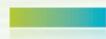


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Risk Vision

# International Expert Meeting

## Outdoor Play Health, Safety, Design

### Risk Benefit Assessment when choosing play equipment and surfacing

21st March 2018  
Belgrade, Serbia

Helena Menezes





**Technical Consultancy and Professional Training on risk assessment for Human-friendly, Safe and Inclusive Environments**

**The impact of Urban Planning and Architecture on global Health and Social Inclusion**

**Child Development and the importance of free play**

**Empowerment of professionals and consumers for informed and responsible choices**

**Social responsibility and citizenship**

**(playgrounds, schools, leisure and tourism facilities, shopping centers and, in general, buildings and public space including traffic environment)**

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# Risk Benefit Assessment when choosing play equipment and surfacing

We know children play everywhere...



Affordances...

# Risk Benefit Assessment when choosing play equipment and surfacing

We know children play everywhere...



Free play...

Different age groups together...

...with anything



Affordances...

# Risk Benefit Assessment when choosing play equipment and surfacing

We know children play everywhere...



...with everything



Decisions are based on perception ...

- Soft surface
- Accessible tree branch
- Available “rope” (hose)

Adults: In natural environments, acceptable risks are higher...

Affordances...

# Risk Benefit Assessment when choosing play equipment and surfacing

We know children play everywhere...

- In built environments – “someone takes care” / Responsibility for risk management

Urban environment



Designated play areas



Level of tolerable risk varies



Liability

Change in risk perception



Risk management in place?

How to maintain **benefits of play** without fear?

# Risk Benefit Assessment when choosing play equipment and surfacing

## Risks and Benefits in:

- Playgrounds with “standard” equipment or produced equipment/
- Built environments used as play areas
- Natural environments where/ when play happens

## Risk management in play areas

Dynamic process for:

- Risk Identification, Assessment and Mitigation of serious risks
- To keep a **healthy balance between risks and benefits for children** – “good” risk vs “bad” risk
- Over the whole life cycle of a play area:
- Pre-design, Design, Building and Installation, Post-occupancy

**Which risk criteria / references / parameters  
For Beneficial Risk?**



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# Risk Benefit Assessment when choosing play equipment and surfacing

“Accidents in playgrounds” – Fun ...  
But could also be serious – Benefits?



# Risk Benefit Assessment when choosing play equipment and surfacing

“Accidents in playgrounds” – Fun ...

But could also be serious – Benefits? Acceptable?

“Modern” standards  
(1998 / 2008 / 2018)

- Body entrapment situations
- Minimum falling space without obstacles
- Impact areas free from sharp obstacles
- Structural integrity
- Etc...



Most issues now covered by Standards

# “Accidents in playgrounds”: acceptable, benefits... but can be serious...

## Playground Standards – EN 1176-1:

### Some Risk factors covered by standards:

- **Stability**
  - Higher risk for one post equipment
- **Resistance of materials**
  - Classification of wood
  - Corrosion
- **Manufacturer obligations:**
  - Safe Design of the equipment
  - Warn client/ operator about higher risk
  - Instructions for installation, for more frequent inspection, to check foundations and for maintenance

### EN1176-7: Operator Obligations:

- Implement Safety Management System
  - Inspection and Maintenance Plan
  - Follow manufacturer instructions
  - Adapt to local circumstances



**Safety standards requirements :**  
**- risk criteria for Risk Management**

# “Accidents in play areas”: acceptable, benefits... but can be serious...

## Playground Standards – EN 1176-1:

### Some Risk factors covered by standards:

- **Entrapment of body parts**
  - Head and neck

### EN1176-7: Obligations of the Operator:

- Implement Safety Management System

### Fences: not covered by playground standards

**Fences:** Not covered by Playground standard

**BUT**

– risk assessment using EN 1176 as a reference can avoid fatal accident

- **NOT ACCEPTABLE – NO BENEFIT**

Dec. 2011 - France  
**2 y old** strangled  
... With supervision



*In Sécurité des aires de jeux -  
Mas, L.; Richter, J. et al.*

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Helena Menezes - May 2017



# Risk Benefit Assessment when choosing play equipment and surfacing

Standards allow for free play – environment is safe enough

**POE: Post Occupancy Evaluation**

Children can take risks – and learn to cope with risk - No misuse: Teenager use



Risk Management: **Know the risks; Know the benefits**

- Watch Children play

## Risk Benefit Assessment when choosing play equipment and surfacing

Standards allow for free play – environment is safe enough

### POE: Post Occupancy Evaluation

Children can take risks – and learn to cope with risk

Inclusion: benefit (against vandalism) – equipment should fit users needs



Higher Risk:

- Fence too close

Obstacle in the  
falling space

Risk Management: **Know the risks; Know the benefits**

- Watch Children play

# Risk Benefit Assessment when choosing play equipment and surfacing

At design stage, influence of standards for layout :

**Equipment with forced movement**  
(Centrifugal force)

**Risk assessment for “safety” areas:**

- To allow user to come to a full stop and **enjoy the dizziness** / body control –
  - **benefit / play value**
- To reduce risk of injury
  - Need to further extend impact area
  - Loose fill material – dissipates energy

**Standard EN1176-5 – sets minimum**

Falling space / impact area

- $\geq 2$  m (EN1176-1: minimum 1,5m)
- Free from obstacles
- No overlapping with impact area of other equipment



**Carrousel (type A)**

Risk Management: **Know the risks; Know the benefits**

- Watch Children play

# Risk Benefit Assessment when choosing play equipment and surfacing

## Loose fill materials:

**Ex: sand and gravel**

- impact attenuation
- Play value
- Children's favourite
- Calming
- Creative
- Easy to inspect



# Risk Benefit Assessment when choosing play equipment and surfacing

## Sand – Playgrounds in Paris



Paris 2014

Saferplay - Impact attenuating Surfaces – advantages and disadvantages - [https://youtu.be/gWznWi\\_c6pM](https://youtu.be/gWznWi_c6pM)

# Risk Benefit Assessment when choosing play equipment and surfacing

Benefits – contact with nature, “home made”

## Risk Management in school play area

– no commercially sourced products

Compliance with standard?

Or

Risk assessment?

## Risk criteria should apply:

- structural integrity
- head entrapment during falls
- Obstacles in the impact area



“home made” tree house in a school

# Risk Benefit Assessment when choosing play equipment and surfacing

## Standards as a tool for risk management

“standard equipment”  
Benefits  
- collective use  
(school, social skills,...)



### Benefits:

- Value existing trees
- Enhance play value
- Learning about limits

### Check risks:

- Structural integrity
- Free fall heights
- Obstacles in the falling space

School in Portugal (Escola Alemã do Estoril - 2015) – photos H.Menezes

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Helena Menezes - Mar 2018

# Risk Benefit Assessment when choosing play equipment and surfacing

**Standards – Principle: children need risk to learn to manage risk**

**Play and leisure spaces:** combination of products, interaction with environment and users

Standards making process

Stakeholders - **Represented interests:**

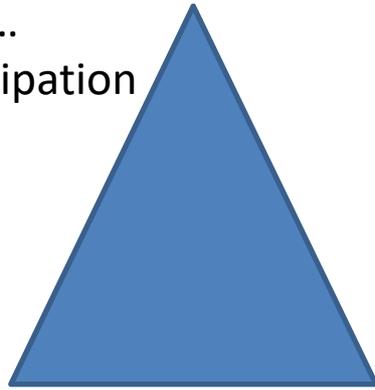
**Consumers:**

End User – children, young people, older people

- No participation

Designers, Operators: City councils, school managers, ...

- Few participation



**Business**

Manufacturers

Designers

Inspectors

Certification bodies

**Governments:**

- Enforcement authorities

- Standards bodies

SME's – weak participation



**No standards for behavior**

Decisions on acceptable risk:

- Consensus

- Voting

Results: Minimum safety levels

# Risk Benefit Assessment when choosing play equipment and surfacing

## Standards as a tool for risk management

### Standards are a useful tool for risk Management in Play areas

- **EN1176-1:2017 - A voluntary technical reference:**
- **Definitely not** Black/white
- Many grey zones and gaps
  - Do not cover all situations but can provide risk criteria (fences, natural environment)
- Require professional judgement based on expertise and local conditions
  - **Risk Assessment is needed to decide on acceptable risk**

### Standards: Precious tool for risk management in play areas

- **To justify** the presence of risk / challenge as beneficial for children – **READ INTRODUCTION**
- To review possible known hazards (already identified in the standard)
- To refer to for design: minimum distances, dimensions, ... And procedures (inspection, maintenance) to avoid predictable serious injuries with no benefit to children
- As a reliable basis for the implementation of a risk





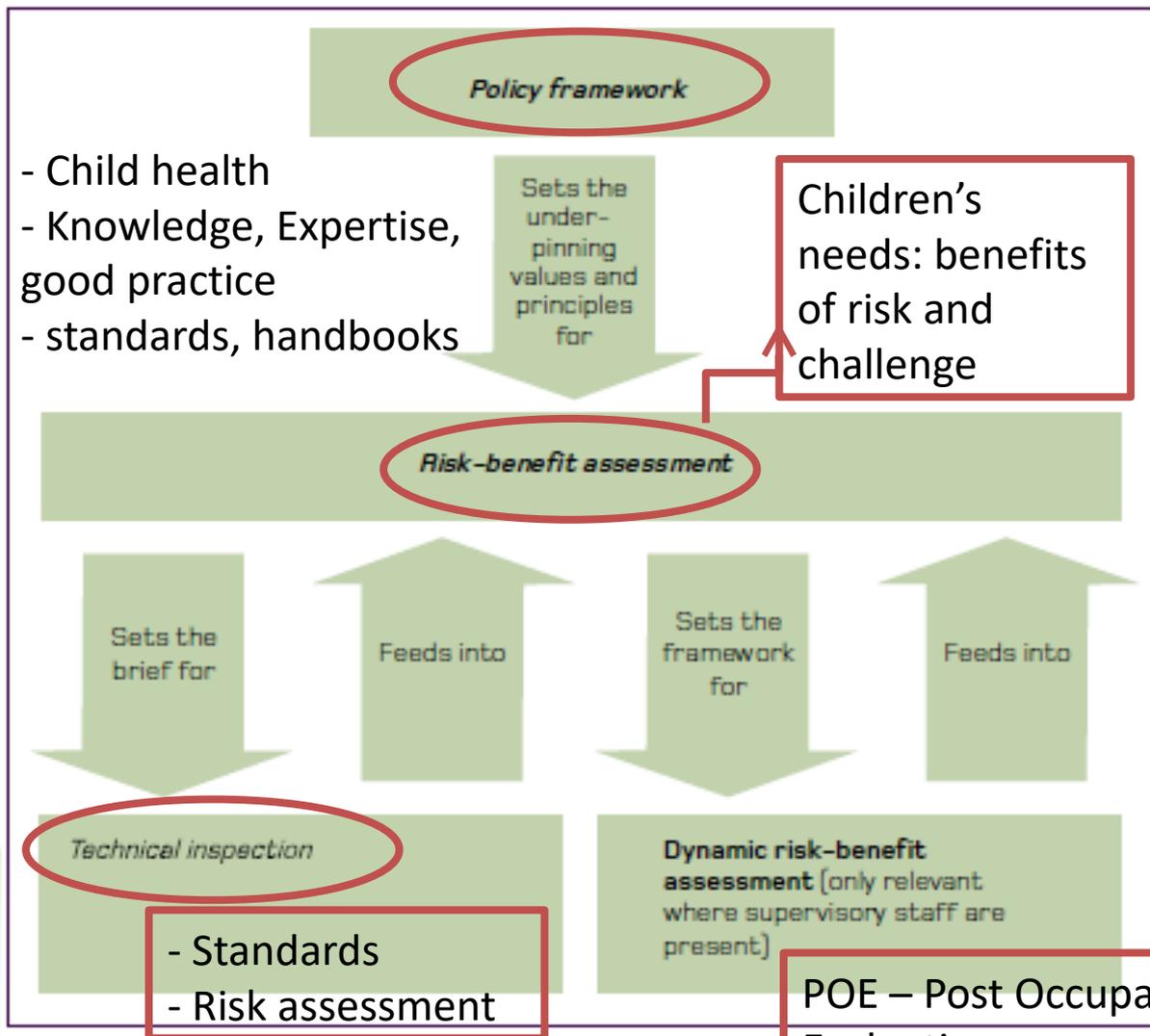
## Managing Risk in Play Provision: Implementation guide

David Ball, Tim Gill and Bernard Spiegel

<http://www.playengland.org.uk/resource/managing-risk-in-play-provision-implementation-guide/>

## Managing risk in play provision

Figure 3: How the levels of risk management relate to each other.



**Risk Benefit Assessment:** introduces benefits in the process of decision taking for play provision



# Risk Benefit Assessment when choosing play equipment and surfacing

## KNOW THE UNACCEPTABLE RISKS – KNOW THE BENEFITS OF RISK

- **‘KFC’ Playground:** Kit, Fence, Carpet OR (or a cage for children)
- **Jungle Playground**



Find the right balance  
Risk-Benefit assessment  
It's up to you to decide

# Risk Benefit Assessment when choosing play equipment and surfacing

**Play is an inclusive activity**

**Play is for all ages**

**Free access equipment must be safe for all**



Alemanha 2009

Photo: Play England in Risk managing  
in play provision: implementation  
guide

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Helena Menezes – Mar.2012

**Thank you!**

**Obrigada!**

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Consultoria e Formação em Avaliação de Risco,  
Segurança e Cidadania  
Consulting and Training Risk Assessment, Safety and Citizenship



New skate park – March 2017

## European Standard disregarded:

· EN 14974:2006 + A1:2010

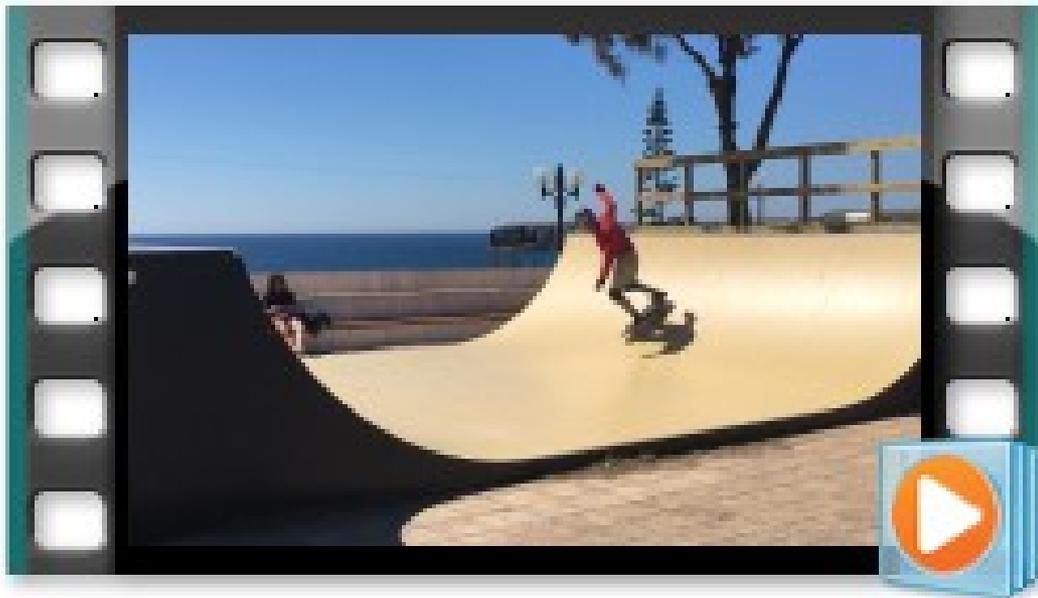
- Siting and product design:

- Safety zones / circulation

- Obstacles
- Benches

- Barriers not effective

- Do not detain a flying board
- Do not contain the user



IMG\_2546.MOV

**Unnecessary risks** created by design with no benefit:

- To users
- To passers-by
- To bystanders

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Helena Menezes - May 2017

# Risk Benefit Assessment when choosing play equipment and surfacing

## Laws and standards for playgrounds: which role on Risk Management?

### Standards

- Can be Life Savers OR “Creativity killers” (for designers and children) when
  - Misused, Misinterpreted, Dismissed
- **Standards have benefits and gaps (dynamic documents).**
  - Most of the time not black / white – many grey zones
  - Are not design restrictive, usually do not forbid materials
  - Establish some requirements for minimum safety in use
  - Give guidance and information for decisions
  - Not all interests are represented in a balanced way

### To use standards as a tool requires:

- Experience and Knowledge on recommendations and good practices necessary
- Risk assessment, decision taking, responsibility / liability

### Useful tool for Risk Management and challenging play and leisure areas

### Need more contributions (better representation) from Consumers:

- **City Councils, Operators, Communities**  
**Managers and users of Public space**



## Legal framework for playgrounds:

### Play areas – European Building Regulation (National Regulations)

- Concept of acceptable risk

- based upon a “normal” or “normally predictable” use of the works.

### Playground equipment - General Product Safety Directive

—————> **Only “safe products” on the market**

Obligations of producers (play equipment and surfacing)

- “safe” for intended and foreseeable use
- Inform consumers (operators) about instructions for “safe” use (installation, inspection, maintenance)
- How to be “legally safe”? —————> **Standards:** one of the tools
- Voluntary technical reference: minimum safety for acceptable risk



HCM - Viena – Out.2013

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Helena Menezes – Abr.2014



Urban environment or nature



Designated play areas



Level of tolerable risk varies  
– change in risk perception, risk management in place



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# Casa da Música Porto



2009

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## Standards:

- Useful tool for designers for safer and challenging play areas?

Or

- Enemies that kill creativity (for designers and children) and challenge (for children)?

Myth or reality?

# Safety Standards for playground equipment and surfacing:

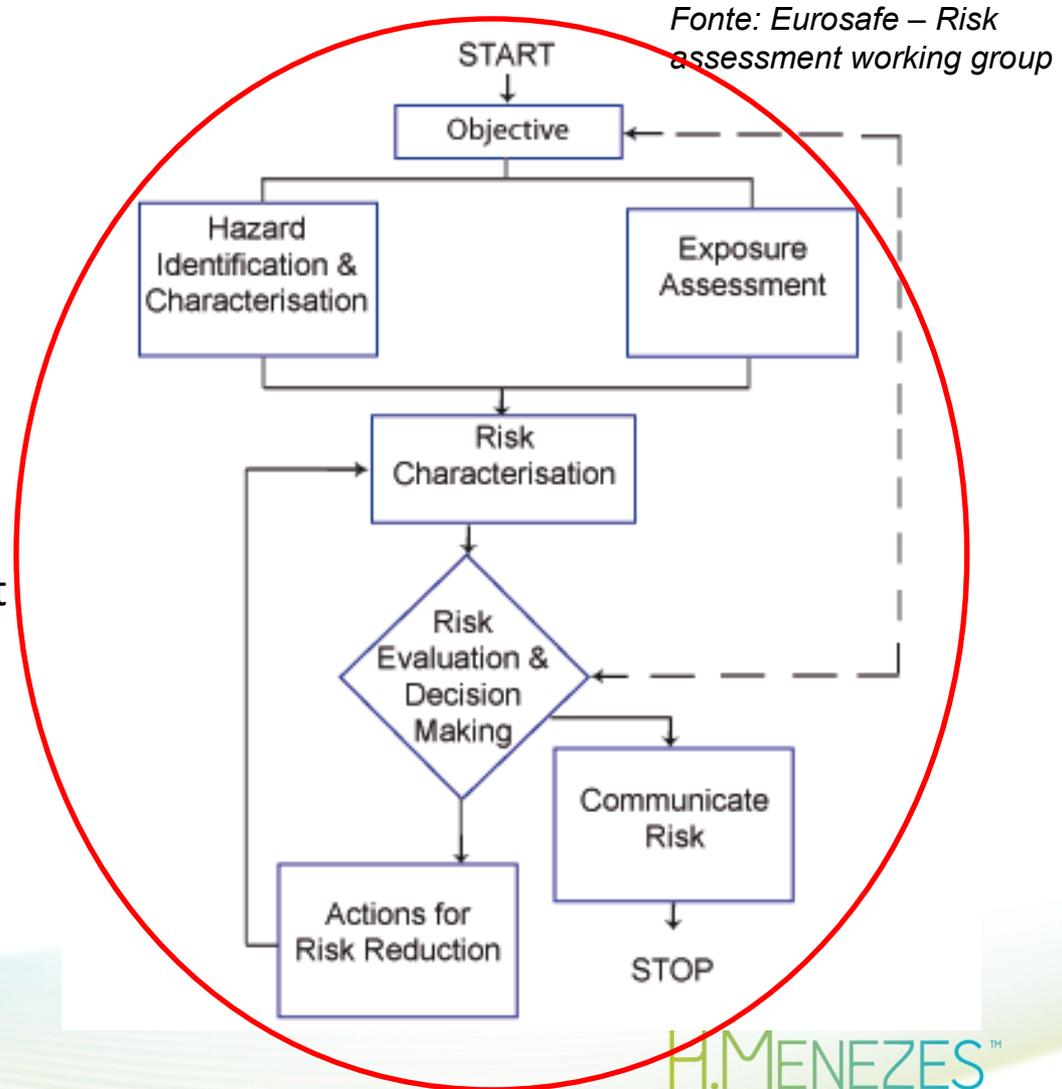
## Risk Assessment Process

System to manage safety of playgrounds

Dynamic and continuous process

Each inspection requires risk assessment

**Standards:** precious tool to support decision taking on acceptable risk



**Helena Menezes**



**Technical Consultant and Professional Trainer in Risk Assessment  
General Director at Risk Vision – Portugal**



- **Expert in CT166 , the Portuguese Technical Committee for Sports facilities: playground equipment and surfacing, public and domestic swimming pools (CT166, mirror committee to CEN TC136 and CEN TC 402) and Former President (from 2005 to Oct.2013)**
- **Member of the Portuguese Technical Committee for Toys and Child care articles, since 1995 (CT122, mirror committee to CEN TC52 and CEN TC252)**
- **Member of the ANEC Child Safety working group since 1995, as an expert**
- **ANEC representative in CEN TC136 SC1 since 2000, member of the following Working groups:**
  - **WG1 – Surfacing**
  - **WG13 – safety requirements and revision of EN1176-1**
  - **WG14 – Revision of EN1176 parts 2 to 6**
  - **WG 17 – Competences of Playground inspectors**
  - **TG1 – Rationales to EN1176**
  - **TG3 – Bouncing facilities**
  - **IP – Interpretation Panel**
- **Observer in WG9 (EN14960), WG10 (EN1176-10) and TC136 WG26 – outdoor fitness equipment**
- **1992-2007 - Portuguese Association for Child Injury Prevention (APSI); President 2001-2007**
- **2004-2007 - Portuguese Coordinator of the Child Safety Action Plan (European Child Safety Alliance)**
- **Academic Background: Social Pediatrics / Public Health**

