

Is it possible to measure accurately the child's fitness to scuba-diving?

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What do we recommend ? (1)

FSSS - CMAS CH

Age	Baptême	Dauphin 1-2	Dauphin 3
8-9 ans	2 m	5 m	
9-10 ans	2 m	5 m	
10-12 ans	3 m	5 m	5 m
12-14 ans	3 m	5 m	10 m

Special considerations: no night dive, no dive if water temperature < 12°C, adequate material, nutriments and water, and access.

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What do we recommend ? (2)

SUHMS

Entre 8 et 14 ans, la plongée avec scaphandre n'est pas indiquée

Recommander auparavant l'apprentissage de la nage avec palmes et l'apnée.

Une évaluation individuelle est indispensable.

Un conseil très prudent aux parents est recommandé.

Wendling J et col, Aptitude à la plongée, Manuel, SSMH éditions, 1996

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What do clubs do ?

?????

They train
kids

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What do we have to do ?

Children do dive!

We have to:

- Give evidence-based recommendations
- Assess children's fitness-to-dive
- Guide the clubs in their practices to help them warrant the children's total security in a non-vital, leisure activity

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What do we know ?

- About child's physiology
Many things
- About diving's physiology
Many things
- About children's diving physiology
Almost nothing

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What are the concerns ?

- Physical:
Usually solvable! (In reasonable limits!)
- Psychological:
Hardly solvable

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Physical and physiological concerns (1)

Child's specificity	Adaptation
■ High dead space	Material
■ High resp resistances V_T near closing volume	Ascent rate
■ PFO	Depth, ascent rate Security stop
■ Cold sensitivity	Material, length, H_2O T°
■ ORL	Slow descent
■ Growing skeleton	Material

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Physical and physiological concerns (2)

Child's specificity	Adaptation
■ Growth plates	Depth, ascent rate Security stop
■ Narrow pelvis	Material
■ Different body composition	Thermal insulation, drinks
■ Saturation/desaturation unclear	Depth, length, ascent rate, security stop

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Developmental and psychological

■ Length conservation:	7 years*
■ Weight conservation:	9 years*
■ Speed conservation:	12 years*
■ Formal, operative thinking:	12 years**
■ Mutual deference:	7 - 12 years*
■ Death is universal, personal and forever:	10 - 12 years***
■ Primal fears remnants:	5 - 7 years, longer if disturbances

*J. Piaget: Le développement mental de l'enfant

**J. Piaget: Psychologie de l'intelligence

***D. Castro: La mort pour de vrai et la mort pour de faux

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Developmental and psychological

- We cannot hasten the children's development
- In this field, we cannot adapt a child to his environment
- We can, in some aspects, adapt the environment to the child

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Conclusion 1

Under the age of 12, the developmental and psychological status of children make them highly at risk for inadequate and life-threatening underwater reactions.

Special settings can limit the risks but not eliminate it.

Diving is a leisure activity. Objective must be zero risk.

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Conclusion 2

Child's fitness-to-dive assessment must include a thorough psychological assessment.

Skills needed (?):

- paediatric knowledge
- diving medicine knowledge
- family history knowledge
- knowledge of motivation
- knowledge of this child's global psychomotor development
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Conclusion 2a

Child's fitness-to-dive assessment must include a thorough psychological assessment.

And a thorough knowledge of the settings the child will be trained in.

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Conclusion 3

We must intimately take part to children's diving activities.

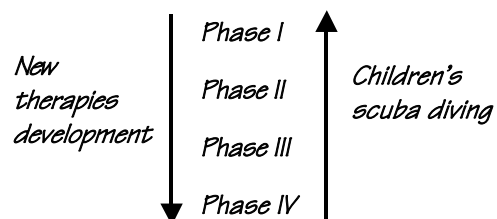
We have to:

- make the instructors aware of the children's development
- follow up the diving children
- get knowledge of the settings the children will evolve in
- help the instructors adapt these settings

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Conclusion 4

We need long term prospective follow-up studies of diving children.



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Conclusion 4a

We need long term prospective follow-up studies of diving children. Better evidence level needed.

Level 1: positive PRCT (prospective, randomized, controlled trial).	?????
Level 2: neutral PRCT.	?????
Level 3: Prospective, non random	Aim
Level 4: Retrospective, non random	Yes
Level 5: Cases series	Yes
Level 6: Animal studies	Few
Level 7: Extrapolations	Many
Level 8: Rational conjectures, common sense	Many

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In summary

Question: Is it possible to measure accurately the child's fitness to scuba-diving?

Answer:

- not possible
- maybe never possible (psychology always fuzzy)
- we can and must assure children's safety

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End

Thank you!

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