

TOWARDS UNDERWATER PSYCHOMOTRICITY

UNDERWATER ACTIVITIES FOR PEOPLE WITH SPECIAL NEEDS



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Materials and Exercises

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"Difficult things are put in our way, not to stop us, but to awaken our courage and strength."

Anonymous



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To my daughters Alba and Chloe.

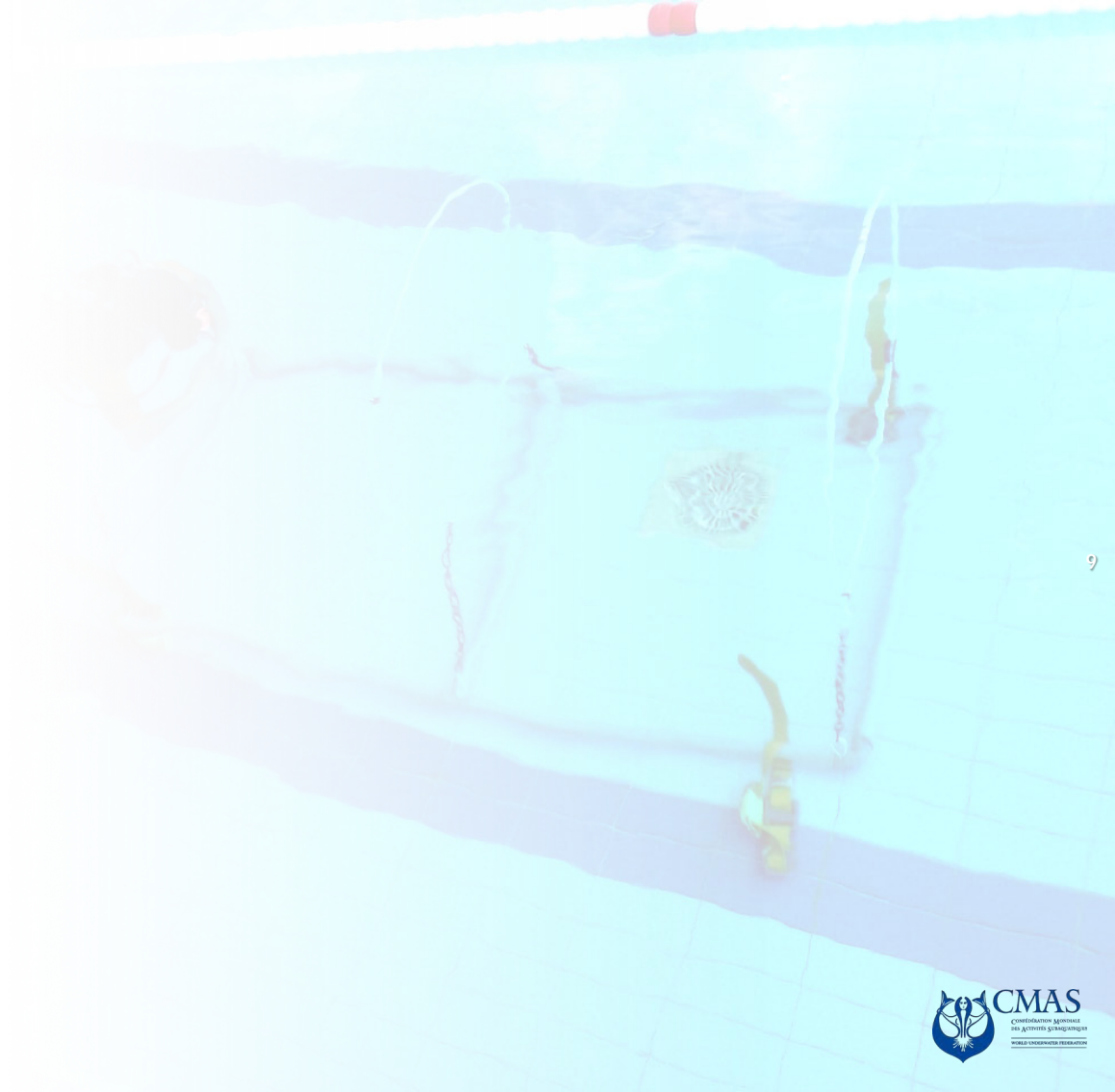
I would like to express my gratitude to all the families who rely on us to make sure that the leisure time of their children, siblings, relatives and loved ones is high-quality. Thanks to our project, they exercise and spend their free time participating in a healthy activity with a cheerful atmosphere and lots of fellowship. Our participants always want to come back.

I do not want to forget my teammates, who 'dive into' this project with me day after day. Not to mention the lessons I have learnt from them.

Lastly, I would like to thank the real protagonists of our activities: the participants. Without them everything would be pointless.

Thanks a million.

Amaia





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When someone starts working in a special education academic centre, feeling astonished or even startled is unavoidable. This is because the person discovers a unique educational reality which differs from the one present at an ordinary academic centre. The different problems, materials and types of resources, the school organisation or the use of certain teaching techniques are only an example.

Personally, the second time I was assigned to a special education school, I had already had a first experience which gave me the orientation and preliminary tools to facilitate my first contact and performance. However, when the administrative team informed me that my functions as a tutor included a weekly one-hour session in the pool with my seven pupils, that feeling from the first time came back. I felt again like a rookie with a too big of a task at hand.

Going in the water with them? Won't it be dangerous? Water can be treacherous, as my father used to say. But, can they swim? If not, will they at least touch the bottom of the pool? I had all these questions in my mind as the day grew near and, to be honest, they were making me feel unease.

And the first session in the pool arrived. In the afternoon. After lunch. And nothing bad happened. On the contrary, I realised that I had made a mistake. A mistake that every teacher makes at some point: I had underestimated them. My group-class could move in the water with ease and had fun. They were having a great time. And me too. From that moment, this extra incentive made Mondays way easier.

As sessions took place, the different objectives included in the PE syllabus were tackled and acquired to a greater or lesser degree. Yet something else happened during that weekly pool session: my pupils were not only working on abilities belonging to the psychomotor field. That learning situation offered them many other opportunities related to other dimensions of human development. Of my whole educational experience with the aquatic environment, I found this particularly fascinating.

Therefore, the motivation they felt from having fun in the water led to a fantastic emotional foundation on which to build. After all, people learn more and better when they are having fun. Besides, achieving new challenges also opens the door to a motivational component that will point them towards new objectives. This made me wonder about concepts such as self-esteem, the feeling of control or causal attributions. It is important to bear in mind that physical, motor or intellectual disabilities can sometimes compromise freedom of movement and action in the environment. However, these boundaries blur or even disappear in the water.

Additionally, the exercises proposed by the physical education specialist, and author of this text, usually required making decisions, planning a sequence of actions and carrying it out. In other words, pupils had to perform

executive actions in order to analyse and solve the situation. The development of these types of abilities has recently acquired an increasingly important role, especially when we are referring to special education students.

Learning was not limited to the time they spent in the water. When the group-class entered the changing room before and after the activity, we faced a new scenario where everything revolved around boosting their autonomy. Some of the objectives that we worked on were fastening and unfastening clothes, putting on and off their shoes, making sure that the swimsuit and T-shirt were correctly put on, and so on.

But there were more. It is widely known that one of the characteristics of people with Autism Spectrum Disorder is having highly focused and/or stereotypical interests. They find it difficult to broaden the scope of those activities or areas of knowledge. Personally, I believe that this can also be observed in people with an intellectual disability and who do not strictly belong to the autism spectrum. Some of our pupils discovered in the aquatic environment a new way of enjoying themselves and having fun. In view of this, some families even signed up their children for swimming lessons outside school hours. In other words, the use of their leisure time was improved.

Finally, the language and communication field was also something to consider. There was great variety in my group-class in this regard. Some of my pupils used pictogram-based systems, others used manual signs to make requests and some others could mainly use spoken language. In any case, regardless of the system used, the aquatic environment gave them the opportunity to expand their vocabulary with new concepts. They were also able to apply the communicative abilities learnt in class or during individual sessions and consolidate them as they used them in different contexts.

The text you have in your hands is an extraordinary resource to develop motor skills in different ways in a very specific environment. Furthermore, as I have tried to explain, the situations that will arise, as well as the way of tackling them from a methodological point of view, entail an important benefit to other aspects intrinsic to the human being, usually difficult to differentiate from one another. More precisely, for people with a specific disability or condition, water can be a great ally. I, at least, was able to verify this.

Juan Blanco Renedo

Psychologist and therapeutic pedagogy teacher specialist.



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As a lecturer of a knowledge field mainly focused on initial and continuing teacher training regarding didactic and organisational issues appearing in different fields and stages, I always give due attention to diversity. This is why I am pleased to present the project of Luis Javier Arranz, physical education and therapeutic pedagogy teacher specialist, and an alumnus at the University of Zaragoza's Faculty of Education, where I have been lecturing for more than two decades.

The author has a wealth of experience not only as a physical education teacher in special education academic centres, but also in the field of underwater activities (more than three decades). This combined set of practical knowledge has naturally led him to the research and implementation of everyday equipment in order to help people with special needs carry out exercises and tasks in the water, thus boosting their comprehensive development (motor, social and emotional, cognitive and communicative development). His work is reflected and described in this handbook. From my point of view, it illustrates how theoretical and practical knowledge from two different fields (physical education and therapeutic pedagogy) can naturally and proportionally converge on a meticulous proposal of activities. Hence, the resulting project is coherent and relevant not only from a content point of view, but also taking into account the design and personalised development of the 'rolling programmes'. The activities included, as any other activity having to do with psychomotricity in the classroom or elsewhere, aim to help the person's comprehensive training.

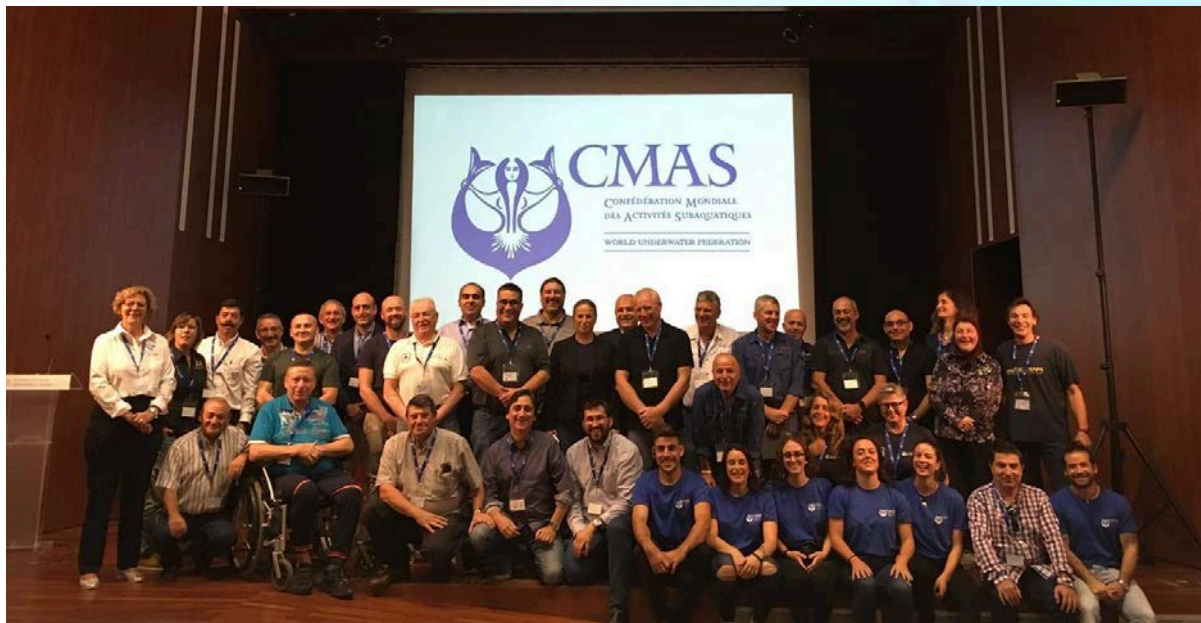
Associate Professor Doctor Pilar Arranz Martínez
University of Zaragoza



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This handbook comprises a set of exercises along with the corresponding materials needed to carry out underwater activities in a swimming pool. Even though they can be intended for anyone, they are specially aimed at people with special needs.

Some of these materials and exercises had already been presented at the I CMAS SND International Meeting held in Alicante in October 2018, which took place with the presence of the President of CMAS, Ms Anna Arzhanova and the participation of Belgium, Hungary, Israel, Russia, Norway, Denmark, Finland, Portugal, Serbia, Egypt, Czech Republic, Switzerland and Spain. This presentation caught the attention of the public and they requested more information about the features and potential possibilities of these materials and exercises.



In view of this, the team that was working—and still is—with several Spanish groups, collectives and associations made a decision: we had to go beyond the typical swimming pool sessions that were monotonous and repetitive, lacked progression and individualisation and from which the participant ended up dropping out in the long term. The result was the diving programmes for people with special needs.

Another challenge that the work group had to face was communication: how can we deliver a clear message to the participant both inside and outside the water? Many of the participants do not possess functional oral language and they use different types of tools (e.g. tablets, phones) of ACC systems or other systems such as braille or bimodal communication.

The experience gained as a PE teacher in special education schools provided with a broader vision that helped facing the different challenges encountered by the work group.

The group came to the conclusion that individual files had to be elaborated with the following information: personal details, characteristics of the participant, appropriate material for that particular person, communication system used, objectives established for each session, exercises performed and an evaluation from the participant regarding the instructors, materials and exercises themselves.

Soon we had to create new exercises and come up with new challenges for them. Participants' and work group's motivation increased alike. Over the years we have been creating new exercises, gathering them and trying different materials (conventional, unconventional, recycled and purpose-built), and we are still adding new ones that we hope we will be able to share soon.

This first volume of 'Underwater Activities for People with Special Needs' Materials and Exercises—Towards Underwater Psychomotricity (Block 1: Introduction) is, as it has been stated, the result of years of experience and the outcome of many tests and adjustments that had to be conducted in order to make the materials safe and easy to install. Besides, equipment and materials play a key role in the achievement of the objectives as they must help participants progress individually in their underwater journey, improving their skills in the long term.

These rolling programmes must be focused on encouraging the comprehensive development of the participant (motor, cognitive, communicative, and social-emotional development) through underwater activities and boost their autonomy and self-esteem.

We advocate working on the psychomotor development through underwater activities.

All sports technicians (from any branch), and above all, those who work with infants and people with special needs carry out the basic and global task of initiating them in sports through simple games and exercises. This is our work proposal. Then, once the foundations are laid, other technical aspects can be taught as in any other sport.

The proposed exercises intend to encourage sensory work (the senses), as well as the body schema and its different parts. Coordination, balance and motor skills development are also to be worked during the sessions, as they all are key aspects of psychomotricity.

The people targeted by these activities and programmes, people with special needs, should play a primary role. Everything must revolve around them. Those who organise these events and sessions should only play a secondary role as facilitators.

No activity or event (either big or small) is more significant than the participant himself. Nothing is more important than them.

It is worth noting that these exercises and the use of these materials are not considered therapy. We cannot and should not replace health professionals. That being said, some of the exercises and materials proposed below may be used by health care providers in order to give underwater therapy to their clients.

We hope that our exercises, guidelines and materials will be useful.

FROM MY JOB TO MY PASSION: PSYCHOMOTRICITY EXERCISES IN UNDERWATER ACTIVITIES

Throughout my career as a PE teacher (in ordinary schools and in special education schools), some of the disadvantages that I have encountered are linked to the equipment and facilities where classes take place. Sometimes you have to adapt to what is available. It is the only thing you can do.

Most of the PE teachers have experienced similar circumstances in the schools they work. You do not have what you need, or how you need it, and it is too expensive to buy it.

Teachers usually find the solution through their own imagination, creativity and enthusiasm. Their continuous training, research and experience (in my case, over 10 years in different educational institutions), as well as some luck and a large amount of work also play an essential role.

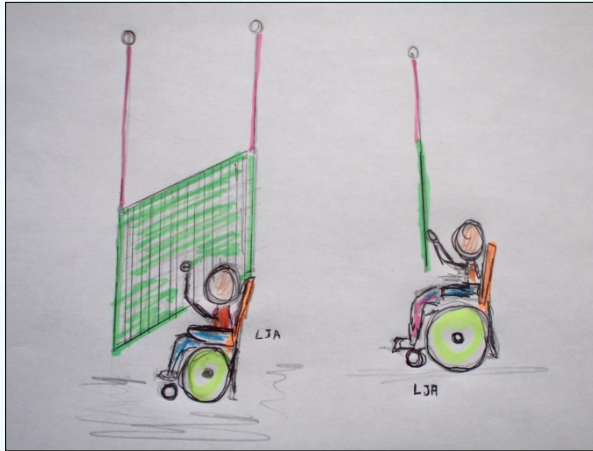
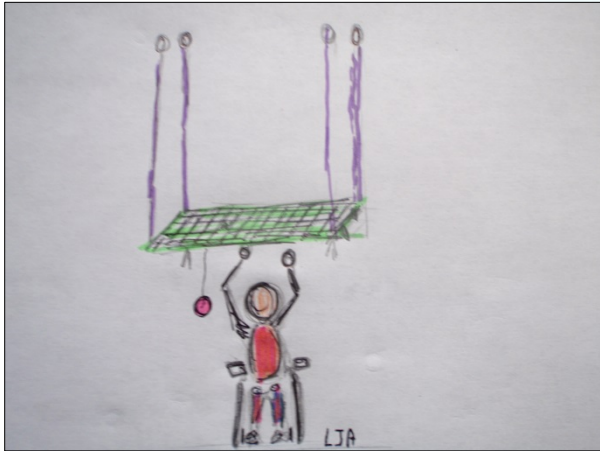
Many times I have found the perfect solution to my PE classes in the most unexpected places and situations: a camping site, a terrace, spending time with my nephews, in the seashore, in a port, at a pound shop... You can find a good solution anywhere if you keep an open mind.

Once at a port, I saw a blue fishing net hanging at about one metre from the ground. A child passed under it and touched it with her hand. From that moment, the ceiling of every classroom I have worked in has become a crucial element to hang objects. When pupils use a wheelchair, it is complicated for them to work with elements on the wall, since the footrest prevents them from reaching objects with their hand by extending the arm.

However, if we hang a garden mesh from the ceiling, one metre above the ground, children will have a 'wall' where they will be able to work naturally and safely. Besides, they will exercise their manipulative skills without the wheelchair becoming an obstacle. This is only a starting point—imagination will do the rest. Obviously, it is important to note that this adaptation can be applied to every pupil, not only to those who use a wheelchair.

We have designed a similar exercise to execute underwater, that you will find in the last section of this book. Exercise No. 16 (knocking and pushing balls) stemmed from this idea, but we changed it a bit to apply it underwater (from the floor upwards).

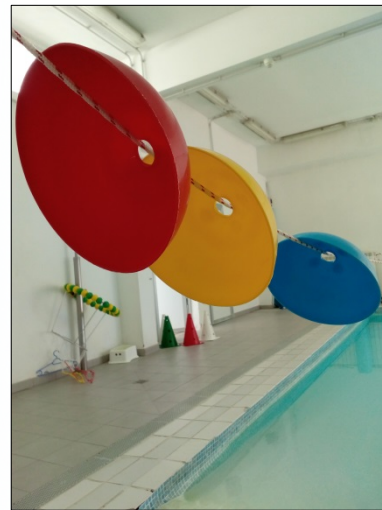
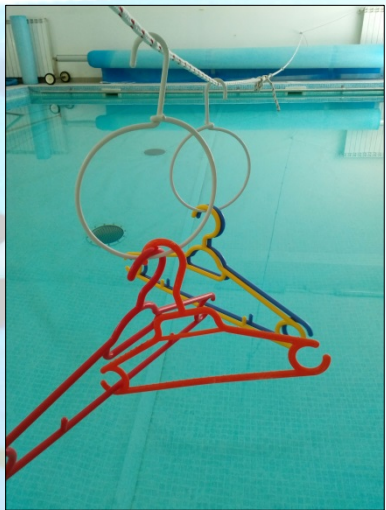
I always say that if you want to come up with new uses for any (non-dangerous) material, you have to give it to a child and then observe. In this way, you will obtain several answers and solutions. The way a child explores a specific object can give us a vast number of ideas to use or apply it differently. Some of them, although acceptable, would not come to an adult's mind.



In this way, once I am sure everything is safe, it is normal to see in my sessions strings hanging from the ceiling, hangers and pins of varying sizes, butterfly nets, different shapes and sizes of white foam objects, plastic bottles, newspaper sheets, cardboard tubes, etc.

As the vast majority of my fellow teachers, I also use typical physical education and psychomotricity elements, that I purchase if the budget allows. As a result, the use of conventional and unconventional materials, or even recycled ones, is combined.

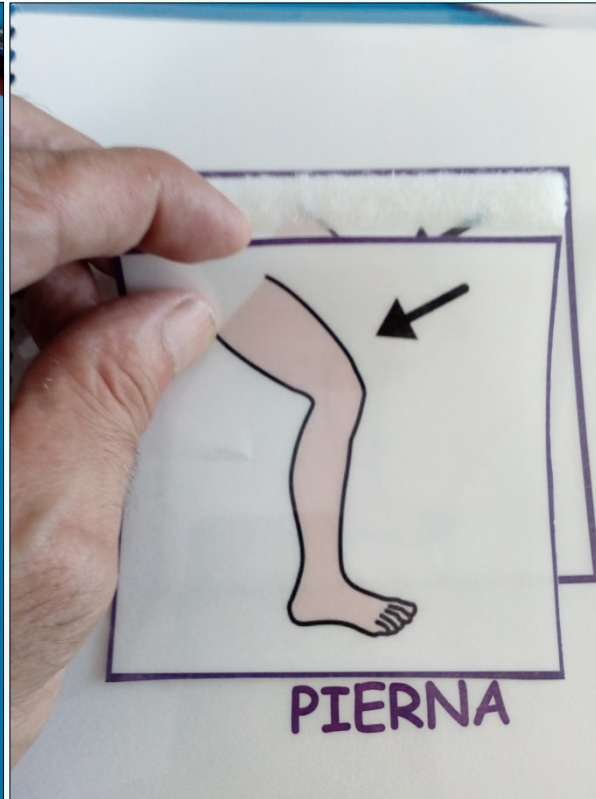
When facing daily PE classes in the pool in a special education school, innovation regarding materials and exercises becomes a must. This is why I started introducing in the pool some of the materials that I had already applied in traditional classes in order to create short circuits and exercises. I placed strings where colourful hangers and pins could be hung or hooked at different heights, I put a mirror, a Velcro dartboard to throw and remove ping-pong balls, inflatable balls, handkerchiefs, colourful plastic strips, balloons... I also set in the water plastic petanque boules or marbles. During my sessions, there used to be objects such as a plastic crate ballasted at the bottom of the pool to drop different objects inside, or a basket made with a psychomotricity hoop.



Over the different sessions and school years, I have tried different elements or introduced small changes so that a specific pupil achieves a particular exercise. Thus, the exercise ends up adapted to the pupil's own features, in terms of vision, size, reduced mobility, height, grip, position or direction. I have also modified exercises so that they take place in a specific place of the pool to match the sensory stimulation needs of the pupil or the lightning and contrast conditions (after consultation with the physiotherapy department and/or the nurse's office for some specific cases).

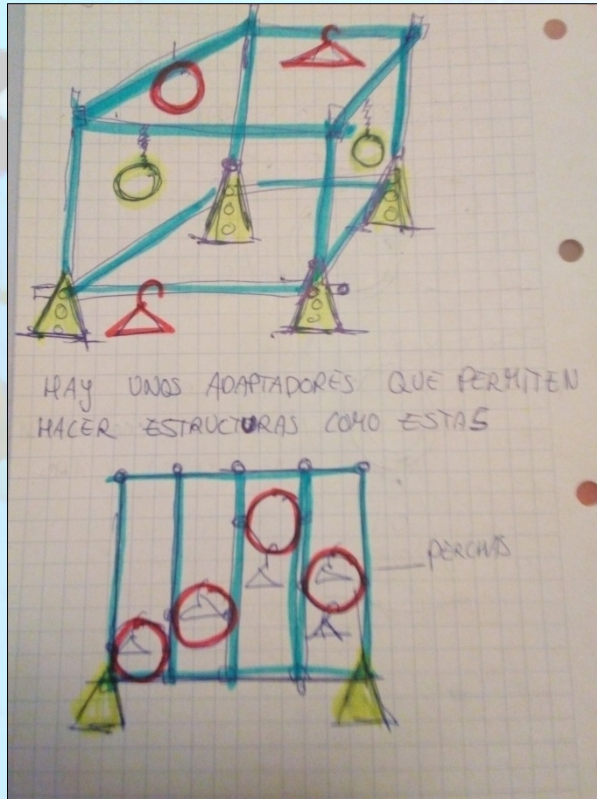
When I started carrying out diving activities for people with special needs back in 2008, I considered some of the materials that I used in school to work with them underwater. Yet the majority of diving instructors only focused on adapting the diving material, and did not take into consideration what to do underwater. All sessions were the same. Eventually, they ended up becoming try dives where only underwater movements occurred and no element or stimulus to the person's development was introduced.

Later on, when I participated as a trainer in many courses for diver instructors, I suggested introducing ACC systems and unconventional materials and exercises similar to the ones I used with my pupils, but underwater, in order to improve their comprehensive development.

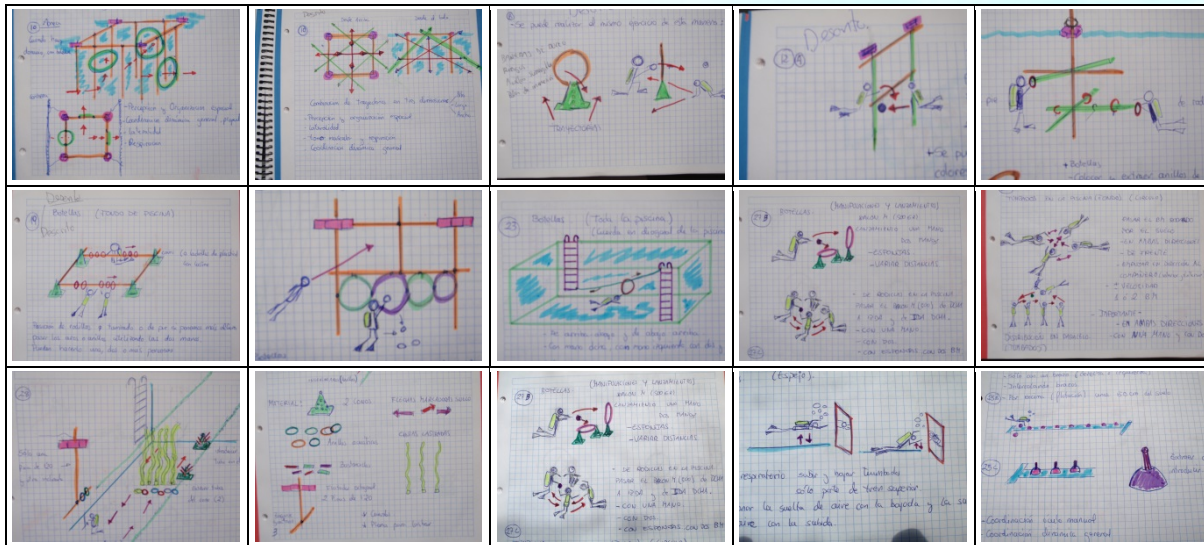


I still remember the faces of some of my teammates when I proposed tying a string from one pool ladder to the other (exercise 6), when we placed on the water a floating structure made out of training poles—like the ones we use in PE—(exercise 11), or when we used a mirror underwater (exercises 19 and 20). Of course, many of the materials that have been tried, did not work and were discarded.

I was lucky—and I still am—to work in what I love: physical education in a special education school. In my leisure time, I have been able to combine it with one of my passions, diving. In my opinion, I have not provided anything special (although some argue that I have). I was only doing my job, which was also my passion. Life took me naturally to combine my occupation and my hobby. I was also lucky to rely on peers who have supported me and believed in me.



All this work has been done with care and always has the participants in view. We decided to share it because we think it can help, provide ideas or enable new work paths.



It is now at your disposal!

1. PEOPLE WITH SPECIAL NEEDS

Finding an adequate term to the title of this text was complicated.

There may be people who do not agree with it. There even may be people who are completely against using it to describe the target of our activities (as long as there are not any medical objections): people whose characteristics and conditions are very different. We are referring to people with the Autism Spectrum Disorder (ASD), Down's Syndrome and other syndromes, intellectual disability, blindness, deafness, Cerebral Palsy, malformations, amputations, mental illnesses, etc. It is hard to integrate all of them into one single term that makes everybody comfortable (including the families).

There are other expressions, such as disability sports, parasports, inclusive sports, sports for people with functional diversity or adaptive sports. The issue has been the subject of debate for years and it was discussed during the I CMAS SND Meeting held in October 2018. In the future, new terms will come up and will be added to the debate. From our point of view, the current most accurate and respectful term in our sport is people with special needs. However, this is our personal opinion and another term, more accurate, may arise soon. We decided to choose it because we think that it makes us more equal. At least in our sport.

Anyone, at some point of his or her life, will require another person, either temporarily or permanently. When we are toddlers, we rely on our parents; when we are ill or become elderly and we cannot look after ourselves, we will have to depend on someone.

Every recreational diver needs help in the beginning. If we remember our beginning in this sport, we had to progressively learn to move underwater, handle the equipment, breathe calmly... All of it under the supervision of our instructor.

Certainly, in everyone's beginner course there were people with different learning paces, both at a motor and at a cognitive level. Some probably were calmer underwater than others, and felt more secure than others. Prior learning and motivations can differ from one diver to another, too.

When we undertake activities with people with special needs, the situation will be similar to what our instructors faced during our beginner diving course. Diving is probably one of the most complex sports to learn and teach. When we first start practising a new sport, everybody's motor performance resembles. Later on, with learning and practice the differences become clearer.

Every recreational diver needs support: during the learning stage, training is required; later on, as the training standards from all international diving entities dictate, the support of at least a diving buddy becomes an obligation, regardless of the certification level.

During our rolling programmes of underwater activities, we will focus on identifying and providing any temporary or permanent support and adjustments to meet the needs of the participant. It is no different from what our instructor did during our entry-level course, i.e., dealing with the different problems by observing first and putting into practice different methodological and didactic resources later.

Changes in the teaching-learning process have to be made in the following elements, which must always revolve around each participant. The activities must be conducted by adequately trained people..

Practice and learning time extension (when needed)

Diverse methodologies suited to each person

Material and technical help adaptation (about diving or other)

Curriculum adaptations

Adaptation to meet information and communication access

Access to the place

REGARDLESS OF THE TERMINOLOGY USED, IT IS IMPORTANT TO SUBMIT QUALITY PROPOSALS AND PROGRAMMES IN ORDER TO WORK WITH THE DIFFERENT GROUPS TARGETED BY OUR ACTIVITIES.

IT IS THEIR RIGHT

2. ROLLING PROGRAMMES OF UNDERWATER ACTIVITIES FOR PEOPLE WITH SPECIAL NEEDS

The rolling programmes for people with special needs aim to create an individualised and progressive project, adapted to the abilities and needs from each participant.

Some of them, due to different circumstances, will take some time to dive in the sea, or they may never do it. The exercises proposed at the end of this text can be a good training before starting open water sessions.

In response to these circumstances, the rolling programmes were created with a long-term aim, so that the pupil gets motivated and he or she does not end up leaving the activity. We have set two main objectives: encouraging their comprehensive development, and making them consider underwater activities as an opportunity to practise sports during their leisure time.

Recommendations to create a rolling programme:

- Individualised and adapted.
 - Taking into account the participant's abilities and previous experiences.
- Progressive.
 - Increasing difficulty has to depend on the participant's learning pace.
- Achievable goals with successful experiences
- Flexible.
 - There has to be room for change and improvement
- Motivational and diverse
- Progressive challenges through different activities and materials
- Assessment required
 - All elements used in the programme must be assessed in order to correct mistakes, improve the whole process and determine future objectives

A friendly and cheerful atmosphere is a must during the pool sessions.

The work team is composed by certified diving instructors, certified divers and other volunteers (not necessarily divers), who altruistically invest their time in encouraging and developing underwater activities for people with special needs.

Each person working with people with special needs plays a different role during pool exercises. However, as the number of participants for each programme may vary, and therefore the number of staff involved, sometimes one person will assume several responsibilities at the same time. This is why we have decided to explain the different tasks that need to be performed instead of the functions that a particular instructor or diver companion would have to fulfil.

When starting a series of exercises in the swimming pool, all people present must know their task. Ideally, instructors should take turns to manage and coordinate the exercises, in order to experience the problems that can arise during a session from all perspectives.

Roles and Responsibilities.

Safety

The head instructor looks after and supervises every safety aspect regarding the activity from the beginning of the event. The rest of the work team deals with the participants. The beginning of the event may correspond to the moment the participants enter the facilities or to an earlier time.

The evacuation plan must be prepared and updated. All members of the team must know it in case it needs to be initiated. One team member must be in charge of informing everybody about it. All emergency numbers and phones have to be reachable. Besides, their location must be known by all people collaborating in the activity.

Safety must be ensured even before entering the water. Although it will be further explained in the organisational aspects, heavy equipment and all materials necessary for creating the exercises must be placed where they will not cause accidents nor disturb. However, its access must also be easy.

Every instructor and diver companion must apply all necessary safety measures during pool training to ensure the safety of the participants, the work team, and their own.

Activity coordination

Responsibility of the head instructor, although it can also be assigned to another instructor.

This particular task, which is executed beforehand and with the participant's personal file as a reference, includes:

- Appointing and coordinating the accompanying staff out of the water
- Coordinating the staff in charge of the diving equipment out of the water
- Coordinating the material assistants for the exercise
- Appointing and coordinating the underwater instructors and divers

The coordinator also handles the necessary equipment and materials for the activity. Of course, he or she must make sure that **all permits and insurances from every participant and the activity itself are in order. This includes, if required by the country's legislation, the certificate of absence of sexual crimes (or any other document required for working with minors) of all members of the work team, and the diving certificates of everyone who will be in the water with the participants).**

During the activity, the coordinator should not be in charge of any participant and should preferably be on the ground, so that he or she has a global vision of the activity and is able to make any necessary adjustments and assessments.

Material management in the pool deck

Designated by the instructor-coordinator.

The equipment area must not obstruct any pool user.

Everything has to be properly organised to rapidly and effectively assign, distribute or change the heavy and light diving equipment. The person in charge has to be able to get the necessary equipment right away. Thus, he or she must possess the participant's file with the sizes. This role is considered of great importance and responsibility. Apart from the tasks described before, the material manager also supervises the exercises and the divers from the ground (this person is never in the water), and he or she must be able to anticipate any possible incident. Of course, he or she must know where everything is at all times.

People in charge of selecting, building, placing, distributing and removing the necessary materials for the exercise

Designated by the instructor-coordinator.

Ideally, there should be two people in order to set up the material more rapidly. Deciding the location and distribution of the materials, as well as checking them in the water must be made before the participants arrive to the pool deck.

Once the activity is over, everybody has to participate in the disassembling and gathering of the materials in an orderly manner.

Instructors and diver companions underwater.

Designated by the instructor-coordinator.

These people are in charge of checking and adjusting the equipment when necessary, accompanying the participant and ensuring their safety and wellbeing, giving clear information of the upcoming exercises, giving the necessary feedback and assessing the adequacy of the exercises for the specific participant and whether the participant has fulfilled the expected objectives. Besides, he or she must inform the participants about their successes and their progression.

Accompanying staff and support on the ground

Designated by the instructor-coordinator.

These people carry out a fundamental task, as they will be the first face the participants see at their arrival—or the first voice they hear. There should always be a masculine and a feminine figure.

They are in charge of a wide variety of tasks, namely helping in the changing room when there is no companion or mediator with the participants (and depending on the person's autonomy); leading the participants to the practice area and helping them put on the equipment; calming down the participants if required, and explaining—using the appropriate communication system—what they are about to do in the pool and with whom. Due to the diverse nature of their tasks, the accompanying staff should always have at hand all personal files and be aware of the order in which the exercises will be done.

It is important to organise and assign a personal space in the pool deck so that the participants can leave their personal belongings (towel, pool shoes) and avoid any losses or confusion. During waiting times, accompanying staff must stay to the participants' side in case there is any need.

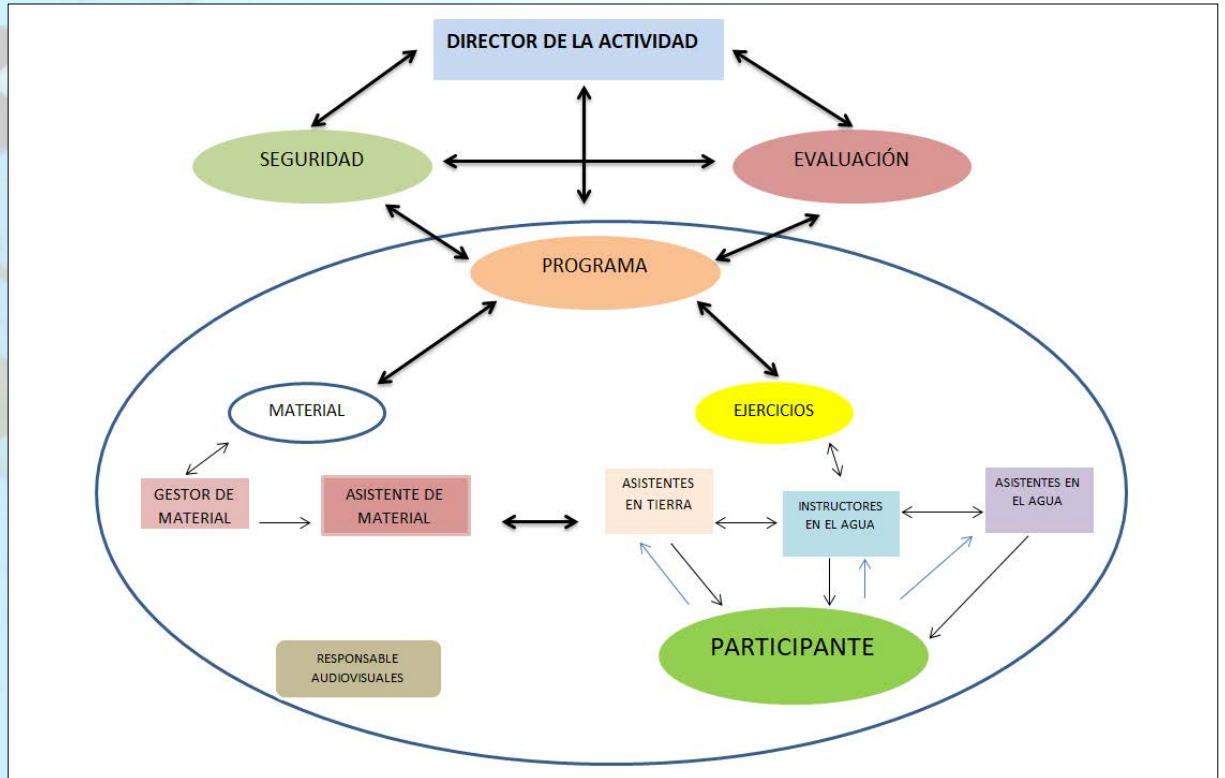
Once the activity is over, they have to discuss the session with the participant and take them to the exit if necessary.

AV person

Designated by the instructor-coordinator.

Person responsible for filming and photographing the activity.

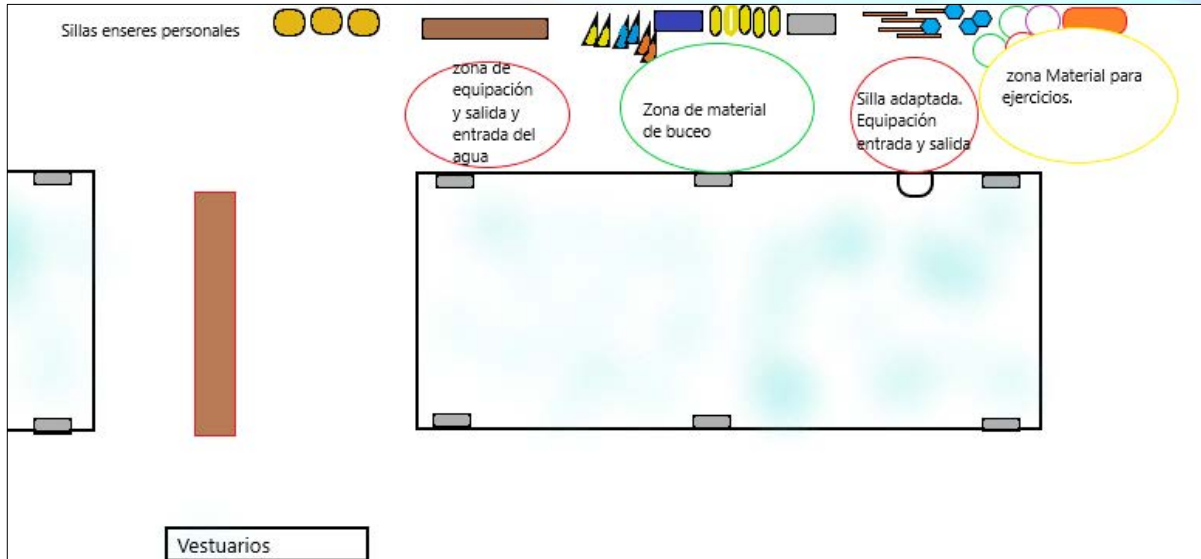
He or she must not hinder the work of the instructors nor the development of the sessions.



4. MATERIAL DISTRIBUTION AND ROOM ORGANISATION

Order and organisation in the work space are a key aspect in order to achieve the planned objectives for each session.

The following diagram shows how we organise the work space during our sessions. It can serve as an example, although depending on the facilities where the sessions will be held, it will vary considerably.



5. SESSIONS FOR PEOPLE WITH SPECIAL NEEDS AS PART OF THE ROLLING PROGRAMME

During the sessions we will put into practice everything that was planned for the participant, all organisational aspects that we covered in the previous section (instructor roles), and we will assess all the elements that are involved in the process.

The sports activities field includes a wide range of session types. In our case (underwater activities), we are subject to time and space. It is preferable to work with two participants while assuring quality than working with six and give them a sense of improvisation and insecurity.

As the session's structure is repeated, we will start creating a work routine. It will reassure us and it will reassure the participant. Besides, it will encourage the participant's autonomy and self-esteem in the following sessions.

The different sections of the sessions will give us valuable information about the state of mind of each participant (motivation, nervousness, calm, happiness, sadness, etc.). We have to pay special attention to their level of motivation, nervousness and sadness, as they are the most important ones. We must not forget that not all days are going to be the same, even for us.

Given the experience we have acquired over time, we suggest the following structure for a session.

Initial Part

- Greetings and communication about what it is going to be done during the session. It can be a simple review about what it was previously communicated to the participant by us, their companions, families, etc.
- Equipment fitting (fins, mask, snorkel, cap). Communication.
- Shower before entering the swimming pool (it can happen before the equipment fitting, provided that it fulfils the facilities' rules)
- Soft warm-up, simple breathing and passive-active propulsion exercises. On the surface.

Main Part

- Putting on the diving equipment.
- Performing the exercises.
- Starting and finishing the session with exercises that the participant masters.
- Progressiveness.

Each participant must finish this part with a success. That is to say, if during the last exercise someone does not achieve the objectives or is nervous, repeat some other exercise that the person does master so that he or she regains trust. The important thing is that the participant finishes this section feeling motivated to keep going and come back.

Besides, transmitting positive feedback about the participant's success while underwater is also a key aspect (always keeping in mind the communication system and through positive reinforcement).

Final part and cooling down

- Helping the participant take off the heavy equipment.
- Swimming slowly on the surface with the snorkel.
- Exiting the water:
 - Accompaniment
 - Information about their achievements while they get dry.

Letting the participants express themselves about what they have felt is of utmost importance (communication). They must go shower feeling relaxed.

Furthermore, we must pay attention to all their opinions and comments about the activity they just executed. These comments will act as a reference to know about their preferences and they will be useful for planning new exercises (preferences about colours, the instructors, the duration, etc.).

If the workload was moderate, we can make supervised muscle stretching.

- Farewell.

6. WORK AREAS IN THE WATER: TOWARDS UNDERWATER PSYCHOMOTRICITY

Carrying out different types of work underwater will supply the participant with new motor skills and learning experiences that can be transferable to other sports or daily activities. It can also boost their autonomy, their self-esteem and can help reinforce their comprehensive development as a person through movement (in this case, underwater).

Furthermore, the aquatic environment allows the participants to improve their body image safely, as underwater they are confronted with motor experiences that cannot be replicated through activities in land.

The exercises and tasks described in this text are focused on encouraging the work of different physical elements inherent to the human being through underwater activities as a sport or leisure activity. Said elements are the following:

- Body schema and its parts.
- Coordination and its types.
- Balance and its types.
- Motor abilities.

In the following diagram we can see the different work areas of psychomotricity.

Psychomotricity areas according to authors		
Louis Pick Pierre Vayer	Body schema	Body awareness, relaxation, attitude, breathing
	Basic motor skills	Balance, general dynamic coordination, eye-hand coordination
	Perceptual motor skills	Space organisation Time organisation
Jean LeBoulch	Body schema and body adjustment	Laterality Body awareness Relaxation Breathing Balance and attitude
	Motor coordination	Eye-hand coordination General dynamic coordination
	Time and space perception Spatiotemporal structure	

Chart extracted from *Actividad Física y Deporte Adaptado a Personas con Discapacidad* (Asún Dieste S.2016) [Physical Activities and Adaptive Sports for People with Disabilities]

In this section we can observe, compare and confirm the suitability of the work areas in the underwater activities proposed in this handbook and the benefits that they can provide to everyone, regardless of their needs.

In the presentation we had already stated that our general objective—the comprehensive development of the person through underwater activities—corresponds to the aim of psychomotricity.

According to Berruezo P. P. (2000):

"Psychomotricity aims at either developing or re-establishing the abilities of the individual from a body point of view (through movement, posture, action and gesture). We could even say that it aims to reach through the body the development of different abilities and potentialities of the subject in all of its aspects (motor, social and emotional, linguistic and communicative, cognitive and intellectual)."

Berruezo himself (1995) defines psychomotricity as follows:

" Psychomotricity is an educational or therapeutic approach that intends to develop the expressive, creative and motor abilities through the body. Their activities focus on movement and on the act itself, including everything that derives from it: dysfunctions, diseases, stimulation, learning, etc."

Psychomotricity does not necessarily obey any therapy or rehabilitation trend, even though they exist. All children practise psychomotricity in their schools and it is not linked to a rehabilitation therapy, but to a learning basis that will allow them to achieve more ambitious objectives in later education stages. It also serves as a means of socialisation and communication.

The definition proposed by Gabriela Núñez and Fernández Vidal (1994) is:

" Psychomotricity is a technique or set of techniques which intend to influence the intentional or deliberate act in order to stimulate or modify it, using the body activity or its symbolic expression. Thus, psychomotricity aims at increasing the subject's ability to interact with the environment."

Psychomotricity can and should be based on three skills, which create three different objective fields (Arnaiz, 1994): sensorimotor, perceptual motor and ideomotor skills.

Sensorimotor skills:

They train the sensitive capacity internally and externally.

Internally, they offer information about our body through the proprioceptive and vestibular senses. These two send information to the brain about our muscle tone, the position of the body parts, body posture, respiratory rhythm, balance, etc.

Externally, they provide information about our environment through sight, touch, smell, hearing and taste.

Perceptual motor skills:

They educate the perceptive capacity through the organisation of the information perceived by the senses and its incorporation into perceptive structures that will give it meaning. This structuration can be made through three aspects:

- Becoming globally aware of the body schema and its parts.
- Organising the feelings from the outside world into perceptive references and organising space and time relationships. It focuses on achieving and understanding the relevant features of the objects and the space and time relationship between them.
- Coordinating the body movements with elements from the outside world in order to control movement and adapt it to the objective.

Ideomotor skills:

They train the representative and symbolic capacity. From the (internal and external) information gathered by the brain, they organise that information in relation to context. The brain will organise and direct the movements to be made without the help of external elements.

These three objectives give us an insight of the wide variety of aspects that every person develops while growing and that they have been building and perfecting over the years.

Apart from these three objectives quoted by Arnáiz (sensorimotor, perceptual motor and ideomotor skills), which are well known and accepted in the psychomotricity field, for Berruezo (2000) there is another objective, focused on communication and language. Once again, we agree with him, as we have been intending to transmit through all work approaches throughout this publication.

Our programmes must be based on global and educational aspects through progressive, simple exercises and games created with safe and inexpensive everyday materials. As it was previously stated in the presentation, we cannot—and should not—replace any therapeutic professional.

However, we can indeed work on global aspects inherent to the human being. In fact, any beginner swimming or diving course mainly focuses on the pupil's body education (breathing control, muscle tone, balance, coordination, laterality, posture control, etc.), either in the aquatic or underwater environment. However, that is no reason to consider it a therapy.

Let us take as an example a person either with Down's syndrome, an intellectual disability, vision impairment or behavioural problems associated to different pathologies. If this person practises any sport (provided that he or she does not have any medical contraindication), would we say that he or she is given rehabilitation therapy through that sport or simply that he or she practises that sport?

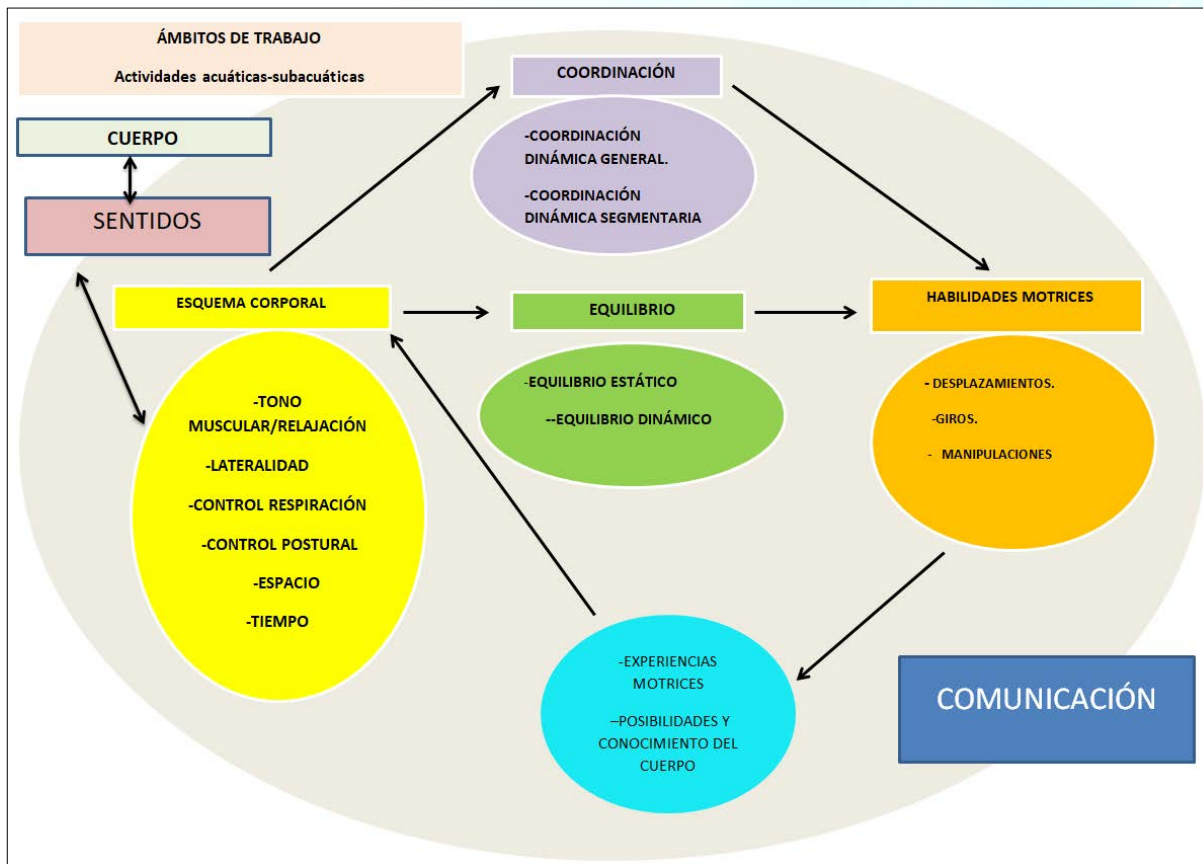
We believe that a person participating in the programme of underwater activities for people with special needs practises diving, and a person that swims with fins practises finswimming. They are not provided with physical therapy through diving or finswimming. If the former achieves the sufficient level and it is considered appropriate, he or she will be able to do a diving course and obtain the corresponding certificate. If the latter swims in a remarkable way, he or she will be able to participate in official competitions.

Nevertheless, we cannot deny that the different aspects worked by the participants during our sessions will contribute to their education and that their motor, social and emotional, linguistic and communicative, and cognitive and intellectual skills will be strengthened. In the end, we will help improve their quality of life.

While programming the activities and exercises for people with special needs, we will need to be extremely cautious with the participants. We must respect their starting point, rhythm and progression. We must also respect their way of interacting and communicating with others, as well as their physical and sensory diversity. Therefore, it is necessary to choose the diving equipment and materials for the exercises wisely, always taking as a reference each participant individually.

All instructors and diver companions must be properly instructed and trained. This is why activity directors and supervisors (in the case of diving, instructors and diver companions) have to devote time and effort to training and preparing the sessions with this collective.

Having good intentions is required, although it is not the only ingredient.



7. COMUNICACION

WE MUST COMMUNICATE WITH THE PARTICIPANTS UNDERWATER AND ON THE SURFACE.



One of the main problems that the instructor or the diver companion can be confronted with is transmitting structured and concise information during the session while working with people with special communication needs.

If during a conventional diving course communication is essential, in this case it is vital.

When people with special needs feel recognised and they understand the activity, their self-confidence and their trust in us will grow. Besides, communicating with them will provide us with the necessary guidelines for correcting or adapting our teaching-learning process and session plan if necessary.

Depending on the condition of the person, we will use different channels to communicate (ear canal, visual or kinaesthetic channels), or a combination of them, in order to alleviate the communication barrier with the participant. Sometimes, when the participant does not clearly communicate orally, the work group will have to use different communicative supports and strategies to the ones they are used to.

Therefore, should the work groups adapt their communicative action with a specific participant if needed? The answer is, obviously, yes. And so it must be registered and specified in the participant's personal file. If the person already uses an augmentative and/or alternative system of communication (ACC), it is the work group who needs to adapt, get to know and use that system—and never the other way around.

It will take some time to understand and use the new system. This is why collaborating with the families and mediators who already understand and use the appropriate augmentative and/or alternative communication system with the participant will be essential during the first stages.

We will become fluent in communicating with the people we do the exercises with little by little. Some patience is therefore required.

We cannot forget that the main source of information is the participant targeted by the activity.

Information has to be bidirectional and travel from the participant to the instructor and from the instructor to the participant.

Adapting to the ACC systems will take some time, but it will not be in vain: it is an investment for the future.

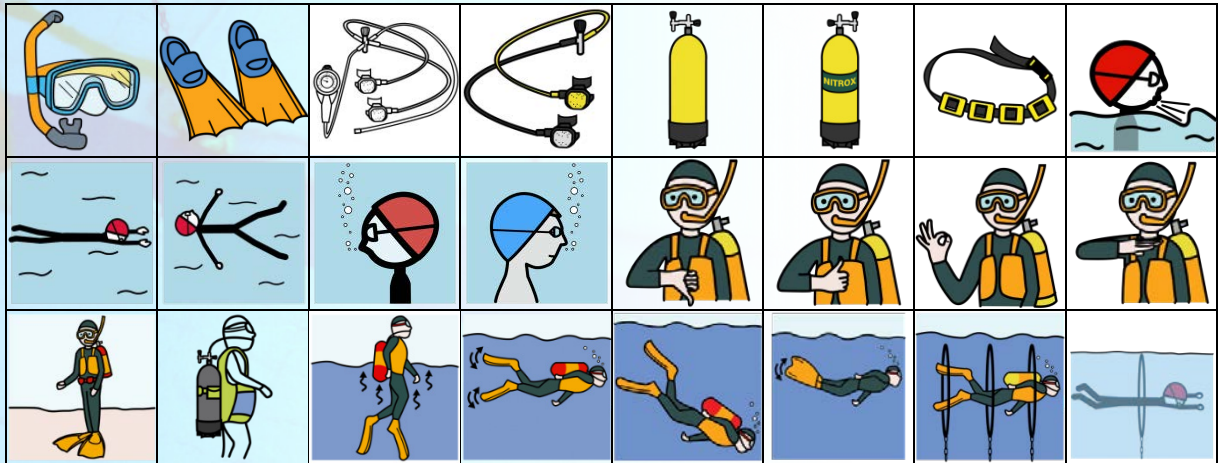
Augmentative and Alternative Systems of Communication (ACC)

Extracted from the site ARASAAC.ORG.

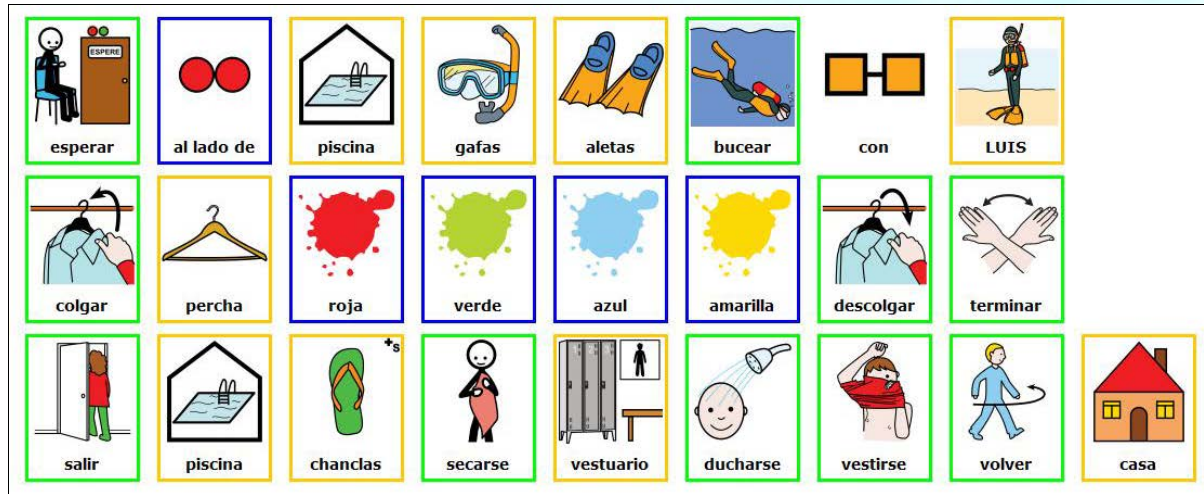
*“The **Augmentative and Alternative Systems of Communication (ACC)** are ways of expression different from spoken language, that aim at increasing (augmentative) and/or compensating (alternative) the difficulties of communication and language of many people with disabilities.’*

‘Communication and language are essential for every human being to interact with other people, to learn, enjoy and take part in society. Today, thanks to these systems, they can’t be restrained by the difficulties with the oral language. For this reason, every person, whether children, teenagers, adults or seniors that for any cause haven’t acquired or have lost the level of spoken language needed for communicating in a satisfactory manner, have to use an ACC.’

Since we launched our project, and based on the needs that appeared, we have been asking ARASAAC to design different pictograms that would be useful and that did not exist. Some of them have been presented at diver instructor’s training programmes and to diver companions..



Communication with people with vision impairment underwater will be established by touch and by clear spatial references (guidewire) or with the presence of the instructor or diver companion. We can also rely on auditory stimuli.



On the ground, each participant must be informed individually about the session exercises in a quiet area.

In order to complement this communication section, we have asked the people in charge of ARASAAC to write something about their work.

ARASAAC: ARAGONESE CENTRE OF AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Pictograms, along with writing and sign language, are an Augmentative and Alternative System of Communication (ACC), which are used to enable functional communication and cognitive accessibility to anybody who, due to different factors (autism, intellectual disability, lack of knowledge of the language, elderly people, etc.), present major difficulties when dealing with these fields, complicating their inclusion in any sphere of everyday life.

Pictograms are graphic representations with varying degrees of abstraction that represent a concept (e.g. people, actions, qualities, feelings, objects) used under different supports depending on their purpose: boards and books of communication (low technology) and special software for phones or electronic communicators (high technology).

In the cases where pictograms are used to improve cognitive accessibility or personal autonomy, they can be used in different formats: documents, signs or even different types of apps.

In 2007, the Government of Aragón supported the development of an open-source and free system of communication based on pictograms, distributed with a Creative Commons license. Thus, the 'Portal Aragonés de la Comunicación Aumentativa y Alternativa ARASAAC' was born [Augmentative and Alternative Communication Portal from Aragón, ARASAAC] (<https://www.arasaac.org>). In April 2019, via the decree 58/2019 from the Government of Aragón, the Aragonese Centre of Augmentative and Alternative Communication (ARASAAC Centre) was created, in order to perpetuate this collaborative project. Its headquarters are located in the public special education school Alborada in Zaragoza.

Nowadays, ARASAAC provides 11,500 pictograms (in black and white and coloured) which have become one of the most recognised pictographic systems of communication nationally and internationally. All pictograms can be freely downloaded from our web page. Furthermore, there are more than 3,500 materials available in several languages prepared by professionals and families using these resources.

A collection of more than 4,500 videos and photos in Spanish Sign Language can also be found.

The website offers several online tools that facilitate the creation of different adapted materials.

Apart from the resources offered through the portal, ARASAAC carries out educational and outreach work related to everything surrounding pictograms and its implementation in different areas of everyday life.

In order to offer quality learning content about the use of pictograms in different contexts, in June 2016 the 'Aula Abierta' [Open Classroom] learning website was created (<http://aulaabierta.arasaac.org/>). This new initiative offers, freely and without registration, tutorials about augmentative communication; it provides knowledge about the most representative materials published in our portal; gives access to examples of pictogram uses in different areas of life

(health, public spaces signalling, leisure time/sports, culture, restaurants, etc.), and provides handbooks and tutorials about the tools that use ARASAAC pictograms.

Finally, ARASAAC has an extensive online presence (Instagram, Facebook, Twitter), where we make public all news regarding our project: materials, new pictograms, tutorials, examples of use, training...

Instagram: <https://www.instagram.com/arasaac/>

Facebook: [es-es.facebook.com/arasaac/](https://www.facebook.com/arasaac/)

Twitter: twitter.com/arasaac.

ARASAAC

**Centro Aragonés
para la Comunicación
Aumentativa
y Alternativa
ARASAAC**

Colegio de Educación Especial

Alborada

Centros pertenecientes a la red escolar del Gobierno de Aragón. Estos centros se encuentran ubicados en Zaragoza

8. MATERIALS

All materials that will be used during the sessions must, at least, be:

- Safe to use inside and outside of the water
- Polyvalent
- Easy to handle and light
- Easy to assemble and disassemble
- Easy to store
- Easy to transport
- Easy to find and affordable
- Part of the learning process and contribute to achieving the objectives

Materials have to be conceived and adapted to assist in the learning process and the achievement of objectives through the different proposed exercises. We will define first the objectives and then think of the necessary materials to achieve them. It is not about covering the bottom of the pool with materials. Everything has to serve a purpose and have a specific meaning not only to the instructor, but also to the participants.

Materials must help achieve the objectives, and not the other way around.

There has to be a wide range of materials. On the one hand, they will increase the opportunities of fulfilling the intended objectives and creating new exercises and versions. On the other hand, they will maintain the participant's enthusiasm, since varying materials break the monotony of repeating the same activity over and over.

Having a broad range of products allows adding new exercises and new objectives that guarantee an adequate progression and development of the abilities of the participant in the aquatic environment. Diversity in colour, size, weight, volume and texture will ensure a good sensory variety to the participants, while respecting their diversity.

Many of the materials presented in this text can be easily found in primary and secondary schools, gyms, sports clubs and swimming pools. The fact that these materials are used in these establishments can already give us an idea about the great deal of options that they can offer us during the development of our activities. Our suggestion is starting by using the resources which are already available in the market and then include little by little new and more specific materials, either built for a specific person or to achieve specific objectives.

Even though there are several businesses which produce and sell these types of materials, for our exercises we have mainly used materials purchased through elkspport. This company has a long history of importing and manufacturing sports equipment in Spain. We encourage our readers to check their products, as they will inspire them to create new exercises.

Some of the materials were granted by elkspport and presented at the I CMAS SND International Meeting held in Alicante in October 2018.

<https://www.elkspport.com>



Some materials will require several adjustments in order to be able to use them underwater more comfortably and effectively. Some of the adjustments made will be described in the exercises, although not all of them. In any case, they are a mere description of the minor difficulties that we have encountered and illustrate how we have easily solved them. We are sure that you will find different solutions adapted to your conditions and facilities.

9. EXERCISES

Here is where we take action and where we are going to verify, through the assessment, if we are fulfilling the objectives. Everything that is involved in the process must be evaluated. If not, our work will lack accuracy and we will continue to cling to a stagnant approach about the very concept of these activities and the people targeted by them. Through evaluation we will improve the quality of our activities and interventions and, therefore, it will also have an effect in the participant's progress.

The proposed exercises intend to encourage sensory work (the senses), as well as the body schema and its different parts. However, during our sessions in the aquatic environment, the participants will also work on their motor skills, coordination and balance.

This handbook proposes a set of 20 exercises with illustrations. In the future, we will publish more, as we have already prepared them. The exercises are not organised in terms of progression or difficulty.

Each exercise describes the activity and proposes several alternatives to the main exercise (the final count of this first block is more than 100 different exercises). We also describe the different work areas, as well as the materials needed to perform the exercise. Some of them, depending on the participants' features, can be done free diving or from the surface. There are countless combinations of tasks and materials, so it is your turn to experiment in the water. Observing while the participants experiment will be very enlightening for instructors and diver companions, as it will give them information about the different possibilities of an exercise or a specific material.

Taking into account the characteristics of the people who will perform the exercises, necessary adaptations in the materials must be made (tactile, visual and auditory stimuli).

The level of demand during the exercises, as well as the progression and the increase in difficulty level will depend on the dexterity, abilities and possibilities of each participant. The decision will be made by the head instructor, after having checked with the instructors who have previously worked with each of them.

It will all depend on the level of motor competences, confidence and familiarity that the participant shows during the sessions. Many of the exercises can be done in scuba, free diving or on the surface. As it has been previously stated, it all depends on the participant's level and his or her previous experiences.

We believe it is necessary to remind that we must be very flexible regarding time. It is important to devote enough time to give the instructions, to the exercise itself (repetitions) and to the motor response of the participant.

Communicating effectively is a must. The participant has to be provided with all the information to do the exercise, and the information given must be organised, structured and understandable. The communication process must be

done before, during and after the exercise, like in any ordinary diving course, although the communication system used by the participant must be respected.

During the exercises we must accompany the participant from a proper distance in order to guarantee safety, and provide him or her with the necessary assistance to perform the exercise.

Each work team has to evaluate what diving equipment will be more appropriate to each person that participates in these activities.

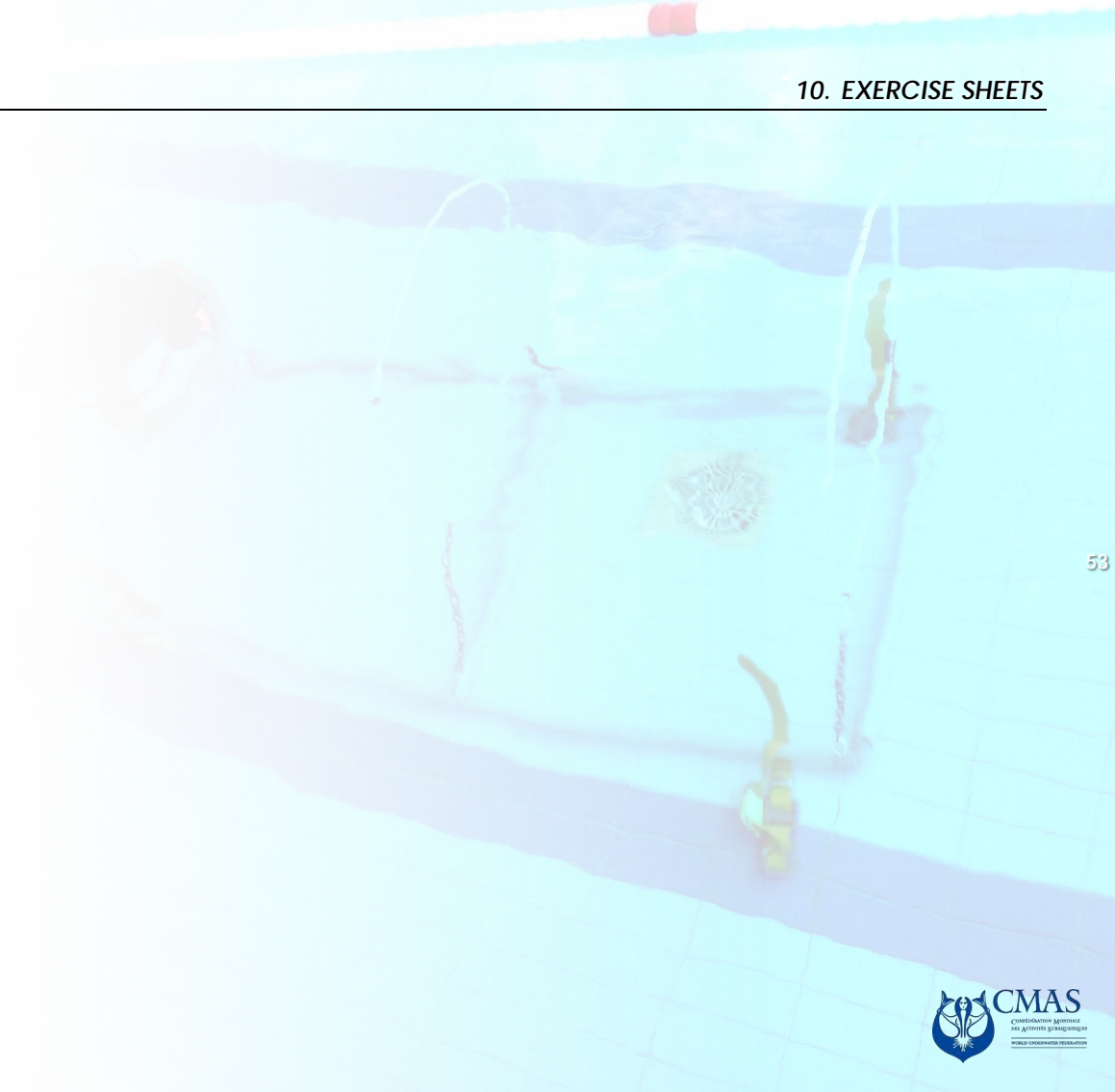
Before starting the different exercises, the work team has to take into account the level of the participant. After an initial contact with underwater activities, a series of minimum standards must be set for the beginning of the rolling programme with a person with special needs.

The exercises we propose have been conceived to be done in a swimming pool. They have not been tested in a diving pit or confined waters.

Depending on the facilities, its equipment (lane markers, ladders, diving boards, etc.), and the size of the pool (number of lanes), we will have to adapt our exercises to the resources we have. We have to test every material beforehand in order to evaluate the security of the facilities.

In some of the illustrations, there are bigger and smaller materials. Choosing one or another will depend on the participant who is about to do the exercise.





EXERCISE 1: HANGERS AT DIFFERENT HEIGHTS

DESCRIPTION

Lying face down on the pool, hang the plastic hangers at different heights of the vertical string. Both buoyancy and propulsion are developed.



Standing on the pool bottom



Kneeling on the pool bottom



Horizontally in neutral buoyancy

ALTERNATIVES

- Unhang the hangers
- Use big colourful pins instead of hangers
- Alternate the use of the upper limbs, or use them simultaneously
- Perform the exercise in different positions: kneeling, standing (with external help)
- Practise buoyancy on different levels both hanging and unhangng the hangers

WORK AREAS

Body schema

- Muscle tone
- Posture control
- Breathing
- Laterality
- Space structuring (perception and spatial orientation)
- Time structuring

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance

Skills and abilities

- Movement
- Body turns: longitudinal and anteroposterior axis
- Handling types: grabbing, releasing

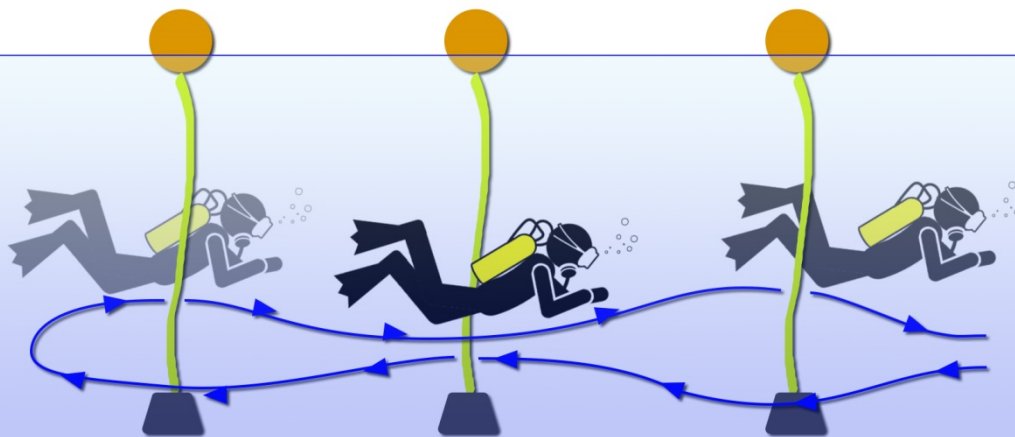
MATERIALS

- 1 buoy (although the lane marker can also be used)
- Plastic hangers in different colours
- 1 piece of bright colour string, visible for the person who will perform the exercise, with loops every 15–25 cm
- 1 weight for anchoring

EXERCISE 2: COURSE THROUGH FLOATING STRIPS AND BUOYS

DESCRIPTION

Move through the pool bottom doing different trajectories through a circuit made with floating strips and buoys.



"Slalom"

ALTERNATIVES

- Create different circuits (circular, linear, rectangular, five-sided...)
- Follow multiple paths showed through different coloured arrows (visual communication through coloured and laminated cards)
- Breathe out in each one of the strips
- Complete the circuit holding an object with both hands (a training pole, for example). Thrust, balance and buoyancy will change

WORK AREAS

Body schema

- Space structuring (spatial perception and spatial orientation)
- Time structuring (rhythm)
- Laterality
- Muscle tone

Coordination

- General dynamic coordination

Balance

- Static balance

Skills and abilities

- Movement
- Body turns: longitudinal and anteroposterior axis

MATERIALS

- Underwater slalom strips: they can be made with coloured plastic strips (which are usually sold in rolls) and a small weight on one end and a piece of white foam for floating on the other end
- Waterproof arrows to put on the pool bottom (they can be bought or made with tyre rubber or rubber flooring)

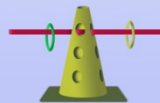
EXERCISE 3: INSERTING AND REMOVING OBJECTS FROM CONES WITH HOLES

DESCRIPTION

Kneeling in front of the cone on the bottom of the pool, insert and extract different objects through the different holes (immersion sticks and quoits). If we want to develop fine motor skills, it is possible to use cords and/or strings of various thicknesses



**Kneeling on the bottom
inserting objects horizontally**



**In neutral buoyancy
inserting vertically**

ALTERNATIVES

(Depending on the person's mobility)

- Turn around the cone to extract or insert the different elements
- Perform the exercise while lying face down
- Insert or extract with both hands at the same time, either in one single cone or simultaneously in two
- Depending on the person's mobility, cross the upper limb (longitudinal axis crossing)
- Ask through visual information what objects have to be extracted or inserted, their colours, the extraction order, create a sequence, etc.
- Place 3 or 4 cones around the participant so that he or she has to turn while kneeling or lying face down

WORK AREAS

Body schema

- Laterality
- Space structuring (spatial perception)
- Muscle tone
- Posture control

Coordination

- Segmental coordination
- Eye-hand coordination

Balance

- Static balance

Skills and abilities

- Handling types: throwing, grabbing and releasing
- Body turns: transverse axis

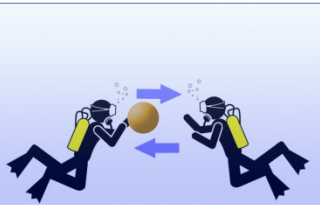
MATERIALS

- Ballasted colourful cones with holes
- Strings and/or cords (only for extracting)
- Short immersion sticks (we can fill short and narrow PVC sticks with stones, cover up their ends and decorate them with colourful tape)
- Colourful quoits
- Colourful 70 cm training poles
- Coloured and laminated cards with the objects that will be used. Waterproof arrows to place on the bottom of the pool

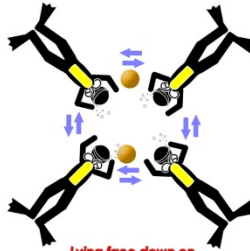
EXERCISE 4: WEIGHTED BALL WITH HOOPS AND CONES

DESCRIPTION

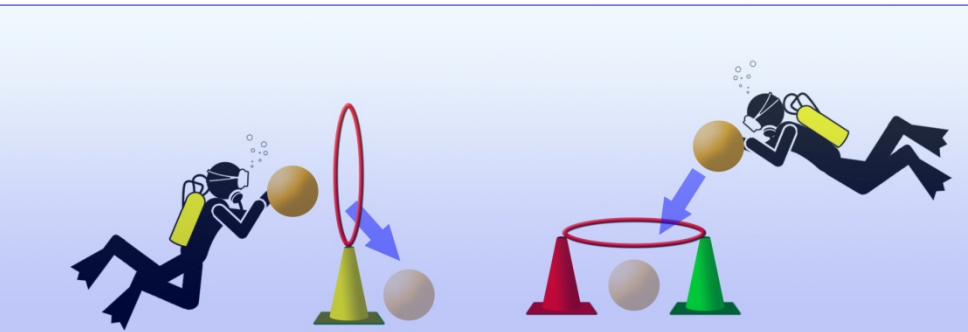
Kneeling on the floor, grab a weighted ball and pass it through a hoop placed at varying heights.



Kneeling on the pool bottom



Lying face down on the pool bottom



Kneeling on the pool bottom

Horizontally in neutral buoyancy

ALTERNATIVES

- Pass the ball to a buddy's hand or hands
- With four people, pass the ball to the right or left with one hand or both hands (depending on the weight)
- Lying face down on the floor, move the weighted ball laterally
- Turn around the cone to extract or insert the different elements
- Perform the exercise while lying face down
- Insert or extract the ball with both hands at the same time, either in one single cone or simultaneously in two
- Depending on the person's mobility, cross the upper limb (longitudinal axis crossing)
- Ask through visual information what objects have to be extracted or inserted, their colours, the extraction order, create a sequence, etc.
- Place 3 or 4 cones around the participant so that he or she has to turn while kneeling or lying face down

WORK AREAS

Body schema

- Laterality
- Space structuring (spatial perception and spatial orientation)
- Muscle tone

Coordination

- Segmental coordination
- Eye-hand coordination

Balance

- Static balance

Skills and abilities

- Handling types: throwing, grabbing and releasing
- Body turns: transverse axis

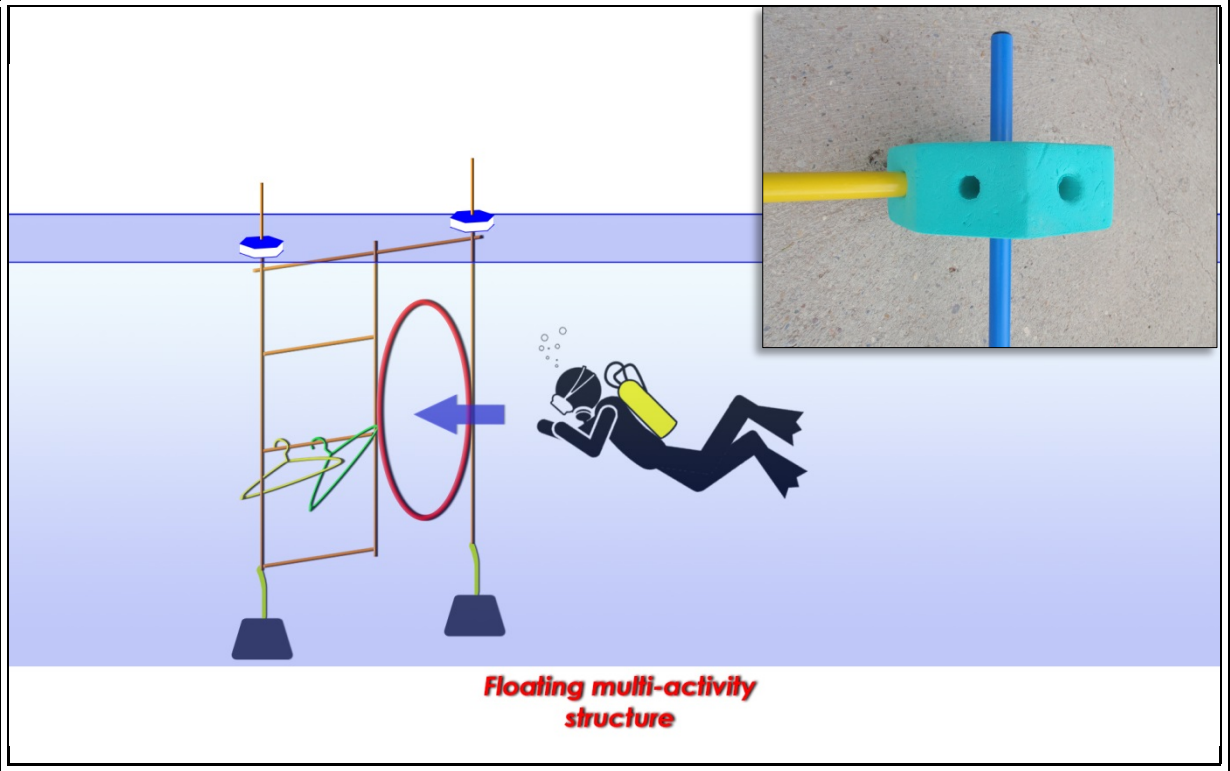
MATERIALS

- Swim hoop inserted in 2 cones (either horizontally or vertically)
- Instead of a hoop, a plastic box can also be used
- Weighted balls (weights ranging from 0.5 kg, 1 kg, 1.5 kg to 2 kg)
- If the participant cannot grip the ball properly, it can be wrapped with a net or plastic bag so that the person can insert his or her fingers

EXERCISE 5: EXERCISES IN A VERTICAL TWO-DIMENSIONAL FLOATING STRUCTURE

DESCRIPTION

Perform different tasks and execute different circuits through the two-dimensional structure.



ALTERNATIVES

- Perform the exercise standing or lying face down to develop buoyancy
- Hang and/or unhang colourful hangers at different heights in the different elements (hoops, training poles) either with one or both hands.
- Pin and unpin big colourful pins at different heights, either horizontally or vertically (using one or two hands)
- Depending on the dimensions of the structure, different circuits can be created (going up or down)

WORK AREAS

Body schema

- Spatiotemporal structure (spatial perception, spatial orientation, propulsion rhythm)
- Muscle tone
- Laterality

Coordination

- General dynamic coordination

Balance

- Dynamic balance

Skills and abilities

- Movement
- Body turns: longitudinal, transverse and anteroposterior axis

MATERIALS

- Training poles¹ of varying lengths
- Plastic double clips to link the hoops and poles
- 75 cm round hoop
- Two octagonal floating blocks or two foam rubber blocks to make the structure float
- Strings and weights to attach the structure to the bottom

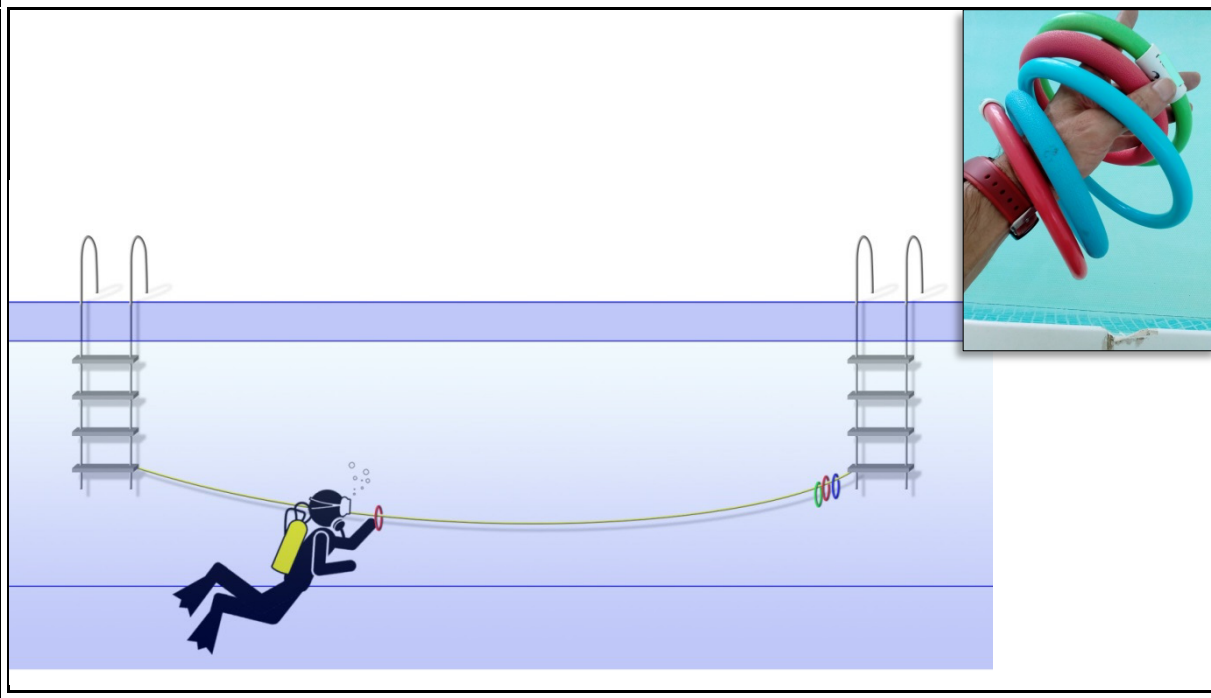
1. We advise making small holes at the lower part of the poles to tie the strings and adjust the weights.

EXERCISE 6: EXERCISES WITH STRINGS, QUILTS OR RINGS¹

DESCRIPTION

Transport the quoits or colourful rings through a piece of string. It can be done at the pool bottom or at different depths, depending on the features of the pool.

1. *When working with people with visual impairment, we recommend tying a knot 1.5 m before the end to indicate the end of the path (the participant must be informed beforehand).*



ALTERNATIVES

- Use right hand, left hand or both
- Lateral thrust
- Different trajectories and combinations

WORK AREAS

Body schema

- Muscle tone
- Space structuring (perception and spatial orientation)
- Time structuring (flapping rhythm, speed and length of the movement)
- Laterality

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance

Skills and abilities

- Movement: different speeds and directions
- Handling types: grabbing, releasing
- Body turns: longitudinal, transverse and anteroposterior axis

MATERIALS

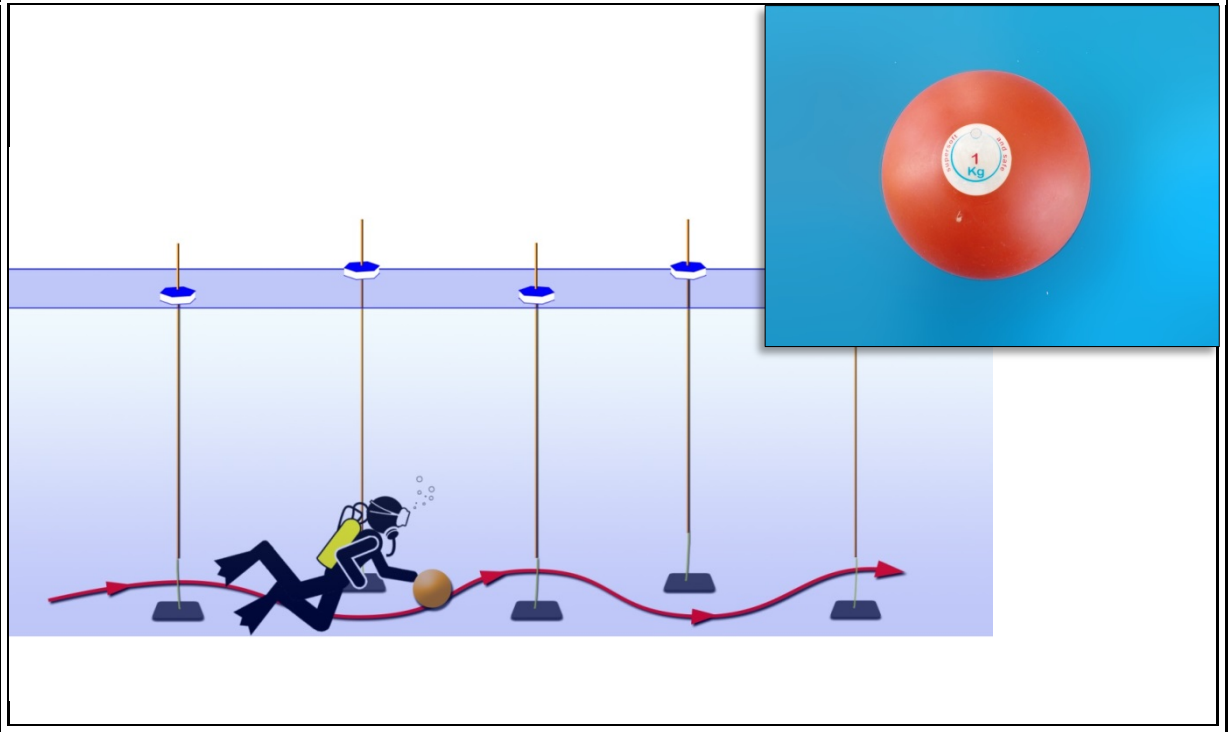
- Colourful quoits (plastic hoops or even hangers hung on the string can be used), or colourful rings
- Long strings², in dark and light colours if possible
- Stainless steel karabiners (two per each section of string)

2. *When working with people with visual impairment, we recommend tying a knot 1.5 m before the end of the string to indicate the end of the path (the participant must be informed beforehand).*

EXERCISE 7: CIRCUITS WITH WEIGHTED BALLS

DESCRIPTION

Push and/or roll the weighted balls (different weight depending on the person) through a circuit marked on the bottom. Combination of push and breathing.



ALTERNATIVES

- Use one hand (left or right) or both hands alternating push
- Push or roll the weighted balls with one or two hands through the swimming lanes
- Kneeling and/or lying face down statically, pass it from one hand to another
- Perform the circuit with marbles

WORK AREAS

Body schema

- Breathing control
- Posture control
- Laterality
- Spatiotemporal structure (spatial perception, spatial orientation, rhythm and speed)
- Muscle tone

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance

Skills and abilities

- Movement: propulsion (flapping)
- Body turns: anteroposterior, transverse and longitudinal axis
- Handling types: pushing, rolling, punching

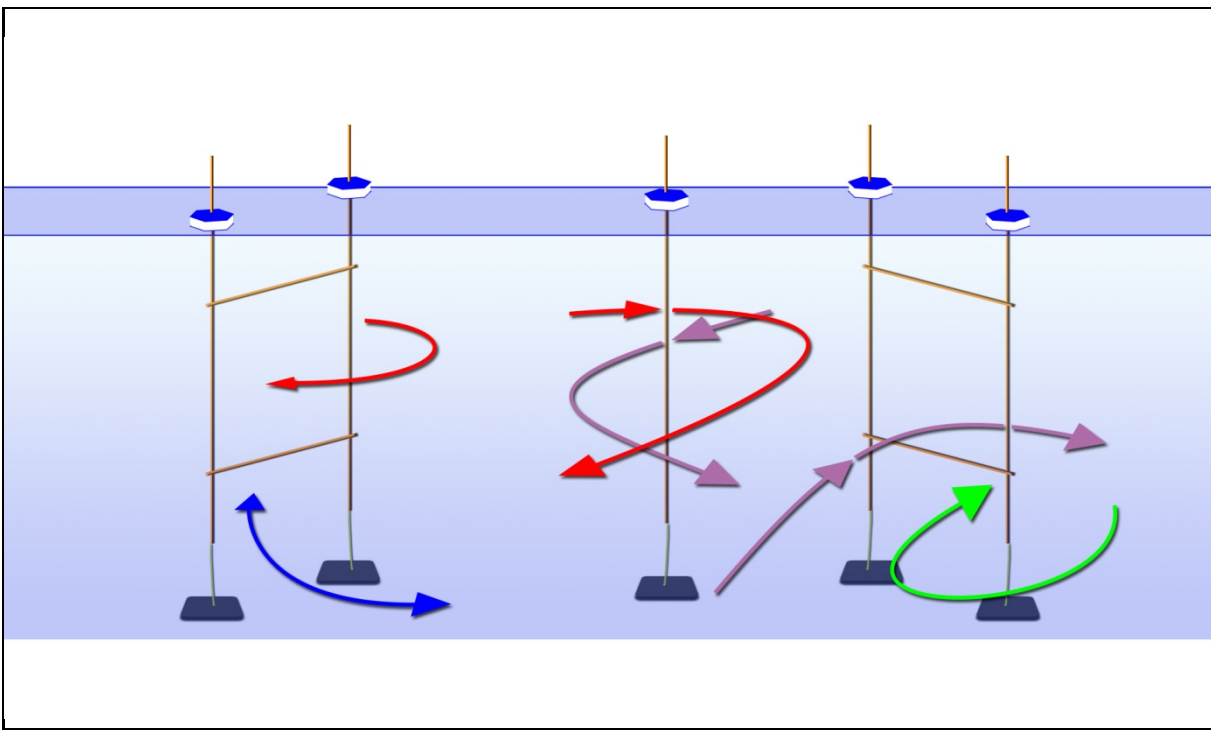
MATERIALS

- Weighted balls of varying weights and sizes (adapted to the participant)
- Small and light glass marbles
- Underwater slalom strips (bought or home-made)
- Optional: rubber arrows to mark the circuit on the pool bottom (bought or home-made)
- It is also possible to perform this exercise using underwater hockey equipment

EXERCISE 8: CIRCUIT THROUGH A TWO-DIMENSIONAL FLOATING STRUCTURE

DESCRIPTION

Follow different paths at different heights. In this case, the different paths are straight or curved, although they can also be circular.



ALTERNATIVES

- Form different geometric shapes when creating the circuit (triangles, trapeziums, stars), or even letters or numbers
- Perform the same exercise carrying a short training pole with both hands. Both propulsion and upper body turns will be worked
- Perform the same exercise working the three dimensions
- Assign the different stages of the breathing cycle (breath in, apnoea, breath out) to specific places of the circuit

WORK AREAS

Body schema

- Laterality
- Muscle tone
- Posture control
- Spatiotemporal structure (spatial perception, spatial orientation, execution speed, execution time sequence)

Coordination

- General dynamic coordination
- Segmental coordination

Balance

- Dynamic balance (floating)

Skills and abilities

- Movement
- Body turns: longitudinal, transverse and anteroposterior axis

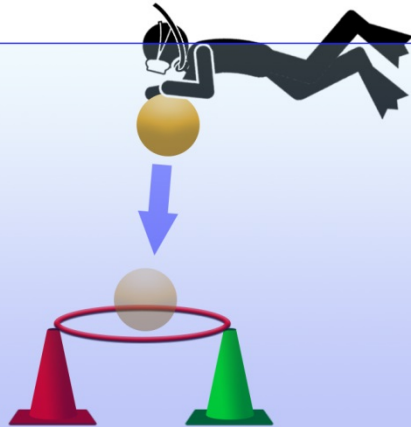
MATERIALS

- Floating octagons
- Long training poles
- Double rotating clips
- Strings to tie the structure to the lane markers
- Strings to attach the weights to the pool bottom
- Weights
- Laminated cards to inform of the path (visual example)

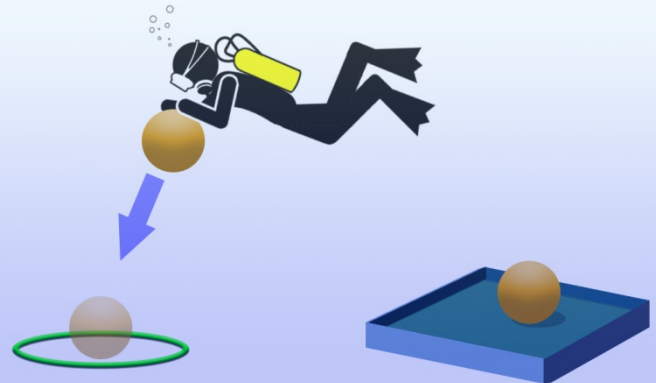
EXERCISE 9: THROWING EXERCISE ON THE SURFACE OR UNDERWATER

DESCRIPTION

Follow a circuit and drop weighted balls (or coloured quoits) inside hoops or boxes from the surface or underwater



**From the surface
with snorkel**



**In neutral buoyancy
with scuba**

ALTERNATIVES

- Combine different objects and paths
- Throw the objects with the right or left hand, alternatively and/or simultaneously

WORK AREAS

Body schema

- Laterality
- Muscle tone
- Body control
- Spatiotemporal structure (spatial perception and calculation of the trajectory regarding propulsion speed and object's location)

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance

Skills and abilities

- Movement: propulsion (flapping)
- Body turns: longitudinal, transverse and anteroposterior axis
- Handling types: grabbing, releasing

MATERIALS¹

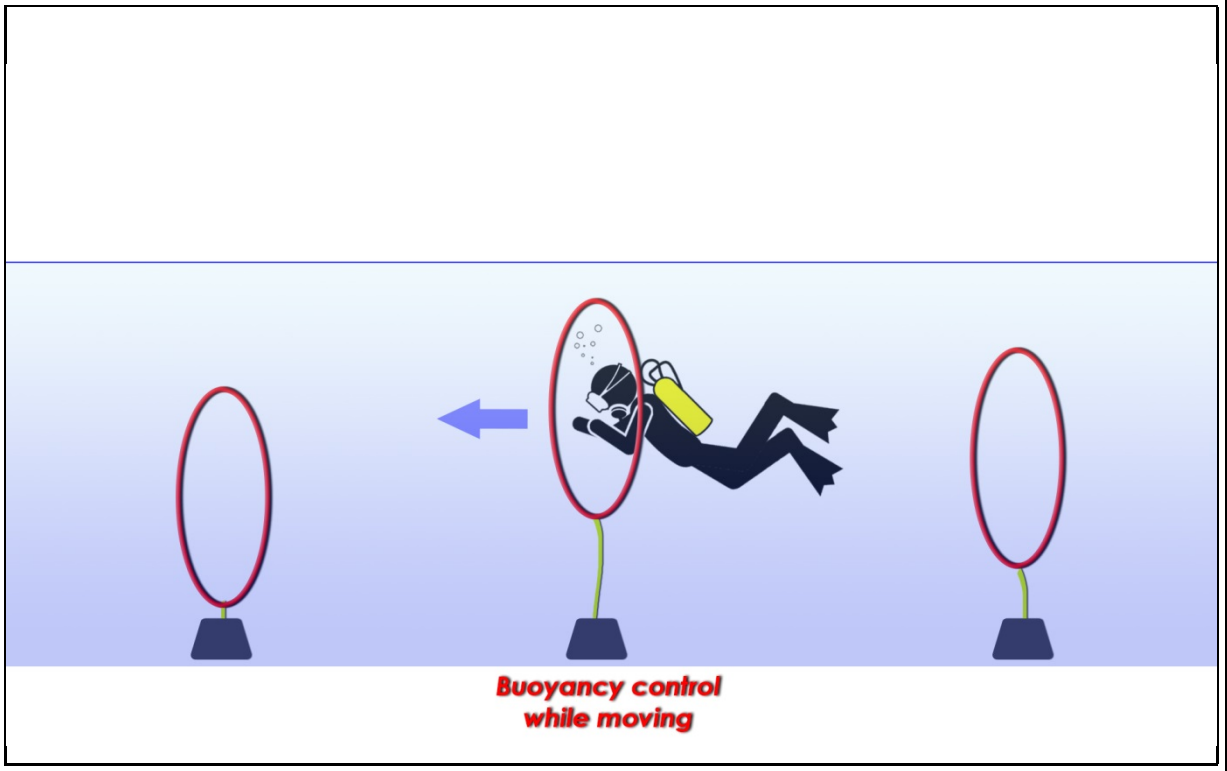
- Weighted balls of different weights, adapted to the participant
- Colourful quoits
- Hoops and cones (ballasted)

1. *When working with people with visual impairment, we recommend tying a knot 1.5 m before the end of the string to indicate the end of the path (the participant must be informed beforehand).*

EXERCISE 10: GOING THROUGH BALLASTED HOOPS

DESCRIPTION

Go through ballasted hoops while breathing. Breathe out when exiting the hoop.



ALTERNATIVES

- Combine different paths and heights
- Perform the exercise without moving the upper body
- Perform the exercise holding their breath

WORK AREAS

Body schema

- Laterality
- Breathing
- Spatiotemporal structure (spatial perception, perception of the body dimensions, spatial orientation, propulsion speed and respiratory rhythm)
- Muscle tone

Coordination

- General dynamic coordination

Balance

- Dynamic balance

Skills and abilities

- Movements: propulsion and flapping
- Body turns: longitudinal and anteroposterior axis

MATERIALS

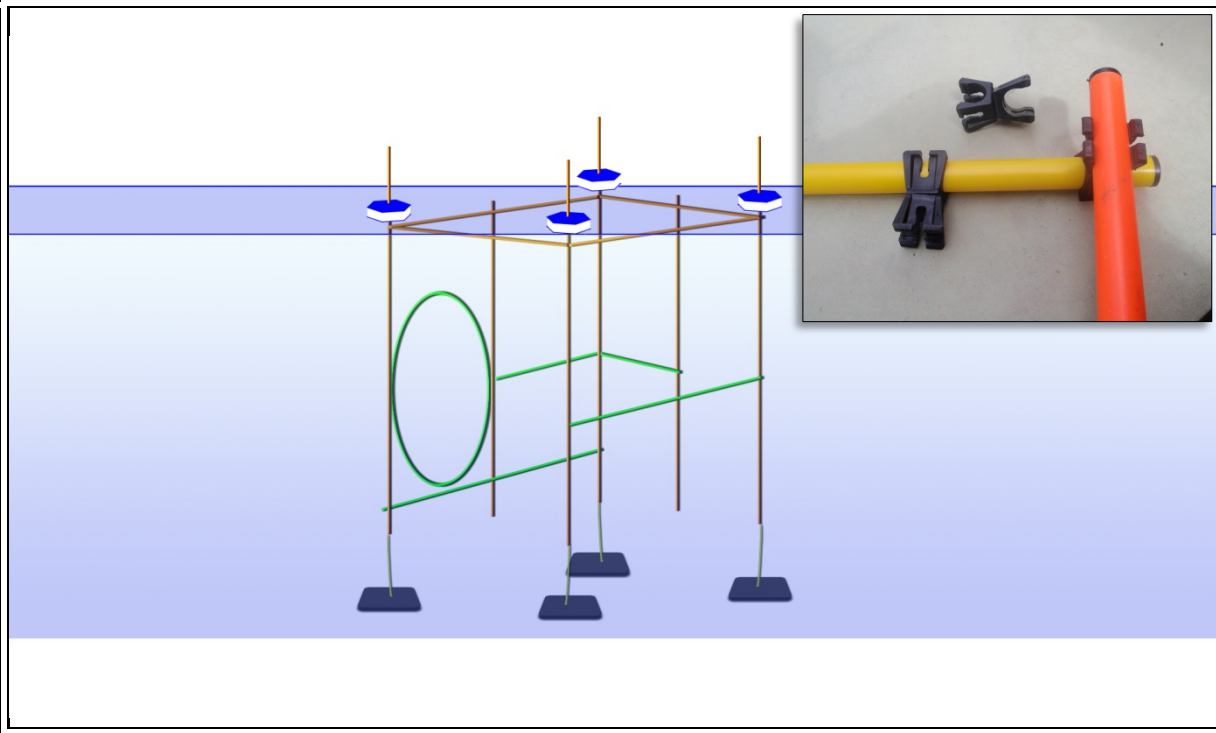
- Floating hoops ballasted to the pool bottom
- Quantity will vary depending on the circuit
- Hoops can be numbered or its colour can be indicated in the laminated cards so that the order can be modified in every repetition

EXERCISE 11: EXERCISES IN A VERTICAL THREE-DIMENSIONAL FLOATING STRUCTURE

DESCRIPTION

Follow different circuits through a three-dimensional infrastructure located underwater.

Path difficulty will vary depending on the participant.



ALTERNATIVES

- There are endless possibilities, since the different paths can be combined with the three dimensions that the aquatic environment offers.
- • Combination of thrust and breathing

WORK AREAS

Body schema

- Spatiotemporal structure (spatial perception, perception of the body dimensions, spatial orientation, different velocities, execution order over time)
- Laterality
- Muscle tone

Coordination

- General dynamic coordination
- Segmental coordination

Balance

- Dynamic balance

Skills and abilities

- Movements
- Body turns: longitudinal, transverse and anteroposterior axis

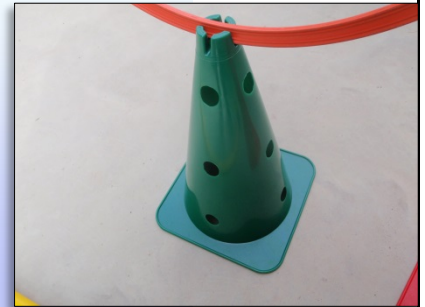
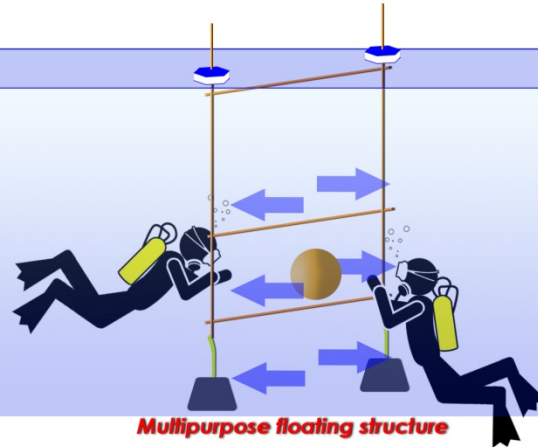
MATERIALS

- 4 floating octagons or foam rubber blocks
- 8–10 long training poles (1.60 m) and 6–8 shorter ones
- Double rotating clips and double clips (quantity will depend on the number of poles used to build the structure and other elements that will be added)
- 4 pieces of string to tie and attach the structure to the lane markers and stainless steel karabiners
- At least 4 weights with their corresponding fastening and anchoring solution at the bottom of the structure and karabiners to ballast the structure and anchor it to the pool bottom

EXERCISE 12: MANUAL SWAPPING AND THROWING

DESCRIPTION

Handle (pass, give, grab, release, propel, etc.) different light objects at different heights and with different trajectories.



ALTERNATIVES

- Combine the exercise with movements
- Combine the exercise with breathing while remaining motionless (kneeling, lying face down and standing)
- Establish a passing or giving order (by colour, shape, size or number)
- Include several participants at the same time

WORK AREAS

Body schema

- Laterality
- Posture control
- Space structuring (spatial perception, spatial orientation, execution rhythm and speed)
- Muscle tone
- Breathing control

Coordination

- Segmental coordination and eye-hand coordination

Balance

- Static balance

Skills and abilities

- Handling types: throwing, giving, releasing, grabbing
- Body turns: transverse, longitudinal and anteroposterior axis

MATERIALS

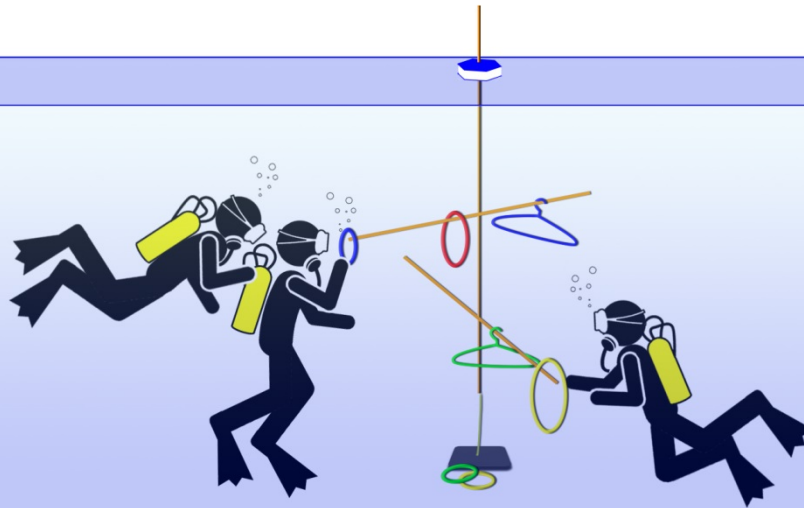
- 1 flat hoop
- 1 cone with holes
- Two-dimensional structure: 2 floating octagons and at least 5 long training poles, with double rotating clips
- Strings and karabiners to attach the structure to the lane markers
- Weights and strings to anchor the structure to the bottom
- Different objects (weighted balls, petanque boules filled with water, colourful quoits, scuba flags, submergible rings, immersion sticks or colourful sponges)

EXERCISE 13: PLACING AND EXTRACTING OBJECTS

DESCRIPTION

Place, insert and extract different objects placed at different heights in the proposed structure (perpendicular training poles to a floating vertical pole). The exercise shall be done standing with the instructor's help.

It can be performed with either the right or left upper limbs, or simultaneously with both, extracting them laterally.



ALTERNATIVES

- Use big colourful pins
- Perform the exercise while moving to the inner and outer sides of the perpendicular poles
- Kneeling or lying face down
- Combine the different postures above with breathing and buoyancy

WORK AREAS

Body schema

- Laterality
- Space structuring (spatial perception)
- Muscle tone
- Posture control

Coordination

- Segmental coordination and eye-hand coordination

Balance

- Static balance

Skills and abilities

- Handling types: grabbing, releasing, pinching
- Body turns: longitudinal and transverse axis

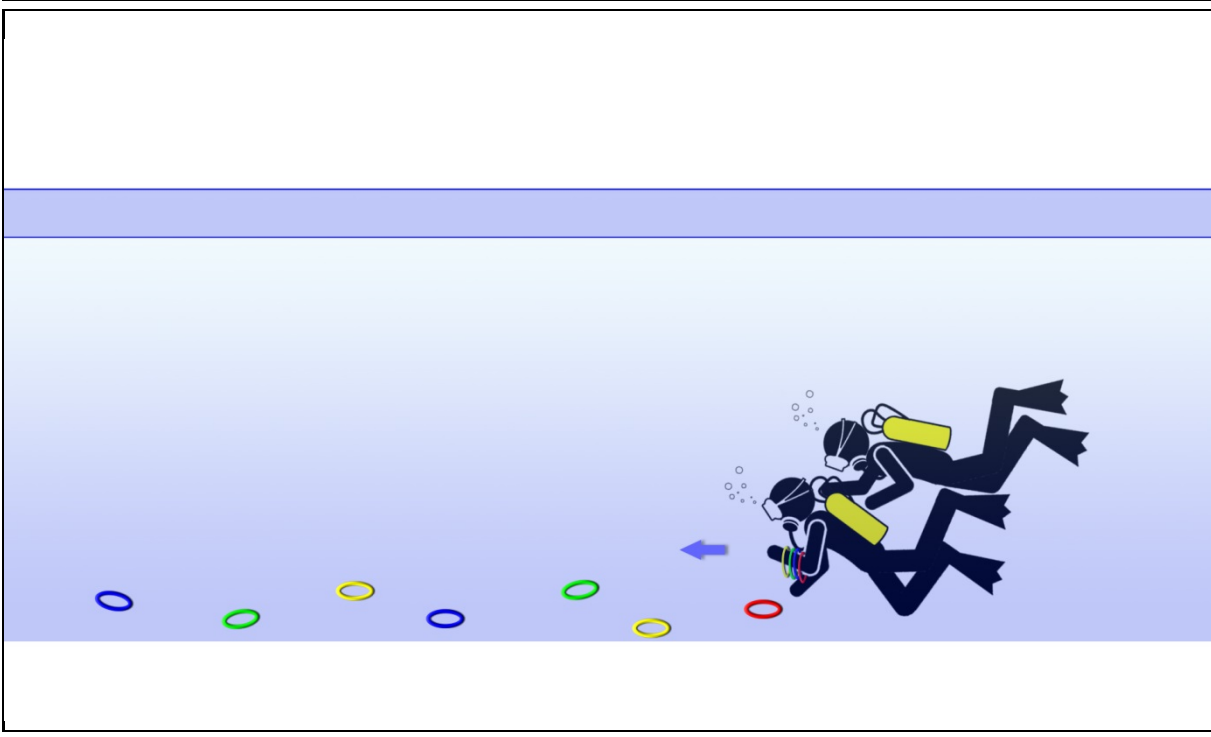
MATERIALS

- 1 floating octagon
- 1 long training pole and 2 shorter ones
- 2 double clips
- Colourful hangers and quoits
- Small rings (36 cm)
- Flexible marker cones
- 2 pieces of string with karabiners to attach the structure to the lane markers

EXERCISE 14: COLLECTING RINGS

DESCRIPTION

Lying face down or kneeling, move to take colourful rings from the pool bottom with one hand and insert them in the arm. It can also be executed with both hands. Free circuit.



ALTERNATIVES

- Ask the participant to gather the rings in a specific order by pointing out the colour of the ring or signalling it in the laminated card
- Establish a picking order beforehand (using the laminated cards)
- Create circuits where the participant has to take groups of 2, 3 or 4 different rings
- Stop by every ring and before picking it, breathe two or three times
- Spread and put the rings freely around the pool or on request of the person responsible for the activity.

WORK AREAS

Body schema

- Laterality
- Spatiotemporal structure (spatial perception, spatial orientation, picking in chronological order, execution speed)
- Muscle tone
- Posture control

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance
- Static balance

Skills and abilities

- Movement
- Handling types: grabbing, inserting, releasing
- Body turns: longitudinal, transverse and anteroposterior axis

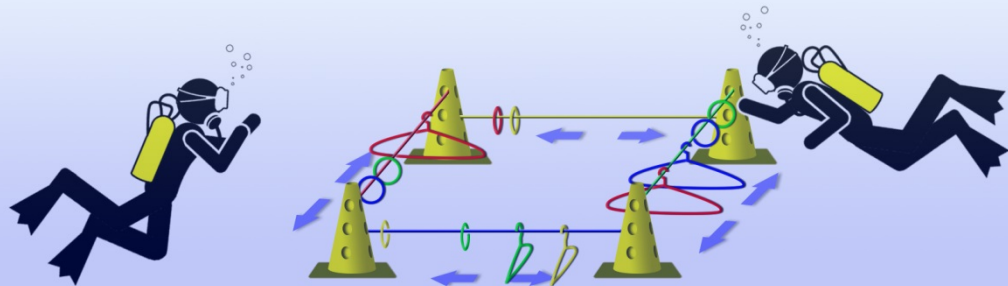
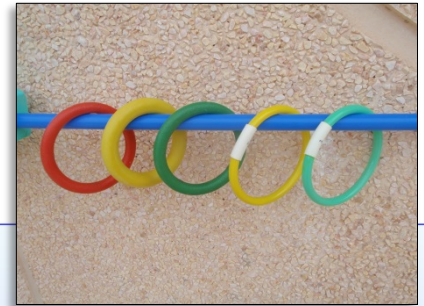
MATERIALS

- Colourful submergible rings
- Laminated cards with the necessary information for the participant: colours, numbers, established circuits by distance, direction, etc.

EXERCISE 15: MOVING A RING Laterally

DESCRIPTION

Pull colourful submergible rings through a training pole placed horizontally. Pull them from the centre to the right and left alternately.



ALTERNATIVES

- Kneeling
- Combine breathing and buoyancy
- Use hangers and colourful pins
- Several people at the same time
- Move all the rings only to the right (or left)

WORK AREAS

Body schema

- Laterality
- Space structuring: spatial perception, spatial orientation, execution order, rhythm and velocity
- Muscle tone
- Posture control

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Static balance

Skills and abilities

- Lateral movements
- Handling types: grabbing, releasing, lateral pushing
- Body turns: longitudinal and anteroposterior axis

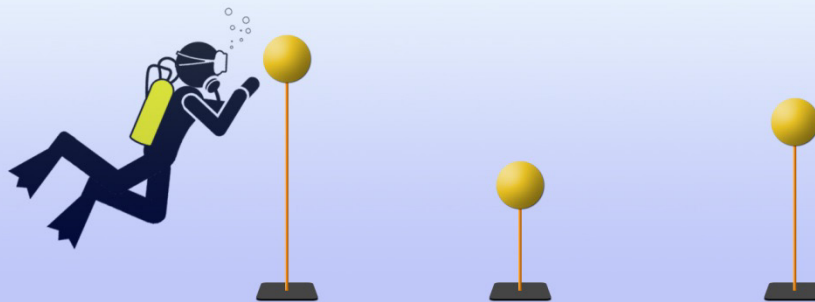
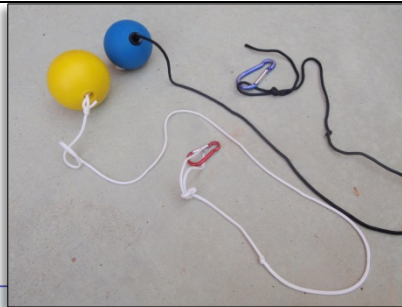
MATERIALS

- 4 cones with holes and rings
- 4 long training poles
- Colourful rings, quoits or flexible marker cones
- 4 weights

EXERCISE 16: KNOCKING AND PUSHING FLOATING BALLS AT DIFFERENT HEIGHTS

DESCRIPTION

Frontally knock or push foam rubber balls placed at different heights with the hands. Kneeling and moving to the different balls placed over the pool.



ALTERNATIVES

- Knock the ball alternating the left and right hands (frontal hit)
- Lateral hit with one hand
- Knock the ball alternating the left and right hands (lateral hit)
- Combine hitting the ball and turning around it
- All of the above while lying face down and working buoyancy through breathing

WORK AREAS

Body schema

- Muscle tone
- Laterality
- Posture control
- Spatiotemporal structuring (spatial perception, rhythm and velocity)

Coordination

- Segmental coordination and eye-hand coordination
- General dynamic coordination (while moving)

Balance

- Static balance
- Dynamic balance (while moving)

Skills and abilities

- Movement
- Handling types: pushing and hitting

MATERIALS¹

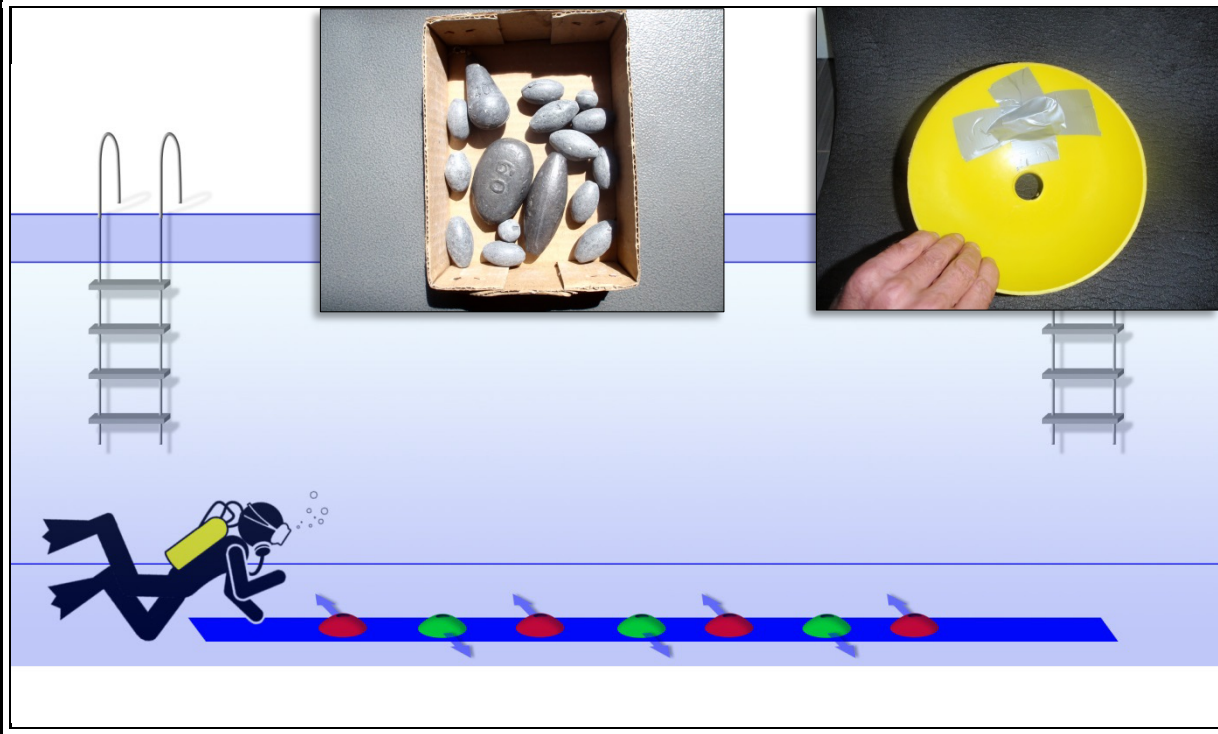
- 4 or 5 white foam or foam rubber balls
- Thin strings of different lengths to place the ball at different heights
- Weights

1. *Make a hole through the ball and introduce a rigid tube to increase protection and durability before passing the string through.*

EXERCISE 17: MARKER CONES

DESCRIPTION

Move the flexible marker cones to the right and left alternatively while moving laterally through the pool bottom (lying face down).



ALTERNATIVES

- Move them only to one side
- Perform the exercise in buoyancy, at about 50 cm from the bottom
- When moving the cones, place them on the lane line of the pool bottom
- Combine the exercise with breathing

WORK AREAS

Body schema

- Laterality
- Muscle tone
- Spatiotemporal structuring

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance

Skills and abilities

- Movement: flapping
- Body turns: anteroposterior axis
- Handling types: pushing, lateral sweeping

MATERIALS¹

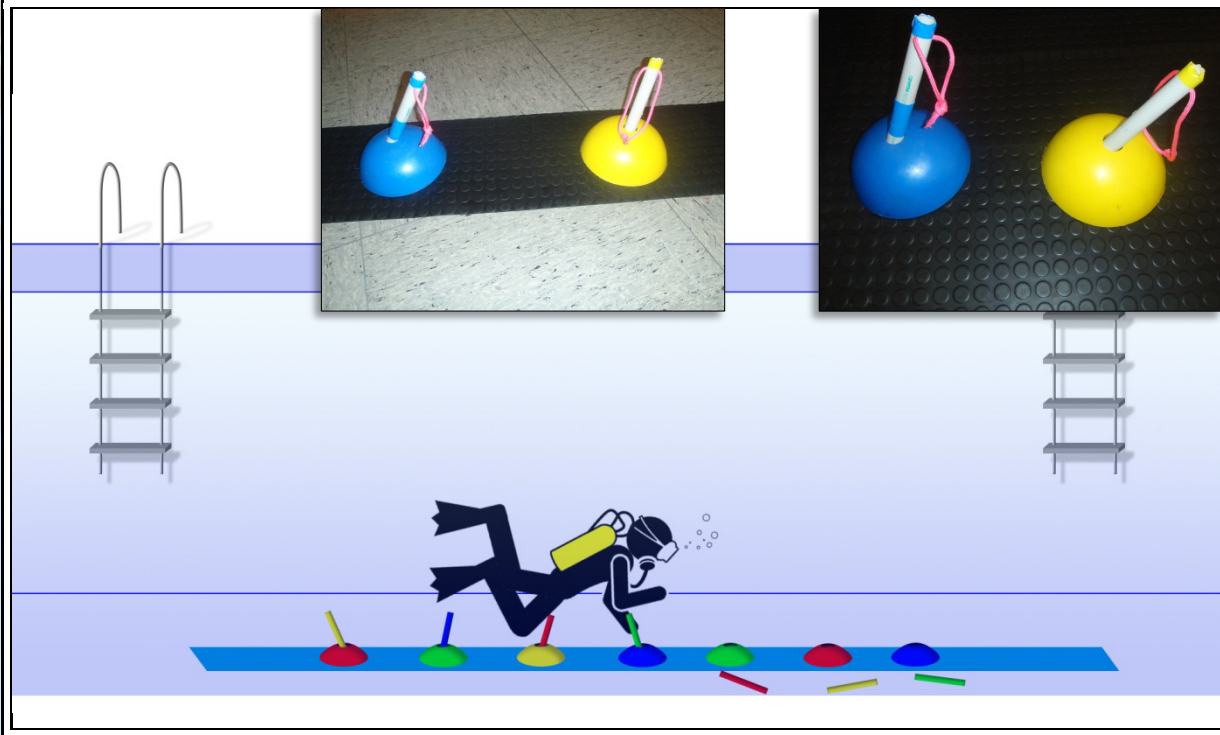
- 10 colourful marker cones

1. Using a light weight (very few grams inside the cone taped with duct tape) is necessary.

EXERCISE 18: MARKER CONES AND IMMERSION STICKS

DESCRIPTION

Move next to the cone row while taking the immersion sticks out and leaving them beside the cones. Only use right or left hand. Combine the exercise with breathing.



ALTERNATIVES

- Move laterally in between cones and take out the immersion sticks (using only one hand, or alternating both hands)
- Move at buoyancy over the cone row and take out the immersion sticks alternating hands
- Move at buoyancy over the cone row, only extracting the immersion stick or sticks previously indicated (with the laminated card)
- Insert the immersion sticks in the marker cones freely, by colour, etc.

WORK AREAS

Body schema

- Laterality
- Spatiotemporal structure (spatial perception, chronological order, execution rhythm, respiratory rhythm)
- Muscle tone
- Breathing control

Coordination

- General dynamic coordination
- Segmental coordination and eye-hand coordination

Balance

- Dynamic balance
- Static balance

Skills and abilities

- Movement: propulsion (flapping)
- Body turns: longitudinal, transverse and anteroposterior axis
- Handling types: extracting, releasing

MATERIALS¹

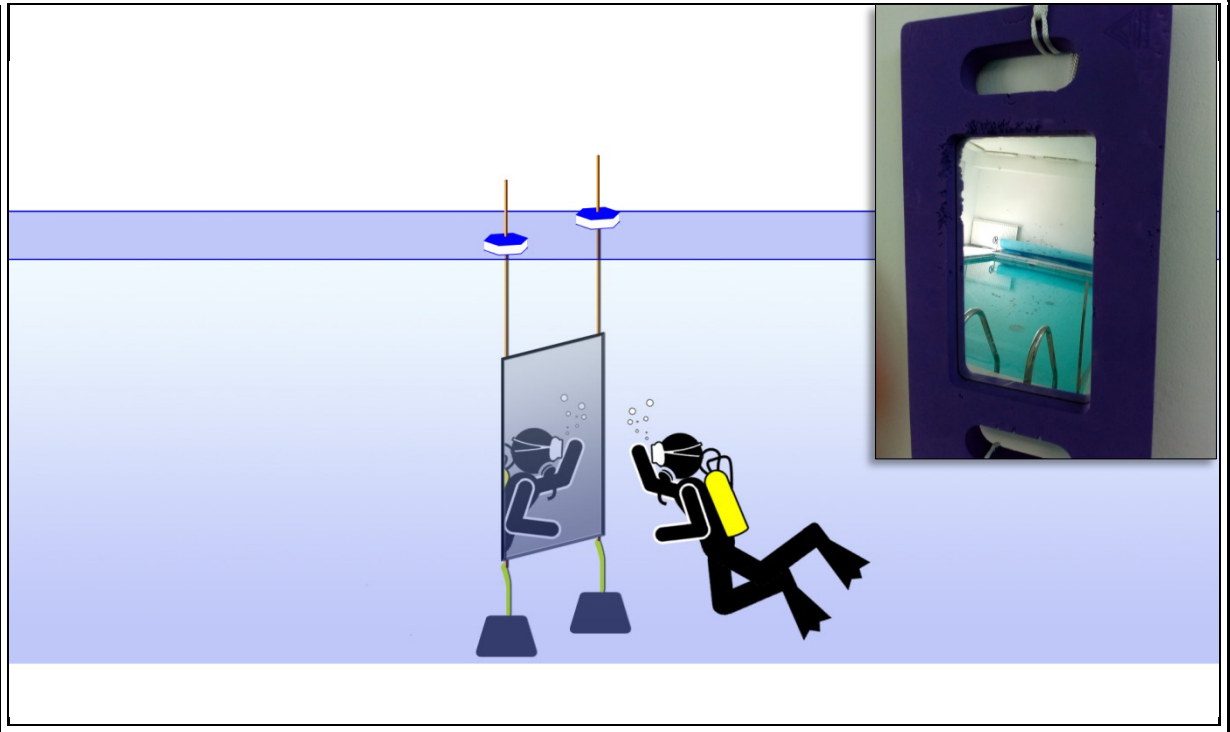
- 8 colourful marker cones
- 8 colourful immersion sticks
- Laminated cards with the immersion sticks to establish the extraction order

1. Using a light weight (very few grams inside the cone taped with duct tape) is necessary

EXERCISE 19: THE MIRROR (I)

DESCRIPTION

See our own reflection in the mirror. Kneeling on the pool bottom statically, move upper limbs in all directions.



ALTERNATIVES

- Perform the exercise while lying face down
- Work breathing control releasing air bubbles
- Breathing control and buoyancy
- Turn around the mirror until seeing again our own reflection (kneeling)

WORK AREAS

Body schema

- Laterality
- Posture control
- Muscle tone
- Spatiotemporal structure (spatial perception, execution rhythm)

Coordination

- Segmental coordination and eye-hand coordination

Balance

- Static balance

Skills and abilities

- Body turns: longitudinal and transverse axis

MATERIALS¹

- Unbreakable methacrylate mirror¹ with aluminium frame (1.20 m × 0.50 m)
- Laminated cards with postures, turns, etc.
- 4 pieces of string to tie the mirror on 4 points

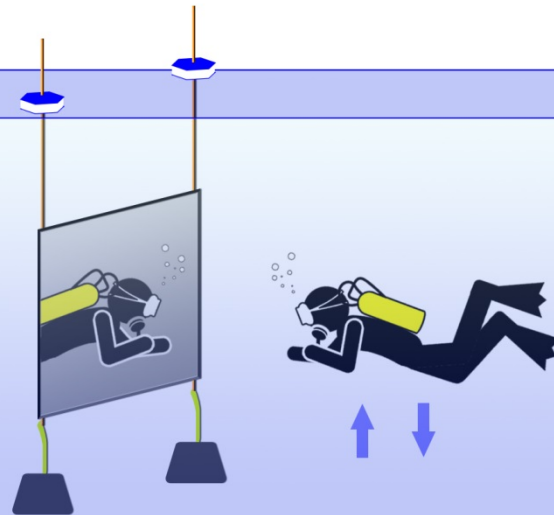
1. *The mirror can be placed and tied to an unused pool ladder. It must be well attached and levelled. It can also be hung from one or two lane markers, although it must be well anchored with weights at 30 cm to the pool bottom. Strings must always be checked before using the mirror.*

It is a safe material to use underwater as long as it is well attached on four points. Dry the surface after taking it from the water.

EXERCISE 20: THE MIRROR (II)

DESCRIPTION

See our own reflection in the mirror, while lying face down on the bottom. Perform breathing exercises and combine them with buoyancy. Go up and down about 50 cm from the bottom.



**Buoyancy control in
front of the mirror**

ALTERNATIVES

- Lying face down on the pool bottom, exercise breathing control releasing air bubbles
- Breathing control and buoyancy: vary the height distance with the help of an assistant
- Turn around the mirror, using hands and legs at a safe distance from the mirror, until seeing our own reflection again
- Approach and distance from the mirror while lying face down (back and forth)

WORK AREAS

Body schema

- Breathing control
- Posture control
- Laterality
- Muscle tone
- Spatiotemporal structure (spatial perception, breathing rhythm, ascent-descent time, space calculation and ascent-descent time)

Coordination

- General dynamic coordination

Balance

- Static balance
- Dynamic balance

Skills and abilities

- Body turns: longitudinal, transverse and anteroposterior axis

MATERIALS¹

- Unbreakable methacrylate mirror¹ with aluminium frame (1.20 m × 0.50 m)
- Laminated cards with postures, turns, etc.
- 4 pieces of string to tie the mirror on 4 points.

1. Same guidelines as in exercise 19 apply.

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