

# **PRIMA DI TUTTI: LA FORZA DELLA COMUNITÀ NELLA CATENA DELLA SOPRAVVIVENZA**

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## **Tutti hanno un ruolo: facilitare le abilità nella disabilità**

**Prof.ssa Roberta Bonfiglioli**

*Dipartimento di Scienze Mediche e Chirurgiche, Università di Bologna*

*UOC Medicina del lavoro, IRCCS Azienda Ospedaliero-Universitaria di Bologna*





Capacità sensoriali (vista, udito, sensibilità ...)  
Capacità fisiche (movimento, postura, forza ...)  
Capacità di valutazione



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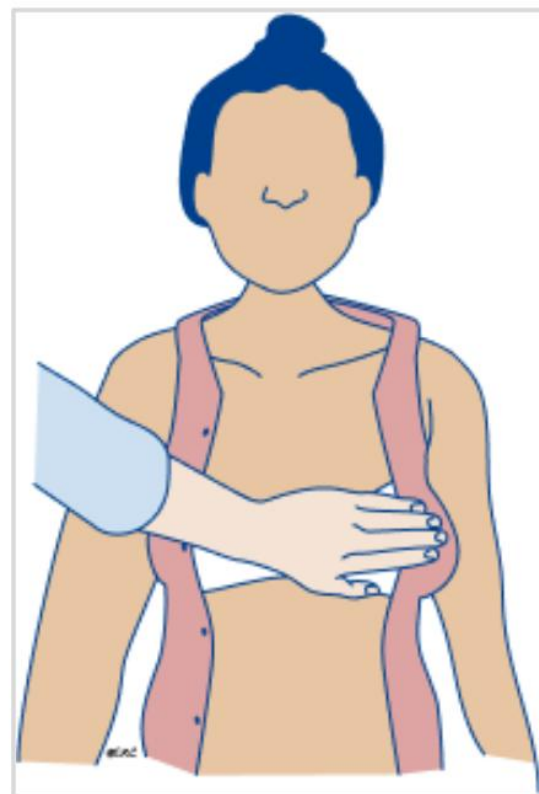


Figura 8f: Mano al centro del torace.

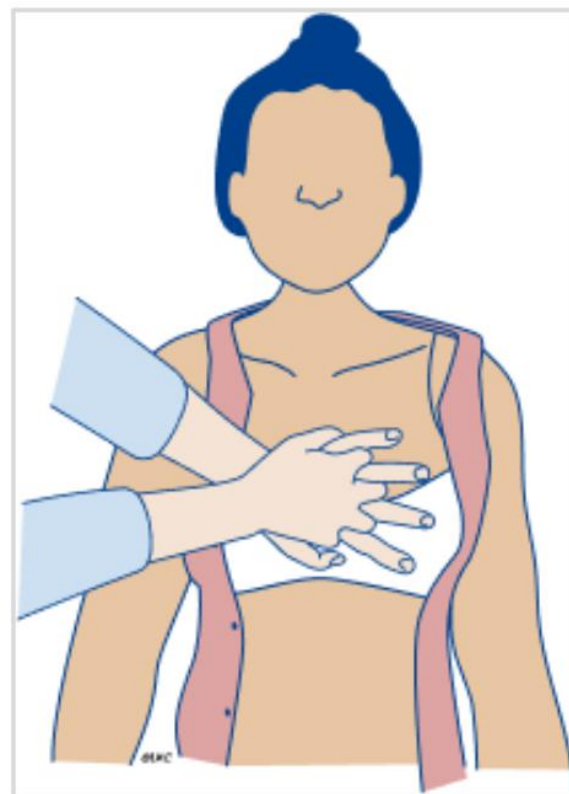


Figura 8h: Eseguire le compressioni toraciche con entrambe le mani.



Figura 8g: Braccia tese, in posizione verticale sopra la vittima.



Se addestrati e in grado di farlo, effettuare le ventilazioni di soccorso con **rapporto compressioni-ventilazioni 30:2**.

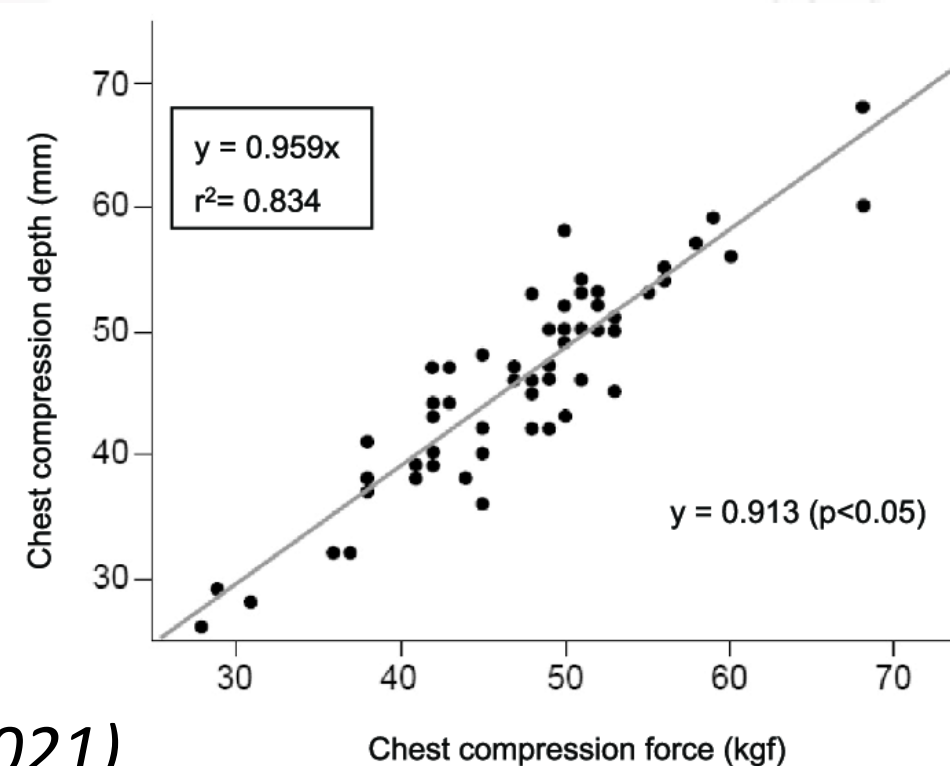
**Durata insufflazione circa 1 s**

**Volume sufficiente a sollevare il torace**

**Interruzione massima delle compressioni per erogare due ventilazioni non > 10 s.**

- Capacità di assumere posture come quelle indicate
- Capacità di mantenere estesi gli arti superiori
- Capacità di esercitare forza

stima Forza per esercitare **compressioni toraciche efficaci per adulto 50-55 kg** (Geddes et al, 2007)



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(Sato et al, 2021)



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## Simulation and education

# Basic life support training for people with disabilities. A scoping review



**Carlos Berlanga-Maciás<sup>a,b</sup>, Roberto Barcala-Furelos<sup>c,\*</sup>, Nerea Méndez-Seijo<sup>c</sup>,  
Lucía Peixoto-Pino<sup>d,e</sup>, Santiago Martínez-Isasi<sup>e,f,g</sup>**

### Abstract

**Background:** The integration of populations with various types of disabilities into basic life support (BLS) training programs could contribute to a potential increase in trained laypersons with BLS knowledge and, consequently, in survival rates. The objective of this study was to analyze the distinct educational methods which exist today on BLS for people with some type of specific disability, and to evaluate their impact on the quality of BLS maneuvers.

**Methods:** A scoping review in which the different training strategies in BLS for people with distinctive disabilities were analyzed was carried out. Previous studies were sought and researched in MEDLINE, EMBASE, and the Cochrane Library from the beginning up to 4 August 2023.

**Results:** A total of 14 studies were thoroughly analyzed. The BLS training strategies for people with disabilities were classified according to the following criteria: objective (training, content validation or analysis of learning barriers), **target population (visual, hearing, physical disabilities or Down syndrome)**, training resources (training with/without adaptation), contents (BLS and use of the automated external defibrillator) and evaluation instrument (i.e., the simulation test and knowledge questionnaire). The variety of BLS training programs for such population is limited. Likewise, people **with different disabilities are able to effectively learn BLS maneuvers, although with mixed results, mainly in those regarding the CPR quality.**

**Conclusion:** People with **visual, hearing disabilities or Down syndrome are able to effectively learn BLS maneuvers.**

**Keywords:** Disability, Out-of-hospital cardiac arrest, Bystander, Basic life support, Training

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**Table 1 – Studies included in the scoping review.**

Author	Year	Country	Title	Objective	Participants		Training Method	Evaluation	Conclusion
					N	Characteristics			
Barcala-Furelos, R., et al. <sup>14</sup>	2023	Spain	Infant cardiopulmonary resuscitation from the wheelchair. Is it feasible and worthwhile?	To evaluate pediatric resuscitation from a wheelchair.	5	Professional basketball athletes with disabilities using a wheelchair.	NA	Simulation test in two scenarios: Static CPR test Transport CPR test	The quality of CPR was similar in both scenarios (60% vs 52%). The participants using a wheelchair were able to provide CPR while they covered more than 100 meters during the moving test. The findings support the development of inclusive CPR training activities.
Galindo-Neto, N. et al. <sup>13</sup>	2023	Brazil	Effectiveness of educational video on deaf people's knowledge and skills for cardiopulmonary resuscitation: a randomized controlled trial	To analyze the effectiveness of an educational video on deaf people's knowledge and skills about cardiopulmonary resuscitation	113	Students with hearing disabilities IG:76; CG: 73	IG: Training video adapted for people with hearing disabilities. CG : Lecture with practical demonstration.	Theoretical and practical test	The correct answers were higher in the IG in the immediate post-test and after 15 days. There were no differences in the skills analysis between groups in the immediate post-test. The video seems to be effective in increasing the CPR knowledge and skills in people with hearing disabilities.
Martínez-Isasi, S., et al. <sup>20</sup>	2021	Spain	Performing Simulated Basic Life Support without Seeing: Blind vs. Blindfolded People	To compare the training during BLS maneuvers of blind people and normally sighted people with covered eyes	59	Visual impairment: 29 Normally sighted: 30	Theoretical-practical training in BLS of 90 minutes.	Simulation test	The quality of CPR was similar in both groups. Blind people have abilities comparable in quality to normally sighted people.
Strnad, M. et al. <sup>21</sup>	2021	Slovenia	Challenges in basic life support and automated external defibrillator training of deaf individuals	To assess the barriers of the people with hearing disabilities in relation to BLS-AED protocols and adapt them to measure the effectiveness of modified BLS training in simulated CPR.	51	People with hearing disabilities.	Theoretical-practical training of 75 minutes using an adapted BLS protocol with the help of a sign language interpreter.	Simulation test	A comprehensive approach to BLS training and AED use in people with hearing disabilities is needed. Slight adaptations in the BLS protocol are not sufficient for the training of this population.
Galindo-Neto, N. et al. <sup>22</sup>	2020	Brazil	Sign language instrument for assessing the knowledge of deaf people about Cardiopulmonary Resuscitation	Build and validate the content of an instrument in sign language to assess the knowledge of deaf people	113	People with hearing disabilities.	NA	Questionnaire for Assistive Technologies	The instrument had a content validity of 90% by the participants. The instrument can be used in research to find out about previous training in CPR in people with hearing disabilities,



# Adattamenti performance

Valutazione performance RCP pediatrica su sedia a rotelle - **Training inclusivi**

**Training video:** migliore performance in persone con deficit uditivo

**Training teorico pratico:** performance non vedenti = vedenti con occhi bendati

**Training e valutazione performance RCP supportati da linguaggio dei segni** + Questionario valutazione

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# Adattamenti performance

**Table 1 (continued)**

Author	Year	Country	Title	Objective	Participants		Training Method	Evaluation	Conclusion
					N	Characteristics			
Kearney, KB. <i>et al.</i> <sup>19</sup>	2019	EEUU	Push Hard and Fast: Teaching College Students with Intellectual Disability to Perform Hands-Only Cardiopulmonary Resuscitation	To determine the effectiveness of a <b>training strategy</b> in teaching a BLS technique.	4	People with <b>intellectual disabilities</b> : 2 People with <b>Down syndrome</b> : 2	<b>Theoretical-practical training</b> with an error correction procedure.	Analysis of 11 tasks based on the 2016 American Safety & Health Institute Guidelines.	as well as to assess educational interventions with this public. Adolescents with intellectual and other developmental disabilities <b>can master BLS techniques.</b>
Galindo-Neto, N. <i>et al.</i> <sup>17</sup>	2019	Brazil	Creation and validation of an educational video for deaf people about cardiopulmonary resuscitation	Creation and validation of an <b>educational video</b> by health professionals in cardiorespiratory arrest, with the aim of training deaf students in CPR	22	Professionals trained in CPR	<b>Training video</b> adapted for people with <b>hearing disabilities.</b>	NA	The training method is considered <b>valid and understandable</b> for the hearing impaired population, becoming an inclusive technology for CPR health education.
Martínez-Isasi, S. <i>et al.</i> <sup>18</sup>	2019	Spain	Is it necessary to see to save a life? Pilot study of basic CPR training for blind people	Evaluate the learning capacity of basic life support by blind people	27	People with <b>visual disabilities.</b>	60 minute training in CPR and AED.	Simulation test	The CPR quality was over 70% in 'chest recoil' and 'hand positions' items. Training blind people to perform CPR with <b>correct and adapted training.</b>
Jorge-Soto, C. <i>et al.</i> <sup>15</sup>	2017	Spain	Brief training in automated external defibrillation use for persons with down syndrome	To evaluate the efficacy of <b>brief training on the use of the AED</b> in people with Down syndrome	39	People with <b>Down syndrome</b> : 27 Occupational therapists: 12	Viewing of a didactic <b>video</b> and <b>practice</b> in the use of the defibrillator.	Simulation test	Young people with Down syndrome are <b>able to use the AED in less than two minutes</b> in a simulated OHCA. CPR Quality: 47 (Down syndrome) vs 91.6%
Unnikrishnan, R. <i>et al.</i> <sup>16</sup>	2017	India	Training individuals with speech and hearing impairment in basic life support: A pilot study	Evaluate the barriers and explore the possible <b>modifications for the teaching-learning process</b> of people with hearing disabilities regarding adult BLS.	6	People with <b>hearing disabilities.</b>	Training based on the AHA 2010 guidelines on BLS <b>with the help of a sign language interpreter.</b>	Check-list	Both the activation of the emergency services and the follow-up of the voice instructions of the defibrillator constitute the main barriers that this population has, although all the participants completed the BLS sequence adequately.
Rodríguez-Núñez, A. <i>et al.</i> <sup>23</sup>	2015	Spain	Quality of chest compressions by Down syndrome people: a pilot trial	Analyze the <b>capacity and quality of compressions in CPR</b> maneuvers by people with Down syndrome.	36	19 people with <b>Down syndrome</b> and 17 people without disabilities.	Short 3-minute <b>video</b> and 45-minute adapted <b>practice session.</b>	Simulation test	Full correct CC:13 (Down syndrome) vs 39% People with Down syndrome can perform hands-only CPR, but of poor quality.

**Training Hands-only RCP (solo compressioni):**  
*performance buona qualità*

**Training video**

**Training RCP 60 min:**  
*performance buona qualità*

**Training video + uso DAE:**  
*performance accettabili*

**Training supportato da linguaggio dei segni:**  
*performance adeguata*

**Training short video 3' + sessione pratica:**  
*performance hands-only accettabili*



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# Adattamenti performance

**Training RCP con linguaggio dei segni + DEA istruzioni visive: performance adeguata**

**Training RCP solo 1% persone con deficit uditivo**

**Training adattato persone con deficit o disturbi sensibilità, deficit funzionalità arti o rachide: *bona performance***

**Table 1 (continued)**

Author	Year	Country	Title	Objective	Participants		Training Method	Evaluation	Conclusion
					N	Characteristics			
Sandroni, C. <i>et al.</i> <sup>24</sup>	2004	Italy	Automated external defibrillation by untrained deaf lay rescuers.	To assess the ability of hearing-impaired rescuers to defibrillate effectively in simulated CPA using an AED that includes visual cues, before and after BLS-AED training.	9	People with hearing disabilities.	300-minute training in SVB-DEA, based on the ERC Guidelines, with the help of a sign language interpreter.	Simulation test	Untrained rescuers with hearing disabilities can use an AED with a defibrillator with visual instructions. Training improves AED use and reduces time to defibrillation.
Beck, K. H. <i>et al.</i> <sup>25</sup>	1983	USA and Canada	A national survey of cardiopulmonary resuscitation training for the deaf.	Determine the level of training in CPR of students with hearing impairment	81	Directors of community, health and training services for people with hearing disabilities.	NA	Assessment Survey	Only 1% of people with hearing disabilities received any type of CPR training in a 2-year period, due to communication barriers and lack of resources.
Macauley, CA., <i>et al.</i> <sup>12</sup>	1978	USA	Physical disability among cardiopulmonary resuscitation students	Implement a training program to perform CPR on people with physical limitations that are not considered a disability and do not interfere with their normal work	115	Health personnel 10 with physical limitations 105 without limitation	Training program of 720 minutes on hospital training in CPR according to the recommendations of the AHA.	NA	There are professionals not considered disabled with physical circumstances that could limit the practice of CPR. These circumstances did not prevent the participants from performing CPR. Alternative training methods must be provided to enable the disabled student to achieve the objectives of the training programs.

AED, Automated external defibrillator; AHA, American Heart Association; BLS, Basic life support; CC, Chest compressions; CG, Control group; CPR, Cardiopulmonary resuscitation; ERC, European Resuscitation Council; IG, Intervention group; N, sample size; NA, Not available; OHCA, Out-of-hospital cardiac arrest.



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# Promuovere la creazione di percorsi RCP DAE adattati alle capacità funzionali delle persone con disabilità

1. Prevenire eventuali danni al soccorritore. Esiste il rischio di aggravare patologie preesistenti o di peggiorare menomazioni funzionali.
2. Definire aspettative realistiche per il soccorritore, al fine di prevenire danni sia a lui stesso che alla vittima che necessita di rianimazione.
3. Prevedere metodi di formazione alternativi che consentano alle persone con disabilità di raggiungere in sicurezza gli obiettivi del corso, nel rispetto degli standard stabiliti.

**Luoghi di vita e di lavoro**



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POLICLINICO DI SANT'ORSOLA

## Componenti (in ordine alfabetico):

- Prof.ssa Roberta Bonfiglioli - Università di Bologna e Medicina del lavoro IRCCS Azienda Ospedaliera Universitaria di Bologna (coordinamento tavolo di lavoro)
- Dott.ssa Maria Grazia Capretti Neonatologia IRCCS Azienda Ospedaliera Universitaria di Bologna
- Dott.ssa Ilaria Corsini Pediatria D'Urgenza, Pronto Soccorso Pediatrico ed OBI IRCCS Azienda Ospedaliera Universitaria di Bologna
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- Dott.ssa Samantha Di Marco Direttivo Italian Resuscitation Council (IRC)
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- Dott.ssa Katya Ranzato Direttivo Italian Resuscitation Council (IRC)
- Prof. Andrea Scapigliati – Past-President Italian Resuscitation Council (IRC), Anestesia e Rianimazione Università Cattolica del S. Cuore Roma

## Proporre un percorso di

- **valutazione delle capacità funzionali**
- **formazione e**
- **certificazione di competenze**

**Adattato alle esigenze di persone con  
disabilità**

Rif:

Advisor BLS – AHA

Esperienza RCP guidata dal *dispatcher*



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