	2017-12-31	record carb intake	• Log your carbohydrate intakes precisely! (Average Daily Carbs 90g)	-	-
2017-01-02	2017-12-03	Log your exercises (walking, swimming, etc)!	• Log your exercises (walking, running, swimming, etc)! (Log Exercises)	-	-

Figure 5: Personal goals

First, all of your saved self-management goals are listed:
- Start Date and Target Date – indicate the valid period of your Goal
- Goal – describes the goal itself
- Related Treatment Goal – refers to the related Treatment Goal specified by your doctor
- Description – includes a more detailed description of your goal for your reference.
- Motivation – write down what motivates you to fulfil this goal (e.g. motivating ideas for when you finally have reached your goal).

By using the button "+Add", new goals can be added. By clicking on existing goals you can edit or delete them.

5.2.   Calendar

The purpose of the Calendar is twofold – It serves for the planning of activities supposed to help to achieve the goals defined before and if the planning of activities is done it gives an overview of already planned activities.

The Calendar Application lists all planned activities (see Figure 6). The week may be adjusted by using the navigation arrows. New activities can be added by choosing the button "+Add" or clicking on an empty calendar slot. Existing activities can be edited/deleted by choosing the corresponding activity on the left side of the Calendar.
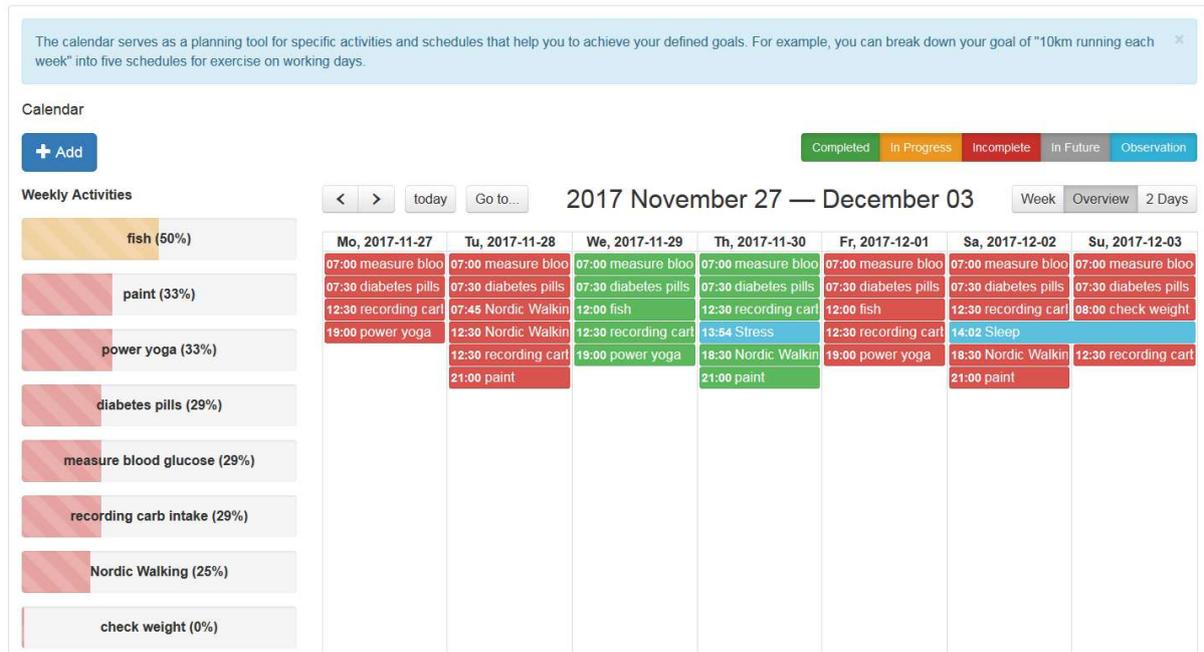
Figure 6: Calendar Application

The buttons on the top right side represent different states of an activity:
- Completed (green) – activities effectively performed
- In Progress (yellow) – activities that are currently performed
- Incomplete (red) – activities planned, but not performed
- In Future (grey) – upcoming and future activities
- Observations (blue) – additional observations recorded in a journal

You can enable and disable these states by clicking on the appropriate button.

By clicking on a calendar event, you can insert data (e.g. your blood glucose values) to complete an activity for that scheduled time. When completed, the colour of the activity will turn from e.g. red to green.

Stored activities may be shown in different views:
- Week – presents a calendar view (see Figure 7)
- Overview – presents an overview of all activities for each day of a week (see Figure 6)
- 2 Days – presents an overview of two days (today and tomorrow)
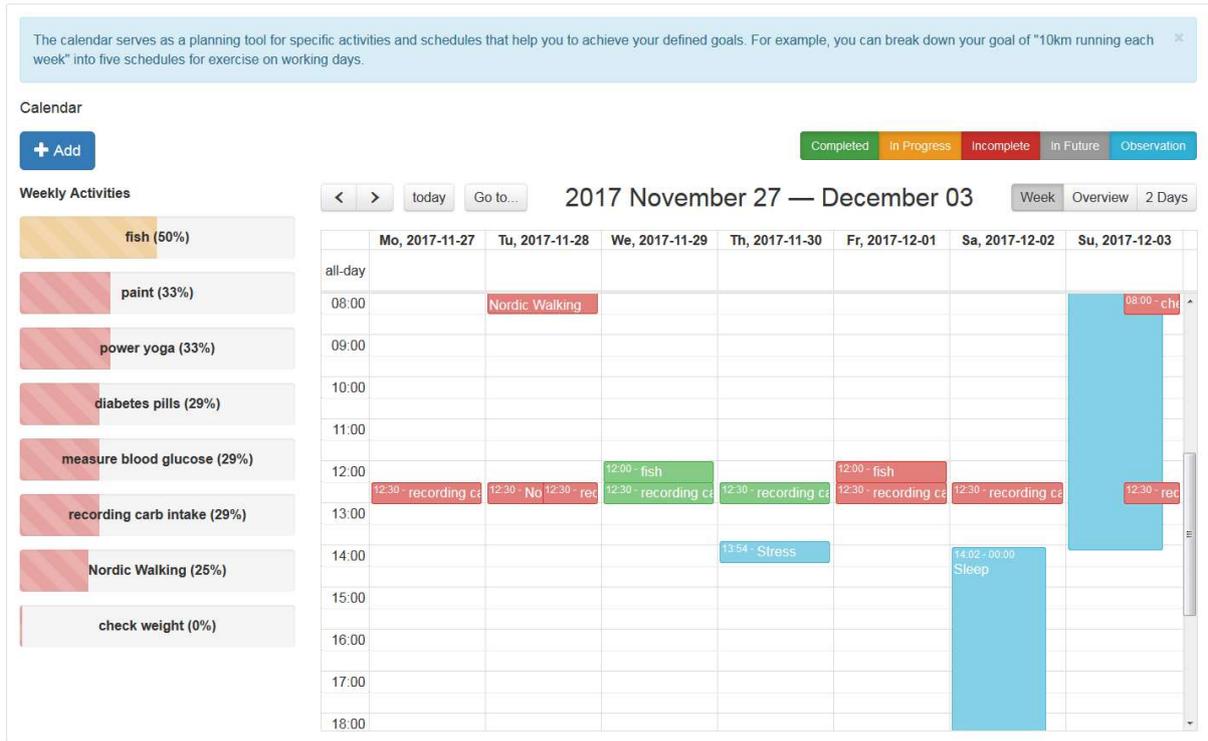
Figure 7: Calendar view (Week)

Add an activity

By clicking on "+Add" or on an entry in the left column "Weekly Activities" a window for managing activities opens (see Figure 8). You can add new entries or edit or delete the respective entries. The fields required for the entry are marked with "*", add or edit must be confirmed with "Save", a delete with "Delete".

Figure 8: Add an activity

The activity-related schedule is created in a separate window. Click on "+Add schedule" or on a table entry in "Schedule" to open the window (see Figure 9) in which you can add new entries or edit or delete the respective entries. The fields required for the entry are marked with "*", and add or edit must be confirmed with "Save", a delete with "Delete". Please note that you must include at least one schedule to finally save an activity.

Figure 9: Scheduling an activity

5.3. Review

The review provides you with comprehensive feedback on your performance and should be reviewed regularly – at least once a week. The review aims at examining past activities and their recordings in order to evaluate your progress and how successfully you have met your goals. It covers your overall performance, feedback on the different categories of activities, feedback on additional recorded data in your journals and feedback on each goal. You can receive specific tips for each point.

Starting the review & Overall Performance

The review starts with selecting the review period in the top right corner (see Figure 10). The default period is the past week, however longer periods are also possible (e.g. last month). Before you perform the review, you should check whether you have recorded all the data for the review period. For this reason, click on the button "Show/hide calendar" and fill in any forgotten entries. The Overall Performance indicates how successfully you have completed your planned activities in total within the review period.
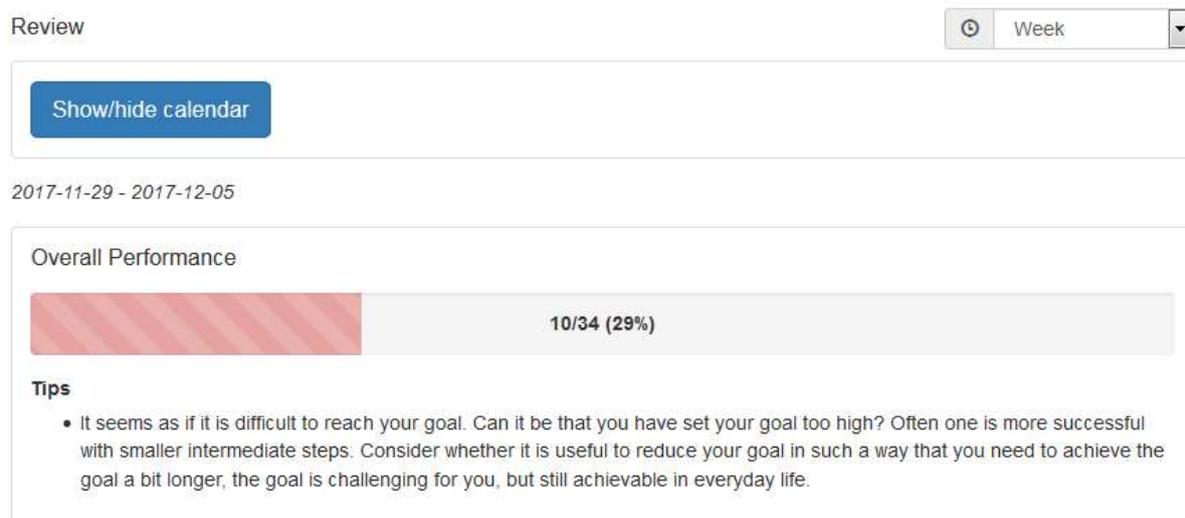
Figure 10: Review – calendar & overall performance

Activity Feedback

Next, the system provides feedback how successfully you have completed your planned activities for each category (see Figure 11). The column "Performance" describes the performance in percent (e.g. 43%) and indicates the number of completed activities (e.g. "3/7" means 3 activities from 7 activities were completed). The column "Tips" either acknowledges your progress and provides tips for improving your diabetes self-management.

Figure 11: Review – Activity Feedback

Journal Feedback

The review menu item gives also feedback (tips) on additional data you record in your journals (see section 6 for journals).

Figure 12: Review - Journal Feedback

Goals Feedback

Typically, activities are associated to personal goals. This step (see Figure 13) presents you an overview how successfully you have met your goals with the activities of the review time-range. A goal can be related to one or several activities.

The column "Performance" describes the performance in percent (e.g. 43%) and indicates the number of completed activities that are related to the associated goal (e.g. "3/7" means 3 from 7 activities have contributed to the associated goal). The column "Tips" acknowledges your progress and provides tips for improving your diabetes self-management.

Figure 13: Review – Goal Feedback

The button "Goal Problem Identification" aims to support you in case you have problems to fulfil one of your goals. It opens a workflow guiding you with several questions to help better identify the problem that hampers your progress. Once identified, POWER2DM suggests an intervention to cope with the problem (see Figure 14).

Did you have problems with any of your goals?

Yes

Which goal did you have problems with?

Glucose monitoring

Do you recognize any of the following problems?

I monitor too little

Do any of these problems sound familiar?

I don't like needles

If you dislike injections look at the following article

Back Close

Figure 14: Goal Problem Identification

Charts

The diagrams provide you with a graphical presentation of the most relevant values from the journals. With the help of the selection list you can switch between the available diagram types. For more information see section 5.4.

5.4. Charts

Different types of charts support the visualisation of the recorded observations and the evaluation of personal improvement respectively. To display a diagram, it is required
- to specify the time range in the select box in the top right corner and
- to select the chart type (select box "Chart Type"). Possible categories are glucose monitoring, blood pressure, exercise, meal, sleep, stress and weight

If you move the mouse pointer over a data point, you can see the detailed values.

Figure 15 - Charts

5.5.   Energy Battery

The Energy Battery aims to increase your awareness of how you either gain or lose your energy to manage your health. Hints are provided on how you can recharge your energy.

In the first step (raise awareness, see Figure 16), the Energy Battery tells you about activity categories where you might lose energy and about activity categories that will help recharge your energy battery. You can also watch a video explaining the Energy Battery and these different activity categories.

Figure 16: Energy Battery – Raise Awareness

In the next step (Energy Diary, see Figure 17), you will be asked to record all your activities for the next 7 days and assign them to one of the four categories, explained in Step 1 (active relaxation, passive relaxation, must do's, sleep), by using the button "+Add".

Figure 17: Energy Battery – Energy Diary

After 7 days, you can generally evaluate the recorded activities by pressing the button "Evaluate" (see Figure 18) to simply evaluate these activity categories (must do's, the active and passive relaxation activities) based on your personal feeling.

Figure 18: Energy Battery – Evaluation

In the final step (feedback, see Figure 19), the POWER2DM Energy Battery provides some feedback with hints based on your personal evaluation.
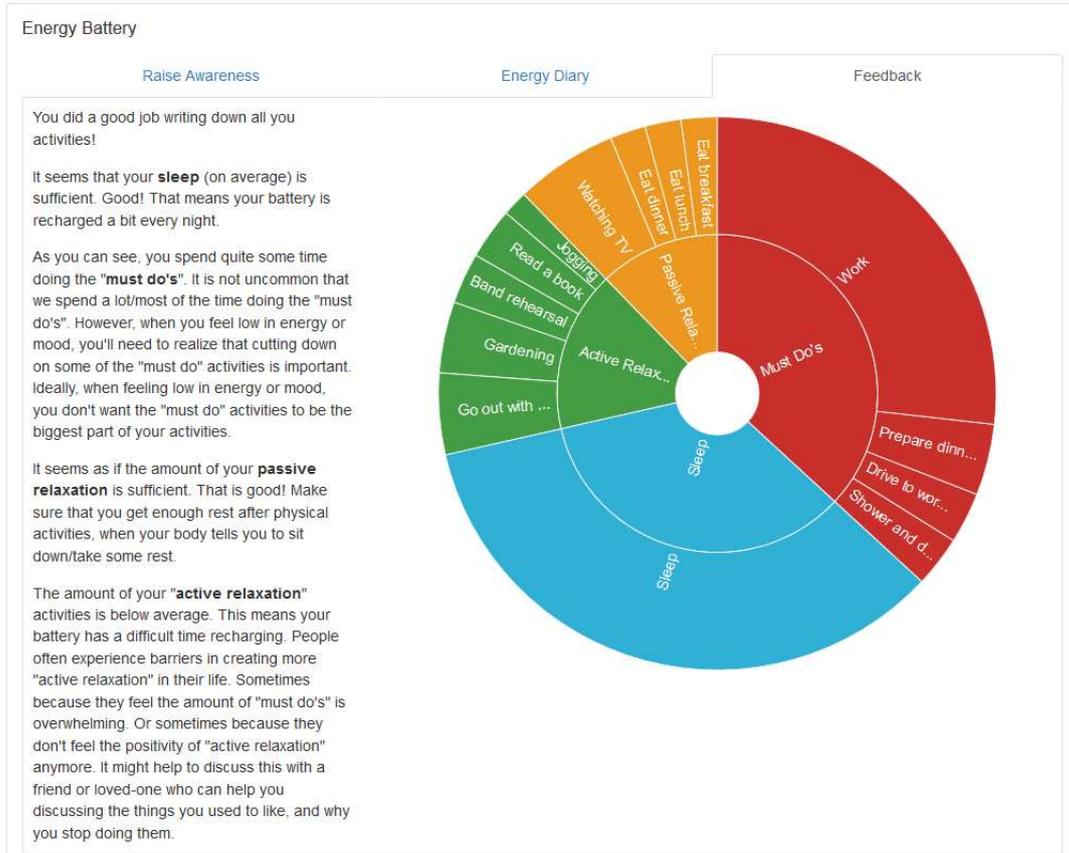

Figure 19: Energy Battery – Feedback

5.6. Relaxation Tips

The relaxation tips help to provide you with your own personal tips in stressful situations. You should revise and / or expand this list according to your preferences.

Figure 20: Relaxation Tips – list of tips

Click on "+Add" to add new relaxation tips. Click on an existing tip in the table to open a window (see Figure 21) where you can edit or delete the respective tip. The fields required for the entry are marked with "*", add or edit must be confirmed with "Save".

Figure 21 Relaxation Tips – add a personal tip

6. Journal

Your journals list all the values you have recorded. In detail the following items can be collected:

- Blood Glucose
- Blood Pressure
- Comment
- Exercise
- Meal
- Problem
- Sleep
- Stress
- Weight
- Well-Done Diary

By choosing a category (e.g. Blood Glucose, Exercise), the system lists all the stored entries of this particular journal category (see Figure 22 for Exercise). It is also possible to add a new journal entry by clicking on the "+Add" button. Any of the listed journal entries may also be edited/deleted by clicking on the corresponding row.

Figure 22: Journal - Exercise

Adding a new journal entry

Adding new journal entries is performed in a separate form that provides relevant input fields. Some of the input fields are optional, some mandatory. The latter are marked with a star "*" (see Figure 23). Whenever all mandatory fields are provided, it is possible to store the journal entry by pressing the "Save" button.

Figure 23: Journal Entry Form - Exercise

The following data types can occur during input:

- Date: You can enter the date manually in the format DD.MM.YYYY HH: mm (or English YYYY-MM-DD HH: mm) or use the widget that opens below the input window. By clicking on the clock or calendar icon you can switch between the selection of date and time (see Figure 24).

Figure 24: Inserting a date

- Number: You can specify the integer or decimal number (separated by a comma or period). The expected unit is indicated on the right (see Figure 25).

Figure 25: Inserting a number

- Text: You can enter a free text. By dragging the anchor at the bottom right edge, you can adjust the size of the input window (see Figure 26).

Figure 26: Inserting a text

- Selection: You can select one of the predefined options (see Figure 27).

Figure 27: Selecting from predefined options

- Multiple selections: You can select several items by ticking the checkboxes. The options can be listed for clarity in a separate input window (see Figure 28). In this case, the current selection is shown on the right, by clicking on "Add xyz", the second input window is opened and by clicking on "Delete" the entire list can be emptied (see Figure 29).

Figure 28: Multiple selection – select an option
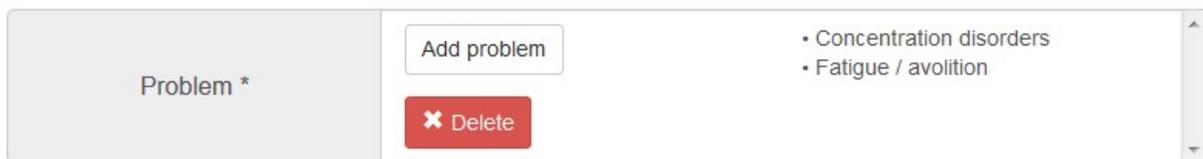
Figure 29: Multiple selection – two steps

7. Information ("?")

Clicking on the information symbol "?"provides further information. You are strongly encouraged to read this material carefully in order to gain knowledge about diabetes and the challenges when facing diabetes.

7.1. EMPOWER Information Material

When you choose the Info materials option by clicking on "POWER2DM Info Material", you will be redirected to the public POWER2DM information site[1] (see Figure 30). Here you may find answers to many questions ranging from what is diabetes to useful tips on how to manage diabetes in the day to day business.
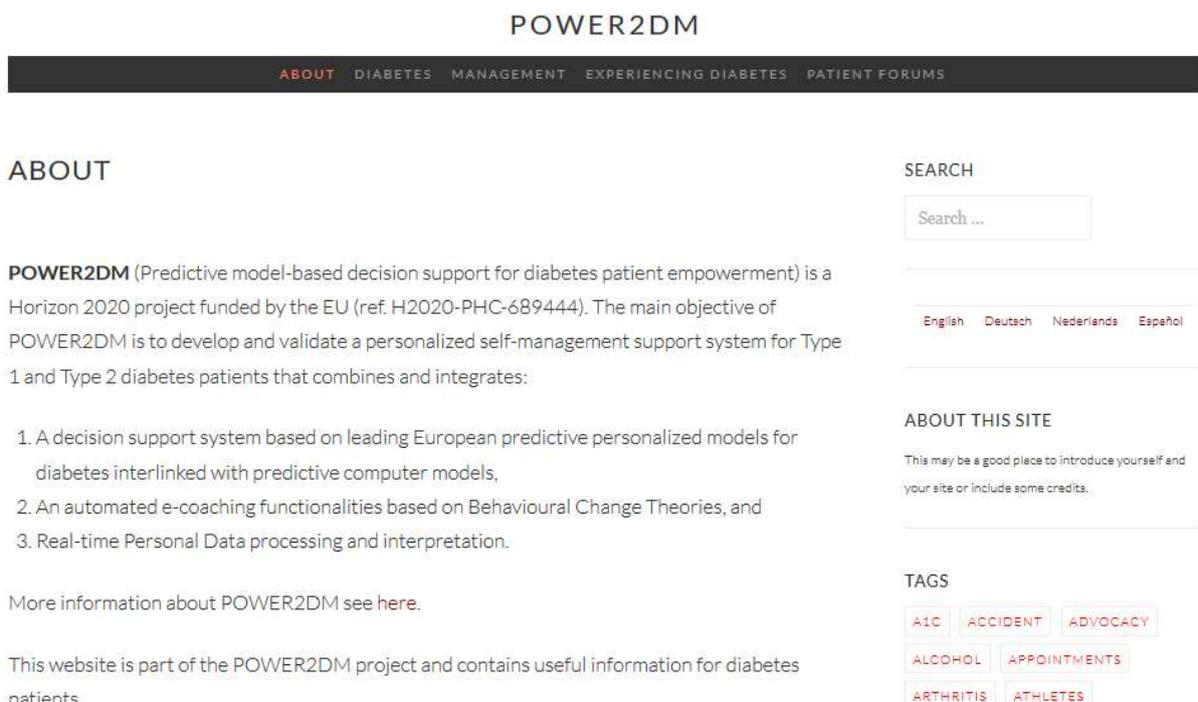
Figure 30: POWER2DM Information Material

The information material comprises the following categories
- **About** – the homepage of the information material. There is also a list of tags of the most popular tags that link to related articles
- **Diabetes** – general information about diabetes, treatments and measurements
- **Management** – information about nutrition and exercises
- **Experiencing Diabetes** articles about how to manage your emotions, about the daily life with diabetes, how to deal with signs of troubles, and what to do in case of being sick with diabetes
- **Patient Forums** – established public patient's forums.

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[1] hosted at https://p2dm.salzburgresearch.at/

7.2.   User Manual

On this page you will find the user manual you are reading. If your browser can open PDF files, then document will be displayed directly - otherwise you can download it by clicking on "Download".

8. User Options

8.1. Profile

The Profile (see Figure 31) is used display your personal information. It includes your username, your gender, your E-mail, your date of birth, your diabetes type, your height and whether you are smoking. Depending on your answers appropriate tips will be selected in the Review phase. The profile data is normally collected during your POWER2DM patient registration and cannot be edited here.

Profile	
Username	dg_patient
Gender	Male
E-mail	
Date of Birth	
Diabetes Type	Type 1 diabetes
Height	190
Are you smoking?	No

Figure 31: User Profile

8.2. Settings

In the Settings (see Figure 32), you can make various adjustments concerning the display of your POWER2DM web interface, for example, your language preference.

You can configure the following items:

- **Language** – possible languages are English, German, Dutch and Spanish
- **First day of the week** – you can insert the day of the week your calendar should start with
- **Dashboard elements** – you can indicate which elements should be presented at your dashboard
- **Tips** – you can choose whether to maximize or minimize the tips for the different menu items. In case you choose "Minimize" you can still toggle those tips by clicking on the "i" icon in the menu bar

- **Animations** – you can indicate if various interactive user interface elements (e.g. progress bars, charts) shall be animated or displayed without delay. Choosing "Off" can improve the performance on mobile devices

Changes must be confirmed by clicking on "Save".

Figure 32: User settings

8.3.   Logout

You can logout by selecting the submenu "Sign out" item.