phyling.fr

# Strength & Conditioning range

by phyling

Phyling is a specialist in on-board measurement and analysis for sport, research and industry.

# Summary

# Our range

Intended for the highest level.

Discover ou range of products intended for stregnth and conditioning coaches, physical therapists, sport scientists and high-level athletes.

**PhyLift**

**PhyPlates**

**PhyNord**

# PhyPlates

Phyling portable force platforms analyze vertical reaction forces with extreme ease of use.

They can be used to quantify the explosive strength capacities of the lower limbs or even L/R asymmetries during a CMJ or a Squat Jump.

Take advantage of our automatic data analyses or get the raw data for an even more personalized analysis.

# Features

- Acquisition frequency: up to 1000 Hz
- Weight: 5 kg
- Wi-Fi connectivity
- Protective frame available
- Format : 40 x 30 cm
- Margin of error: 0.1 %
- Real-time visualization

PhyPlates

# Characteristics

All indicators provided are calculated based on the latest scientific recommendations on the subject.

You can perform these exercises alone or with a coach, detection and analysis of these movements being done completely automatically.

## CMJ / SJ

Assess your athletes' explosive strength and lower limb power abilities.

## Balance

Get the CoP displacement and compare its evolution under different conditions.

## DJ

Improve your athletes' plyometric abilities.

## Iso.

Assess the shift in the center of pressure during isometric movements such as squats.

And discover other exercises on the Phyling app

# Exclusive features

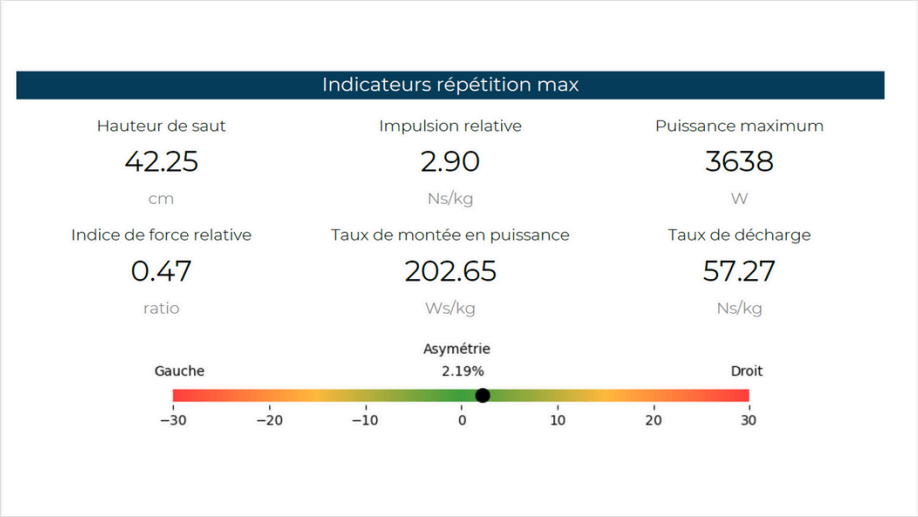
- CMJ Jump Height is not computed using flight time (which can cause errors according to the landing technique) but using the double integration of COM method, the most reliable computation method (Xiu et al., 2023).
- We implemented a Squat Jump validation feature to make sure subjects do not use any counter-movement action to jump higher.
- PhyPlates are capable of calulating the true drop height during Drop Jump exercises using the forces recorded during the landing (McMahon et al., 2021).

# How does it work?

PhyPlates platforms have been designed to be simple to use.

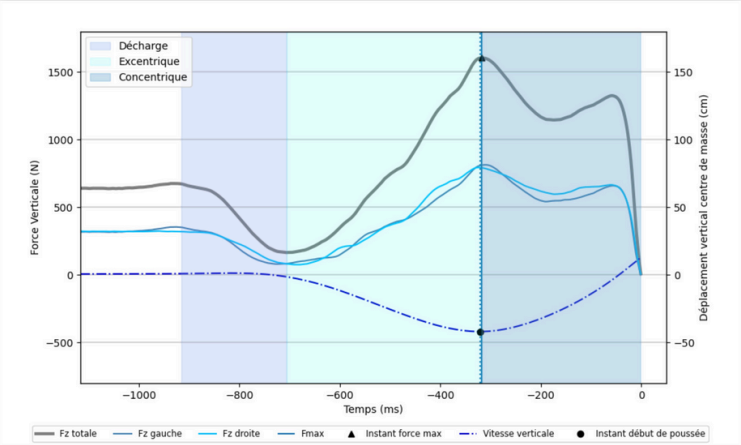
- Select the exercise you want to do and follow the instructions in the Phyling app.

- At the end of your exercise, an automatically generated report allows you to analyze the key performance indicators selected for you:

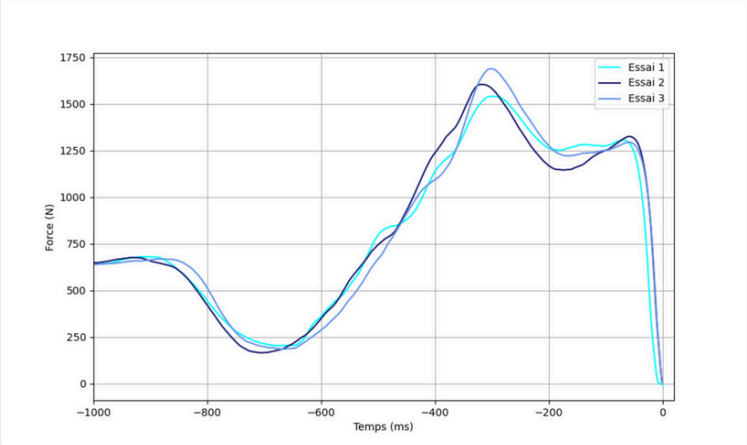


## PhyPlates

Phyling analysis allows you to study the different phases of the movement, in order to focus on what you really want to improve, here on a CMJ for example:




Track your athletes' progress over time and assess the effectiveness of a training program or your athletes' neuromuscular fatigue rate:




# PhyLift

The PhyLift allows you to analyze the speed and power developed during each of your movements.

Simply clip it to your bar to get immediate visual feedback on the speed of your movement and work in your target speed zone.

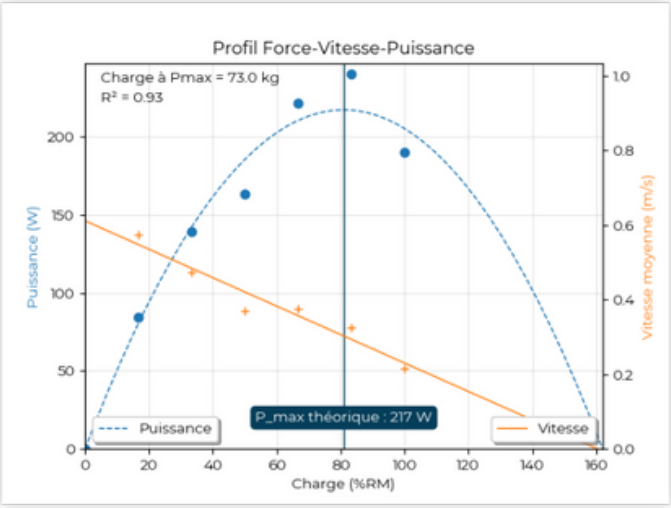
Compared to other measuring tools on the market, the PhyLift also allows you to calculate your Force-Speed-Power profile automatically in just a few minutes. It also provides you with the bar movement profile during the entire movement, in addition to average speed data.

# How does it work?

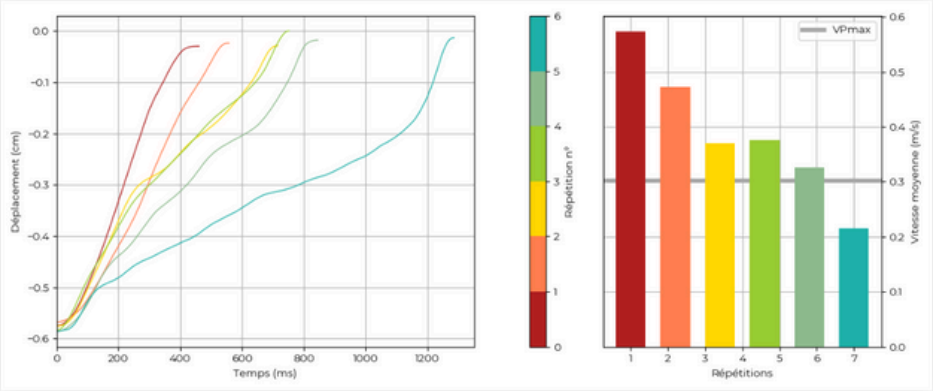
Thanks to PhyLift, determine your training methods that will allow you to achieve your goals.

- Select the exercise you want to perform (bench press, squat, bench press, etc.) and follow the instructions in the Phyling app.

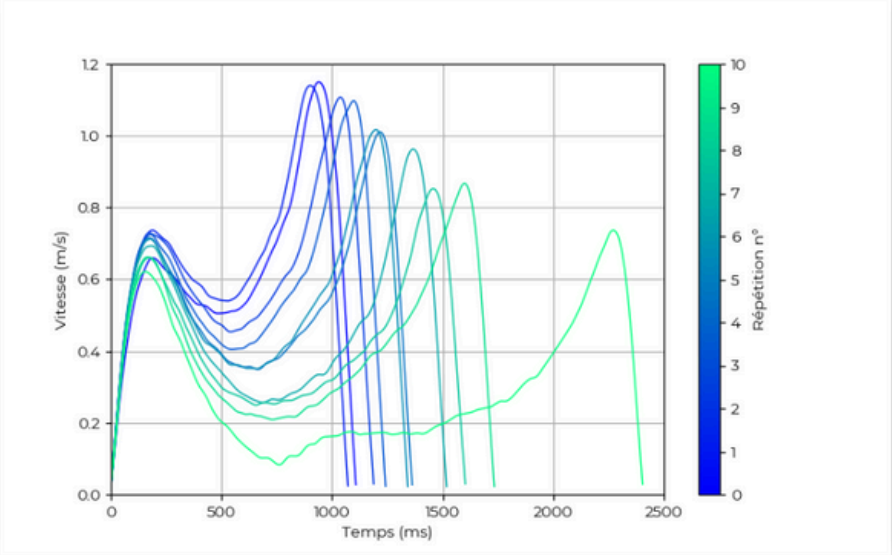
- Obtain your Force-Speed-Power profile automatically by performing multiple repetitions at different loads:



Then determine the percentage of speed (relative to your maximum power) at which you wish to work and monitor your session:




Study your speed profile according to the conditions (load, fatigue, exercise, etc.) and improve your technique, for example on a barbell squat:



# The PhyNord

The PhyNord allows you to assess the eccentric muscular capacities of the hamstrings. This simple exercise is scientifically recognized for its ability to prevent injuries in many applications.

With the PhyNord, follow the evolution of your muscular capacities objectively. After each test, automatically obtain the maximum and average values developed as well as a visualization of the force curve.

The PhyNord adapts easily to all body shapes in order to obtain the most precise measurement possible.


# Features

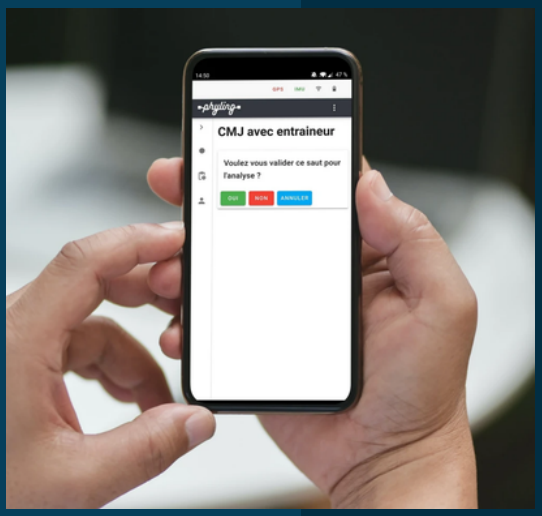
- Acquisition frequency: up to 200 Hz
- Adjustable in height and depth
- Wi-Fi connectivity
- Margin of error: 0.1 %
- Real-time visualization


# The Maxi-Hub

The Maxi-Hub is our latest generation acquisition hub that allows you to centralize all your data. Use the Phyling application with the Maxi-Hub and analyze data from PhyPlates, Phylift or PhyNord with a single hub.

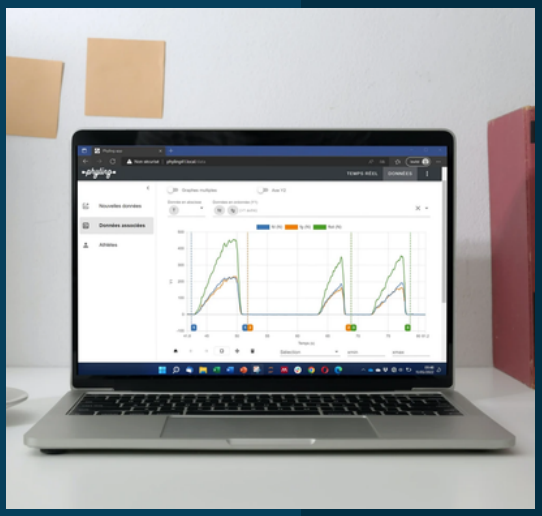
No matter what your exercise, the Phyling app supports you before, during and after the session with disconcerting ease.

# Phyling app




## Pre-recorded scenario.

Start the exercise you want to do, alone or with a trainer, then follow the instructions displayed on the screen (available on smartphone, tablet and computer, no software installation required).



## Real-time visualization.

Right after the exercise, the Phyling app analyzes your exercise and shows you a summary of what you have just done: maximum force, jump height, analyzed curves, etc. Everything is of course customizable.

## Automatic reports.

You also have the option, after each exercise, to generate an automatic report that contains all the details necessary for an in-depth analysis of your athletes' performance.

# Our vision

Why you can trust Phyling.

**Custom made**

Each of our tools is unique and designed according to your requests.

**Subscription-free**

The Phyling application is fully included in the Maxi-Hub.

**Raw data**

At Phyling, you always have the possibility to obtain the raw data during each exercise.

**Personalized follow-up**

At Phyling, we support you from the beginning to the end of your project.

**Made in France**

All our sensors are designed and manufactured in France in Palaiseau.

**Tested to the highest level**

Our sensors are used by athletes from more than 15 sports federations

# Resources

- Validity of a linear position transducer (PhyLift) to measure power and barbell velocity during squats (2024)
- Effects of intermittent running session on eccentric hamstrings strength: case study (2024)
- Validation of a portable force platform (PhyPlate) for biomechanical jump analysis

Find these scientific articles and all the information concerning the physical preparation range on our website phyling.fr and in the Resources section

# Report examples

- **CMJ**

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## Résultats test CMJ

Athlète

Date
21/08/2024 15:44

Exercice
CMJ

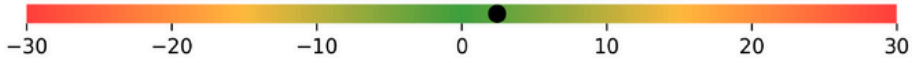
Commentaire

### Indicateurs pour l'essai maximal

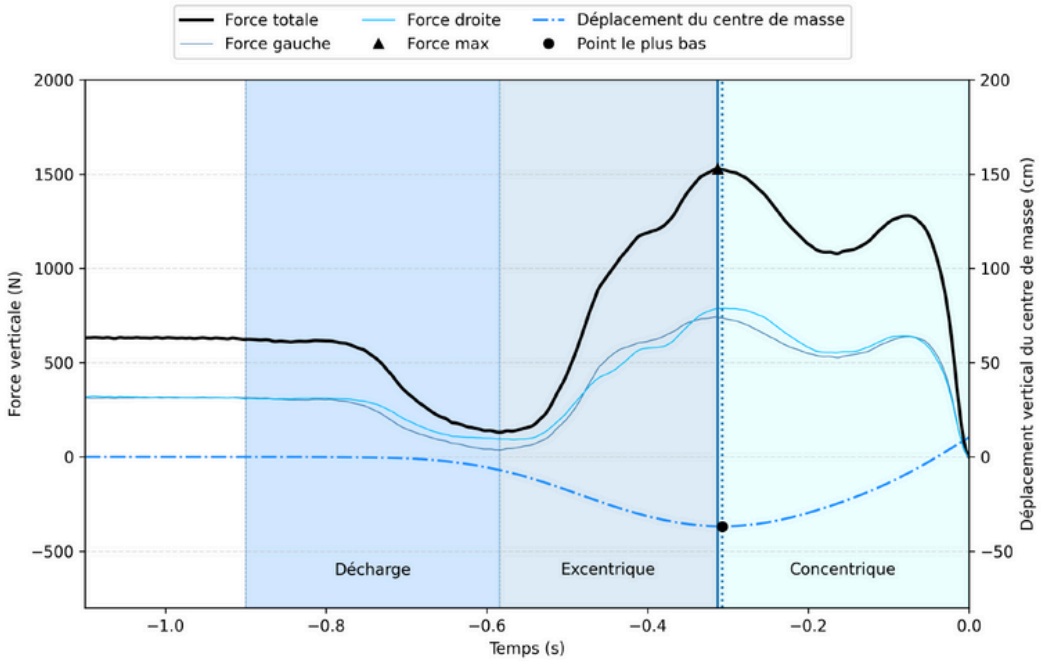
| Hauteur de saut | Puissance max | Impulsion relative |
|---|---|---|
| 31.76 cm | 2959 W | 2.49 N.s/kg |
| **RSI** | **Taux de montée en puissance** | **RFD exc.** |
| 0.35 | 186 W/s/kg | 79 N/s/kg |

Asymétrie

Gauche 2.4% Droite




### Forces et déplacement vertical pour l'essai maximal

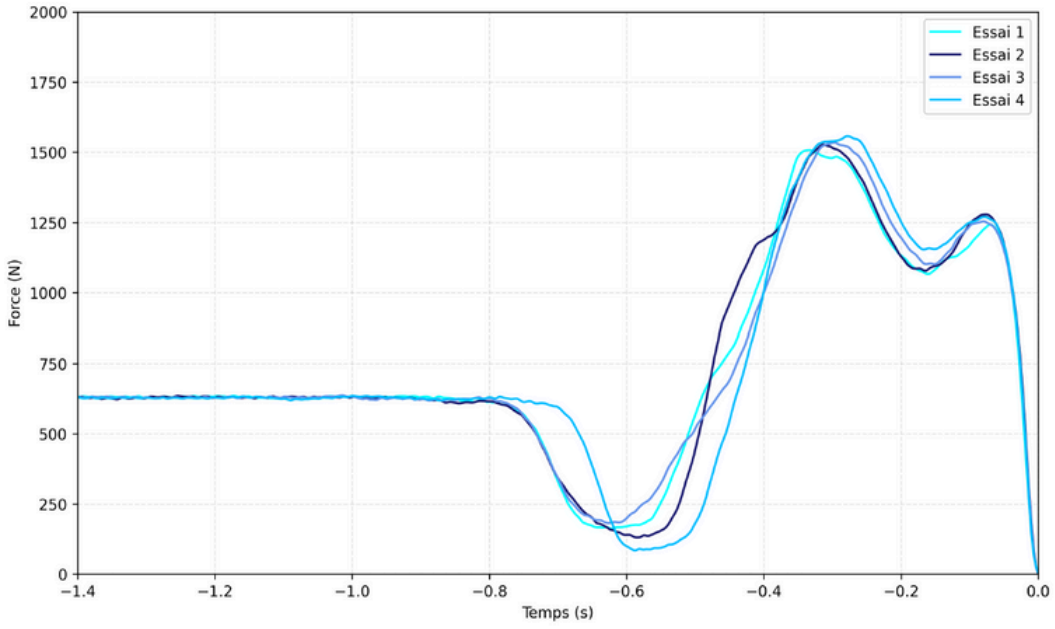


- **CMJ (part. 2)**

Indicateurs pour chaque essai

| Essai | Hauteur de saut (cm) | Asymétrie (%) | Puissance max (W) | Impulsion relative (N.s/kg) | RSI | Taux de montée en puissance (W/s/kg) | RFD exc. (N/s/kg) |
|---|---|---|---|---|---|---|---|
| Moyenne | 30.68 | 2.54 | 2897 | 2.44 | 0.36 | 188 | 71 |
| Std | 1.06 | 1.90 | 73 | 0.06 | 0.02 | 12 | 7 |
| 1.0 | 29.26 | 0.85 | 2797 | 2.36 | 0.34 | 173 | 65 |
| 2.0 | 31.76 | 2.45 | 2959 | 2.49 | 0.35 | 186 | 79 |
| 3.0 | 31.12 | 1.64 | 2887 | 2.46 | 0.35 | 190 | 64 |
| 4.0 | 30.59 | 5.22 | 2943 | 2.46 | 0.39 | 203 | 76 |

Force totale pour chaque essai



- **Drop Jump**

## Résultats test Drop Jump

Athlète

Date
21/08/2024 16:03

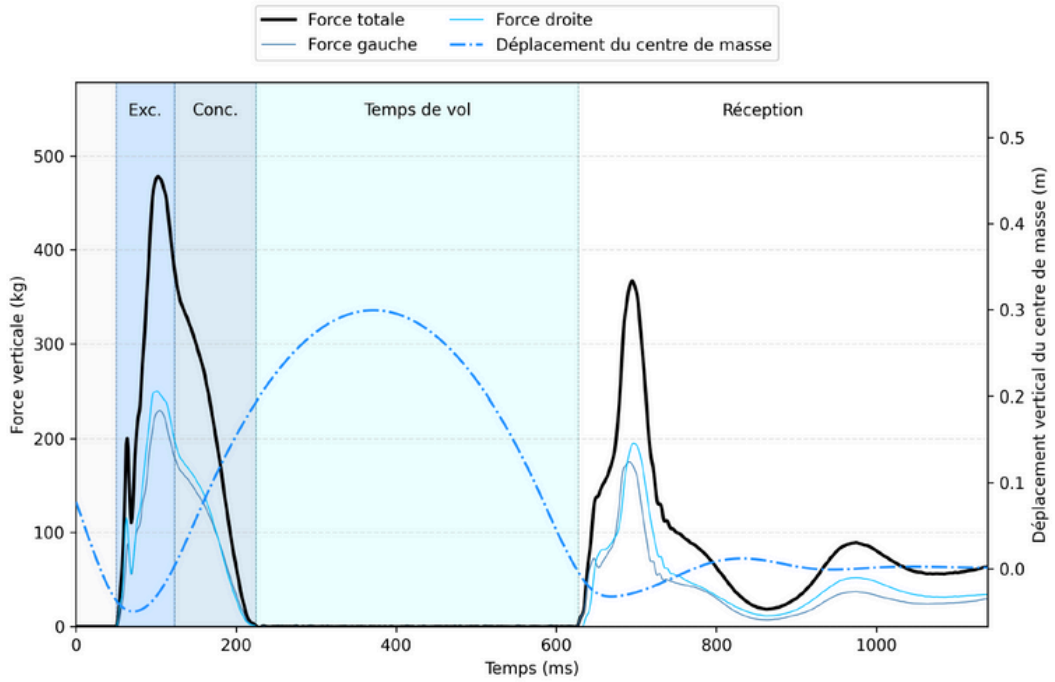
Exercice
Drop Jump

Commentaire

### Indicateurs pour l'essai maximal

| Hauteur de chute réelle | Hauteur de rebond | RSI |
|---|---|---|
| 31.63 cm | 22.61 cm | 126.30 |
| **RFD 2** | **Durée du rebond** | **Force max** |
| 125 BW/s | 179 ms | 439.61 kg |

### Forces et déplacement vertical pour l'essai maximal

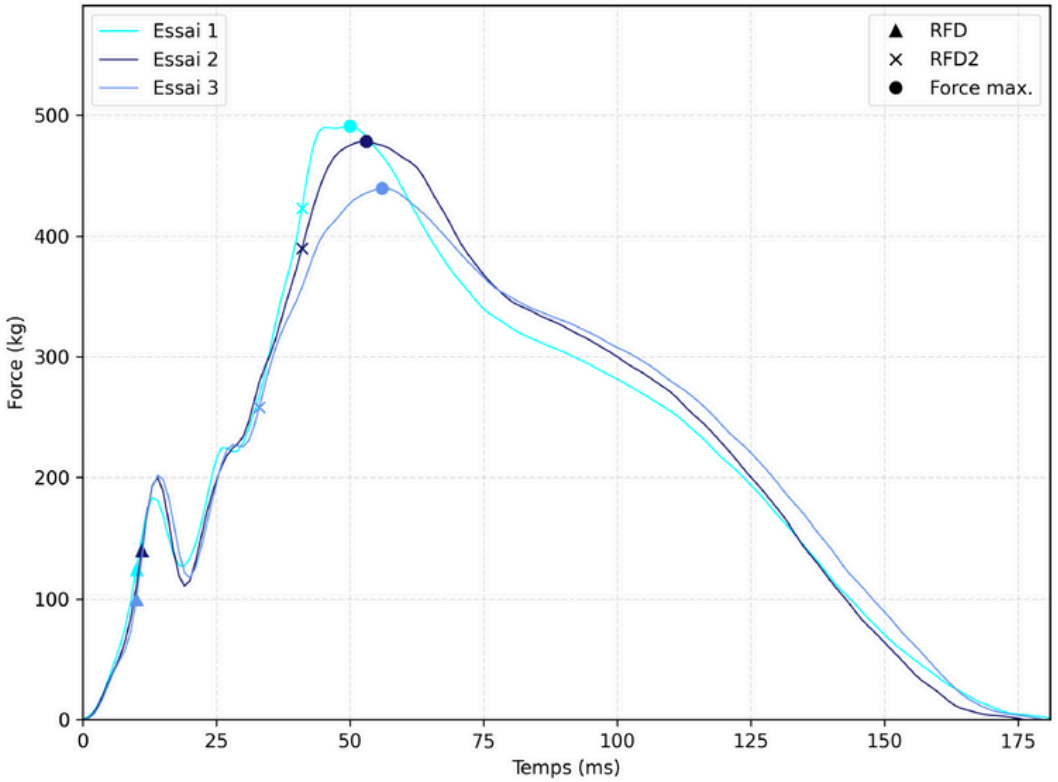


- **Drop Jump (part. 2)**

| Indicateurs pour chaque essai | | | | | | | |
|---|---|---|---|---|---|---|---|
| Saut n° | Hauteur de chute réelle (cm) | Hauteur de rebond (cm) | RSI | RFD 1 (BW/s) | RFD 2 (BW/s) | Durée du rebond (ms) | Force max (kg) |
| Moyenne | 35.02 | 19.17 | 107.57 | 226 | 141 | 178 | 469.64 |
| Std | 2.96 | 3.47 | 19.95 | 3 | 16 | 3 | 26.77 |
| 1.0 | 37.06 | 15.67 | 86.60 | 223 | 156 | 181 | 490.99 |
| 2.0 | 36.39 | 19.22 | 109.81 | 227 | 143 | 175 | 478.30 |
| 3.0 | 31.63 | 22.61 | 126.30 | 229 | 125 | 179 | 439.61 |

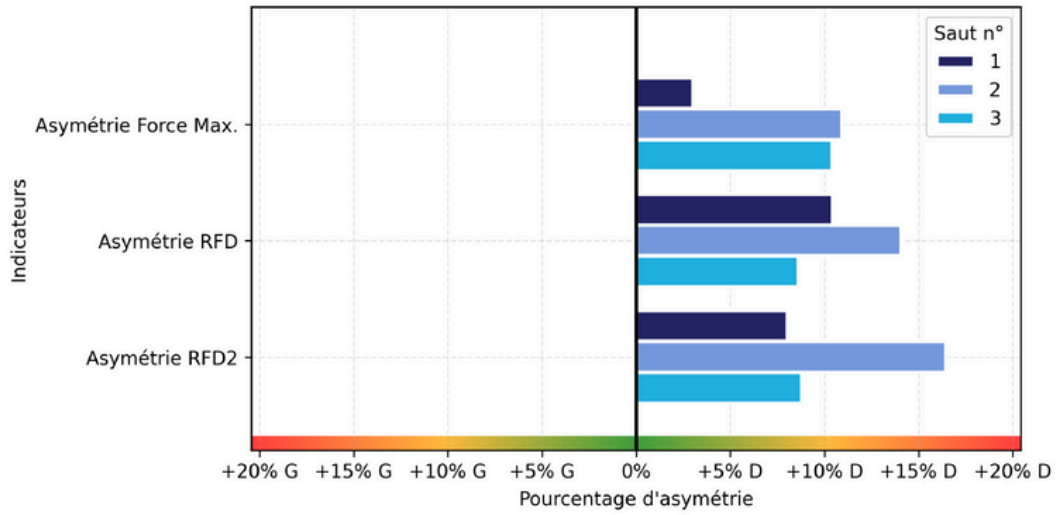
| Saut n° | Saut validé | Durée phase amorti (ms) | Durée phase propulsion (ms) | Rapport amorti / propulsion (%) | Dist. amorti (cm) | Dist. prop. (cm) |
|---|---|---|---|---|---|---|
| 1.0 | Oui | 74 | 107 | 41%/59% | -12.7 | 15.9 |
| 2.0 | Oui | 73 | 102 | 42%/58% | -12.8 | 12.8 |
| 3.0 | Oui | 73 | 106 | 41%/59% | -11.9 | 11.9 |

Force totale pour chaque essai



- **Drop Jump (part. 3)**

Asymétrie des différents indicateurs




Données d'asymétrie par saut

| Saut n° | Asymétrie Force max | Asymétrie RFD1 | Asymétrie RFD2 |
|---|---|---|---|
| 1.0 | +14% D | +8% D | +25% D |
| 2.0 | +8% D | +26% D | +16% D |
| 3.0 | +10% D | +9% D | +9% D |

- **PhyLift (part. 1)**

# Rapport Phylift - Squat

Athlète
Demo 2 Athlete

Date
26/05/2024 22:08

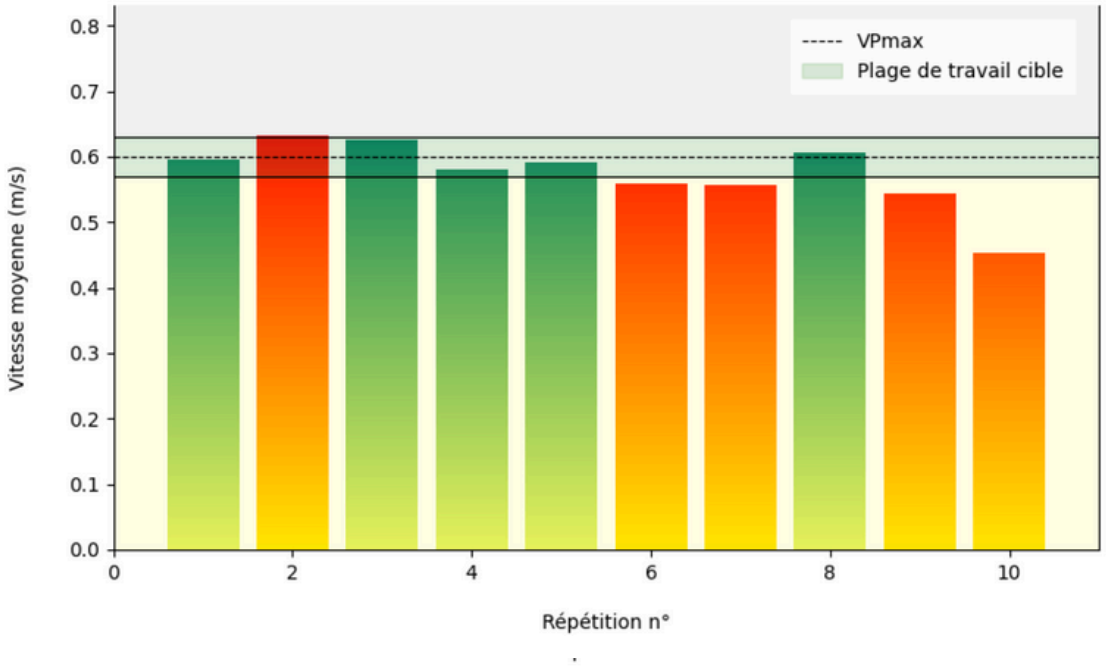
Exercice

Commentaire

## Résumé

| Nombre de répétition | Plage de travail cible | Réussite |
|---|---|---|
| 10 | 95-105% | 5/10 |

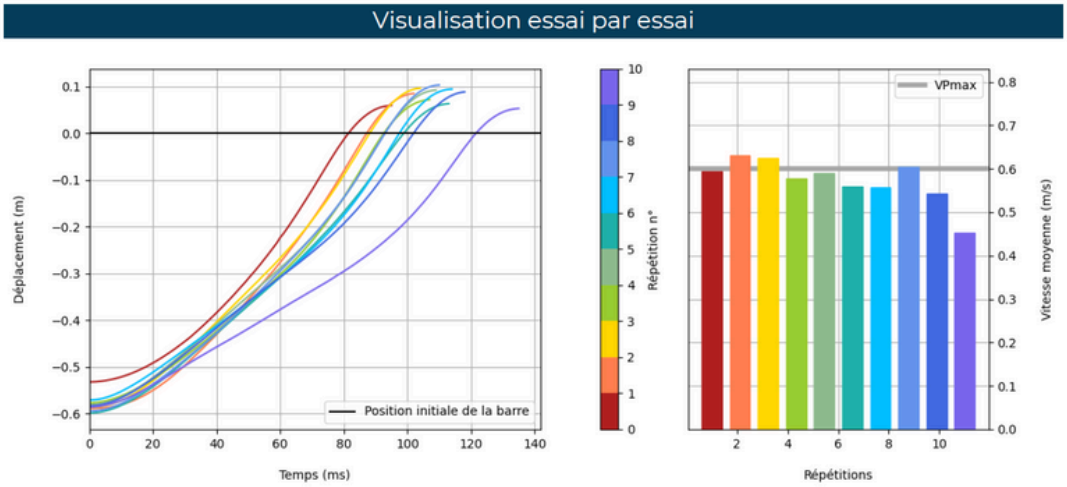
## Vitesse de Déplacement en fonction de la plage de travail cible




## Indicateurs pour chaque essai

| Essai | Vitesse Moyenne (m/s) | Vitesse Max (m/s) | Distance (m) | Point Bas (m) | Point Haut (m) |
|---|---|---|---|---|---|
| 1 | 0.59 | 1.06 | 0.59 | -0.53 | 0.06 |
| 2 | 0.63 | 1.07 | 0.67 | -0.59 | 0.09 |
| 3 | 0.63 | 1.04 | 0.68 | -0.59 | 0.10 |
| 4 | 0.58 | 1.06 | 0.65 | -0.58 | 0.07 |
| 5 | 0.59 | 1.04 | 0.67 | -0.58 | 0.09 |
| 6 | 0.56 | 0.89 | 0.66 | -0.60 | 0.06 |
| 7 | 0.56 | 1.03 | 0.67 | -0.57 | 0.09 |
| 8 | 0.61 | 1.04 | 0.70 | -0.59 | 0.10 |
| 9 | 0.54 | 0.93 | 0.67 | -0.58 | 0.09 |
| 10 | 0.45 | 0.89 | 0.64 | -0.59 | 0.05 |

- **PhyLift (part. 2)**




Contact us at contact@phyling.fr
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**Website**

www.phyling.fr

**E-mail**

contact@phyling.fr

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