

# Chelsea FC Performance Insights Dashboard

## Technical Documentation & User Guide

Created for CFC Performance Insights Vizathon

Simple | Illuminating | Actionable | Link: <https://cbas4.shinyapps.io/vizathonchelseaapp/>

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## Introduction

The Chelsea FC Performance Insights Dashboard is an interactive tool designed to provide elite football players and their coaches with comprehensive physical performance analytics. Following Chelsea's Performance Insights philosophy of being "Simple, Illuminating, and Actionable," this dashboard brings together critical performance data in an intuitive interface.

The dashboard focuses on three key performance modules:

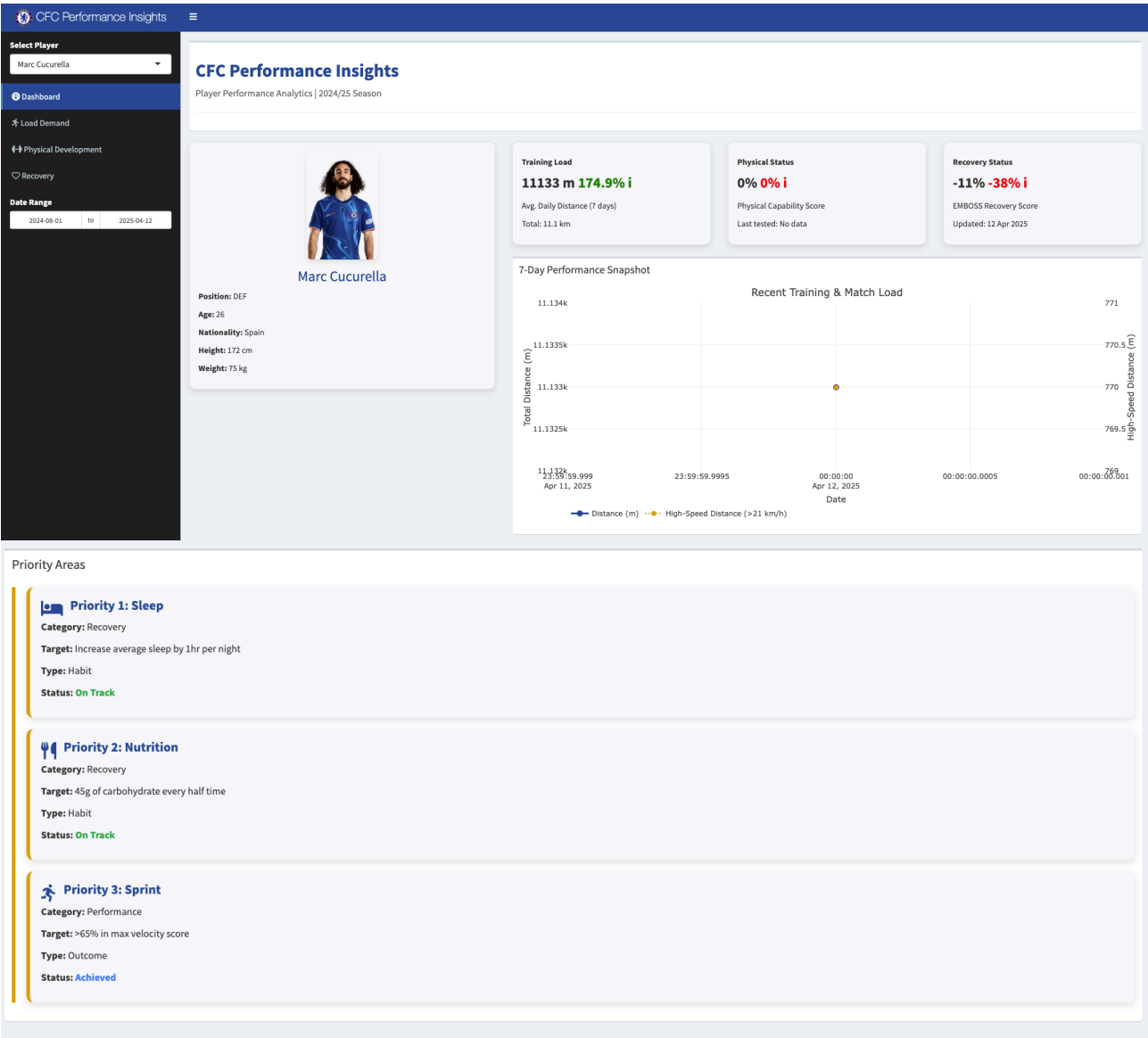
- **Load Demand:** GPS metrics and training/match workload
- **Physical Development:** Physical testing capabilities and movement qualities
- **Recovery Status:** Recovery metrics and wellness indicators

This tool helps coaches and performance staff make data-driven decisions to optimise player training, prevent injuries, and maximise performance.

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# Dashboard Overview

## Main Dashboard Interface



The main dashboard provides a comprehensive player profile with at-a-glance performance indicators across all key metrics.

### Key Components:

#### 1. Player Information Card

- Displays player photo, name, position, age, nationality, height, and weight
- Allows quick identification of the selected player

#### 2. Key Performance Indicators

- **Training Load:** Shows average daily distance covered with trend comparison to previous 7- day period

- **Physical Status:** Displays the player's overall physical capability score with trend indicators
- **Recovery Status:** Shows the EMBOSS recovery score with color-coded status indicators

### 3. 7-Day Performance Snapshot

- Line chart displaying recent training and match load
- Shows total distance and high-speed running distance
- Helps identify workload patterns throughout the week

### 4. Priority Areas

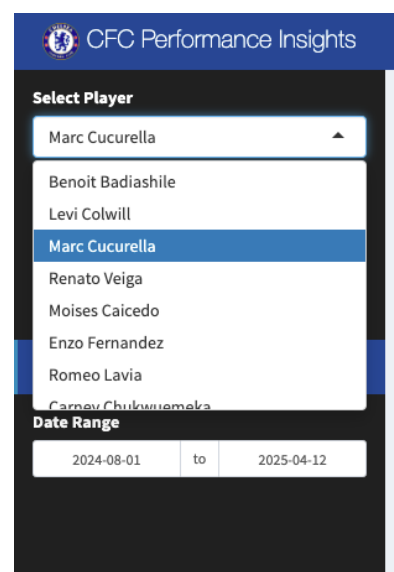
- Highlights personalised development priorities for the selected player
- Shows category, target, type (habit/outcome), and current status
- Each priority includes visual indicators of progress

### Navigation and Filtering

The sidebar allows users to:

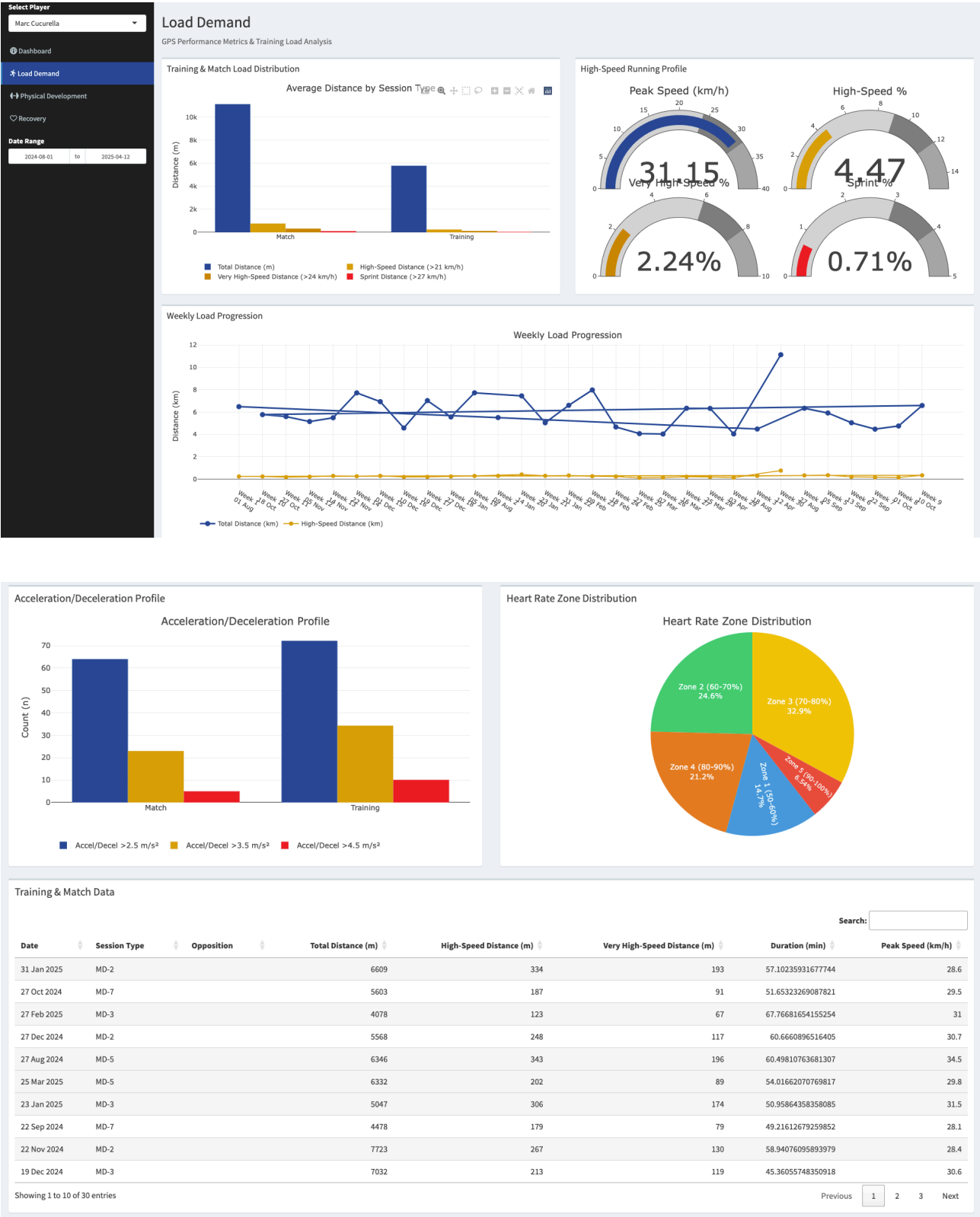
- Select any player from the Chelsea FC squad
- Choose specific date ranges for analysis
- Navigate between dashboard sections using the menu

All visualisations update dynamically based on these selections, allowing for personalised analysis for each player and time period.



# Load Demand Module

The Load Demand module captures GPS performance metrics including speed, distance, and acceleration to assess workload and physical output.



## Training & Match Load Distribution

This visualisation compares key metrics between training sessions and matches:

- **Total Distance:** Overall distance covered in meters
- **High-Speed Distance (>21 km/h):** Distance covered at high speed
- **Very High-Speed Distance (>24 km/h):** Distance covered at very high speed
- **Sprint Distance (>27 km/h):** Distance covered at sprint speed

The grouped bar chart allows coaches to assess whether training sessions adequately replicate match demands and helps identify players who may be under or over-training.

## High-Speed Running Profile

This section uses gauge charts to display:

- **Peak Speed (km/h):** The highest speed recorded during sessions
- **High-Speed %:** Percentage of total distance covered above 21km/h
- **Very High-Speed %:** Percentage of total distance covered above 24km/h
- **Sprint %:** Percentage of total distance covered above 27 km/h

These metrics help assess a player's speed capabilities and how frequently they utilise these speeds in training and matches.

## Weekly Load Progression

This line chart tracks:

- **Total Distance (km):** Weekly aggregated distance
- **High-Speed Distance (km):** Weekly aggregated high-speed running

The visualisation helps identify load patterns across weeks and ensures appropriate progression and periodisation throughout the season.

## Acceleration/Deceleration Profile

This chart displays:

- **Accelerations/Decelerations >2.5 m/s<sup>2</sup>:** Moderate intensity
- **Accelerations/Decelerations >3.5 m/s<sup>2</sup>:** High intensity
- **Accelerations/Decelerations >4.5 m/s<sup>2</sup>:** Very high intensity

These metrics are critical for assessing explosive movements that create significant muscular load and stress.

## Heart Rate Zone Distribution

This pie chart shows the distribution of time spent in different heart rate zones:

- **Zone 1 (50-60% Max HR):** Very light intensity
- **Zone 2 (60-70% Max HR):** Light intensity
- **Zone 3 (70-80% Max HR):** Moderate intensity
- **Zone 4 (80-90% Max HR):** Hard intensity
- **Zone 5 (90-100% Max HR):** Maximum intensity

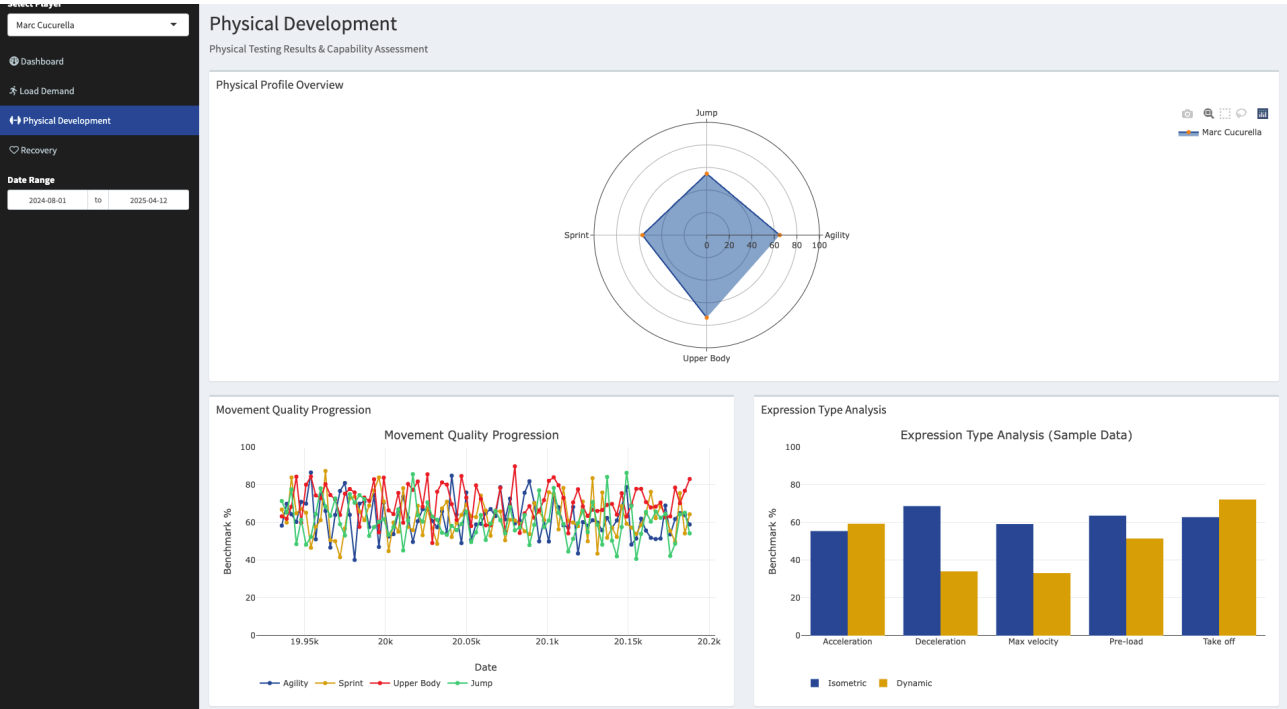
This visualisation helps assess the cardiovascular load on players and ensures training intensity matches desired physiological adaptations.

## Training & Match Data Table

This detailed table provides session-by-session data for all metrics, allowing deeper analysis of specific training sessions or matches.

## Physical Development Module

The Physical Development module tracks physical testing results across different movement types, qualities, and expressions of force.



Physical Testing Data				
				Search: <input type="text"/>
Test.Date	Movement	Quality	Expression	Benchmark..
10 Apr 2025	Agility	Pull	Isometric	78.8%
10 Apr 2025	Agility	Grapple	Isometric	63.2%
10 Apr 2025	Agility	Grapple	Dynamic	35%
10 Apr 2025	Sprint	Land	Dynamic	71.1%
10 Apr 2025	Sprint	Push	Isometric	30.5%
10 Apr 2025	Sprint	Push	Dynamic	94.7%
10 Apr 2025	Sprint	Max velocity	Isometric	61.5%
10 Apr 2025	Upper Body	Grapple	Isometric	68.7%
10 Apr 2025	Upper Body	Grapple	Dynamic	95%
10 Apr 2025	Upper Body	Max velocity	Isometric	90.5%
Showing 1 to 10 of 1,428 entries				Previous <span>1</span> 2 3 4 5 ... 143 Next

## Physical Profile Radar

This radar chart displays benchmark percentages across four key movement categories:

- **Agility:** Change of direction and agility ability
- **Sprint:** Maximum speed capabilities
- **Upper Body:** Upper body strength
- **Jump:** Jumping ability

The chart provides an immediate visual representation of a player's physical strengths and weaknesses compared to their own baseline.

## Movement Quality Progression

This line chart tracks physical development over time for each movement category:

- Shows benchmark percentage trends
- Helps identify improvements or declines in specific areas
- Validates effectiveness of training interventions

## Expression Type Analysis

This bar chart compares:

**Isometric Expression:** Force applied against a fixed surface with no joint movement

**Dynamic Expression:** Force applied through movement (e.g., jumps, hops)

This visualisation helps identify specific areas where a player might excel in one expression type but need development in the other.

## Physical Testing Data

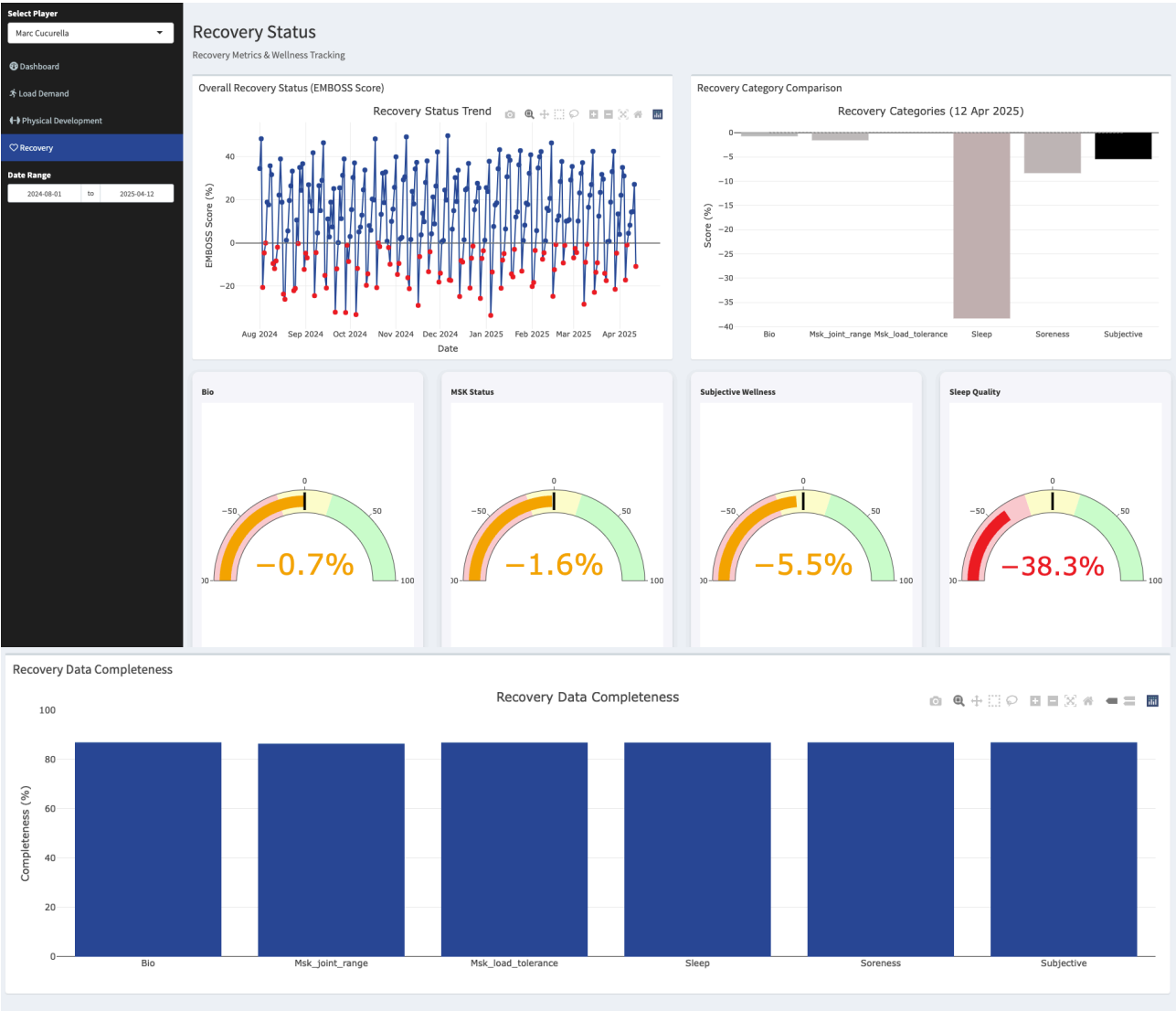
This detailed table shows:

- Test date
- Movement category
- Quality being tested
- Expression type
- Benchmark percentage

The comprehensive view allows for detailed analysis of all physical testing results.

## Recovery Status Module

The Recovery Status module provides insights into player recovery and wellness using various metrics and indicators.





## Overall Recovery Status

This line chart tracks the EMBOSS (Emboss Baseline Organic Surveillance System) recovery score over time:

- Positive scores indicate better-than-baseline recovery
- Negative scores indicate worse-than-baseline recovery
- Trend lines show recovery patterns over time

This visualisation helps identify recovery trends and potential warning signs before they become problematic.

## Recovery Category Comparison

This bar chart compares different recovery metrics:

- **Bio:** Blood biomarker analysis
- **MSK Joint Range:** Joint range of ankles, knees, and hips
- **MSK Load Tolerance:** Ability of thigh and hip muscles to produce and tolerate force
- **Subjective:** Perceived level of recovery
- **Soreness:** Self-reported muscle soreness
- **Sleep:** Perceived quality of sleep

The comparison helps identify specific areas that may be limiting overall recovery.

## Individual Category Gauges

Four gauge visualisations provide detailed status for key recovery areas:

- **Bio:** Inflammation markers
- **MSK Status:** Musculoskeletal health
- **Subjective Wellness:** Overall perceived wellness
- **Sleep Quality:** Sleep metrics

The colour-coded gauges provide immediate visual feedback on the status of each area.

## Recovery Data Completeness

This bar chart shows data collection compliance for each recovery category:

- Higher percentages indicate better data collection
- Helps identify areas where monitoring may be incomplete
- Encourages player compliance with recovery monitoring protocols

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## Technical Implementation

### Data Integration

The dashboard integrates multiple data sources:

- **GPS Data:** Training and match load metrics
- **Physical Capability Data:** Testing results for different movements and expressions
- **Recovery Status Data:** Wellness and recovery indicators
- **Player Information:** Biographical and physical data

### Interactive Features

The tool provides rich interactivity:

**Player Selection:** Filter all visualizations for individual players

**Date Range Selection:** Analyze data within specific time periods

**Interactive Plots:** Hover for details, zoom, and download options

**Responsive Design:** Adapts to different screen sizes and devices

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### Future Enhancements

Potential future enhancements to the dashboard include:

**1. Team Comparison:** Add benchmarking against team averages or position-specific norms

**2. Injury Risk Assessment:** Integrate predictive models based on load and recovery patterns

**3. Match Performance Integration:** Incorporate technical and tactical match data

**4. Medical Records Integration:** Link with injury and treatment history

**5. Mobile App Version:** Develop a mobile-optimised version for players to access on their devices

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*This dashboard was created for the Chelsea FC Performance Insights Vizathon, with a focus on providing a simple, illuminating, and actionable tool for elite football performance monitoring.*

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