

PEDAGOGICAL GUIDE

# SUPPORT AND ALIGNMENT: IN SEARCH OF BALANCE

SENSATION, DEVELOPMENT  
AND CREATION IN EQUILIBRISTICS



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AND CREATION IN EQUILIBRISTICS

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**2017**





# A brief summary of the INTENTS project

The INTENTS project was born out of the necessity and desire to give structure to the professional circus arts training, to harmonise it, and to increase its professionalism and credibility; the INTENTS project specifically addresses the training of circus arts teachers.



## BACKGROUND

A teachers' consultation launched by FEDEC in 2011 (SAVOIRS00) highlighted the lack of teaching tools and common methodologies with regards to initial and continuous training for circus arts teachers. A need also emerged to define the profession and to meet on a European level in order to exchange know-how in the context of continuous professional development. Starting from a shared concern and wish to define the learning achievements and to give a framework to the skill strengthening by teachers in the continuing professional training sessions organised by the FEDEC network. These issues are at the origin of the INTENTS project and its two main components: defining the teacher's profession (SAVOIRS01) and organising continuing professional training sessions.

These continuing professional development sessions aim at being innovative in their approach: cross-disciplinary, divided by theme, across different professions, international and intergenerational. By adopting an innovative cross-disciplinary approach, the project develops new teaching methodologies for a practical application of the teaching of a cross-disciplinary theme.

**The teachers' continuing professional development is key to ensuring a richer and evolving training method for their students.** For participants, it will require going beyond the exchange of practices between professionals and highlighting the artistic and pedagogical innovations linked to their disciplines, in order to develop the teachers' and the students' professional skills.

The new continuing professional development training sessions also aims at approaching the technical and artistic sides as a whole, to go beyond the diagrams of moves and stages of learning tackled in the previous FEDEC manuals.







# Foreword

By **Soren Flor**, teaching coordinator of the continuous training session

“Balance and support: from hand to hand, hand balancing and tightwire”, March 2017, Turin

In the preparation of coordinating the INTENTS training session *Balance and Support*, Turin 2017, I have been driven by the curiosity to find, test and exchange different pedagogical ways and methods of working with the disciplines of balance.

With a primarily technical background (specialized in handstand and hand to hand), it has been an exciting challenge for me to facilitate a programme that encompasses technique, pedagogy and artistic expression. At the same time, it is precisely the essence of our daily work as teachers/supervisors; to find appropriate methods that can stimulate the students' technical level (skills) while exploring and challenging their creativity and imagination.

During the session in Turin it has been very important to maintain an open and investigative dialogue between the participants and allowing them to have the courage to seek out new inspiration in their work with the disciplines.

In practice, we have managed to reach that goal by testing and exchanging exercises “on the floor”, by sharing experiences and with group reflection but also by collecting ideas and methods from sport and other artistic and scientific fields such as contemporary dance and neuroscience.

It has been important for me to use ‘the repetition’ as a pedagogical method with the teachers participating in the INTENTS training session. With ‘repetition’, I mean to challenge their ‘habits’. In other words, my strategy was to challenge the circus teachers' risk taking and comfort zone and show them that taking risk is what will make our teaching grow and improve. If we dare to leave our comfort zone, we gain a unique opportunity to implement our knowledge and support our students in their “search for balance” without having to know all the answers in advance.

It is my personal wish that circus arts teachers across school traditions, education levels, personal experiences, point of views etc., dare to challenge each other to leave the “safe and known”. We must be aware and inventive in order to find new ways in our teaching practices, because it is our common passion to develop the circus disciplines of balance.

◇ It is precisely the essence of our daily work as  
◇ teachers/supervisors; to find appropriate methods  
◇ that can stimulate the students' technical level (skills)  
◇ while exploring and challenging their creativity  
◇ and imagination.



**Seeing Things From a Different Point of View | Desiree Rumbaugh**

*“There is a fable about six blind men who are introduced to an elephant. Each man touches a different part of the elephant and based on that, thinks he knows what it looks like. The man who touches the ear is certain that the animal is like a hand fan. The one who touches the tail proclaims that it looks like a rope. And so on and so forth, with each of the six men having a totally different experience and descriptions of the same thing.*

*Like the blind men, most yoga teachers, myself included, lean toward a style of teaching that suits their body and from a specific perspective. As we continue to teach over longer periods of time, our own physical experience will change. We might shift to another part of the elephant and start teaching from an entirely different point of view.*

*For two and a half decades I have been intensively studying alignment-based methods of Hatha Yoga so that I might understand the bodies of my students and better assist them with their own practice. What keeps me passionate in this work is constantly finding that there is still so much more to learn.*

*Recently I have had some challenges with one of my shoulders. Injury has always been a great teacher for me, helping me broaden my awareness. With my understanding of anatomy and alignment, and guidance from the specialists I have seen, I have been able to work constructively with this recent pain and have had some great new insights for helping others. Dealing with pain forces us to pursue new directions and it is in the midst of working with it that we find our most profound growth.*

*With every passing year, I am even more grateful for my practice. Like the blind men in the story, I used to see yoga from only my vantage point. In having its way with me, Yoga has opened my eyes moment by moment to a broader understanding physically, emotionally and spiritually. [...]*





# Introduction

This teaching manual describes the exchange between circus teachers on the notions of balance, posture, alignment and support.



During the discussions, themes were identified and questions were raised which constitute the raw material of this book. On the basis of field observations and concrete pedagogical problems we have suggested several texts in order to gain a deeper insight, or explanation and to question these themes, whilst also giving the floor to those who have facilitated or took part in the training week. During the exchange, the participating teachers and speakers also took part in a number of practical sessions. The intention of this manual is not meant to meticulously describe all the exercises involved in these sessions, rather, to pull together all the observations in order to suggest different tools that can be useful in pedagogical practice. Furthermore, practical knowledge has also been gathered in several discussions. Each topic of debate suggested by the pedagogical coordinator Soren Flor<sup>1</sup> has been observed and analysed in different ways. It has been enriched by suggestions of readings, definitions borrowed from different artistic, sporting and scientific fields - a toolbox in which everyone can draw on ideas or resources. The manual is also an opportunity to clarify certain terms and to open new pedagogical questions.

Equilibristics is a complex activity that should be approached from different angles: firstly, motor control and the neurophysiological mechanisms involved as well as sensation, perception, proprioception; the psychological dimension, emotions, energy and, at the core of all these approaches, the intention, the artistic expression and the representation of the body –key dimensions in circus arts.

Equilibristics is also a concept that encompasses all circus practices and calls for specific skills that can be adapted depending on the context and discipline. The exchange on this topic revealed the importance of communication between teachers and students. Indeed, apart from the mechanical principles involved in working on improving balance, posture or alignment, sensation is key in order to master this skill and apply it where one choses.

.....  
1 See "Foreword" above

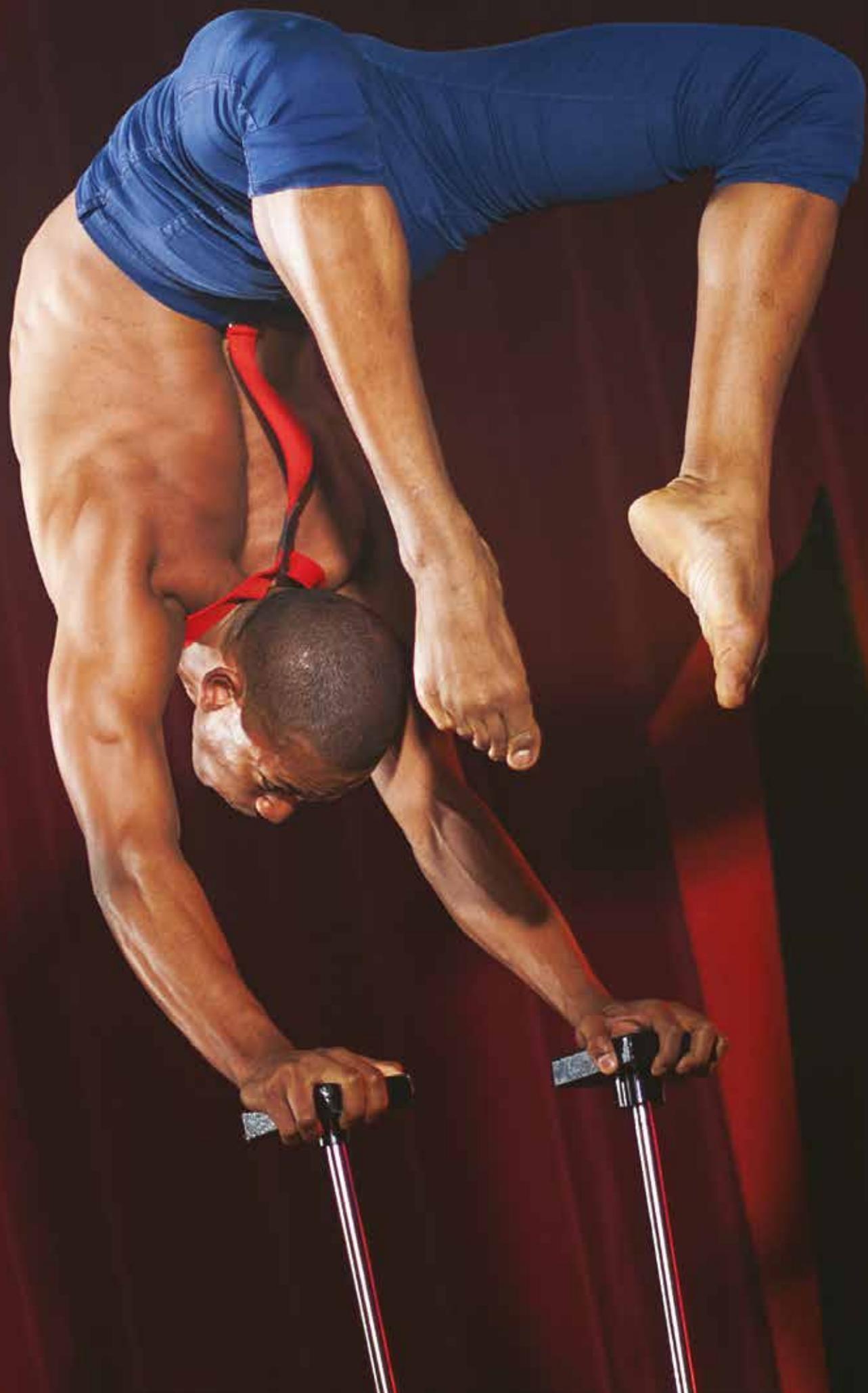
To acquire a more proficient sense of balance it is not enough to simply practice balancing in a handstand. Building a repertoire of sensations, creating a favourable work environment, giving good stimuli are all possible avenues that have been explored and presented here. The greater number of situations which challenge one's balance, the more the sense of balance will be developed and the more the students will be able to find a form of freedom in movement and construct their own language.

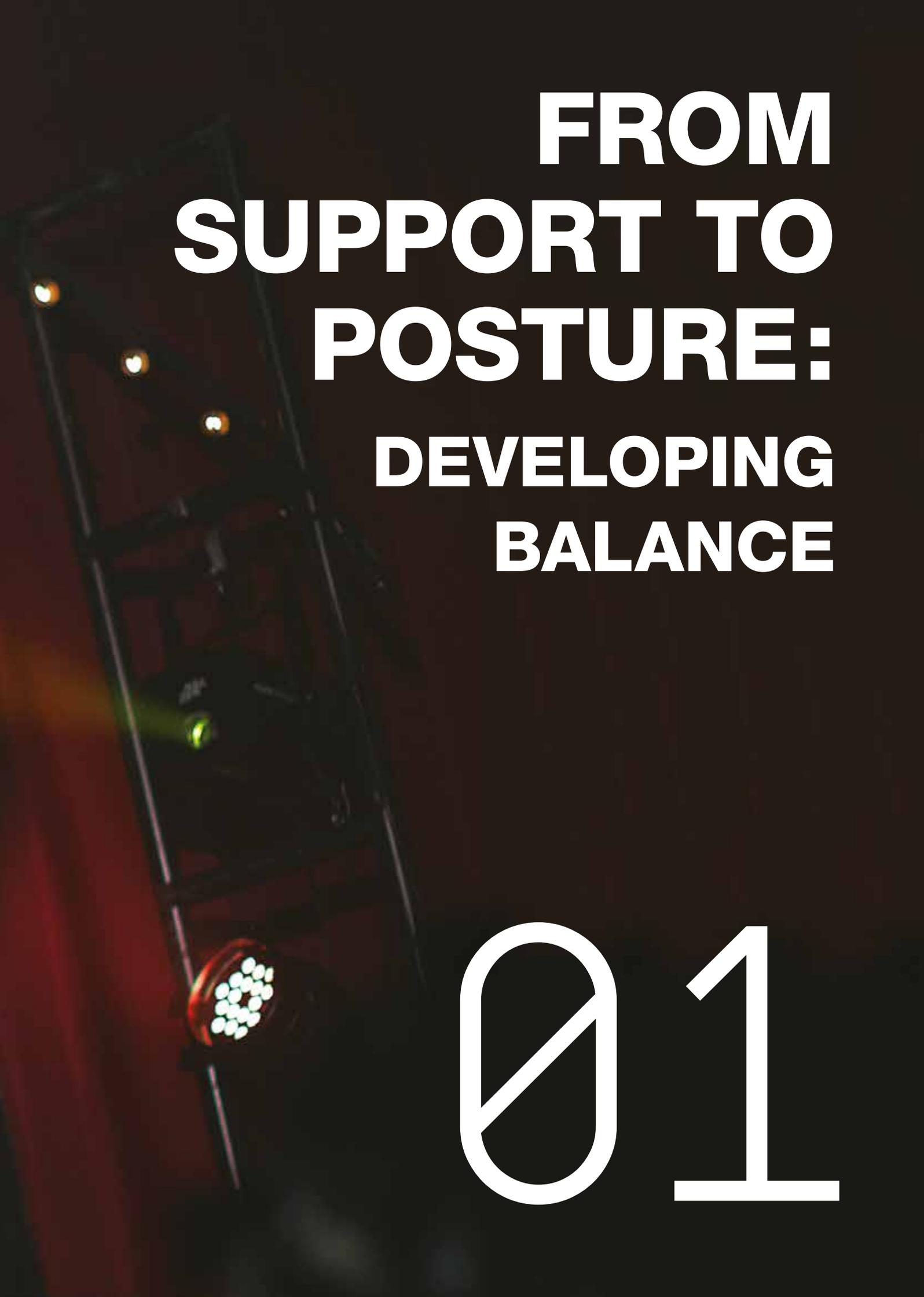
Ultimately, the exchange proposed several ways to build this sense of balance. Some more functional or classical ones (work on posture, for example), others more unusual and using other mechanisms (neurophysiological training). Some tools have been explored: sensations, images, principles, and dynamics to support and align themselves both for technical and creative purposes, to have a twist on or reinvent the figure. This teaching manual thus takes up these different approaches through two main chapters: balance development and developing a relationship with balance. We have attempted to account for the plurality of debates and to leave enough for open reflection.

By going beyond using methods that impose rules or protocols, a more sensitive approach can allow a teaching of a more formal practice. It goes far beyond talking and the written word but realise themselves fully when the body comes into play. The suggestions presented are transferable from one piece of equipment to another, from one practice to another, and grant a more global reflection on circus arts skills, and more specifically on the way in which teachers are faced with students' challenges and difficulties in their search for balance.

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◇ construct their own language.







**FROM  
SUPPORT TO  
POSTURE:  
DEVELOPING  
BALANCE**

**01**



# Exploring balance

“When body weight is evenly distributed and balance is maintained, one is able to resist an external force.”<sup>1</sup>



Maintaining our balance is inseparable from our orthostatic posture, standing on two feet. We maintain this balance by constantly fighting gravity and activating several neurophysiological mechanisms that constitute posture. Balance, thus, goes hand in hand with imbalance. The simple gesture of “walking” is a frontwards imbalance, the transfer of balance from one support to another. It is this “fundamental imbalance” as Hubert Godard<sup>1</sup> calls it, which will determine all the expressive power and musicality of the posture. There is therefore a “physical and mental” function of balance, since “the imaginary shapes the structure.”<sup>2</sup> This first section’s aim is to explore the different facets of balance.

## What is balance?

“Status of a system corresponding to the least energy for the parameter considered. There are two kinds of balance: static balance or system and environment that does not exchange energy, and *dynamic balance* where the quantity of energy given by the system to the environment is equal to the quantity of energy given to the system by the environment.”<sup>3</sup>

Balance is often defined in several ways. Both simple and complex, the notion will be defined differently according to the field and points of view. We find the notion of balance in mechanics, physics, chemistry and of course physiology. A body in balance therefore searches for the right axis in relation to gravity whether on the two feet, one, both hands, one or all other body parts.

What interests us in the circus arts is the inversion, the transformation, the metamorphosis of balance. Thus, when we speak of balance, it is not so much the maintenance of a posture on the feet but rather of any attempt to destabilise, whether partial or total. To find a balanced posture when balancing on hands is like learning how to walk with the difference that the proprioceptive memory of the gravity axis is created whilst standing on both hands and not on both feet. In a circus context, balance is at stake when:

- **Balance supports change in relation to the orthostatic posture;**
- **Balance spatial reference points change (unstable support, for example).**

1 Guillaume Depping, *Merveilles de la force et de l'adresse : agilité, souplesse, dextérité.*

Les exercices de corps chez les anciens et les modernes, Paris, Bibliothèque des Merveilles, Librairie Hachette et Cie, 1886, p. 56.

2 Hubert Godard, “Le déséquilibre fondateur : Le corps du danseur, épreuve du réel”, interview with Laurence Louppe, in *Art Press*, special issue n° 13, “20 ans, l'histoire continue” 1992.

3 *Ibid.*, p. 3.

4 Jean-Pierre LÉVIS, «ÉQUILIBRE, physique», *Encyclopædia Universalis* [en ligne], consulté le 16 juin 2017.

URL : <http://www.universalis.fr/encyclopedie/equilibre-physique/>

As Denis Hauw reminds us: “Acrobatic balances are apparent in explicitly unbalancing situations. These situations are obtained by reducing the size of the body’s “support base”, the surface marked by the silhouette of the support on which the acrobat’s centre of gravity will have to project itself in order to remain in balance.”<sup>1</sup>

In the evolution of circus techniques and know-how, the search for an alternative balance has become increasingly complex. For a long time the metamorphoses of balance tended towards more and more virtuosity: columns with three, four, five, six. How far will it go? After all, the search for balance seems endless. For Arian Miluka, whatever the level of complexity of the balance, it is a relation to gravity that is played out, in a relationship between *micro* and *macro* (the *cosmos*), between the body and the universe. The balancer becomes an explorer, who discovers space and would seek to find something there of the order of the “miracle”. So that there would be something transcendental in balance...

### Balance or imbalance?

What happens when the challenge of gravity involves both the hands and the feet?

Other **sensations** arise from this gesture, constituting a loss of reference points, the so-called “usual” posture and the relationship of the different segments of the body in space, in particular the fundamental reference points of the hands and feet. Acrobatics is constructed on points, notes Myriam Peignist. Its art rests essentially on a dynamic organisation and re-organisation of the body between contact points in the flow of movement that is constantly being driven towards stillness: “In order to maintain balance, the acrobatic breath runs along the sensitive extremities accompanying the gesture without any “hard points”<sup>1</sup>

To be unbalanced, to blur reference points, to reverse them: hands as well as feet play a part in this disruption of reference points. Between cognitive challenges, inhibition, risk-taking, displacement of perception, loss of orthostatic posture and anthropomorphic figure, defying gravity depends on a certain **bodily expertise**. The phenomena of balance in the circus arts could therefore be called gravitational adjustment.

## TEACHING PRACTICES AND DEFINITIONS

*Excerpts from discussions between participants and interviews carried out during training session 1*

### “What is balance?”

*Stable, unstable, unbalanced, in movement, aligned... Balance can take different names depending on circus teachers. It seems impossible to define it and yet it involves common feelings.*

“Balance is when we keep the total weight of the load above the surface of support.”

RAPHAEL BERETTI

“Balance does not exist, rather, we master imbalance.”

ÉRIC ANGELIER

“We can describe balance as a way of finding the perfect harmony between body, mind and environment.”

NUNO FIGUEIREDO

“Attitude, posture or a stable position.”

FRÉDÉRIK LORET

“The art of aligning its centre of gravity with a point of support, whatever it may be.”

DAVID WIDMER

“For me, balance related to our field is an alteration of the support and the areas of support that are required by the body or a reeducation of the alignment of joints and consequently the muscular development that follows.”

VANESSA PAHUD

“Small drama or permanent game: a sequence of resolved imbalances. An unstable state organised to last in a sequence of movements, thanks to several premeditated interactions keeping all internal and external forces balanced giving a sense of precarious or comfortable stability.”

MARTINE LEROY

1 <http://cirque-cnac.bnf.fr/fr/acrobatie/au-sol/les-equilibres>

2 See list of participants and speakers at the end of the manual

3 Myriam PEIGNIST, «Homo-acrobaticus et corps des extrémités», M@gm@, v.7, no. 3, September-November 2009.

Playing with gravity creates a body whose exemplary manner plays on several registers and oscillates between fear and the enjoyment of imbalance, elements that will play on the kinaesthetic empathy of a potential spectator, faced with a body that plays on its emotional ability to receive or feel this gravity game. Hence, would balance be a fight against imbalance?

### Static or dynamic balance?

Balance can be **static** or **dynamic**. In physics, using the Galilean model, a solid is in static balance if the value of the forces is zero (balance of translation) and the value of the moments of the forces with respect to any point is zero (balance of rotation). From a **physical** (or mechanical) point of view, the static balance is that of any body at rest.

In **physiology**, static balance is linked, in humans and mammals, to the inner ear and neuromuscular control. In humans, static balance depends on balance and protective reflexes and involves a complex interaction between the vestibular, proprioceptive, visual and motor systems (see *below*). When a physiotherapist or occupational therapist studies the posture of a patient, standing still in an upright posture they are interested in his/her static balance. In child development, the acquisition of this skill favours the onset of standing and other motor skills.

**Dynamic balance** relates to maintaining balance by being in motion. In the case of acrobatics, it is therefore a matter of dynamic balance insofar as the acrobat reverses or disturbs the traditional orthostatic posture, the supports and the resulting adjustment systems. In other words, the balance results in maintaining the vertical projection of the centre of gravity inside the support polygon regardless of the position of the segments. This sentence makes no sense.. what is the author trying to say?

In the Washington Trapeze, for example, the novice practitioner will feel a lot of instability and the feeling of stabilising one's balance will come gradually. However, even if the body adapts to this new situation, the balance is not static, it remains dynamic. Often, circus arts teachers describe several **sensations** involved in a situation of balance and, beyond the purely neurophysiological phenomenon, there are many psychological issues. In a state of imbalance, there are also three enemies to fight: fear, fatigue and pain.

Even if there are **scientific definitions**, the way each teacher and student will describe their **perception** of static or dynamic balance will differ. Several levels coexist in the interpretation of balance: the **physiological**, the **psychological** level and the **artistic** level. The distinction between these different levels seems fundamental in order to not to get lost in the variety of definitions of balance. One should be more focused in the perception of this balance depending on context.

### ARTISTIC APPROACHES

#### Searching for balance

Several artists are working on the demonstration of this subtle quest for balance and its inherent difficulties. Far from seeking to create a performance by producing a perfect or stable balance, many contemporary creations play with this sense of imbalance and deliberately show the mechanisms of balance. To illustrate this artistic application of balance, we can take a few examples:

#### Rémi Luchet's work on slack wire:

Individual presentations, Rémi Luchet, 17<sup>th</sup> year group at Cnac, July 2015, Cnac.Tv (in French)

[http://www.cnac.tv/cnactv-464-Video\\_Remi\\_Luchez](http://www.cnac.tv/cnactv-464-Video_Remi_Luchez)

*Miettes*, Rémi Luchez at Quai à Angers,

[www.lequai.tv](http://www.lequai.tv) (in French)

<https://www.youtube.com/watch?v=POqjyUvcsdQ>

#### Johan le Guillerm's work in *Secret* placing his body as well as objects in balance, through games of tension and relaxation:

*Secret*, Johann Le Guillerm, 2016

<https://www.youtube.com/watch?v=1C8BnPoo8iQ>

#### The hand-to-hand work of the company

#### "Un loup pour l'homme" in *Rare Birds* prefers to pass through these moments of balance rather than retaining or prolonging them:

*Rare Birds*, Compagnie Un loup pour l'homme, 2017

<https://www.youtube.com/watch?v=bNoPRzw1O3M>

What will determine and make one feel this sense of dynamic and static balance on stage is linked to the issue of intention, as Martine Leroy reminds us. The **intention** can be based on the idea of a balance point (kinaesthetic perception of a static balance) or an attempt to keep the movement in balance (kinaesthetic perception of a dynamic balance). Finally, in the acrobatic act of balance, it is a question of constructing, producing the sensation, the impression, or even the illusion of stability.

### Circus, a story of imbalance?

**Philippe Goudard** reminds us that circus is the art of imbalance, the act of playing with imbalance. “The closest practice to circus arts is play,” he says, which according to Michel Corvin is “a free but organised action that gives one pleasure. We play for pleasure, either on our own or in a group: manipulating objects, balls, marbles, pebbles, cards, dice; jumping, running, hiding, sliding, doing cart-wheels, handstands etc”<sup>1</sup>

**Pascal Jacob** analyses the history of imbalance practices: “In circus, balance is a virtue. It is a mixture of strength and elegance, a discipline that borrows from contortion and is defined by the presence or absence of an apparatus.”<sup>2</sup> He also shows that there have been several different quests for balancing techniques throughout the centuries inspiring a lot of creativity especially in terms of balance support: canes, cubes, bricks, Washington trapeze, pedestal, chairs etc.

Historically, people reversing the order of balance (on two feet) disrupt the order of the world as it is thought of in Western societies and Christian morality. To voluntarily put ourselves in an imbalanced position is therefore a profoundly transgressive? act in the construction of our Western imagination. Painters and poets have been intrigued by this. Literature and paintings have several references to acrobats with their head down, feet up towards the sky, seeking to invent another world through their acrobatic act.

Reversing posture exerts a charm but the tightwire walker on his two feet is equally fascinating. By choosing to extricate themselves from the ground, these people also reinvent the feeling of balance. The extreme fragility of their supports also makes them oscillate between the human and the superhuman. Here again, many verses have celebrated the strange paradox between fragility and mastery of the tightwire walker. The French poet Theodore de Banville even devotes a collection of poems to them: *Odes funambulesques* (1857).

In the inversion of balance, in the loss of spatial and postural references, there is a powerful notion: searching for balance is as much **physiological** as it is **poetic**.

**For further information,**

**see the website of Bibliothèque Nationale de France et Centre national des arts du cirque:**

**Les arts du cirque (in French):**

<http://cirque-cnac.bnf.fr/fr/acrobatie/au-sol/les-equilibres>

1 Goudard, *Le cirque entre l'élan et la chute, une esthétique du risque*, Sain-Gély-du-Fesc, Éditions Espace 34, 2010, p.25.

2 <http://cirque-cnac.bnf.fr/fr/acrobatie/au-sol/les-equilibres>

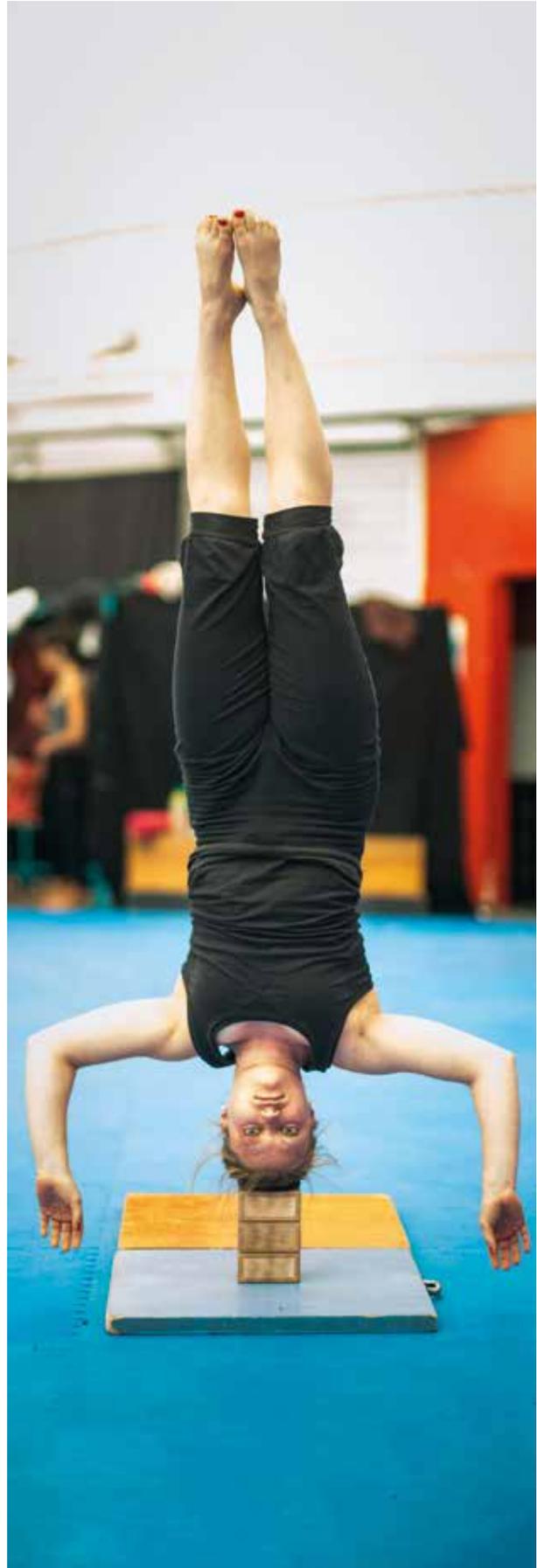
## READINGS

### The notion of balance in martial arts

*In this text, Xavier Pietrobon suggests an interpretation of the notion of balance as envisaged in the martial arts and especially in Tai chi. Balance concerns both the body and the mind and goes hand in hand with the centering, the anchoring. To be in balance also means to let the energy flow and allow the release of the movement.*

“At the beginning of one’s Tai chi practice, one of the first things to learn is how to find one’s centre and point of origin, in a similar way to the Archimedes principle. To acquire the sense of balance is to know how to position oneself in relation to oneself, in space. Practice makes it possible to develop the physical sensation of one’s own centre. This is essential, because the awareness of this centre lends efficiency to the movements. Finding and maintaining the centre reinforces proprioceptive acuity and reduces the sense of being off balance. Lack of stability causes uneasiness at a postural level, which reverberates at the level of the mind. Furthermore, power is obtained by rooting into the ground, which conditions balance. If the centre is anchored into the ground, balance is firmly held. Furthermore, the search for the centre in Tai chi has the specific characteristic of remaining essentially dynamic compared with static practices. The centre is not fixed but moving. Tai chi is partly a meditation in movement, in which the strategy of yin / yang intervenes in order to find immobility in motion and movement in immobility. [...] The movements of Tai chi have no doubt a martial purpose, but it forces one to develop other qualities beforehand, especially the one to be centred. The centre is not a material point, but it is fixed energetically. It is therefore fixed but without being fixed, like a balloon that can lose its shape without losing its structure and its axis. [...] The idea of dynamic balance reminds us that martial arts are the arts of movement and displacement. Gestures are only effective with the body in balance. Striking in unbalance has little power, and can be more easily countered. Posture depends on the structure, which must be solid but without being rigid. The dialectic movement / immobility invites us to be like the reed which, unlike the oak, does not break but bend in the storm.”

*Source: Xavier Petrobon, L'équilibre des opposés. Du Taiji Quan comme principe d'harmonisation, PhD thesis in Philosophy, Paris Ouest-Nanterre University, 2012.*





# Balance:

## scientific principles

Teaching balance involves a certain number of empirical approaches; creating movement also relies on neurological mechanisms, namely motor control and proprioception. This section outlines some of this scientific knowledge and suggests different ways of acquiring it. Being aware of these elements can guide teaching in a different way. As balance experts often facing complex balance situations and making adaptations, circus artists develop several strategies to maintain balance. By learning more about the neurophysiological aspect, we can see how balance can be trained differently and how several approaches can be integrated into teaching.

### A physiological construction of balance

A body whose balance system works properly can navigate in different environments, maintain posture, make coordinated movements and control its postural adjustments. Four systems will contribute to this:

#### The peripheral nervous system

The peripheral nervous system consists of receptors located in muscles, skin, and joints giving information about the position of the different segments of the body with respect to each other, without the control of vision. These receptors transmit sensory information about the body and environment to the brain as well as motor information that allows motion to occur.

◇ A body whose balance system works properly  
◇ can navigate in different environments, maintain  
◇ posture, make coordinated movements and control  
◇ its postural adjustments.

## The central nervous system

### – The vertebral column / the spinal cord:

the vertebral column is the transmitter of sensory and motor information between the brain and the peripheral nervous system. The spine also contributes to postural control. It is a constant, unconscious activity that occurs thanks to antigravity muscles and reflexes.

– **The cerebellum:** The cerebellum is responsible for modulating all complex movements in the body. It acts as a feedback loop between all systems to ensure that movement is carried out accurately and with appropriate coordination. The cerebellum is mainly used for learning new movement patterns.

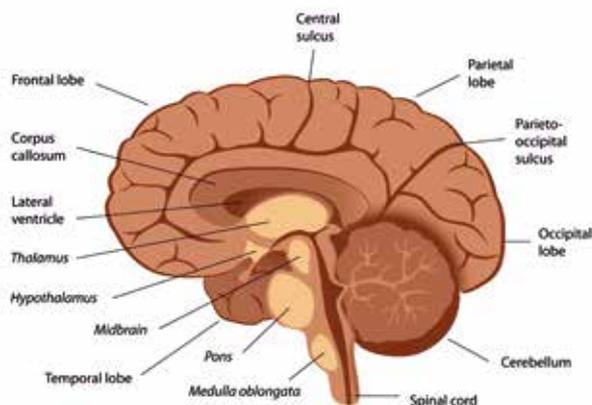
### – The frontal cortex and the parietal cortex:

the frontal cortex is the motor cortex and permits the initiation and realisation of movement. The parietal cortex receives all the sensory information from the exterior. Together, these two cortices interpret the signals received from the peripheral nervous system. They then communicate with other regions of the brain to activate the motor drive.

### – The pontomedullary reticular formation (PMRF):

The PMRF has a number of functions. These include heart rate regulation and breathing in the brain stem, a structure that links the brain and spinal cord. It is this element that is most important in maintaining our balance and setting us in motion.

Median section of the brain



The structure of the cerebral cortex

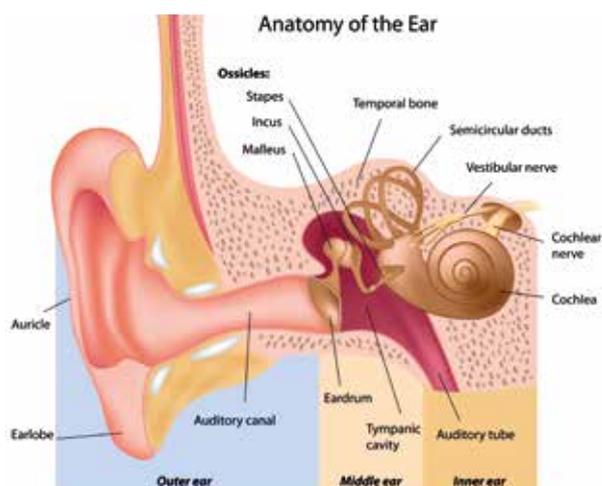
### Legend

ENGLISH	FRENCH
Central Sulcus	Sillon central
Parietal lobe	Lobe Pariétal
Parieto occipital sulcus	Sillon parieto-occipital
Occipital lobe	Lobe occipital
Cerebellum	Cervelet
Spinal cord	Mœlle épinière
Medulla oblongata	Bulbe rachidien
Pons	Pont
Temporal lobe	Lobe Temporal
Midbrain	Mésencéphale
Hypothalamus	Hypothalamus
Thalamus	Thalamus
Lateral Ventricle	Ventricule Latéral
Corpus Callosum	Corpus Callosum
Frontal Lobe	Lobe Frontal

◇ Our brain constantly adapts to its surroundings and forges new neural pathways with each movement, so called neuroplasticity. Training this is fundamental for complex activities such as balancing

## The vestibular system

The vestibular system is a set of 3 semicircular canals and two otolith organs of the inner ear that detect gravity. It provides information to the brain regarding the orientation to the ground accelerations. The vestibular canals trigger the action of the extensor muscles involved in maintaining the erect posture.



The structure of the inner ear

## Legend

ENGLISH	FRENCH
Ossicles	Osselet
Stapes	Etrier
Incus	Incus
Malleus	Marteau
Temporal bone	Os temporal
Semicircular ducts	Canaux semi-circulaires
Vestibular nerve	Nerf vestibulaire
Cochlear nerve	Nerf cochléaire
Cochlea	Cochlée
Inner ear	Oreille interne
Auditory tube	Tube auditif
Middle ear	Oreille moyenne
Eardrum	Tympan
Tympanic cavity	Cavité du tympan
Outer ear	Oreille externe
Auditory canal	Conduit auditif
Earlobe	Lobe d'oreille
Auricle	Oreillette

The canals have different functions. One is sensitive to **linear** (straight-line) **accelerations**, that is, changes in head position in relation to the vertical and to the horizontal. The other gives information of **angular accelerations**, or head rotations. The combination of these two systems monitor any change of head position and engage a number of reflex actions that are responsible for postural changes by acting on the tone of the extensor muscles, particularly those of the neck. Finally, the vestibular system also provides information about the speed of movement and posture of the head in space.

## Vision

The visual system is the best represented of the senses in the brain taking up nearly one third of the neurons in the visual cortex. In a balanced upright position, the visual system seeks a horizontal horizon and communicates with other regions of the brain in order to keep posture erect. Most physical training in circus tends to involve the varying components of balance without necessarily having to isolate them. That said, a better understanding and analysis of the different systems that contribute to balance may make it possible to more easily identify one's weaknesses and how to improve them.

## Training balance?

Balance training is a form of training that develops **agility, flexibility, power, reaction time, speed** and **endurance**. Often overlooked in athletic populations, balance is nevertheless fundamental yet declines in different activities. Balance and coordination can be developed with different methods: exercises on unstable surfaces or moving boards / supports / floors (ex. wobble boards, cushions, tatami floors...), beams and stability balls.

Balance training is fundamental regardless of the level of the student and discipline chosen, because:

- it can improve performance;
- it reduces the risk of injury in the joints (feet, knees for standing balance, wrists, elbows, shoulders for inverted balance);
- it improves the coordination of movements, improves stability, and the efficiency of movement;
- it helps to develop body awareness, its positioning in space and gives more confidence in its movements;
- it helps to stabilise the central parts of the body, which in turn will allow for more power development in the limbs.

Balance training is therefore the training of **proprioception** (consciousness of the body in space and the organisation of the segments of the body) and **neuromuscular coordination**. A good balance will use all the anatomical and functional structures cited above.

Balance training can be easily integrated into a general physical conditioning programme, using different strategies that focus on both physical engagement and enhanced neurological work. Thus, training balance also means working on the different types of senses: vision, proprioception, the vestibular system and to understand the motor responses that flow from them.

**Reminder:**

**Sensation** is the detection and routing of sensory information to the central nervous system (CNS), **Perception** is what the information becomes after being processed by the CNS, namely the interpretation of sensory messages.

**Watch:** “Is your red the same as my red?”»,

**Youtuber Vsauce1, 2013:**

<https://www.youtube.com/watch?v=evQsOFQju08>

To train these systems, several **neurophysiological principles** are important:

- The nervous system exerts an **autonomic** (non-conscious) and voluntary (conscious) control.
- The main function of the brain is to promote survival. The triggering of a body movement depends on the **threat level** the brain perceives and its anticipation in relation to a given environment. In order to develop better control one can work on perception thus making it possible to become more fully aware of the threat level and of different external stimuli.
- The brain responds in real time to a stimulus and continuously modulates its action on the basis of related information and interpretations. To allow a better analysis of a stimulus, it is often necessary to **repeat the action** (neuro-feedback principle). Thus, in order to work on this dimension, it is necessary to favour repetition which generates less fatigue.

Generally, left-side motion problems will correlate with problems in the right hemisphere. Indeed, the motor and sensory pathways intersect at the level of the brainstem so an attack of the left hemisphere will give signs to the right hemisphere and vice versa.

- Our brain constantly adapts to its surroundings and forges new neural pathways with each movement, so called neuroplasticity. Training this is fundamental for complex activities such as balancing. For example, training vision and balance simultaneously or saying something while maintaining balance say or do (**dual-task**) will strengthen the connections and allow more plasticity this is also referred to as cognitive loading.

**Clearly, the psychological dimension must not be neglected in balance training. When one also draws on this dimension in balance training, several questions arise:**

- How to best support the student in the assessment of these weaknesses / forces related to neurophysiological principles?
- How to vary different approaches and / or combine them with the different training times available to a student (depending on the different levels and specialties)?
- How can a distinction be made between apprehension (which is normal) and neurophysiological mechanisms?
- Is it necessary to isolate these elements in training or is it possible to have a more comprehensive approach?

## TOOLS

### **Neurology: a toolbox to approach balance differently**

*Presentation by James Mc Cambridge  
National Centre for Circus Arts*

### **Posture assessment**

By observing the pupil walking at an average to fast pace, one may observe asymmetries and irregularities in their gait. Asymmetry or internal rotation of the hands and feet may suggest a weakness of the cerebellum or ipsilateral vestibular system (on the same side). Wide posture in walking, lack of arm swing or excessive head movement could indicate poor function of the cerebellum and the vestibular system.

### **Balance assessment**

Stand upright with one foot forward on half-point with the arms extended forward keeping the knees and elbows locked. The student must close his eyes and find his balance. He must hold this position for roughly 30 seconds firstly with one foot in front, then with the other. Notice if he feels tilting one way or the other when trying to correct his balance. The side of traction or swaying is usually a sign of weakness on this side.

### **Balance assessment: the crossed cord reflex (contralateral extension)**

Ask the student to raise his non-dominant arm in front of him, parallel to the ground. Resist pressure for 15 seconds as the student tries to push vertically upwards. At the same time, provide a sensory stimulus on the anterior deltoid by rubbing / patting on it. The student must then try the same exercise with his dominant arm (without the sensory stimulus). If the reflex works properly, the dominant arm must not be able to withstand the same amount of force.

### **Vestibular canal assessment**

The student closes his eyes and turns his head quickly in the direction of the specific channel, then slowly towards the centre. This exercise should be repeated 5-10 times to properly stimulate the channel. An extensor muscle can then be tested, which should remain strong if the canal works properly.

### **Rebalancing exercises**

To correct a vestibular dysfunction, it is possible to isolate and stimulate the weakest channels

- By performing channel stimulation as in the above exercise and repeating it several times.
- By lifting and placing the heels onto the ground while performing the channel stimulation.
- Using rotation movements on the channel (internal and external rotation of the legs and shoulders)

After reinforcing the channel concerned, it may be advisable to carry out exercises to recalibrate each channel. For example: walking by shaking or nodding, walking by drawing a shape of 8 while keeping your eyes fixed on a target, etc.

### **Cerebellar action assessment**

The student must close his eyes and make rapid movements at different joints as shown below for 30 seconds. Asymmetries between the two sides, tremors or the inability to perform the tasks precisely or quickly, are signs of weakness of the action of the cerebellum.

- Pronation and supination of hands (palms down / palms up) with arms outstretched;
- Pronation and supination of hands (palms down / palms up) with elbows bent at rib height;
- Move / tap with the fingers of the little finger to the index finger like playing the piano;
- With your hand raised to the height of your head, tighten your fist and open your hand completely
- Lying on the floor, tap the heel of one foot quickly and lightly on the knee of the opposite leg;
- Lying on the floor, slide the heel and then the fingers of one foot along the tibia of the opposite leg;
- Standing, tap one foot on the floor with the heel remaining on the floor.

### **Cerebellar stimulation assessment:**

This new approach to specific discipline exercises is an effective method to stimulate the action of the cerebellum. In cases of asymmetry, one can also concentrate on the side of the body presenting a weakness. Movements involving changes in level and direction or involving spirals or rotations are also excellent ways of maximising cerebellar activity.

## >>> Vision assessment

When assessing vision, the ability of the eyes to remain focused on a target without flickering, pain, loss of balance or blurred vision is examined.

- **Isometric** tension: keep your eyes fixed statically on a target for 30 seconds at the top, bottom, left, right, top left, top right, bottom left and bottom right.
- **Convergence**: hold the target at arm length, then move it as close as possible to the nose until it is blurred or divides into two.
- **Divergence**: holding the index fingers at 10 cm from the nose and slightly apart, try to divide each finger in half, overlapping them in the middle. The fingers can then be moved away to increase the difficulty.

### Stimulate visual system adjustments:

Similar to the vestibular system, the visual system can be stimulated simply by: increasing the number of repetitions of an exercise, ensuring that the gaze remains focused on the target at all times. If one eye is significantly weaker than the other, the student may cover his eye more strongly to allow the weaker eye to train in isolation. Exercise can be carried out in sitting or lying down and made more complex by the addition of walking or balance movements.

### Vestibulo-ocular reflex (VOR) assessment:

- Ask the student to focus on a target (closer targets involve a stronger response).  
The student should be able to move the head quickly in the direction of each vestibular canal while keeping the eye fixed on the target.
- Have the student perform the above exercise by testing the ipsilateral (on the same side) and contra-lateral flexors / extensor muscles (opposite side) to the tested channel. Flexors on the same side as the test canal should remain strong, while the flexor muscles on the opposite side should be weaker. The opposite can also be true for the extensor muscles.

## Stimulation of the vestibulo-ocular reflex (VOR)

Once the weak areas have been detected, the student should perform the assessment exercises that demonstrated weakness, gradually increasing the speed to a maximum speed that he can maintain while focusing on the target.

These different exercises can be integrated into the workout. They help **to strengthen some systems involved in balancing** but can also help identify **signs of fatigue** in students. For example, a considerable reduction in peripheral vision is a good indicator of fatigue.

Incorporating this type of exercise also helps to create more rapid motor habits. It is then possible to envisage integrating these exercises into different tasks:

- Perform visual exercises while balancing;
- Perform arithmetic tasks while balancing;
- Note the changes in the peripheral visual field;
- Memorise and repeat a sequence of words or numbers.

## READINGS

### Overview of scientific research on balance

#### Acrobats; balance experts

In the studies regarding balance, dancers and circus artists are often referred to as balance experts, as circus arts specialties involve many movements where postural control is important. For example, Dr. Eveline Golomer has worked extensively on the specificities of balance in these populations. With other researchers, she has studied in particular the way in which the various systems of balance are employed. She explains: “The practice of certain activities such as acrobatics, football, windsurfing and classical dance frequently mobilises the ankle, so the proprioceptive receptors of the leg-and-ankle unit are particularly stressed.”<sup>1</sup>

#### Inverted posture

In an article published in 1985, Clément & Rézette already explored the neurophysiological implications of hand balancing in particular the postural attitudes of various body segments, the underlying motor activity and the influence of vision. The results of their study show a strong correlation between the motor activity of the two antagonist muscles of the forearm and the anterior/posterior position of the centre of gravity. The inverted balance posture is more stable when the neck is in flexion, indicating that the tonic neck reflex and the tonic labyrinthine reflex play an important role in the stability of hand balancing.

#### Open eyes or closed eyes?

Some studies will compare balance actions with open eyes or closed eyes, on a flat surface or on an unstable surface. Studies that demonstrate that balance is better achieved with eyes open than with eyes closed show that vision plays a decisive role in maintaining balance. The opposite tends to be the case with acrobats or dancers in that they rely more on proprioceptive strategies rather than vision. On the other hand, a perturbation of the environment (afferent information), makes adjustments difficult and testing different conditions allows us to better understand what is at stake with balance. Nevertheless, no scientific study has yet shown that one system is more employed than another, nor that specific neurophysiological training leads to significant improvement in maintaining balance and of preventing injuries related to the repetition of unusual balance postures.

Hutt & Redding, 2014 conducted an interesting study on how dancers maintain balance and questions how different strategies could be used to improve balance control. Dancers experience varying visual conditions in environments ranging from traditional stage to open spaces and museums. These environments are generally very different from those of where they carry out their usual repetition in which they have the mirror as a point of reference lending them visual information. The study points out that the dancer’s proprioceptive strategies could be improved and suggests a specific training protocol with closed eyes in order to improve the dancers’ dynamic balance control. The closed-eye training sequence was integrated into the dancers’ normal class. The standard movements continued to be practiced but with this intervention added in. By measuring balance with a standardised test, at regular intervals, the study showed that improvements were observed. These results demonstrate that closed-eyes training can be effective in stimulating the shift from a more visual strategy to a more proprioceptive strategy in maintaining balance, thereby making it possible to become more adaptable to different environments and therefore reducing risk of injury.

#### The role of attentional focus

Finally, in the scientific literature, there are also studies on acrobats to identify the role of attention in maintaining balance. Gabriele Wulf (2008) has undertaken research regarding external attentional focus (references other than the body and anatomical movement) and internal (reference related to the mechanics of movement or anatomy of the body). In particular, it showed that an external focus favoured the learning of motor skills. One of his studies focuses on high-level balancing acrobats and involved a balancing task (standing on an inflated rubber disc) under three conditions of attention: an external focus (limit the amount of movement on the platform), an internal focus (minimise foot movements) and “no instruction”. It is in the first two conditions that the movements of postural adjustments are the most numerous, which tends to show that focus plays an important role in maintaining balance and that this dimension must also be taken into account in training.

1 See references in bibliography

### >>> **The effects of balance on other motor skills**

Finally, it should be noted that several scientific studies are focused on the effects of balance exercises on motor skills in general. For example, one study (Mahaffey, 2009) highlights the benefits of slackline training for adolescent populations. If balance sense is improved, the muscles of the trunk which are much in demand during balance exercises also gain strength and stability. Thus since balance is a circus expertise, techniques developed in circus arts specifically around balance could also be beneficial to the health and motor skills of other populations. The work of Mesure and Crémieux (1998, 1999) also goes in this direction, as the authors try to identify the different balance systems involved (in particular the role of the central nervous system) in different types of sports training. They consider how sensory information is treated and the effects of these mechanisms on posture and balance.

### **IN SUMMARY**

- The notion of balance is key in the circus arts. The forms of balance, supports and techniques have evolved, but balance - and its consequence, the imbalance - remains a fundamental tenet.
- Between cognitive issues, inhibition, risk-taking, displacement of perception, loss of the orthostatic posture and the anthropomorphic figure; to defy gravity requires a certain amount of physical skill.
- Whether standing upright or inverted on the hands, any balance posture sets off a number of mechanisms including vision, the inner ear and proprioceptive mechanisms. Asymmetries between the activation of these different systems can lead to weaknesses and increase risk of injury. It is possible to isolate and work on each one separately in order to rebalance the body overall.





# Posture and supports

“Our erect posture determines our attitude towards the world; it is a unique mode of being-in-the-world”<sup>1</sup>



## Posture

Posture is the organisation and active maintenance of the different body segments in space, expressing how the organism navigates the outside world and prepares its reaction to it. In this sense, posture is constantly adjusting. Although standing upright gives an impression of immobility, there is a swaying movement around the ankles in the median plane. The sway from rest to standing can be compared to the movement of an inverted pendulum. According to Alain Berthoz, “Posture is not a passive state in which reflexes trigger reactions. It is a state of readiness to move; a function of an internal calculation of predicted movement sequences and the general goals of the action. What then are the mechanisms of this superior control of balance and posture? A key to solve this mystery can be found in a concept that is indeed vague but rich: that of a body schema.”<sup>2</sup>

Posture is the result of **several balances** in the body:

- Each of the inelastic parts of the body is in balance;
- The whole body is in balance with respect to the outside;

These different balance mechanisms are constantly being fine tuned, so called **postural adjustments**.

When an individual stands in an upright posture, his body, taken as a global system, is only subject to two forces:

- Its weight = the centre of gravity of the body;
- The sum of the reaction forces of the support = the centre of the pressures of the body.

The **centre of gravity**, also called centre of mass or **centre of inertia**, is called the barycentre in biomechanics terminology - **the centres of the mass of all the body segments**.

The centre of the pressures corresponds to the point of application of the resultant of the vertical forces. The balance of the human body is possible only if these two forces are equal and opposite and if their moments with respect to any point are equal and opposite. These two conditions imply that the centre of gravity and the centre of the pressures are aligned with the line of gravity.

1 Erwin Strauss, Phenomenological Psychology, New York, Basic Books, p. 139 (translated by Christine Roquet in the article by Isabelle Ginot & Christine Roquet, “De la posture à l’attitude”, in Posture(s), imposture(s), MAC/VAL, Val-de-Marne contemporary museum, 2008

2 Alain Berthoz, Le sens du mouvement, Paris, Odile Jacob, 2008, chapter “L’équilibre”, pp. 234-252

## TEACHING PRACTICES and DEFINITIONS

*Excerpts from discussions between participants and interviews carried out during training sessions<sup>1</sup>*

### “Balance is something you build”

“When working on balance, the most important thing is to break down and facilitate the understanding of the body. The first thing is placement: know how it will work at the level of the body.”

PASCAL ANGELIER

“We build balance from the bottom up but I will still start from the top and go down. Build from the top, to the hands, until the hands touch.”

RAPHAEL BERETTI

“Even if a minimum of endurance is required, balance doesn’t mean just using muscles, it is also placement and relaxation. Balance, happens in the shoulders, you put yourself in the shoulders or you push and the rest of the body must try to stay relaxed.”

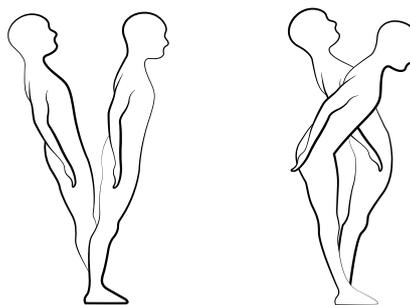
WITOLD NOWOTYNSKI

## TOOLS

### Understanding postural adjustments

“According to several authors (Massion, 1997; Perrin et al.,1994), postural adjustments are the response of error-detecting messages or pre-movement-induced disturbances of balance. Indeed, when balance is disturbed, several strategies are implemented to restore the centre of gravity position. Among these, hip and ankle strategies can be discussed.

The ankle strategy is associated with the movement of the entire body around this joint. It can be illustrated using a model of the inverted pendulum (figure 1<sup>1</sup>). Another strategy is to increase the stiffness of the joints to reduce disturbances or to flex the legs to lower the centre of gravity or to take a step. Therefore, these postural adjustments must be coordinated in order to restore balance.”



1 See list of participants and speakers at the end of the manual

2 Nashner, I. M. and Mc Collum, G., (1985) ‘The organisation of human postural movements: a formal basis and experimental synthesis’. Behavioral and Brain Science, no. pp.135-172, in: Perrin P, Lestienne F. (1994) Mécanismes de l’équilibration humaine: exploration fonctionnelle, application au sport et à la rééducation. Masson, Paris.

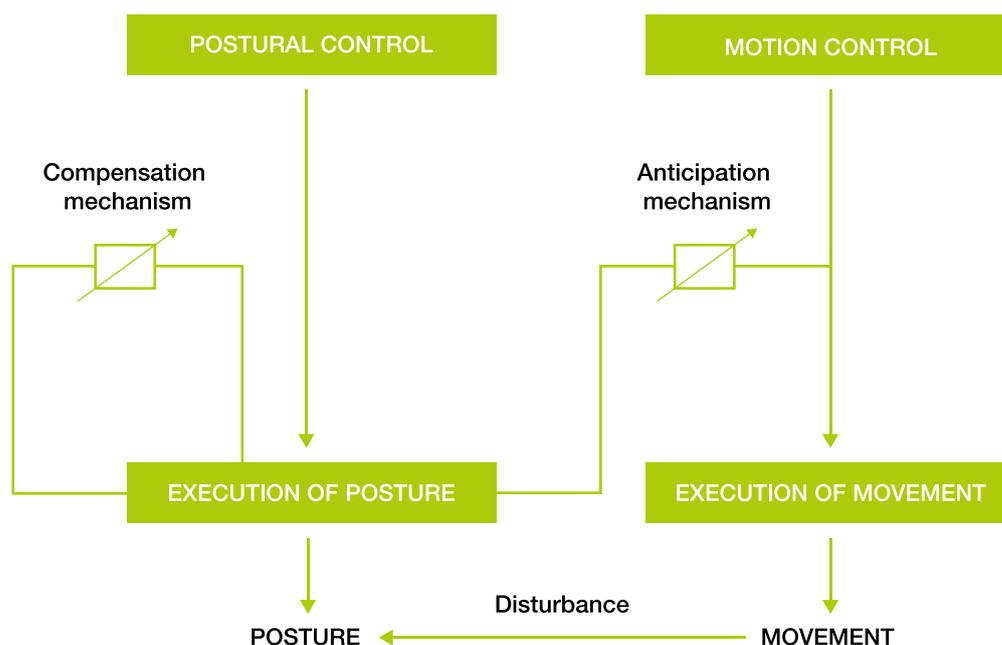
## Understanding the coordination between posture, balance and movement

“There are two main correction mechanisms that form the basis of the coordination between posture, balance and movement (figure 2<sup>1</sup>). Firstly, the postural reaction compensates for the effect of any disturbance, but only after a delay, since it is triggered as a result of the sensory signals originating from the perturbation. On the other hand, the correction can begin beforehand because it compensates in a pre-emptive manner for the destabilising forces caused by the movement. This is the anticipatory postural adjustment (APA). It is the result of learning and is exercised by adaptive nervous system networks. It is generally related to the disturbances caused by intentional movement. The nervous system thereby controls the movement and stabilisation of other segments to maintain balance and posture.”

**Source:** Nicolas Germaine, “Research report on the impact of theoretical contribution on proprioceptive motor learning”, École Nationale de Cirque de Montréal.

In this way, **working on posture** will mean developing a clear awareness of the body segments, their mass and how they are organised. In order to understand **postural alignment**, one can, in effect, **visualise** the body in different blocks stacked on top of each other, with the head in an unstable balance at the top of the column. The head plays a fundamental role in maintaining posture. The work is therefore at the level of a fine search around these micro-adaptations and is reflected in a state of constant dynamic alertness.

When working on posture one often talks about **placement** (of the body). First of all, it is necessary to know what is meant by these terms. What is a “good” placement? Indeed, each student, each teacher has his or her own **body schema**, the three-dimensional image that each person has of themselves, a kind of topographic representation of the body related to neurological concepts (proprioception, in particular). Each individual constructs a body image of self, a psycho-social schematic synthesis of our affective emotional experiences, our personal and cultural history. It can be said therefore that posture is linked to morphology, physical “inheritance” of each individual (which has been acquired by mimicry) to sporting, professional or other activities, psychoaffective history, imagination and behavioral tendencies of each individual.



1 Massion, J. (1992). Movement, posture and equilibrium: interaction and coordination. Progress in Neurobiology, 38, pp 35-56.

## READING

### The thinking body

Published in 1937, Mabel Todd's text, *Le corps pensant* (*The Thinking Body*) thoroughly explores issues related to posture. The author was a voice coach in Boston until an accident led her to lose the ability to walk. Thus she began to explore the mechanisms of balance in the body linking mechanical principles, social and cultural behaviours, imagery and sensations.

“Balanced forces

The human being is a combination of balanced forces. Preserving the integrity of its supporting structure by causing the least possible tension on the elements at stake is a question of adapting the body to external forces, above all mechanical ones. It is through balance that man retains nervous energy and directly benefiting all his activities, mental as well as physical. At the evolutionary stage in which man adopted verticality, he gained more freedom of movement and control of his environment than any other living organism. There are, however, mechanical disadvantages and weaknesses in its structural arrangement, which threaten the stability of its supports and the protection of its vital processes. To compensate for these weaknesses, it is imperative to correctly recognise and use the principles of mechanics as applied to the main structural units in the vertical position. How does the attraction of gravity act on the curvatures of the spinal column and the flat walls of the body, which counterweight each other at the front and the back, as well as in the vertical and curved position at the same time? How do these curvatures act to cope with the attraction of gravity and to allow the skeletal structure to maintain a weight-bearing role? What are the main lines of force constantly at work on the skeleton? So many questions that we must ask ourselves if we want to solve in man the mechanical problem of posture and movement in a vertical position.”

**Source:** Mabel Elsworth Todd, *Le corps pensant* [1937], translation by Élise Argaud and Denise Luccioni, Brussels, Contredanse, 2012. Original version, *The Thinking Body. A Study of the Balancing Forces of Dynamic Man* [1937], London, Dance Books, 1959 latest edition.

## TOOLS

### Enhancing posture and preventing trauma

Presentation by Glen Stewart

National Centre for Circus Arts

When we consider posture, we often speak of **body alignment**. From a biomechanics point of view, an effective alignment is important for injury prevention. Bad habits may lead to chronic or traumatic injuries.

## POSTURE

### Visualising the body

We can define some simple markers to recognise the difference between “good” and “bad” alignment of the body. Let's start by representing the body in a very simple way:

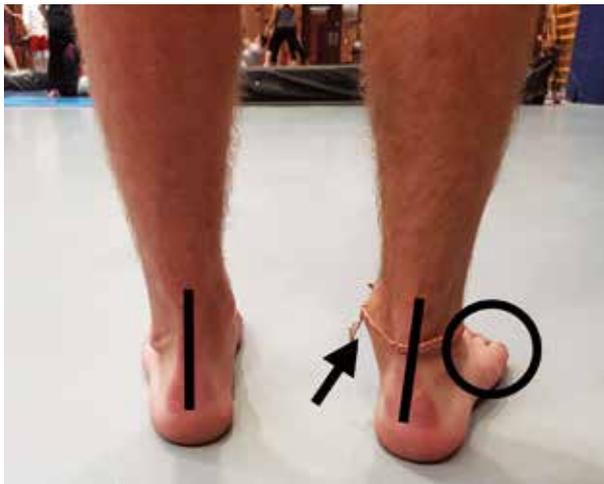


The head and trunk can be imagined as one block and the four limbs as four straight lines that attach to the trunk. The feet and hands can be represented in the same way as the knees and elbows and the hips and shoulders.

From a biomechanics point of view, an effective alignment is important for injury prevention. Bad habits may lead to chronic or traumatic injuries.

## Feet position

Our feet should be parallel at hips width. With our feet in this position, it is easier to maintain a structurally more correct posture. The weight is distributed evenly on both feet and the big toe firmly planted on the ground without excessive pressure. In the neutral position, the arch of the foot is raised. In order to achieve this goal, several actions and mental images can be used:



Visualise and initiate an external rotation of the legs;

- Imagine standing on a piece of newspaper and wanting to tear it in half with your feet.

The feet do not actually rotate, but the activation of external rotation produces the desired result. As a result of this rotation, the arch of the foot lifts slightly while the big toe remains in contact with the ground.

To create external rotation of the legs, the hip muscles must be used. If this movement is done correctly, one should be able to feel a tensioning in the posterior part of the body. Being aware of the feet position and the active engagement of the external rotators, the different segments of the lower limb will be aligned and importantly, lend the knees protection - a joint that is particularly fragile.

## Pelvis position

It is sometimes referred to as a “neutral pelvis” position, which is very difficult to perceive. To find the right position and to allow the muscles to do their work without forcing placement of the hips one can use several exercises:

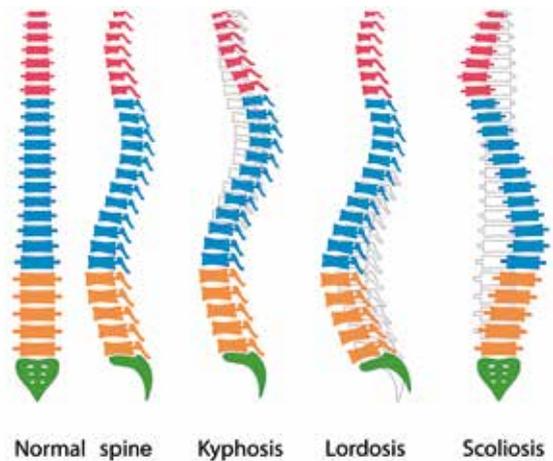
- Stand upright, with the feet in parallel, tighten the muscles of the buttocks as much as possible.

By activating them without trying to tilt the pelvis, the pelvis becomes correctly aligned. The abdominal muscles can then maintain this position whilst relaxing off the muscles of the buttocks to release the movement.

This “neutral” position should, as a matter of course, be maintained with minimum effort. The alignment of the different body “blocks”: pelvis / rib cage / head can then be added on.

## Thoracic cage position

At rest and in a “neutral” position, the vertebral column has natural curves (*lordosis / kyphosis*).



Types of spinal column alterations

### Legend

#### ENGLISH

Normal spine  
Kyphosis  
Lordosis  
Scoliosis

#### FRENCH

Colonne normale  
Cyphose  
Lordose  
Scoliose

>>> Accentuating or correcting these natural curves can lead to injuries or ineffective movements. The thoracic spine and the position of the shoulders are often related and are very important in posture. Internally rotated shoulders (*pronation*) cause chest flexion and cervical extension (*neck*) which the body tries to compensate by incorrect placement of the rib cage. Working on the external rotation of the shoulders makes it possible to find a more correct posture:

- Standing with your arms by your side, bend the arms at right angles as if you were holding a plate in each hand in front of you. Without tightening the shoulder blades together, try to keep the back broad the lower ribcage pulled down.
- Next, push the arms outwards as if you were moving the imaginary plates apart.
- Next, allow the hands fall to the side while holding the shoulders in their new position. This should make the thumbs point forward (*supination*), which corresponds to the feeling of a “*neutral*” positioning of the shoulder.

When there are restrictions present, it is crucial to re-educate the body so it can find appropriate joint positioning to protect the body. Naturally, movement in the circus arts is not only carried out within this strict framework, but it is important to strive towards these “ideal” positions, in order to limit the exposure to injuries.

## PHYSICAL PREPARATION EXERCISES

### The Squat

In circus arts, squatting is fundamental in the mechanics of jumping and landing, and for the acrobatic base of any movement toward or away from the ground. It is crucial, therefore, to work on a correct postural starting position.

- The joint that moves first must be the one that supports the most significant load;
- In a squat, a common mistake is to initiate the movement from the knee, which exposes the knee to injury risk.
- On the contrary, the movement must be initiated from the hips. Imagery can help make this movement understood more clearly: imagine sitting down. By initiating flexion at the hip, the posterior musculature of the leg (hamstrings) is engaged, which in turn stabilises the knee.
- Following flexion at the hip, knee flexion follows. The shins remain vertical as much as possible. To facilitate this alignment, the knees can be pushed outwards as shown below (foot positioning exercises).



Feet positioning in a squat

- The hips (and shoulders) are more stable and powerful in an externally rotated position. In this way, external rotation allows not only for better positioning of the feet but also for the hips too.
- The position described above should be maintained for good squat mechanics with the spine in the “neutral” position.

## The Press-up

In circus, one finds the *press up* movement in all ground based acrobatic work.

- In a prone position, squeeze the glutes to find the “neutral” position of the pelvis, and this position is stabilised by engaging the abdominal muscles.
- To place the shoulders in an “ideal” position, hands begin in parallel (the two index fingers pointing forward). You can imagine trying to tear a sheet of newspaper under your hands by opening your hands.



Arms' position in press-ups

- As the weight of the body is lowered to the ground, the hands do not move but the external rotation force protects and strengthens the shoulders. This will have a beneficial effect on the position of the elbows and the weight distribution on the hands.
- The first joint that moves is the one with the most load. Here we start with the movement at the shoulder, followed by the elbow. The forearms (like the shins) remain as vertical as possible.
- The spine must remain fixed in neutral.

These basic movements are a great way to become familiar with the placement of the hip, knee, ankle and shoulder, elbow and wrist. Subsequently, these principles can be applied to more complex movements. Any restriction in these basic movements must therefore be corrected upstream: to develop greater mobility that will allow for more stability.

## FURTHER READING

*Acrobatic symposium* at National Centre for Circus Arts 2015

In 2015, the circus company Mimbire in conjunction with the National Centre for Circus Arts in London organised a symposium devoted to health issues and training in the circus arts. Several presentations, workshops and round-table discussions took place to debate different topics: scientific knowledge, injury prevention, physical preparation, lifestyle, programming of training loads, physical and psychological management of trauma, day to day wellness during training and a career as a circus artist.

### See the symposium programme of events:

<http://www.nationalcircus.org.uk/professional-artists/archive/acrobatic-symposium-2015>

### Access the videos on-line:

<http://www.nationalcircus.org.uk/professional-artists/archive/acrobatic-symposium-2015/acrobatic-symposium-2015-videos>

These online resources can act as a very suitable knowledge base and support teachers' difficulty in assessing and scheduling student workloads. Since each student profile is different, the role of the school is also to impart **autonomy** in training schedules, using both practical **knowledge** and the support of scientific theory.

Other resources are also available for dance and can be adapted to the circus arts.

### On-line resources of the International Association for Dance Medicine and Science

<https://www.iadms.org/?page=186>

**SuppVersity blog** (exercises for physical preparation with support from scientific literature):

<http://suppversity.blogspot.com>

## The “rebalanced” body? A history of posture<sup>1</sup>

A history of **posture** clearly shows that the alignment of the body is the fruit of a cultural history. Political and social directives have a part to play in constructing the body as well as the representations that one has of the body in an art or a sporting practice. The perception of traditional circus, for example, rests in part on the image of a performing athletic body, aligned straight. In history, the “straightened” body is that of decency, of order, and is seen in particular to appear under its athletic profile with the development of gymnastic techniques in the nineteenth century, in parallel with many hygiene requirements. The historian Georges Vigarello recalls that this straight body has often been obtained through remediation techniques that range from physical manipulations to prostheses (such as the corset for women). Thus the **aesthetic** idea of the line is deeply linked to the incorporation of bodily norms, often social, political and sometimes disciplinary norms.

In the teaching of circus arts, this notion of alignment must therefore be detached from these “visions” of the body, with a particular focus on the feeling of an efficient, energy-efficient and respectful organisation. For, as Georges Vigarello reminds us:

“Teaching has precepts which give the body a form and grid it in order to submit it to rules, more than thought does. Suggested images, gestures that are hinted at and lead to positions and behaviours in silence; phrases where words outline a half conscious and laborious processing. Heavier sentences with given orders fixing appearances and demeanour with analytical precision. The body is the first place where the hand of the adult marks the child, it is the first space where social and psychological limitations are imposed on conduct, it is the emblem where culture inscribes its signs like a herald.”<sup>2</sup>

Of course, the evolution of thought and social behaviour since the 1950s has allowed an opening up of representations of the body; the body is now mobile and malleable, and it is the privileged site of a person’s expression. Nevertheless, one cannot ignore that when working on posture, certain representations persist. Here we can evoke various physical norms and stereotypes of bodies which teachers must free themselves from in order to work differently on posture:

- The ideal of the athletic body is closely related to “quantophobia” in a sporting context (excessive measuring of everything);
- Gendered representations of the body (between girls and boys);
- The vision of a “straight-lined” or “straight” body.

.....  
<sup>1</sup> We borrowed the title from Georges Vigarello’s work, *Le corps redressé* [1979], Paris, Armand Colin, 2004 (latest edition).

<sup>2</sup> Georges Vigarello, *op.cit.*, p. 9.

## Tone

Tone is the state of muscle tonicity, or level of tension within muscle “contraction”. In our rapport with other people, we sometimes speak of a **tonic dialogue**, namely the way in which each body has a posture and the way in which this phenomenon is perceived by the other person. From a physiological point of view, muscle tone is the **permanent state of tension which is exerted on the muscles** in order to oppose the action of gravity on the human body.

There are numerous explorations of tonus, especially in the somatic practices and techniques of body consciousness: **Alexander** technique, **Ehrenfried** method, **Feldenkrais** method and **Haptonomy**, or **Eutony** (Gerda Alexander method). Indeed, many of these practices explore the relationship between posture and tone and are, in this sense, very interesting and complementary to developing work in circus arts in learning about balance and placement.

### The purpose of tone is to ensure:

- The maintenance of antigravity positions and posture (through muscular contractions)
- Preparation for phasic contraction (tensioning of muscular elasticity).
- The basis of motor skills (voluntary or not), language, non-verbal communication and expressiveness;
- Support (and expression) for awakening, vigilance, motivation and intention (in relation to psycho-emotional and emotional factors).

### Different tonic states or levels can be distinguished:

- Background (or basic) tone;
- Postural tone;
- Action tone.

The appreciation of tone is both **quantitative** (it can be measured) and **qualitative**. In effect, the tone modulates and regulates itself according to the movements, the environment, the presence of others, and so on. During the learning process, particularly of a motor vocabulary, the different levels of tone will be refined and allow more and more complex and finer coordination.

## READING

### What posture & tone say

“The spectacle of a body or of several bodies reminds us that a corporeal dialogue underlies verbal exchanges. [...] We have few words to describe this expressivity which underlies these exchanges: one speaks of a “skin” reaction with regard to another one, one notes or not the existence of “chemistry” between oneself and the other when one discovers the meaning of a handshake that betrays an apparent alliance or complicity, or the artificiality of a smile on the facade. In short, we perceive, without being able to name it, an “attitude” or a relation to the world, underlying a posture. The dialogue thus goes through tonic, sensory, postural, gestural and vocal variations. In regards to the relation to another, we perceive this here and now attitude: we can recognise someone without seeing them, in how they climb the stairs, for example. In this sense, posture is already a movement, as well as a signature of mood and behaviour, and the tone comes to feed these multiple variations. [...]

Our conversations are therefore as much about language as they are about as posture and movement. [...]. In the thirties, the philosopher Ernst Bloch was haunted by distinguishing attitudes or even different projects and relationships to the world beyond the apparent similarity of signs and figures.

“When two men do the same thing, they do not do the same thing,” he wrote in *Héritage de ce temps*, when he tried to hunt down the National Socialist sham and its uses of Socialist and humanist culture elements in Germany in the 1920s and 1930s. These included physical practices that were alternative to military physical education, from a physical culture and a culture of sensitivity. If indeed they appealed to a reform of life, even to the mythology of the new man on a path of strength, beauty and refound harmony, to the utopia of a body purified and reconciled with itself and with nature, thereby opening up all the hygienic, legislative and racist abusive reasoning, they nevertheless produced new know-how and self-use. Bodily knowledge whose effectiveness and relevance is now rediscovered (notably in the dance field of dance and of the so-called “somatic” physical therapies discovered in the 1930s, notably in Germany, Sweden, England, France and the United States). It is still necessary to describe the foundation and the construction of the social gesture specific to a community, which Marcel Mauss had set out to do in his famous lecture on the techniques of the body in 1934, seeking to elucidate all that the way of walking can tell us about a given social group and individual differences.”

**Source:** Isabelle Ginot & Christine Roquet, “De la posture à l’attitude”, in *Posture(s), imposture(s)*, MAC/VAL, Val-de-Marne contemporary museum, 2008.

## Support

Balancing on the hands requires a very refined awareness of the supporting surfaces and the environment, involving specific sensory-motor strategies. A balanced posture on the hands requires, on the one hand, strength in the abdominal region, the shoulder girdle and the arms, but also a perceptual training of the body in order to find the right placement (postural control), consciousness of the external space and of the internal space (the alignment of the pelvis and the spine above the hands) to maintain the balanced position. For the acrobat, the hands become a way of moving akin to the feet; They serve as a passage for weight transfer. The hand support surface, arm extension and shoulder placement are all important.

When trying to balance, although the sensation of weight distribution through the hands is not simple, it is fundamental. In order to work on it, one obviously has to spend time on one's hands (sometimes with the help of a wall or another person), because this type of support is not so usual. When starting out, the support through the hands can be corrected thanks to one's vision, but little by little, it is the sense of sensation that must take precedence. Developing specific training methods **for supporting oneself on their hands** using a variety of different exercises can be an interesting gateway for improving the link between work of the muscular system and on alignment. One must emphasise the importance of this end of the body as the basis of the point of balance support. Indeed, this part of the body is highly innervated, composed of small muscles and acts as the seat of a number of emotions:

"The hand is the privileged organ of touch. The skin of the palm and fingertips, with a large amount of receptors, is particularly sensitive to variations in texture, temperature and humidity. [...] Sophisticated tactile receiver, the hand is also the organ of grip. The multiple joints and the many muscles that constitute it allow it to execute a wide range of movements, from the precision of the fingers to exercising the use of force. The thumb, which opposes the other four fingers, makes the grip stable and powerful. The hand thus serves to grasp, clench, tighten, grip, seize, crush: the muscular and haptic organisation of the hands anticipates differently if the action to be performed is to touch silk, water or sand or to catch a butterfly, a fish or an artichoke".<sup>1</sup>

### Supporting oneself calls for a number of sometimes contradictory actions:

- Pushing / sinking
- Go towards / oppose
- Hold / rest

When teaching, the **action verb** used to describe the **quality** of support is therefore of great importance because it will not involve the same action and / or organisation of the body. On the other hand, if the support is mainly used on the ground or on an object, it is also possible to imagine working with a partner (for example, by giving one's weight), or even by working on the **feel of the support** on air.

Different **images** can also be used to modulate the quality of the support:

- Imagine that one leans on water and that the body "floats" around the support;
- Imagine leaning on sand or moving ground where the body sinks;
- Imagine that the body rests on burning hot ground and that it must touch the minimum amount of surface area;
- Imagine that the body rests on dense air, in a material that it has difficulty to repel.

In the same way, when working on supports one can undertake an exploration of a **multitude of supports**, on the ground or on the body of one another.

- Weight and counterweight work (give and receive the weight of each other, all or part of the body);
- Work against a wall or with a partner;
- Imagine all possible supports on the ground;
- Find the smallest possible support;
- Identify parts of the body and try to have them resting on the ground

.....  
<sup>1</sup> "Prendre par la main", in Marie Glon & Isabelle Launay (dir.), *Histoires de geste*, Arles, Actes Sud, 2012.

A support is what holds up the body, it is its anchorage. To think of support is to think of the body as a construct in constant interaction with the environment. The support allows the **verticalisation** and the posture to rise. But support is also what gives rise to **confidence**. Doctor Benoît Lesage explains that:

“[...] Body and identity are processes that develop in relationship and exchange. The support is therefore both physical and psychic. The relationship to the ground that the adult maintains crystallises the history of verticalisation. Explorations on the theme of weight and support arouse often emotional, sometimes unexpected, responses that trace it.”<sup>1</sup>

### IN SUMMARY

- Balancing involves working on placement or alignment and therefore posture, fundamental to understanding the organisation of the body and preventing the risk of injury;
- Several concepts are associated with posture: postural adjustments, support surfaces, muscle tone, etc. All these different elements can be integrated into physical preparation work;
- Posture is not merely mechanical in nature, it is also nourished by a cultural and personal history, our feelings, our repertoire of movements;
- Hence, our posture is also linked to a body pattern whose neurological functioning is still poorly understood, but which has been widely studied in cognitive sciences. These dimensions should also be taken into account in training.

### ARTISTIC APPROACHES

#### Balance / Support

Rather than finding the maximum balance in a figure, Jean-Baptiste André is looking for the maximum imbalance *between* two figures. For the acrobats the hands become like feet, a way to move, they serve as a passage for weight transfer. Without putting themselves in balance the acrobats shows all the perceptive work of the hands in their contact with the ground at the end of his show *Intérieur Nuit*. Placing a *live* camera in front of their hands, they film them, standing, well anchored on both feet. The image offers a close-up of these “dancing hands” that guarantees balance. Like feet, hands unfold on the ground, raised onto the tips of the fingers. As the legs, arms extend, root into the ground, ready to carry all body weight.

#### Website of Jean-Baptiste André:

<http://www.associationw.com/index.php/spectacles/39-interieur-nuit>

#### Teaser “Intérieur Nuit”, Jean-Baptiste André,

#### Website Cnac.tv:

[http://www.cnac.tv/cnactv-542-Association\\_\\_W\\_\\_\\_\\_Interieur\\_nuit](http://www.cnac.tv/cnactv-542-Association__W____Interieur_nuit)

It will be possible to work with/on different materials or objects to feel the support differently, to work on the weight, the counterweight to feel the force and the relaxation, etc. Paying attention therefore seems fundamental, depending on the environment (the nature of the ground, interior/exterior...), the sensation under the hands can change and modify the whole construction of the balance. One of the teachers speaks of “**listening to one’s hands**”. Balanced posture is constructed by listening to one’s hands on the floor, their energy and the quality of support.

1 Benoît Lesage (2014), “Mémoires d’appui”. Chronique d’un acte fondateur, Repères - Cahiers de danse, no. 33, “Appuis” pp. 3-5.





# Creativity - an assistant to the process of balance

“I am defined by my discipline: hand balancing. Yet this circus body gravitates towards a dance body and the time has come to consider the body’s identity as defined by what one does rather than the universe from which one came.”<sup>1</sup>



“*Training is creating*”, says choreographer Thomas Hauert. If physical preparation is necessary, it shouldn’t necessarily be considered as a completely separate activity from the artistic dimension. It is appropriate to create the link between injury prevention, posture, principles and tools of physical preparation and creativity. To do this, we must make a shift in the delivery of how we teach, conceive of exercises connecting the components of training through games, tasks, protocols, and also with effort spent on mental imagery and visualisation that act as an invitation into the world of imagination. The creativity of the teacher, like that of the pupil, is above all, a form of openness and curiosity.

Approaching physical preparation differently provides the means to point out the specificities of circus arts practice and to maintain a link between specialisation and a transversal work on movement:

- The nature of **artistic work** (physical and creative, different from the work undertaken in sports);
- The **pace of training** linked to this artistic work: variable and intermittent;
- Managing the **longevity of artistic careers**;
- Opening up the **possibilities of movement** (both technical and artistic) to enrich performance.

Diversifying training modalities also stimulates cognitive adaptation, which is important in technical work, but also in order to cope with different environments (which will be a factor in the life of an artist) and to develop creativity. In this context, the work of Will Tullett is interesting to probe. A physical trainer working with elite footballers has developed innovative and original training programs, rehabilitation and physical preparation tools.

**Watch Will Tullett’s presentation, Maximising Physical Potential, a Long Term Pathway Acrobatic Symposium, NCCA, 2015:**

<https://www.youtube.com/watch?v=qhledlPPtYA>

Similarly, the approach suggested by James McCambridge during the training session provides another way of looking beyond by incorporating other skills. If these different modalities have concrete effects on motor skills, they may also allow us to develop a wider and more open field of exploration of the movement and thus maintain a more pluralistic view of the body and its physical and expressive potential.

.....  
<sup>1</sup> Jean-Baptiste André, excerpt from Agathe Dumont, Stradda, no. 19, January 2011, p. 17

It is clear that the constraints of educational programmes of schools do not always allow much freedom to develop these tools. That said, certain fundamental elements and a rebalancing of approaches could be considered: discipline or non-discipline, separating technical and artistic lessons, developing the transversality and the plasticity of pedagogical approaches, etc. In the field of the circus arts, the ultimate aim is not to separate the **physical work** from an **aesthetic project**. Whatever the work is, there should be an interweaving of physical preparation, technical education and artistic explorations. Obviously, the challenge is not to add on lessons and more responsibilities, but for teachers to **collaborate** with each other in order to incorporate different approaches in their practices.

## TEACHING PRACTICES and DEFINITIONS

*Excerpts from discussions between participants and interviews carried out during training sessions<sup>1</sup>*

### “Being creative in teaching”

“In a practice and technical work session, moving to a more **creative approach** quickly brings students into a **searching process** and forces us as teachers to be involved in this **research process**. This dual system, stronger or weaker depending on the groups and people, should give us the confidence to develop this in schools. It is a **form of risk-taking** where one is not always in the same position. We are not sorcerer’s apprentices. We have knowledge, know-how and skills, but when we take risks, without necessarily knowing where we are going, we remain professionals of our field.”

MARTIN GERBIER

“We often talk about technique as if it were only physical or mechanical, but **even the basic figures of acrobatics were creative once**. We forget this because we master them and then they are no longer seen as creative. Yet, by teaching all these complex movements, one is being creative with the human body.”

GLEN STEWAR

The challenge of a creative form to mutually assist with the process of balance is fundamental to preparing artistic careers that will be long and varied. Thus, a broader approach invites us to be in a state of imbalance in relation to our pedagogical practice, to put ourselves in a state of research, in order to preserve an element of invention in the teaching of balance. Preparing students for the best is to prepare them to be **autonomous**, to be able to **protect themselves**, to **adapt** to different environments and to **invent** their own language.

### Some proposals and questions around balance

*(Result of discussions between participants in the training session)*

- How can we take into account the **different dimensions of the “balancing” activity**: sensation / perception / proprioception, motor control, feelings / emotions, energy / physiology and, at the centre of all approaches, intention / expression / representation?
- Imagine, as the training progresses, **improvisation** exercises: with technique, with the components of physical preparation, in relation to the specificities of the activity, or creative tools.
- Imagine **“moving” approaches**: a choreography or a game can be a simpler way of achieving the desired technical gesture.
- To create **“disturbances”** during the work of balanced postures by mobilising the senses to induce motor responses: hearing by clapping or clapping fingers, tapping the person in balance, vision by seeking his eye attention, showing him objects, etc. This kind of situation, which aims to develop the student’s ability to balance, may also in fact mobilise their **creative resources**.

In some settings, exploring **movement possibilities** more widely before specialisation may grant this more diverse approach. The difficulty is of course to prevent risks, to be able to transmit a qualitative movement, whilst still allowing one to acquire a solid technical baseline. Through reflection, we can wonder about the nature and ways of creative teaching: what moves us as teachers and how to be moved by what we convey?

1 See the list of participants and

## READING

### “Training is Creating” - Thomas Hauert

*In this text, Belgian teacher and dancer Thomas Hauert defends a vision of coaching as a creative tool. Moving away from a normative technical vision, he suggests a reflection on the creative potential of the principles of regular training and allowing the practitioner to mobilise their own resources and knowledge to invent their own tools.*

“Our physical intelligence goes far beyond what our consciousness is capable of dealing with. Our body is able to cope with a wide variety of impulses and mechanical motions and, at the same time, can give them a specific quality. The technique is not related to a style but to our anatomy, to the possibilities of body movement. [...] The body needs time to integrate new skills and work on basic motor coordinations. It is necessary for the body to understand this principle. But the technique should be transferable to several circumstances and movements in order to avoid creating a repertoire of habits. From this perspective, it seems clear that an exercise for a specific skill can take many forms. Rather than spending time memorising and practicing a defined sequence, one can work on skills as part of an improvisation task. [...] As new sequences are constantly created and explored, we develop a way of thinking about movement as extremely valuable in a process of creation. [...] This approach to technical work teaches the body to grasp the freedom in order to access the creative potential of its anatomy...”

## IN SUMMARY

- The paths to balance and posture are multiple: the teaching challenge is how to integrate and bring together these dimensions as universally as possible.
- Indeed, today’s contemporary circus artist is expected to be adaptive and open-minded: the greater the artistic approaches, the richer the artistic work.
- Whilst studying technique assures greater safety of artists is not being overlooked, varying the ways in which one can work on balance would allow for an adjustment of the rhythm and workload; with an emphasis on the qualitative and artistic rather than the quantitative.



A person's hand, wearing a dark long-sleeved shirt, is shown holding a vertical metal rod. The background is a dark, industrial setting with a grid of metal beams and some blurred lights, suggesting a warehouse or a technical environment. The overall tone is professional and focused.

# **INVENTING A RELATIONSHIP WITH BALANCE:**

**DEVELOPING  
A SENSATION,  
OPENING UP  
IMAGINATION**

**02**



# Images and sensations

“In general, we understand our everyday life through thought and imagination, but if we take the time to savour our body’s participation in our actions at every moment, it will help us a great deal on stage.”<sup>1</sup>



When teaching equilibristics as in other circus disciplines, teachers often use **images and sensations** to explain a mechanical principle or to induce a quality of movement. In addition, in hand-to-hand, handbalancing and tight-wire, teachers can also work on their **contact** to adjust postures to make students understand certain mechanisms. If the primary vocation of this work on images and sensations is not necessarily artistic, making use of it refers to the **feeling** part of the activity and therefore to its expressive potential.

This begs the question: how to use these elements? With what objectives? And in what contexts? For example, some teachers will make more use of sensation work when students are struggling. Questioning the students about their feelings sometimes helps them to break a deadlock and it can be a source of creativity.

Moreover, in some cases, it seems important to clarify the sensations. Soren Flor<sup>2</sup> explains, for example, that in the work of acrobatic basing and hand-to-hand, we work on two different sensations: one for the base and the other for the flyer: “I want them to feel the sensation of “dividing” their bodies in the dynamic, with the legs pushed down and the top pulled up towards the sky”. In order for this to work, images can enrich the more mechanical elements that generate movement. In the same way, other meanings can also be brought into play.

The **auditory sense** for example can be solicited when working on balance. Wybren Wouda<sup>3</sup> explains that one can trigger a movement by a rhythm or by modulating one’s voice. It becomes more of a sensory approach and it is often different modes of address that will allow the student to find the right “key”. Also, an action whose goal is to achieve technical improvement can be a creative tool in itself.

.....  
<sup>1</sup> Yoshi Oïda, “La stratégie du ninja”, in Carol Müller (dir.), Le training de l’acteur, Arles, Actes Sud/ CNSAD, 2000, p. 120.

<sup>2</sup> See list of participants to the training session at the end of the manual

<sup>3</sup> Idem

## Conveying a “feeling” of balance

Camilla Damkjaer and Thierry Maussier (Stockholm University of the Arts - DOCH) have developed a research project on hand balance pedagogy. Their purpose is to understand what is involved in the teaching process, based on current scientific knowledge, in particular studies carried out on balance at various levels: biomechanical, physiological and neurological. These three levels interact during handbalancing and one should be aware of them when teaching.

Hence, how to integrate these three aspects of research and **apply them to teaching**? Understanding balance means understanding how the **different senses interact**. This constant dialogue between the body in motion and its environment is the system that is at stake in balance work.

The authors note, however, that despite scientific knowledge, the notion of sensation is very different in different situations and that there is often a “gap” between students’ sensations at different stages of their practice and what they manage to give a name to. For example, when students are learning a new position or shape, they often refers to not feeling “the legs’ position”, “**I do not feel my legs, my arms...**”. This demonstrates the discrepancy between the action and its perception.

However, just like movement, sensation can be refined and learned. Indeed, rather than describing the movement, evoking sensations can be very useful in overcoming technical blockages.

It is thus a question of emerging from a dichotomous vision that would separate the **sense of balance** from a vision of how the body should be in balance, from the point of view of physical performance alone.

**For further research, see Camilla Damkjaer’s presentation, “The Circus Body Articulating”, International conference “Semiotics of circus” in cooperation with Cirque Bouffon, WWU Münster, 2015:**

<https://www.youtube.com/watch?v=gMPLMTzdsgc>

The research project carried out at DOCH also deals with tools and methods to “increase the ability to feel” through various workshops. In this way, pedagogical methods can be developed to enhance their understanding of their **sensation processes**.

### Several questions arise:

- What are the **different levels of sensation** and relationship to sensation: the relationship between what one can feel and what one is capable of?
- What is the role we should give to sensation in technical education and how can different ways of teaching **guide students to improve their ability to feel**?
- What is the “sensation” baggage of each person? How to take it into account in relation to the experience of a movement or a situation?
- What is the relationship between experience and the ability to “feel”? Do we have a predisposition to “feel” better?
- How to “classify” the **different ways of feeling**: physical sensations, psychological reaction, images, etc.?
- Is the feeling of balancing on the hands the same as that of balancing in standing?
- Does **naming new sensations** increase the ability to have other sensations?

One of the greatest difficulties is finding a common language. Even though studies have been carried out, the use of words, images and sounds is very subjective, particularly in terms of effective imagery on actions such as alignment or balance. What does one actually feel: the force, the flow, the position? Some elements related to the five senses are easier to sense, but what do we feel, for example, about the mechanisms of the inner ear? What about the feeling of *timing* to make the necessary movement at the right time?

## TEACHING PRACTICES AND DEFINITIONS

*Excerpts from discussions between participants and interviews carried out during training sessions<sup>1</sup>*

### “Images and sensations”

“In balance work, the main challenge is to allow students to become aware of what is going on and to help them understand their feelings. They will feel things and must understand what they feel. We feel the weight move, but why and what does that mean? I sometimes try to change the axis of vision to change the sensations. It is assumed that the easiest way is to look at the ground but a lot of things happen if you take that away. At the beginning, I make them look at the wall, then turn their heads and look up, I also make them close their eyes. This helps them focus on inner sensations; balance is a form of meditation...”

RAPHAEL BERETTI

“Images are important when working with children. Often, to make them understand about alignment, I talk about cooked spaghetti or uncooked spaghetti. It is much harder to make cooked spaghetti balance on the hand than uncooked spaghetti... These are the images that help explain a complicated thing more simply.”

FRÉDÉRIC LORET

“I already had a case of a student who **could not feel where he had to push**. We then changed the gravity. While standing, he was asked to imagine that he had a weight on his hand and had to swing. Then, we transposed it and tried to find this sensation in the thrust of the feet to make him feel where to push.”

WYBREN WOUDA

“Working with the sensation of balance can also be done by feeling rhythm: time remaining in balance, time during a pause. It is another kind of work on physical sensation other than placement.”

VANESSA PAHUD

A pedagogical work on sensation implies thinking about **verbalisation**. Martine Leroy reminds us that the verbalisation of thought/image/sensation is essential. Cognitive development makes it possible to acquire these three registers: feeling, imagining and thinking about the world. In adulthood, these three registers become available resources and the artistic practice facilitates the use of one, the other, or all three.<sup>2</sup> The instructions given by the teacher determine therefore a relationship with what can be felt or understood. Therefore students can be assisted in searching for or finding sensations (naming their sensations) or by facilitating access to a specific sensation.

1 See list of participants and speakers at the end of the document

2 Martine Leroy and Martin Gerbier, “Les arts du cirque: un terrain de jeu intermédiaire pour les pas-sages”, Master Thesis in Clinical Psychology, under the guidance of Brigitte Leroy, Université Paul Valéry, Montpellier 3, 2002. / Martine Leroy, “L’accompagnement psychologique dans la formation des jeunes artistes de cirque: maintenir une confiance basale chez le jeune artiste en crise identitaire.” Thesis of DESS in Psychology and Sport, under the guidance of José Luis Moragues, Université Paul Valéry, Montpellier 3, 2004

## ARTISTIC APPROACHES

### Feeling / making one feel

Different works in circus or dance could be likened to a form of “virtuosity of feeling”. Certain pieces question **sensations**, in a dialogue between those of the artist on stage and those of the spectator in the room. It is not a question of producing a spectacular show, but rather of exploring fine perceptions, to create a poetic gesture that would appeal to sensations deep within us.

In *Nos Solitudes* by Julie Nioche, the feeling of balance is at the heart of the process. Suspended from the ceiling and held by different weights, the performer moves **in balance, in air support**, showing and feeling the construction of balance in another **spatial reality**.

### Website of the Association d’Individus en Mouvements Engagés

#### Choreographer Julie Nioche, “Nos Solitudes”

<http://www.individus-en-mouvements.com/fr/spectacle/nos-solitudes-16>

In *Autour du domaine*, the company Marion Ka (member of the collective Porte 27) has created a tight-wire piece focused on **slowness and sensations**. Through a sculptural work with light, the body reveals and hides itself. While two acrobats move on the wire, viewers often see only part of the movement, inviting them to reconstruct the complete gesture using their own sensations.

### Poste 27 website, “Autour du domaine” page

<https://porte27.org/autour-du-domain>



Source: Eric Franklin

## TOOLS

### Imagery, finding alignment and the sensation of balance

To help people feel what alignment is and to find balance, teachers often resort to **images**. Scientific studies have shown that work on visualisation and / or images have very positive effects in terms of generating a physical reaction.

When working on alignment, several types of images are often used:

#### Body “blocks”

One can imagine the body as three stacked “blocks”: the head, the torso and the pelvis. These different blocks are connected and aligned with one another and balanced. A shift in each one of these blocks has an impact on the others. All the axes passing through these “blocks” (vertical, horizontal, sagittal) should therefore be aligned. In order to feel this alignment, it is necessary to imagine that equal forces are exerted on each of these “blocks”.

#### Plumb line

In the upright standing posture, we often use the image of a plumb line descending along the spine and ending with “plumb” at the level of the coccyx. The sensation of “weight” makes it possible to build this tension between the top and the bottom, which is important in finding alignment. One can also use the image of feet rooted in the earth and the head suspended in the sky or the opposite in an inverted posture. The image of a tree can illustrate this principle.

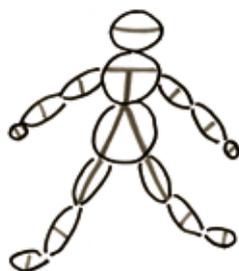
#### From inside to outside

To find the sensation of alignment, one can also imagine the body composed of concentric circles. Different circles can be aligned on the joints of the body, each “system” having its own centre.

In the book *Dynamic Alignment Through Imagery*, Eric Franklin proposes images that help us understand alignment and refers to several models:

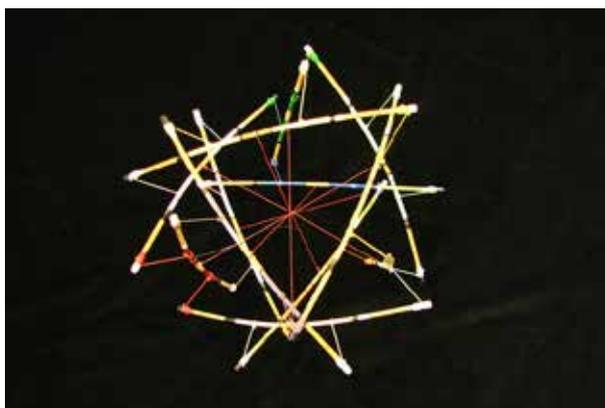
“**Tensile compression**”: with a stable and tensioned central axis (the spine) and flexible elements that are organised in a circle around this axis. In the human body, the different circles correspond to the girdles (notably the shoulder and abdominal girdle). This model demonstrates that there is **an integrity of the centre**.

“Water-Filled Balloon”: this approach takes into consideration not merely the musculo-skeletal system, but also the connective tissues and the organs. The author borrows this model from Deane Juhan (1987) that is also found in Shizuto Masunaga (1991) in Zen Imagery Exercises. The idea is to imagine the body as balloons filled with water in which bones and organs float. Working with this image allows us to work on the adaptation and plasticity of structures. The weight is organised during the movement while preserving the elasticity of the body.



Source: Eric Franklin

“**Tensegrity**”: this term of “*tensegrity*” is borrowed from Buckminster Fuller (1975), a mixture of “tension” and “integrity”. This model consists of elements as hard as beams, which represent the bones of the human body and the flexible elements such as the muscles and connective tissues (ligaments, tendons and fascias). This model is resilient: it deforms and reforms. The flexible elements are well adapted to absorb the forces.



«Tensegrity Model»

#### For further reading:

Eric Franklin, *Dynamic Alignment Through Imagery*, Champaign, Human Kinetics, second edition, 2012.

The notion of sensation is also linked to that of the so-called **body state**. Between the perceived body constructed from these sensations and the “ideal” body shaped by training, different states participate in both technical and creative expression. A body state is a matter, a quality, a musicality that is related to the artist-performer’s physical work as well as the communication with the viewer’s body. It is therefore possible to imagine looking for specific body states in order to create a figure or work towards a balance state by using **images** or by using **known sensations**: imagining that we are operating in a heavy environment, water, sand, etc. Witold Nowotynski,<sup>1</sup> for example, proposes this instruction: “Sometimes I propose a theme. I ask the student to imagine that he/she is an aquatic plant and that the water level drops in the aquarium. The work is not primarily about form, but the image is a trigger that will allow us to look for forms.”

#### Touch: in contact with balance

In transmitting a “feeling of balance”, circus arts teachers often use touch to give directions to students. Indeed, the interactions between teachers and students involve verbal and non-verbal communication:

“Statistics show that words count for only 7% in communication, voice accounts for 38% and non-verbal for 55%. It is therefore important to study what is happening in these NVCs (non-verbal communication). Similarly, communicating means establishing a rapport and, like all communication, touching involves two people: one who touches and one being touched. As a result, all of these communications have an impact on student engagement, learning, progress, relationships with peers, and the emotional relationship between the teacher and each student.”<sup>2</sup>

1 See list of participants to the training session at the end of the manual

2 Magali Barrière- Boizumault, Geneviève Cogérino, “Les touchers en EPS: catégorisation, croyances des enseignants et perception des élèves.”, Proceedings of the conference on training and education current research (AREF), University of Geneva, September 2010  
See also: Magali Boizumault, Geneviève Cogérino; “Le toucher en EPS”, Revue EP&S ,no. 371, September 2016

>>> In this article, the authors distinguish three modes of touch: “technical” touch, to correct (a posture, a movement), relational touch (to establish communication) and touch that relates to non-verbal communication. These different modalities can thus be identified and formalised in the practices of each one, because touch is linked to a cutaneous reaction, but also to kinaesthesia; it can be active, passive, guide, lead, accompany or for correction.

Obviously, this contact work is not always easy, because it raises questions of censorship in our relationships with the body and taboos, as well as involving the sensitivity and even the intimacy of each one. However, this is a way of producing a very interesting *feedback* mechanism and there are several techniques:

- For some teachers, hands make you feel the “bowels of balance”, a sensation through touch which can be very useful at the beginning of learning process.
- Fingers also make it possible to insist on the flow and the direction of the movement that students must feel in their balance.
- When balancing on one hand, you can use three fingers to give feedback to facilitate the correct position in the shoulder. Indeed, the shoulder is a triaxial joint and giving this feedback fosters the development of proprioception and placement of the shoulder.

The gesture must be subtle and its quality will set the tone of the correction. A small correction to induce a tiny adjustment is done by a light touch. On the contrary, to correct a bad posture, the teacher may intervene more strongly and manipulate the body more. To work with the student in a calm manner, the most important thing is to establish the communication with students from the beginning: talk about the different types of contacts and their pedagogical functions.

## ARTISTIC APPROACHES

### The Grandmothers’ project

Acrobat and base in hand-to-hand, Alexandre Fray (from company Un loup pour l’Homme) developed a project of acrobatic lifts with elderly people. It is about carrying them, making them experience the sensation of bearing weight, of balance, even though their bodies are tending to lose the ability to stand. It is an approach in which sensation takes precedence over form in relation to contact and touch.

### Teaser from Manège, scène nationale de Reims, Grandmothers’ project

<https://vimeo.com/100111065>

“What happens to an acrobatic lifts workshop when turning the head is difficult, lifting the arm painful, bending the knees impossible? A workshop where, despite everything, the ladies are willing, even enthusiastic, ready to try, once they are more at ease? Most of them have a terrible fear of falling, many have already experienced it. They know that once on the ground, they will not be able to stand up alone. This fear creeps inside of them little by little until they no longer dare. They don’t dare to run, jump or lean. And of course, the more they don’t do it, the more the body forgets how to. The muscles weaken, the joints rust, the very image of the gesture vanishes. Daring again. [...] This, I believe, is where I find the most meaning in this workshop: reopening the possibilities of each body. Daring again, and taking pleasure in daring. Attempting to relax (the elderly has great difficulty in giving up their tone). Touching, massaging, helping each other to stand on one foot, guiding, letting themselves be guided with their eyes closed, leaning, sketch out movements, almost dance movements. Leaning as much as possible on the other - the partner, the friend, the neighbour - to find that self-confidence that is not always so far away... [...] What makes me passionate is the feeling that these physical events are possible only because the encounters take place little by little and bonds are tied. In a few days, we get to know each other, we talk about life, we tell stories, we become more intimate. I am convinced that few things would be possible without creating these relations, without this process of really getting close to each other. I pay great attention to them all, and they do me good. I am touched by the discrete attention that they grant me over the hours spent together.”

**Alexandre Fray, excerpt gathered by Cathy Blisson, Stradda n° 24, April 2012, pp. 16-17.**

Students can also be taught about touch through exercises in order to develop the **haptic sense** (the sense of touch and the kinaesthetic phenomena of movement, i.e. the body's perception of the environment).

- Pressure can be exerted, for example, in “palm against palm” or “weight / counterweight” exercises (finding a common centre of gravity resting on a body part and gradually moving the supports away). Any change in weight will change the alignment, making it possible to work on balance in a different way.
- The same principle can then be varied with different ways of support, with the aim of finding a common need and to develop listening and confidence. The relationship whilst in contact with another also forces one to use energy at the right time (which is the basis of the approach for dynamic basing for example).
- In a group, imagine suggesting an improvisation task where the participants must always be in contact in one way or another, in order to develop the relationship to touch and sensation.

Contact, support and touch are the basis of balance but also its main difficulty. On the ground, with a partner, on a pedestal, on a chair, on the wire, the contact is sometimes rough and a source of pain. The work on touch also aims to overcome this pain by working on sensitivity and quality of contact. Jean-Michel Guy reminds us in an article about the tightwire: “The wire cuts me in two lengthwise, between the eyes, between the thighs. It is a wire to cut butter, the blade of a razor, a guillotine cutter, a laser beam. [...] The tight-wire artist does not overcome an opposition. Its balance is not transcendence but a sought imbalance. If he/she falls, it's always on one side, and it's always bad. [...] What is at stake here is the solidity of my support, which threatens to be stolen away at all times, it is not the height that matters, neither the air nor the ether, but what is underneath, what is at the bottom”<sup>1</sup>. In this uncertainty, what is at stake in the work on touch is the attempt to incorporate the resistance of the material on which one we rely as a support. The work on sensations is therefore fundamental to overcome pain and tension and to trust the support, the contact.

◇ Contact, support and touch are the basis of balance  
◇ but also its main difficulty. On the ground, with a partner,  
◇ on a pedestal, on a chair, on the wire, the contact  
◇ is sometimes rough and a source of pain.

.....  
<sup>1</sup> Jean-Michel Guy, “Entre deux maux”, Arts de la Piste, no. 29, “Sur le fil”, September 2003, p. 29.

>>> **READING**

**The sense of touch**

*In his book La Saveur du Monde. Une anthropologie des sens, David Le Breton devotes a chapter to touch and its different modalities. In this exploration, the skin is the first element to be considered as the interface between the inside and the outside. But it is also a matter of questioning the intention in touch, especially in our relations with others.*

“Existence like a skin story: touch or the sense of touch  
The sense of touch encompasses the body in depth and surface, it emanates from the entirety of the skin, unlike other senses that are more localised. We feel the surrounding world permanently all over our body, even while sleeping. Sensitivity is primarily tactility, the contact with others and with objects, the feeling of having our feet on the ground. Through its innumerable skins, the world teaches us about its components, volumes, textures, borders, weight and temperature.” (p.175)

*“Other people’s touch*

*From the sense of touch to relationships with others*  
Skin has many layers of meanings. Touch is not only physical yet semantic at the same time. The vocabulary of touch makes a metaphor out of the perception and the quality of *contact* with others, it only carries over tactile reference to recount the meaning of the interaction.

[...] These terms solicit the vocabulary of touch to express the modalities of the encounter. Verbs concerning the hand qualify certain actions about others: we *take care of* him as we *take part in* his pain, we *rely on* him or we are forced to *bear him* or *support him* because he lacks confidence in himself. We *grasp* his meaning or we *understand* it, but sometimes we must *wrench* a testimony out of someone or *touch a chord* to obtain a favour. Our loved ones *get under our skin*, we welcome them with open arms, but if we dislike someone, they can give us *goose bumps*, *make our hairs stand on end* or repulse us. Some want to kill (Translator’s Note: *faire la peau* literally translates as *making someone’s skin*) or “tan the leather” of their enemies (Translator’s note: to get someone stubborn i.e. hard like leather to do something). The quality of our relationship with the world is first and foremost a story about the skin.” (p. 219)

“There are significant variations in the ways of touching other people depending on gender, age, social status, degree of familiarity or kinship between the individuals. Tolerance to physical contact is primarily cultural, linked to the education received, but it is modulated according to individual tactility and circumstances. The tactility that is possible in an interaction covers a wide range of options from the absence of touch to the intense development of physical relationships.” (p. 228)

**Source:** David Le Breton, *La Saveur du Monde. Une anthropologie des sens*, Paris, Métailié, 2006.

## IN SUMMARY

- Working on balance gives sensations an important role. The different pedagogical approaches thus refer to physical sensations, we resort to images or we work with contact.
- Regarding the student-teacher relationship, communication is fundamental when working on sensations and images: putting a sensation into words is difficult and naming sensations to elicit a motor response requires great precision.
- Touch can then take precedence over words, lending tactile and qualitative indications as a means of communication with students, to correct their posture or allow them to feel a dynamic. This contact work can also be woven into different exercises during training.
- To work on sensations and images is to appeal to the sensitivity of each one. The effects of this type of work will not only be on a physical and technical level, but also creative: the relation to time, space, listening, qualities of movement, etc.



# Playing with balance

“It is this dance of balance that actors bring to the light in the fundamental principles of all stage forms.”<sup>1</sup>



In learning how to balance, the game will often allow you to go deeper into physical work while developing creativity. The balancing games also make it possible to envisage transfers between disciplines. For example, can a sensation in one discipline be transposed into another practice? With which tools? Indeed, the game is also openness, curiosity, to leave one's comfort zone to create something else.

## Sharing the responsibility of balance

Sharing a common language and value is important when transferring knowledge. In this sense, the course is quite close to what the artists will find when they work in a company. The teacher-pupil relationship can be likened to a form of companionship, which continues throughout the professional life. Indeed, the learning does not stop when outside the school, it is also about learning how to be autonomous and maintaining the ability to learn from others.

This question has been at the origin of the artistic project of company XY, as conceived by Mahmoud Louertani. The acrobatic company started with three duos and then built itself collectively through the pieces, trying gradually to surpass the duos to have acrobatic lifts with different bases and flyers. Hence the importance of **conveying a language, an experience, a vocabulary** to be effective and have good quality work. The school framework sometimes imposes a teacher-to-student relationship, which will no longer exist in companies where work relations are more equal. That is why **communication** is fundamental to giving students the right tools and it is important that technique finds its place in artistic work.

***Find out more about the company XY via their website:***

<http://www.ciexy.com>

1 Eugenio Barba, Le Canoë de papier. Traité d'anthropologie théâtrale, L'Entretemps, 2004, p. 49

2 Voir la liste des participants et intervenants en fin d'ouvrage

“I jumped for six years as a teenager without being told anything, just with my instinct,” says Mahmoud Louetarni<sup>1</sup>. “When Geza Trager arrived, he pointed things out and the depth of my work changed. **Details**, which are initially technical, bring **quality** to the work. The body is brought into action by technical details. The most important thing then, he continues, “is to feel the urge to work, the energy. This energy, which is conveyed as a teacher, is even more important than technique.”

Sharing responsibility for balance, working together within the school can help mobilise that energy. In some schools, we work hand-to-hand all together, we exchange partners, everyone takes part in spotting. Students then construct another sense of balance and a different relationship to work. In this context, when the technique is mastered, it can become something else. Sharing responsibility for balance also means creating an intense working climate, preserving concentration. One can imagine:

- Giving collective instructions so that the whole group is involved;
- Alternating those who do and those who observe, to maintain concentration and develop attention skills.

## TEACHING WORDS AND PRACTICES

*Excerpts from discussions between participants and interviews carried out during training sessions<sup>1</sup>*

### “Creative tools”

“The technique can be internalised rather than demonstrated. It’s going towards an essential form. To master a technique to a point that one can do almost nothing to convey this feeling of balance.”

MARTINE LEROY

“I like to see balance in 3D. So, I’m trying to test, to check what a student’s possibilities are, to try and see where to go. It is necessary to perceive one’s space in 3D. I put somebody in balance and I ask them to twist the pelvis, sometimes the shoulder. The rotation is created, and then the legs can be shifted, and so on. It changes the work but allows something else to emerge.”

WITOLD NOWOTYNSKI

“Research work starts from an observation: often, in technical education, movements are isolated. In another form of work one can see **how one gets into a balanced position and how one comes out of it** to go into space and get into another balance. I have the feeling that it allows students to leave their comfort zone, think about creating and developing something of their own.”

VANESSA PAHUD

1 See list of speakers and participants at the end of the manual

2 Idem

## TOOLS

### **Contact Improvisation**

Contact improvisation is a practice that comes close to certain aspects of hand-to-hand. Developed by American dancers Steve Paxton and Nancy Stark Smith in the 1970s, the practice is based on improvised exchanges between participants where all the bodies can participate. The relationship is based on having trust in the other, in a dynamic, based on the sharing of weight and energy, the creation of tension and relaxation and more or less acrobatic. The basis of contact improvisation practice has no *technique* but it is the experience of weight-sharing that is important to generate movement.

We can draw out basic exercises of weight / counterweight from contact improvisation:

- Being supported on the shoulder, back to back: give weight and gradually move away from the supports without falling;
- Finding a tensioned contact (hold by the wrists, legs / feet, arms) and move the rest of the body away from the contact point to create a tension without falling or stiffening. This tension can then be used to create movement dynamics.

The improvisation then makes it possible to go towards a more physical engagement, while remaining in the sensation, without **seeking the form** but rather **the flow**, as this archive video demonstrates well:

**Contact Improvisation at John Weber Gallery  
New York City 1972**

**Made possible by Change Inc.**

**A Woodland Video Production (c) 1979:**

<https://www.youtube.com/watch?v=9FeSDsmleHA>

### **Poetics of balance: deviations and inventions**

While learning, driving the student towards a form of investigation is often the most difficult thing. Playing and experimentation sometimes forces the teacher to not know exactly where he/she is headed which can enhance the sense of a shared experience: one seeks *together*, relying on a variety of tools and materials.

Finding a form of creating with balance often leads to moving away purely technical work or even to diverting or approaching it in another way. For example, working on the tactile sense, bases could work on the manipulation of objects. Why not also consider drawing **balance situations** from elsewhere? Many sports involve balance; “line-out” in rugby, speed skiing, etc. Or a work on images, for example, can be a starting point by taking these gestures from their sporting framework and their technical objectives to transpose them artistically: understanding the organisation of balance, dynamics, and so on.

This then raises questions about what “makes” balance and sometimes invites us to find answers in other disciplines or practices to enrich the vocabulary of each student’s gestures.

For Arian Miluka<sup>1</sup>, the goal is to look for different balance situations, because balance is not just a line on the hands or feet. We could propose various supports (an object, for example), combinations, rhythms and order. The more complex the set-ups, the more we will understand all the possibilities of balance and all its possible spaces.

It is also a matter of composing the figure and filling in the voids between the figures, working on the sequence and nourishing the movement from one figure to the other with an **intention**, sometimes changing the timing of the figure and its peak. Mahmoud Louertani explains: “For me, the acrobatic lift is not an isolated figure, it is a combination of figures. The **landing is only the take-off for the following figure** and therefore we must work on the quality of the reception in order to leave again (double rebound).”

1 See list of participants and speakers at the end of the manual

The goal is not necessarily to fight against the imbalance and the succession of falls but rather to see how they are integrated in the movement. It is also to **explore space** by suggesting alignments in different angles. For example, to develop a global sensation or to **transpose** a figure into another space.

Every change in the environment and in the technical situation leads us to **transform the sensation**. Each new technical approach will therefore imply a sensitive, artistic dimension. Then, of course, we must work on the qualities of the movement, its creation and thus refine the dramaturgy inside each act of imbalance. Finally, of course, the question of the spectator and therefore the presence and gaze. "The first thing I do," says Witold Nowotynski, "is to put myself in the shoes of the audience; I try to be neutral. And then I instruct the students to perform as if they didn't know the audience. It is an imaginary command that causes a body state. Indeed, the intention colours or even transforms the technical gesture. Individual or collective improvisations can also be suggested, where everyone imagines that many people are looking at them from all angles, which will call for another **body quality** (going further in the movement) and another **awareness of posture**."

## ARTISTIC APPROACHES

### "Deviations and inventions"

The work of the company **Migration** (Quentin Claude, Gael Manipoud, Marion Even) is based in particular on using innovative equipment. It was during his training at CNAC (Centre national des arts du cirque) that Quentin Claude invented and built this rotative double-wire. **Landscape (s) # 1**, performed outdoors, involves a body caught between its balance and the balance of structure in a game with forces and dynamics. In doing so, the acrobats revisit their technique and move their balance.

Website of Company La Migration,  
page "LANDSCAPE(s)#1"

<http://lamigration.fr/landscapes-1>

After working several years on the tightwire, in **Tesseract**, **Nacho Flores** turns fully towards balancing on wooden cubes. His aim is to create highly complex balance situations, even impossible ones; and then find solutions. A form of the absurd through balance. It goes so far as to disturb our kinaesthetic relationship to imbalance by using video mapping. The invention lies here in the construction of space and the unique creation of balance.

Excerpt from Tesseract, Nacho Flores,  
Chaîne YouTube Maillon Théâtre de Strasbourg

<https://www.youtube.com/watch?v=JX6F6w7m9Eo>

In **Vsprs**, the choreographer **Alain Platel** does not work on form, but rather on the metamorphoses of the body. In his work, it is not the figure that prevails but the quality of movement at the service of a dramaturgy, an intention. In this piece, two acrobats (hand balancers and contortionists) evoke tortuous, strange, almost monstrous bodies. The temporality of the balance is totally modified, giving us a different view of this work, its tensions, its spaces, its forms, varying the supports, the contact surfaces and the relationship between the weight of the two protagonists in balance.

Clip from **Vsprs** (see from 17':25" to 21':42")

<https://www.youtube.com/watch?v=ZeDK5BiM-dl8&start=1045>

Or on website [rueetcirque.fr](http://rueetcirque.fr)

(DVD "Le cirque et la danse" edited by HorslesMurs):

<http://rueetcirque.fr/app/photopro.sk/hlm/doclist#sessionhistory-ready>

In the field of equilibristics, another aspect of creativity will be research on the apparatus and the inclusion of objects in the technique. Maintaining balance on an object that is not initially assigned to a technical function (boards, ladders, chairs, cubes...) de facto creates dramaturgy "in tension", which is a source of expression and which will move the spectator. However, once on the stage, this **tension** will be the most difficult to maintain over time (because the body incorporates new reflexes), so it is not so simple to keep the body in its "working area", on guard, to preserve this dramaturgy that is so specific to balance. This then requires the development of tools in teaching, because even creativity can be learned!

"Our research", explains Martine Leroy<sup>1</sup>, "is about understanding **our fundamentals to develop the expressiveness of our specialties, to express ourselves with our materials.**" To enable these tools to emerge, it is also important to think of the course as a space open to creativity and ideas. Soren Flor<sup>2</sup> considers the different pedagogical contexts faced by a teacher: "If a student comes up with the idea of walking on a wooden board rather than a wire, what is interesting is that it propels the teacher out of his/her comfort zone. As professors, our skills do not disappear because there is no longer a trapeze or a wire in front of us. This forces us to be curious, to change our perspective and to devise a progression."

1 See list of participants and speakers at the end of the manual

2 Idem

## READING

### Balance, a poetic text

#### "The quest for immobility"

It is the mystery of the dance on the tightwire.

The raw sap.

The time to obtain it does not matter.

Should I say to approach it?

To approach it, the tightwire walker becomes an alchemist. He renews his attempt along the tightwire without ever inventing the Field of the Immobile where, it seems, the arms hang down useless along a body weighing ten times its weight.

The taste of a second of immobility - if the tightwire grants you that - is an intimate happiness.

Come in the middle of the wire by the most harmonious of your steps.

Place yourself in a balanced state. Wait. The pendulum itself will be confused with the horizontal, the body will be fixed on two solid and fixed legs: the immobility will show up promptly at the rendezvous.

That's what you'll think.

You will believe yourself motionless: I do not move any more, I am motionless.

And your gaze that is watching and wandering?

I caught your eyes along these trees. And those thoughts in your skull, stammering from left to right?

And this blood in your veins, cascading like stream in the rainy season? And the wind in your hair? And the wire that nods? And the air that you eat and chew?

What a noise!

No, the tiny inhabitants of the herbs have never observed a being so animated.

The quest for immobility is even more uncertain if you abandon the pendulum but it is even more essential that you devote yourself to it.

When balanced on one foot, the balance foot, gradually make your free leg and arm rest.

Keep this position. That is the first point.

Then bring the free leg in front of or behind the other, both feet on the tightwire. The arms are used to balance more and more weakly.

That is the second point.

We must now remove the arms by crossing them in front of us, letting them hang naturally, or placing the hands behind our backs. All this in a hidden way.

Clandestinely. This is the third point.

>>> Now it's a matter of patience, between you and the tightwire.

Come. Feel: balance no longer exists. Spy the moment you cut off your breathing. A gravity from another world will crush you against this tightwire through which you will direct your breath: the air will have to enter through the end of the wire, slowly walk along it, pierce the soles of your feet, go up your legs, flood your body and finally win your nostrils. The exhalation will be made without stopping, in the same way. You will gently exhale the air that descends with the tip of your lips, it will flow around each muscle, will marry the line of your feet, will go back into the tightwire...

Do not let go of the breath on its way, pursue it until it escapes by the end of a wire, as it had come.

Breathing will become slow, distended, long like a wire.

We will become one with the installation, solid like a rock.

We will feel like in object in balance. We'll become cables.

The one who built this fleeting, fragile balance without faults, will feel like he/she has the density of granite.

If no thought disturbed this miracle, it would go on forever. But man, who is amazed by everything and by himself, immediately feels helpless.

The high point of balance hovers over the tightwire, bangs with the tightwire walker, sails like a feather in the winds of his efforts. Let this wind come to weaken, let it die, and this feather will immediately penetrate the tightwire walker and fall asleep in his centre of gravity. Thus, that relative calm, that restored balance, the brief and rare moment of absolute immobility is attained.

For the wind of our thoughts, more violent than that of balance, will soon have sent us flying again this sensitive feather surreptitiously towards the clouds."

Philippe Petit, *Traité du funambulisme* [1985], Arles, Actes Sud, 1997, pp. 57-61.

## IN SUMMARY

- Working on balance means going beyond forms and towards a more creative work that can be deployed in space, time, on objects, with other people.
- If there is a dramaturgy inherent in the act of finding balance, a state of tension and vigilance, it is also possible to seek other qualities of movement to deconstruct expectations and work on the gaze or presence.
- Movement qualities, collective work, improvisations, transpositions are all tools that can be used during technical learning to develop an artistic sensitivity and stimulate the student's creativity.



# CONCLUSION



The approaches explored here reflect the work carried out by FEDEC on the key competences of young professional circus artists as part of the MIROIR project and on the pedagogical elements of technical learning specialised in EPE manuals<sup>1</sup>. The objective here is to open peoples' eyes to the concept of equilibristics and to consider the different skills in circus arts teaching: physical, technical, theoretical, creative, artistic, analytical, organisational etc. The work carried out within the framework of INTENTS with teachers from various European circus schools shows the need for the criss-crossing of these competences and how they are at the core of pedagogical reflections. In view of the complexity of the subject of this teaching manual, a global or holistic view of circus arts student should be given priority, if they intend to pursue a professional career.

While much knowledge and know-how regarding balancing is based on experience, attempting to formalise it allowed us to bring to light different strategies used by teachers to achieve the same goal: to develop balance outside the usual orthostatic benchmarks and to allow everyone to invent his/her own relationship with balance, regardless of the project. To question the words we use, the images we use, the gestures we address to students, means above all to specify the approaches, to formalise them, to find a common language, without, however, making these practices fixed. It is an attempt to grasp what they are "in the body" and the role they play in teaching. Questioning the parameters or principles of the movement that are embedded means submitting the piece of work to the profession, questioning one's practices as a teacher, remaining in "flux" and continuing to progress.

The issues explored are addressed to everyone but each proposition, each of the stages implies an adequate response. Each lived situation depends on a different context and requires solutions adapted to each group. Thus, the work approaches presented here and exercises as reflexive tools are starting points. While the formalisation of certain tools is important, we should be careful not to fall into the standardisation of methods for the development of artistic research, whether in specialised circus arts courses or in the connections that can be made with other courses (dance, acting and even theoretical courses). The question of balance encompasses very broadly the question of the construction of a body diagram, the relation to space, a partner, an apparatus or an object that one will meet in several courses. Furthermore, working with balance means working out the posture in a logic of efficiency and protection that is fundamental to preventing injuries and preparing the body for all disciplines and dealing with long and varied artistic careers. However, working on balance also means opening the Pandora's box of the imagination of the circus, made of imbalances, tensions and suspensions. It is therefore necessary to question what the reverse posture tells us from a dramaturgical point of view, what it evokes on the sensorial plane, what it represents in terms of images. These different elements are present from the first steps towards balance and if the learning is technical, it is none the less creative.

The different fields explored are, above all, reflections intended to arouse curiosity and lay the foundations for a more global reflection. Therefore, we have chosen to leave some questions open, as discussed during the INTENTS session. The tools, testimonies and readings presented are in no way prescriptive and are not intended to give recipes. They are materials, ingredients to compose one's own recipe, change one's practice, invent new tools and convey them. We are therefore very grateful to those who contributed to the development of these reflections through their actions, testimonies and practices.

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1 See "Resources" page on FEDEC's website <http://www.fedec.eu/fr/articles/?c=216>

# ANNEXES



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The list of referenced work is not exhaustive.

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