



UNION INTERNATIONALE
DE PENTATHLON MODERNE

INTRODUCTION TO COACHING OBSTACLE

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Foreword

At the time of publication of this Introduction to Coaching Obstacle, much has been done to facilitate the integration of Obstacle into Modern Pentathlon, and much remains to be done.

The publication comes in the wake of an historic first season of incorporation, where a new Modern Pentathlon (Fencing / Obstacle / Swimming / Laser Run) was introduced at the UIPM World Championships for Under 17, Under 19 and Junior (Under 22) athletes. In 2024 we have the exciting advent of the UIPM U15 World Championships in Guatemala, which will comprise Obstacle, Swimming and Laser Run.

Many countries, many coaches and many athletes are already advanced in having embraced Obstacle as part of their training and competition routine. But UIPM is committed to inclusion in its bid to develop Modern Pentathlon as a truly global sport, where any youth from any country can aspire to become an Olympic pentathlete. This publication is part of our mission to turn dreams into reality.

It follows the publication in the 2022/23 off season of [UIPM Obstacle Training Tips](#), adding substance to this provisional resource and enabling coaches to create and implement more sophisticated programmes across national athlete networks. Again, the resource is designed as a convenient online tool with a mixture of written, photographic and video content.

The approach is simple and methodological with consideration of the full context of training for not just one but five Modern Pentathlon disciplines, and of course it builds on a huge body of work already constructed by members of our Coaches Committee and wider coaching community over the years.

You will see that much of the narrative is focused on the youth athlete, but athletes of all ages can readily adopt this guidance as you work together with your coach on taking your Obstacle skills to the next level. After all, the full integration of Obstacle at all levels of Modern Pentathlon is less than a year away. We thank the author, Laurent Puigsegur, and all UIPM team members who have been involved in bringing this important resource to life!

CHRISTIAN ROUDAUT
CHAIR, UIPM COACHES COMMITTEE
DECEMBER 2023



Preface

The recent integration of Obstacle as a new discipline in Modern Pentathlon has introduced new variables in both training and competition approaches. It is in these innovations that we will try to bring light so that every athlete or coach can rely on a concise analysis to establish the foundations for their training sessions together with the other four Pentathlon disciplines.

In between Ninja and Obstacle Course Racing style, the UIPM Obstacle discipline came into play in the 2023 season, bringing with it a set of new training and competition parameters.

We present in this coaching manual a pragmatic reflection on the physical and technical aspects that lead directly to the field, taking into account that in 2024, Under 15 athletes will have the possibility to compete in a UIPM World Championship with Obstacle. We tried to provide a concrete knowledge base for concise answers to as many questions as possible before stepping onto the starting platform of the new discipline.

LAURENT PUIGSEGUR

About the author

Laurent Puigsegur is a physical preparation coach and educator in sports physiology, anatomy and biomechanics for future professional sports coaches.

With a focus on performance, he has developed genuine expertise in Obstacle Course Racing. In 2021, he authored the book "Obstacle Course Racing, the Ultimate Guide to Spartan Race Preparation." He shares his knowledge and trains athletes of all levels, both in France and abroad.

Since the inclusion of Obstacle as the new Pentathlon discipline, he has been working with the French Modern Pentathlon Federation.

Theoretical aspects

Pentathlon obstacle course

Obstacle Discipline requires a variety of obstacles to be cleared, involving both upper and lower limbs in pursuit of optimum performance. Let's take a closer look at these specific features.

When faced with a UIPM Obstacle course for the first time, the predominant feeling is that this sequence will represent a real physical challenge for all participants. But it's worth taking a closer look at the technical and practical specifications, as well as the physical implications of this sequence of obstacles.

General

The UIPM Obstacle course is a sprint of 60m to 70m during which the athlete must clear eight obstacles, aiming for the best possible time performance. Regardless of the age group within the current scope of participation (U15 to Junior), the course is always composed of eight obstacles, distributed as follows:

Four crossing obstacles

- Steps + Big wheel¹ (The two are inseparable)
- Over-Under-Through
 - 1.5m Wall
 - 1.5m Wall + Under
 - 1.5m Wall + Under + Through
- Finish Wall

Three suspension obstacles

- Rings (U15-U17-U19) and Tilting Ladders (Junior)
- Wheels
- Monkey Bars (U15-U17-U19) and three options for Junior (organiser's choice):
 - Swinging Globes
 - Rings
 - Monkey Bars

One balance obstacle

- Balance Beam (Junior) and three options for U15-U17-U19:
 - Balance Beam
 - Giant Steps
 - Lisbon Steps



¹ Although the Big Wheel is an obstacle that can be overcome in suspension, we consider it to be more of a crossing obstacle in the sense that it doesn't require you to move forward using your arms alone.

Competition principles

The following principles set the tone for the discipline and guide athletes towards choosing a strategy to implement as part of an overall pursuit of performance, over five disciplines.

- Standardised distance.
- Standardised obstacles.
- Head-to-head races.
- If there is a fail in one obstacle, the athlete must return to the start of the obstacle to make another attempt.
- Elimination results from two failures on the same obstacle.
- The discipline follows at least one event (Fencing or Fencing + Swimming) and precedes at least one more (Laser Run or Swimming + Laser Run).
- Each second is worth two Modern Pentathlon points (a time of 40sec currently earns 300 points, with one point added or deducted for each 0.5sec faster or slower). Elimination means zero points on this discipline, which is costly in terms of the overall Modern Pentathlon performance (five disciplines).

These principles, particularly the last three, mean that every athlete must always bear in mind the question of the benefit/risk ratio:

What risk is reasonable to take in exchange for a faster time when there is the ever-present risk of being wiped out?

This dilemma between the time performance to be achieved and the possibility of elimination will come into play in two essential components of the UIPM Obstacle course: crossing speed and transition speed (between obstacles).

Crossing speed

Where the UIPM Obstacle course is 70m in length, 40m (57%) corresponds to the length of the obstacles themselves. Whether these are lower-limb obstacles (Steps, Balance Beam, Finish Wall), upper-limb obstacles (Big Wheel, Rings, Monkey Bars, etc), or upper-limb/lower-limb coordination obstacles (Over/Under/Through), the more speed the athlete can achieve, the better their time performance will be.

The coach's mission is therefore to optimise the time spent on the obstacle, while reducing the risk of failure, by finding the technique that best suits the athlete (size, stature, strength, agility).

However, sometimes the temptation is to go faster, and substantially increase the risk. This solution will never be the best in terms of the famous benefit/risk ratio. As a reminder: a failure on an obstacle, according to the rules, represents a loss of time of, at least, 10 seconds (the time it takes to reach the beginning of the obstacle and restart it).

At the same time, if 40m of the course is dedicated to obstacles, the other 30m (43%) consists of transition zones or running zones where the athlete will need to accelerate, which is where the second optimisation parameter comes into play.



Transition speed

The idea behind all sprinting is the pursuit of speed and, in particular, the greatest possible speed. In cyclic sports (swimming, cycling, running, rowing, etc), you must repeat the same movements over a given distance. While the UIPM Obstacle course is a sprint, it's also a sequence of overcoming phases, suspension phases where the athlete can direct his locomotion on the upper limbs, for example, and acceleration phases that follow the landing supports.

In running, a 70m sprint represents, for the best sprinters, 28 to 35 strides during which the aim is to create, or maintain, a very high speed. On the UIPM Obstacle course, there are very few strict running strides in the transition between obstacles (15 to 20 in total). Other supports are either impulses (at the start of an obstacle), receptions (at the end of an obstacle) or, in the middle of the course, balancing steps on the beam.

From this succession of impulses-crossings-receptions-transitions emerges a new essential optimisation parameter: speed in the inter-obstacle zone. In this dynamic, once you have mastered the crossing basics, it is needed to focus your pursuit of performance on opportunities to maintain as much of the speed achieved from the starting platform as possible. Completing the Obstacle course must not be a succession of quasi-static impulses, followed by a crossing, followed by a stationary landing, after which progress is resumed towards the new obstacle.

We therefore conjecture that:

In all training approaches, it is essential to consider the Obstacle course as a chained sprint, where each part is interdependent on the previous one and conditions the one that follows directly.

Having an ultra-fast technique for overcoming an obstacle doesn't guarantee that it is relevant and effective for integrating into the overall course. Thus, the quality of a crossing is only of value if it is put into perspective with the previous obstacle (where I came from and how did I get from there?) and the next obstacle (how I am going to get out of the obstacle I am crossing, and how fast will I be able to continue?)

This permanent pursuit of speed, a determining factor in performance, will require some specific physical skills, as we will see in the sections related to the practical approach to training.

Physiological and physical skills

When it comes to preparing and training for Obstacle, it is essential to consider the physiological demands associated with the internal logic² of the activity, as well as the physical qualities that need to be developed to succeed in this event.

As we saw in the previous section, the UIPM Obstacle course represents an effort during which the athlete seeks to optimise their performance for maximum time efficiency while respecting the strict rules for crossing the eight obstacles.



² The internal logic of a sport or physical activity corresponds to the set of characteristics, constraints and conventions that define the way in which the practitioner engages in the goal of the activity. Simply, it is how high-level performance emerges from the specificities, rules, and conventions of the activity.

Sprint

- 1 The effort lasts approximately between 25 seconds for the fastest, and 90 seconds for the slowest.
- 2 This is a non-cyclic event: unlike running or swimming, the aim here is not to repeat closed-loop cycles of movement.
- 3 The focus is on time efficiency, with the best performance being the fastest time achieved.
- 4 Through a succession of crossings and suspensions, the Obstacle course takes on an alternative character in which two essential qualities stand out as determining factors of performance: agility and grip.
- 5 Muscular demands on both upper and lower limbs are highly plyometric³, particularly for the latter, with a succession of impulses/receptions throughout the course.

The Obstacle course is therefore similar to a linked sprint, with an essential notion of speed of execution, but also of the ability to “switch” extremely quickly between crossing, suspension and coordination of both upper and lower limbs.

As with all sprints where speed is the essence, the focus will be on neuro-muscular stimulation, which will directly involve:

- 1 The grip or strength of the finger flexors and, to a lesser extent, the pull chain.
- 2 Agility or motor coordination between upper limbs and lower limbs.
- 3 Speed, which can be either movement speed (at the basement of the Finish Wall) or execution speed (steps, support on platforms, Monkey Bars sequence...).
- 4 Explosive power: this is used both to create speed (start, Finish Wall) and for the jumps required for suspension entry.

For the coach, it is clear that preparation and training, from the earliest age, will focus on two essential physical qualities: agility and grip strength.

In addition to these two pillars of the Obstacle course, the notion of speed of execution and explosiveness are also closely linked to the athlete’s neuro-muscular qualities.



³ Component of force that is expressed when a contraction immediately follows (in a very short time) a muscle stretch. Through this mechanism, force is increased by a non-voluntary muscular reflex, the myotatic reflex.

Agility

Weineck (1986)⁴ defined this skill, also assimilated to motor coordination, as a quality which "... is determined by the processes of control and regulation of movement. It enables the athlete to master motor actions with precision and economy in situations that may be foreseen or unforeseen, and to learn sporting gestures more easily".

This definition refers to two distinct notions that need to be considered:

- 1 Closed motor skills, in which all movements are automated by prior knowledge of the action sequence.
- 2 Open motor skills, where the athlete discovers as they progress, with a high degree of uncertainty.

Even if, in its current configuration, the UIPM Obstacle course tends to be a succession of closed motor skills, we feel that training should focus on the development of open motor skills to enrich the athlete's movement repertoire.

Agility needs to be developed from childhood onwards, through the replication of complex motor learning situations. Complexity is an individual notion, and what may seem complicated and difficult for one person in terms of motor coordination is not necessarily complicated for another.

There are several options for training and developing agility, depending on the resources available to the coach. The training infrastructure available will determine the form of training, but **the basic principle is always the same: to multiply motor skill sequences over a short distance, within a framework of strict execution rules.**

In case there is a good Obstacle training infrastructure, the coach can take advantage of the facilities at his disposal to create a sequence of situations. Through increased obstacle difficulty or establishing simple goals/rules, the coach must encourage the athlete to find solutions to optimise both the fluidity and time performance of the course.

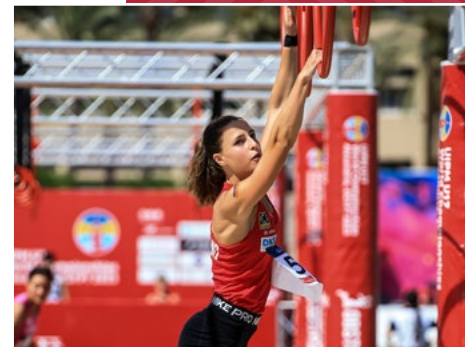
In this way, by reproducing motor skill sequences, the athlete will broaden their field of competence and build up an extensive range of motor skills. In the future, this will allow them to face more complex situations with the best chances of success.

In case there is a lack of Obstacle training infrastructure, the coach can simulate simple situations in a sequence that uses alternation. Complexity will be achieved by linking relatively simple motor situations in succession for optimum efficiency.

Examples: hurdles, low bar, sprint, balance beam.

It's a good idea to introduce strict rules for crossing each section or combination of obstacles, both to provide a framework and to familiarise athletes with the rules they will face in the future.

Note: when working on agility, there is no advantage in starting with exercises that are too complex. The groups of athletes, especially youth, are always heterogeneous, and it is always preferable to implement simple situations that can become more complex during the session itself.



⁴ Weineck J.: *Manuel d'entraînement*. Paris, Vigot, 1986.

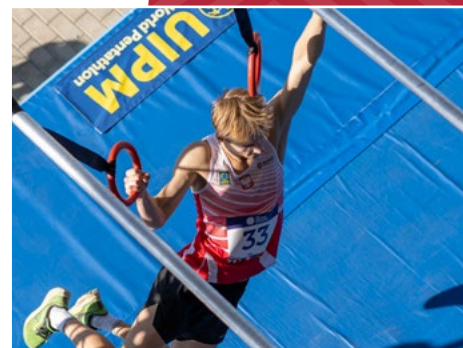
Grip

Grip is one of the determining factors in performance on the UIPM Obstacle course. It is the strength of the finger flexors, essentially located in the distal muscles of the forearm, and by extension, in its broadest form, on the entire pulling chain that starts at the first phalanges of the hands and ends in the deep muscles that fix the scapulae (Rhomboides).

This skill, which is not traditionally developed specifically for “classic” activities, should be the focus of particular attention from the very first Obstacle training sessions. If grip has a relevance in Fencing, it is low in comparison to Obstacle, where the athlete will cross parts of the course in total suspension.

Note: For Obstacle, it is the grip in the strict sense of the term that is decisive, rather than the strength of the pull chain. Thus, an agile youngster with a minimal grip (please see the section Building your session: grip) will have no need to increase the number of pull-ups to successfully complete the course. Doing a pronated pull-up is NOT a necessity for Obstacle courses.

The grip is literally an isometric force⁵, and as this force is angle-dependent⁶, the coach will need to vary the suspension modalities around work tools of different thicknesses: having a strong grip on a 25mm diameter bar does not guarantee a powerful grip on a 50mm diameter bar, as is the case in Obstacle. To be general at the outset, grip work must gradually be oriented towards a specific dimension.



⁵ Strength can be exerted in different ways, depending on the type of movement. In the grip, it's the isometric strength that is in play. Strength is said to be isometric when the muscle is contracted but the segments around the joint do not move (chair exercise, plank...).

⁶ Isometric strength is said to be angle-dependent: you get stronger at the angles at which you work. Therefore, you should work on your grip in ways that are close to specific.

Practical aspects

General training aspects

As we have seen, Obstacle places new physical and technical demands on pentathletes. To practise in complete safety, it is imperative to respect certain rules. On one side, these will enable you to progress and advance in this new discipline, and on the other hand, they will limit the risk of injury while promoting perfect integration into multi-disciplinary planning.

For all Obstacle sessions, it's essential to consider the safety aspects of the discipline beforehand, as presented below:

Grip and suspension

In young athletes, as in adults, falls are part of daily training and require special attention, especially when the coach is unaware of each individual's suspension capacity.

This notion is even more difficult to grasp given that some young athletes, in a dynamic of emulation, may overestimate their ability to hang themselves.

Furthermore, in a group of youngsters unfamiliar with Obstacle, there are wide disparities in the strength of the finger flexors and the pull chain, which is often directly related. We recommend introducing a grip test (please see a proposal on the next pages) right from the first suspension session, to guide the youth towards exercises that they will be able to perform safely.

Regarding suspension in general, the basic safety recommendations for grip work on athletes are common sense, but worth repeating:

- Protect structural elements (trusses, platforms, etc) if there is a risk of contact with them when moving up or out of the obstacle.
- Limit suspension heights to reduce falls from height and avoid adding to suspension the feeling of emptiness linked to a big distance between the ground and the athlete's feet. For U13, 2.20m seems to be an acceptable height.
- Don't jump to hold a bar (entry), and don't start by jumping (some people will still want to jump even if the bar is within their reach). For this, use a platform or box to initiate suspension while maintaining at least one support.
- Protect the floor with foam mats (gymnastic type) and avoid hanging over hard floors (concrete, asphalt, etc.).
- Use magnesium carbonate (magnesia)⁷ to help athletes secure their grip.
- Avoid uneven floors (irregularly piled carpets), which can create instability at the landing.

Despite all these recommendations, since there is no such thing as zero risk, we recommend the utmost vigilance during the first suspension sessions.

⁷ Magnesium carbonate: In sports competitions, magnesium carbonate (magnesia) is used as an antiperspirant, either in liquid form, with solvent, or in solid, block or powder form. In Modern Pentathlon, on the Obstacle course, magnesium carbonate is forbidden in competition, but in training, when we repeat the crossings with athletes whose hands are sometimes sweaty (some more than others) we recommend using it to limit falls due to bars or apparatus that are too slippery. It's only during specific "situational" training sessions that we recommend avoiding chalk, in order to meet competition requirements as closely as possible. While we recommend the use of magnesia for suspension training, the fact that it dries out the palms of the hands and the skin of the fingers makes the contact surface more "grippy". Unfortunately, this positive effect for the user increases the risk of blisters and friction lesions, particularly when the hand is subjected to rotation (gibbon monkey bar, for example). You'll need to find the right balance between the use of magnesia and the risk of blisters appearing on hands and fingers.



Agility

In the same way, sessions focusing on agility, which brings less risk of falls and/or lower heights overall, will still need to be adapted and made as safe as possible to avoid any risk of injury. Actions to be taken to limit these risks might include:

- Do not impose excessively high crossing heights (fences, low walls). If we keep the adult fence size ratio (150cm), the crossing height should not exceed 134 cm for an 11-year-old. As youths are not miniature adults, we must reduce heights further, and a range of 115-130cm seems reasonable for the U13 age group. Technical training on 3000m steeplechase hurdles (76cm to 91cm) is a safe solution.
- When working on balance, limit the height of balance beams or apparatus (10 to 15cm from the ground) and prohibit high-speed passages on narrow beams (7cm or less).
- Prefer soft floors or floors protected by shock-absorbing mats.
- Adapt the difficulty of the exercises to the abilities of the participants, and from this point of view, there is **no advantage** in starting a session with exercises that are too complex.

In addition, as soon as the Obstacle discipline becomes integrated into a training routine with regular sessions during the week, a problem arises that quickly becomes a limiting factor in grip work: the hands.

Hands

During suspension training, athletes will spend a lot of time hanging on one or two hands. The apparatus can be bars of different diameters, rings or other, if the coach has tools to reinforce the grip (Nunchakus, balls, climbing holds, etc), as in a climbing gym. Youth athletes are not used to hanging by themselves, and some of them will inevitably develop blisters on their palms or fingers. These blisters are painful at first, but if they burst, they will make it impossible to continue training.

Blistering is a protective mechanism that occurs with repeated skin friction. If this friction between the skin of the hands and the apparatus is unavoidable (without the use of gloves), there are works that will accelerate the appearance of blisters. In the list of obstacles, for example, Monkey Bars is a major blister generator, as the crossing technique involves a great deal of friction between the hand and the bar. In this respect, the gibbon technique (to be explained on the next pages) is the riskiest.

To limit the risk of blisters, some people turn to the use of gloves or mittens that are suitable. Although they protect the skin of the hands without eliminating the problem (friction between the glove and the skin will also cause blisters), they increase the grip diameter and therefore reduce grip (the more hand is open, the lower the grip force), and partially or completely deprive the athlete of information linked to the innumerable sensory and nervous receptors (baroreceptors) located in the fingers and, more broadly, the hands.



To limit the risk of blisters appearing, and as part of a policy of hand preservation, especially if the aim is to incorporate Obstacle course work several times a week into your planning, a few recommendations seem essential:

- Suspend regularly, without friction at first. For novice youth, two suspension sessions a week, with limited exercise times, seems to be suitable for strengthening the skin of the hands and fingers.
- If it's possible to change the order of the sessions, always place the suspension session before the swimming session to avoid working on the grip with the skin of the hands too softened by the water.
- In a grip session, limit Monkey Bars work and especially dynamic and/or gibbon crossings, which will accelerate the appearance of blisters.
- Don't use gloves all the time and opt for bare hands to strengthen the skin on your hands, which will gradually adapt.
- Use magnesia sparingly, especially on Monkey Bars.

Preventing hand and finger injuries is therefore a question of dosage. Coaches need to be vigilant because as soon as young athletes enter the Obstacle course, they systematically tend to go for the suspension equipment multiple times without sometimes really being prepared for it. For this reason, gradual, measured programming on the suspension obstacles will limit the risk of blisters, which can be very disabling for other training sessions (Swimming, Fencing, Shooting, etc).



Building your session

From grip to agility

Now that we have developed all the theoretical and practical aspects, it's time to put it all together in the field to create sessions that are both fun and technical, enabling young athletes to perfect their skills on the Obstacle course while enjoying training.

As a reminder, whatever sessions are set up, especially when the discipline is new, the coach's first concern must be safety.

As we saw earlier, the two most important qualities to develop in young athletes, from the earliest age, are **grip**, which refers to a component of strength and which, once acquired, will be closely associated with the ability to move forward in suspension (Monkey Bars, Rings...), and **agility**, the quality that makes it possible to overcome any type of obstacle with ease.

To these two pillars, we can add more secondary aspects, which are less decisive for success (without failure) on the Obstacle course:

- **Explosive strength**⁸, which, as we have seen, is essentially a neuromuscular factor, and translates into an ability to (re)create speed, but also to be hyper-dynamic at the start of each obstacle (jump, impulse...).
- **Balance**, to ensure safe crossing across the beam without wasting too much time.

Consequently, to develop essential skills, the coach can focus on two main types of sessions:

- **A grip-suspension session**: this one can be complemented with agility (in suspension) if we tackle the technical aspects of obstacle crossing.
- **Agility-crossing session**: depending on the objectives to be achieved, it can be performed in open, closed, or mixed motor skills in addition to balance or explosive strength. Variety being essential, we recommend a broad approach if the objective is not to perform specific work in preparation for competition.

First and foremost, the grip strength will be the first topic we will discuss.

Grip/suspension

The grip is a prerequisite for any suspension, and with this in mind, before any session is planned, it's important to take stock of the situation and know each person's capabilities precisely.

GRIP TEST

When dealing with youth athletes not yet known, the coach will have to introduce a grip test from the first session, in order to divide the athletes into groups of different levels. As already said, for youngsters, grip disparities are huge, and it's difficult for U13s, for example, to start suspension with the same exercises: some can hang on one arm for a long time (> 15 seconds, which is the guarantee of a secure grip), while others have difficulty staying suspended on two arms for more than 15 seconds.

⁸ Explosive strength, an eminently neuromuscular quality, is characterised by the speed of maximum contraction. The faster an athlete can express his strength, the more explosive he/she is, whether or not they are very strong. Often confused with power, it depends partly on nervous factors and partly on the athlete's own muscle fibres.



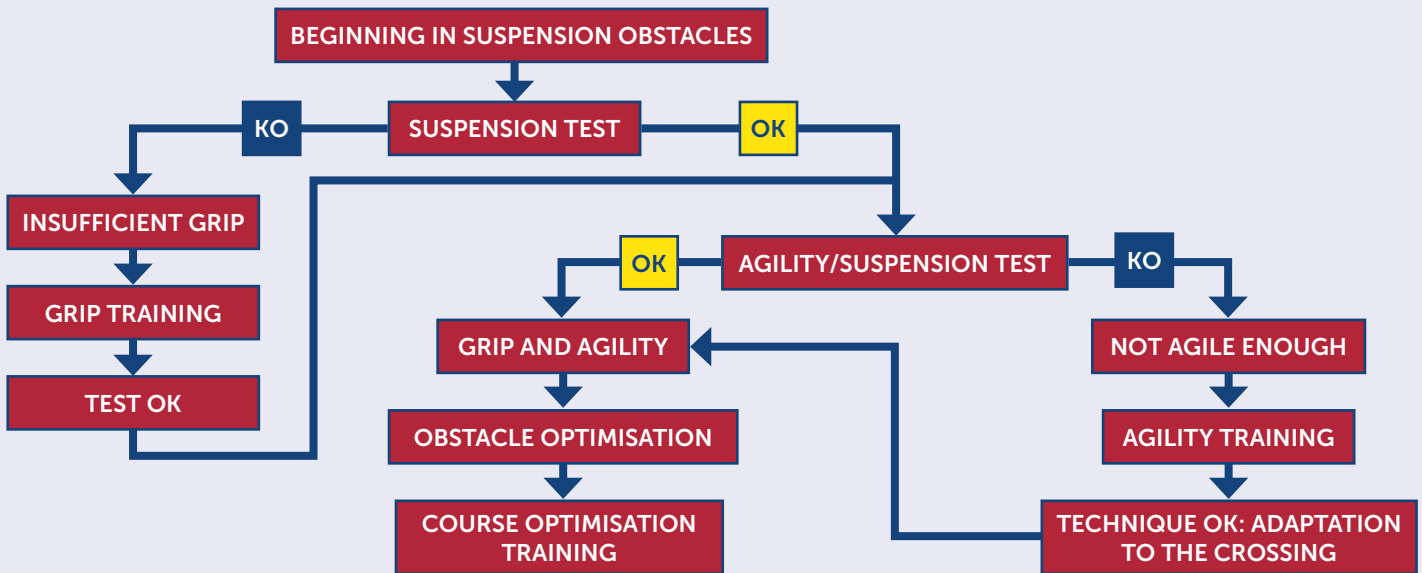
We recommend a two-step process:

- A strict grip test:**
 The aim is to hold the bar in suspension for as long as possible on two arms, with the hands pronated. The size of the bar can be adapted to the hands of the youngest (max Ø40mm). A time of less than 30 seconds indicates a lack of strength in the finger flexors, and the coach should suggest exercises to strengthen this. One minute seems to be a minimum basis for integrating the second group.
- A suspension agility test:**
 For those who pass the grip test, the exercise consists of demonstrating their ability to move from bar to bar. The test takes place on a standard Monkey Bars (like a fitness trail). There are no technical constraints, and youths are free to progress as they wish. The test is validated when athletes manage to cover the distance of the Monkey Bars obstacle.

From these two tests, the coach will be able to create three groups, and the work will be oriented differently according to the general abilities within the groups.

- Group 1: Work on grip strength, static or with very little movement.
- Group 2: Work on various suspension, Monkey Bars or other progression techniques.
- Group 3: Work on optimising suspension crossing. The group will be able to carry out work with Rings, Wheels, Tilting Ladders, etc. Thanks to the agility already in place, this group will also be able to make progress on optimising inter-obstacle transition zones.

The coach’s approach is summarized below.



Once the tests have been carried out, the coach can design his sessions, based on general skills, by group.

WARNING: Grip work, which requires significant, sometimes maximum, resources from the involved muscles of athletes, particularly the youngest when they are unable to suspend themselves for a sufficiently long time, should be approached as a strength session from the point of view of physical preparation.

With regular, progressive work, rapid progress should be made, especially as grip skills are not a typical area of focus for youth athletes.

GRIP SESSION

A standard grip session might take the following form:

- **Warm-up (10-15 minutes)**
 - general and specific
- **Analytical technical work (15-20 minutes)**
 - Balance work/ technical constraints/ strength (isometric)
- **Conditioning for course (10-15 min)**
 - Crossing Rings, Monkey Bars, Wheels... fast and/or chained.

A 50-60-minute session may be optimal with youths who are not yet ready but can be extended with more physically advanced athletes.

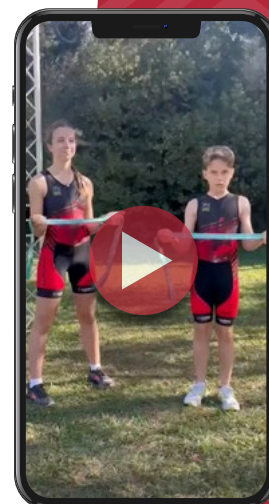
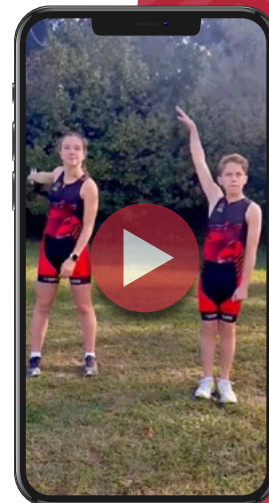
Let's look at the different parts of the session in detail:

A. Warm-up

Designed to prepare the young athlete for suspension, while also preventing the risk of shoulder injury. It will contain:

- A1** Mobility of wrist, elbow, and shoulder joints, with internal and external rotations. [WATCH SHOULDER ROTATION VIDEO](#)
- A2** Warm-up exercises for the rotator cuff and scapula fixator muscles. [WATCH ROTATOR CUFF VIDEO](#)
[WATCH RHOMBOIDS VIDEO](#)
- A3** Suspension
 - i. Simple/dead hang (10 to 20 seconds 2 to 3 times depending on level, with or without elastic)
 - ii. With scapular traction. [WATCH SCAP PULL-UP VIDEO](#)
- A4** Suspension crossings (wheel, rings...) A simple crossing without balance if the riders already have this level of experience.

Note: *The older you are, the more attention you'll need to pay to shoulder mobility and rotator cuff injury prevention.*



B. Analytical technical work

This work will be aimed at perfecting the athlete's techniques for crossing over suspension obstacles.

- B1** Monkey Bars: this work will be carried out with a reduced number of crossings but with strict execution procedures:
- Progression by changing technique each time:
 - i. 2/1/2 technique (see video on page 22)
 - ii. GIBBON technique (see video on page 22)
 - Possibility of adding technical constraints:
 - i. Change hands during the crossing
 - ii. Introduce a "dead hang" pause of 3 seconds during progression
 - iii. Markers (coloured tape) to follow
 - iv. Weighted vest (if strong enough).

Example monkey bar

*4 x (2/1/2 [strong side] progressive from 1 to 4, recovery 2 minutes) +
2 x (Weak side [pause 3 seconds at the fourth bar] recovers 2 minutes)*

- B2** Rings: on this work, given the reduced risk to hands, it is possible to increase the number of crossings:
- Working the pendulum back and forth
 - Working on the profile position for (later) skip a ring
 - Balance proportioning (for increased speed).

Example Rings

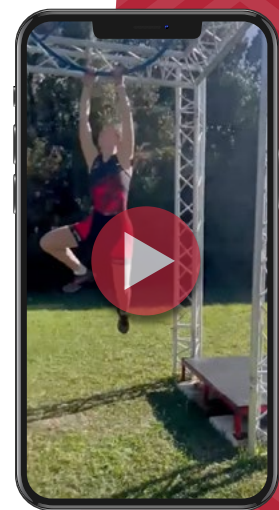
*6 x (Crossing rings changing the front hand on the second ring at each cross)
recovery 2 minutes.*

C. Obstacle course conditioning work

This part of training is designed to guide the athlete towards a sequence of obstacles, rather than focusing on a single motor skill. It means inserting the obstacle in question as an integral part of an overall sequence in a continuum of various obstacles. In this respect, it is not necessary (except in specific preparation) to work on the sequence as it is planned on the official UIPM Obstacle course. Any sequence is welcome. It will therefore be possible to set up repetitions of:

- Platform start (without stop phase = Take off + jump)
[WATCH WHEELS IMPULSION VIDEO](#)
- Plus, "Increased" start (take-off phase, jump and 2-rings or 2-bars sequence)
- Crossing with improved speed and/or crossing efficiency
- Finish: sequence with the next obstacle
- Linked set (end of previous obstacle + platform support, jump/obstacle/exit, transition, start of next obstacle).

The combinations and work possibilities are infinite, and here again, the coach must use their imagination to keep within the spirit of the obstacle course, which is a chained sprint.



AGILITY SESSION

Agility is the decisive quality when it comes to general crossing. In youths, agility needs to be developed as early as possible, first through motor skills training for the very young, and then by diversifying situations involving complex motor skills or simple motor skill sequences.

If we keep to the spirit of the UIPM Obstacle course, we must move towards a situation where speed and sequencing are associated with agility. In fact, agility works should not be too complex, so as not to prioritise difficulty to the detriment of sequencing.

An agility session can take the same form as a suspension session, but with a few variations:

- More crossings are possible
- Lower risk of falls from height
- Possibility of creating parallel courses (more difficult with suspensions).

A standard agility session might take the following form:

- **Warm-up (10-15 minutes)**
 - general and specific
- **Crossing technique work (15-20 minutes)**
 - Over/Under/Through, Beam, Hoops, Fences...
- **Crossing optimisation (10-20 min)**
 - Speed in technique: we maintain the technical aspects we have been working on by adding speed
 - Technical speed: priority is given to speed (execution, clearance...) while trying to preserve the technical aspects
 - “For time” sequence.

As with the grip sessions, 50-60-minute sessions are optimal, especially as young people’s ability to concentrate on technical aspects is limited.

A. Warm-up

Designed to prepare the young athlete for crossing obstacles, but also to be efficient and reactive in the inter-obstacle zone (dynamic support). It should also stimulate the central nervous system (CNS) to a certain extent, to make it more alert. It will take the form of an athletics-type warm-up for sprinters. It will contain:

- A1** Specific mobility (hip, ankle)
- A2** Static and then dynamic athletics drills for motor coordination
- A3** Short sprints (6m to 10m) from a standing start for the CNS
- A4** A bit of balance if the body of the session contains it (slack line, for example).

Note: As age increases, more attention will be paid to hip, ankle and spine mobility, to limit the risk of injury and make passages more fluid.



B. Crossing work

This technical work will be aimed at developing agility in young athletes or improving efficiency and fluidity on the obstacle in advanced athletes. Crossings can be more numerous because there is no problem with hands.

- B1** General or Obstacle course clearance: Always focus on the sequence, as an obstacle is not an isolated element.
- Cut out parts for sequential work.

Example: Finish wall = Sprint/Hook/Pull/Buzzer. It is possible to work specifically on one of the parts.

- In all crossings, you must never turn your back in the direction of the sprint (no rolling, etc).
- Gradually build complexity from simple situations.

C. Crossing optimisation work

As with grip and suspension, this part of the training is designed to guide the athlete towards a developed course with a succession of obstacles.

Once you have studied the crossing techniques, the coach can add speed and sequence to the practice.

In this part of the session, the coach can propose a challenge, a parallel start tournament, or a time trial (for the best possible time). For that, it is important to:

- Introduce strict crossing rules (contact with structures, knocking down fences, supports, etc)
- Focus on open motor skills
- Introduce the notion of a possible double attempt
- Focus on previous technical speed learning.

Here again, depending on the resources available to the coach, there are countless possibilities, and it's up to them to organise fun sessions that allow the youths to develop their agility and motor coordination, while keeping the idea of linked sprinting as a common thread.



Specific obstacle training

Obstacle by obstacle

The UIPM Obstacle course is, as we have seen, a sequence of obstacles to be cleared without any major difficulty. The best possible time is obtained by optimising all the obstacles and transition zones. To achieve this, it's essential to work on optimising the training situation.

In the previous chapter, we looked at setting up polarised Obstacle training sessions, some focusing on agility, others on suspension. However, polarised training must not hide the fact that the aim is to achieve a global sequence throughout the course. To this end, whenever possible, you should set up sequencing sessions on the official course. During this work, which can be sequential (by two or three obstacles, by half-course...), you'll also need to focus on optimisation. Let's look at the entire course to identify the trickiest points to focus on.

STEPS AND BIG WHEEL

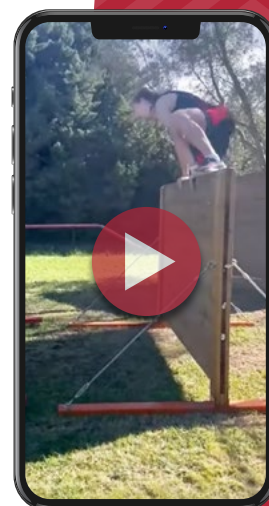
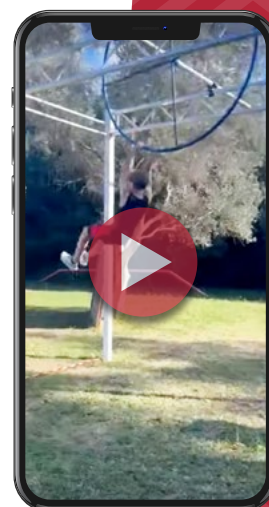
In this sequence of two obstacles, the key points are:

- After the start and the first strides, don't climb the first step with your take-off foot. This reversal of the natural tendency will allow you to finish on the fourth step on your take-off foot.
- Avoid placing both feet on the last step. With one foot on the last step, you'll be more dynamic and won't lose time bringing your second foot back.
[WATCH BIG WHEEL VIDEO](#)
- Grip the big wheel with one hand in front of the other, wrists in a neutral position. You'll need to reinforce this position in training, so as not to "rotate" as the big wheel passes. The natural rotation, if you're not careful, is to pivot to the side of your rear arm. Reinforcing this position will keep you facing forward.
- Keep both feet in front of the hips during the aerial phase, to maintain speed and be ready for the next obstacle.
[WATCH BIG WHEEL TO OVER VIDEO](#)

OVER/UNDER/THROUGH

This obstacle should also be the focus of speed research.

- Over: Try to not harm your progress by stopping in front of the wall to go over it. It is possible to use support on the wall as a lever arm to transform horizontal speed into pendulum speed.
[WATCH IMPULSION OVER VIDEO](#)
- Crossing: The most effective technique, when you're not tall enough to pass without placing your feet on the wall, is to place one foot on the side so that you can pass your inside leg between your opposite hand and your foot, allowing you to stagger your landing towards the next obstacle.
[WATCH TRANSITION OVER UNDER VIDEO](#)
- Projection: Once the foot has been placed on the ground, it pushes to project towards the next obstacle.



- Transition: Due to the thrust of the foot on the platform, limit the number of steps in the transition zone and, at best, engage sufficiently to be already in a position to face the Under directly after the Over.
- Pass the Under without rolling, always facing forward.
- Through: several techniques are possible (depending on the athlete's size and mobility), with or without holding the top bar. Test all options to see which is most appropriate.

RINGS

The rings don't present any particular difficulty once you have managed to catch the first ring.

- Take-off: Prioritise a one-foot impulse to maintain speed while ensuring sufficient jump height.
- Crossing: Several options are available to limit the time spent on the obstacle. Several techniques can be used to cross:
 - 2/1/2: [WATCH 2/1/2 RINGS VIDEO](#)
 - Gibbon: [WATCH GIBBON RINGS VIDEO](#)
 Then for more advanced athletes:
 - Boys: Jump directly onto the 2, then the 4 and finally the 6.
 - Girls: Opt to jump on 1 then 2 and then 4 and 6.[WATCH 1/2/4/6 RINGS VIDEO](#)

BALANCE BEAM

The crossing of the beam is already prepared on the previous obstacle. The beam is the only obstacle that is different on the right or left side of the parallel course (orientation of the segments). You need to be equally comfortable on both sides.

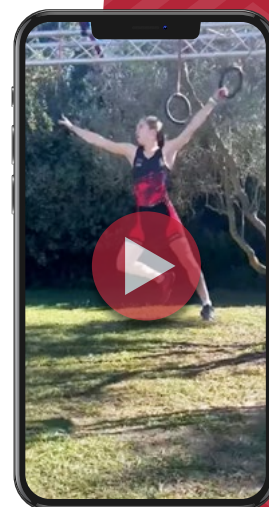
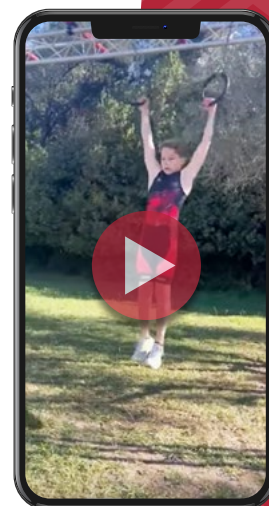
- Start: Jump directly onto the beam without passing over the round entry platform.
- Crossing: Limit the number of steps on the beam and always prioritise speed.
- Second segment: This is where you prepare for the next obstacle, so look up as soon as possible to get your sights for the next obstacle and accelerate to prepare for the take-off that follows.

WHEELS

Like the Rings, the Wheels don't present any particular difficulty. It's a sideways obstacle, so test which side suits the athlete best.

Depending on whether you land on the right or left side of the parallel course, and from which side you approach the obstacle, there is a higher risk of hitting the structures on landing (left side on the left course and right side on the right course). Work on this in training.

- Impulse: The impulse gives speed to the first wheel to catch the next. To give speed, prefer a one-foot call. [WATCH IMPULSION WHEELS VIDEO](#)
- Crossing: With enough speed, it's possible to pass the wheels with bent-arm isometrics. This passage must be worked on beforehand.



MONKEY BARS

There are several possible ways to clear the obstacle: jumping the first bar or not, using one technique or the other.

- Crossing:
 - Switching to 2/1/2 with a slight profile is the quickest option for most athletes. As this technique doesn't involve balance, you'll need to be careful not to let yourself be drawn into a bad balance that will finally slow down your progress.
 - [WATCH 2/1/2 MONKEY VIDEO](#)
 - Switching to 1/1 gibbon is a good option when you're comfortable with this technique.
 - [WATCH GIBBON MONKEY VIDEO](#)

TILTING LADDERS

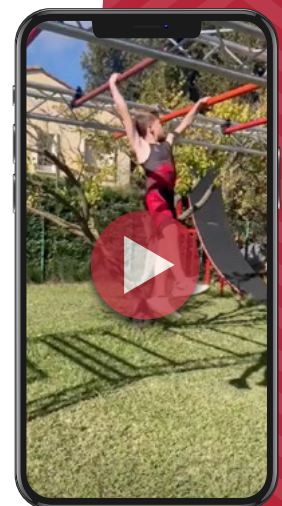
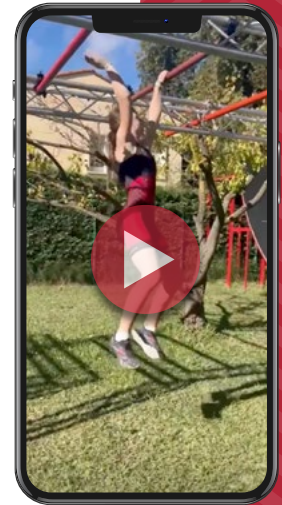
There are several options for getting over it safely. The smaller diameter of the bars (3cm) means you have more grip strength (than on the Monkey Bars). Flying monkey technique (jumping from bar 1 to bar 1 on the next ladder) is also possible.

- Crossing: As the bars are very close together, you don't need to catch them all. Catching 1 then 3 on each bar with a gibbon transfer is a good option. If the athlete is short, the 1, 3, and 6 solutions of each ladder can limit the risks.

FINISH WALL

A few details need to be worked on to ensure a rapid completion.

- Approach: Accelerate gradually to reach maximum speed at the very bottom of the wall.
- Progress/Strides: The further you advance along the wall, the shorter your strides become. Long strides in the curve of the wall tend to slow progress, as the front foot, positioned too high, acts like a brake lever.
- Arrival platform: The greater the speed at the bottom of the wall and the longer it is maintained all the way through the wall, the easier it will be to go over the top on the final platform. Giving just enough speed to grab the top of the wall with arms outstretched is not a good option, as the effort that follows to pull yourself up will be too time-consuming.



Competition

Obstacle course and performance

Once the physical and technical bases, general and specific, have been acquired, training only makes sense when the athlete, during a competition, lines up on the starting platform with the aim of achieving the best possible time over the 70m separating them from the buzzer!

When the athlete is preparing to take part in a competition, a few tips are useful. These will put the athlete in the best possible conditions to achieve a fast performance while limiting the risk of elimination. As with the other four disciplines, the competitive approach must be conducted with the utmost care, considering all the factors already mentioned.

PRE-COMPETITION

- When visiting the competition venue, the day before the event, training sessions must not take place. Only a familiarisation session should be carried out.
- As a coach, don't let the athletes spend too much time trying out various techniques on the suspensions – their hands will thank you.
- Do your familiarisation carefully, so as not to leave any parameter unclear. Such as:
 - Test Rings, Wheels, Big Wheel and Monkey Bars for grip: some surfaces (wood, paint, raw aluminum or steel) are more or less grippy, so don't find out when you're competing.
 - Test the Balance Beam, its width and its surface (painted, slippery or not).
 - Test all obstacle entries: heights and distances, as well as the surface of the platforms, to make sure you give the right impulse.
 - Test the surface of the Finish Wall: depending on the surface, access to the platform will be easier.
 - Test the spacing and height of the Monkey Bars and Rings. Even though all measurements are regulated, they are given in ranges that can vary the reference points acquired on another course.



COMPETITION DAY

- Establish an Obstacle warm-up routine at training so you don't have to improvise on the big day.
- Proceed with your warm-up without paying attention to the other athletes.
- NEVER attempt a new technique in competition if you haven't tried it in training. If you achieve less than an 80% success rate (8 out of 10) in training, do not attempt this technique in a race.
- Speed is gained through precision and efficiency rather than haste.
- As per standard Modern Pentathlon coaching advice, never think about your performance in the previous discipline when tackling the Obstacle course; similarly, never project forward to the next one.
- We recommend soft indoor sports shoes with thin soles (feet as close to the ground as possible, like fencing shoes). Avoid running shoes with carbon plates.
- Concerning gloves: use what you are used to in training (if you train without gloves, don't use them in competition, even if a more advanced athlete tells you it's better).



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