

Training in pubertal assessment – First step to the observational pilot study PROSPEL (Premier Observatoire des Stades Pubertaires en Libéral)

M. Jesuran-Perelroizen ^{a, d, e}, O. Puel ^{b, d, e}, J. Mazarino ^c

- a. Cabinet d'endocrinologie pédiatrique, 14, rue du Rempart Saint Etienne, 31000 Toulouse, France
- b. Cabinet de pédiatrie, 88, avenue Pasteur, 33600 Pessac, France
- c. Faculté de médecine, Université de Bordeaux, 146, rue Léo Saignat, 33076 Bordeaux, France
- d. AFPEL : Association Française des Pédiatres Endocrinologues Libéraux
- e. AFPA : Association Française de Pédiatrie Ambulatoire

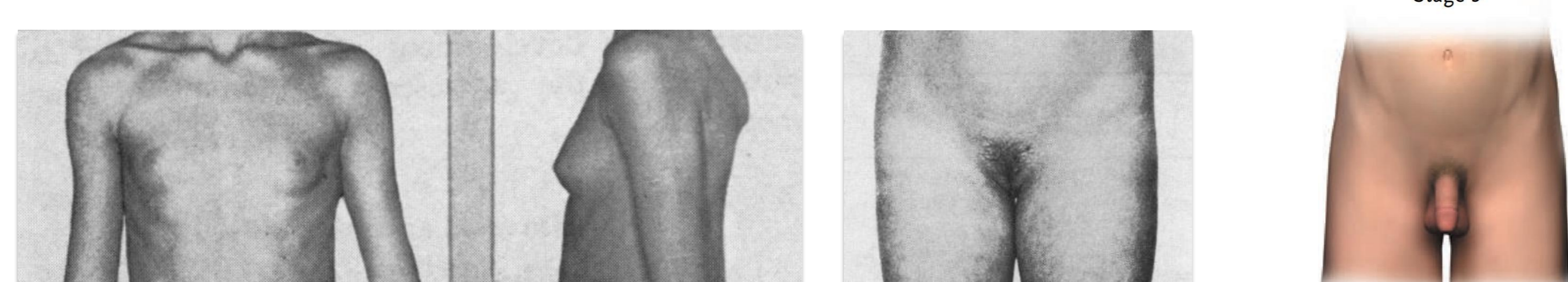
Introduction

Recent publications report an earlier age of onset of pubertal changes in the US (1,2,3) and Europe (4,5,6). Referrals to pediatric-endocrinologist for early puberty are increasing. Precocious puberty diagnosis is often delayed, especially in boys. Improvement in pubertal assessment (age at onset of puberty) by pediatricians and general practitioners is needed to participate in the PROSPEL study and to improve management of pubertal abnormalities

Materials and methods

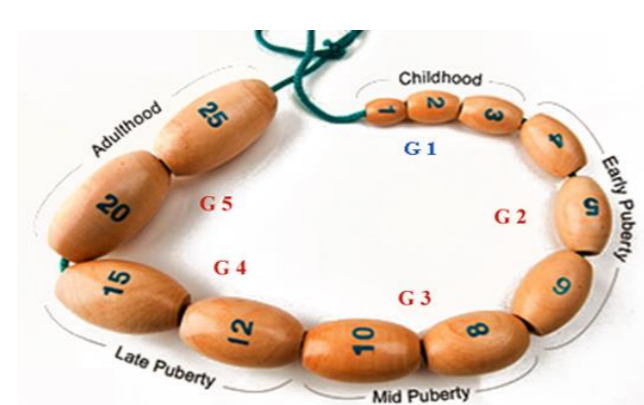
Private physicians were recruited in Bordeaux and Toulouse to participate in a training session on practical modalities for assessing pubertal stages according to Tanner's classification.

Slides showed breast development and pubic hair.



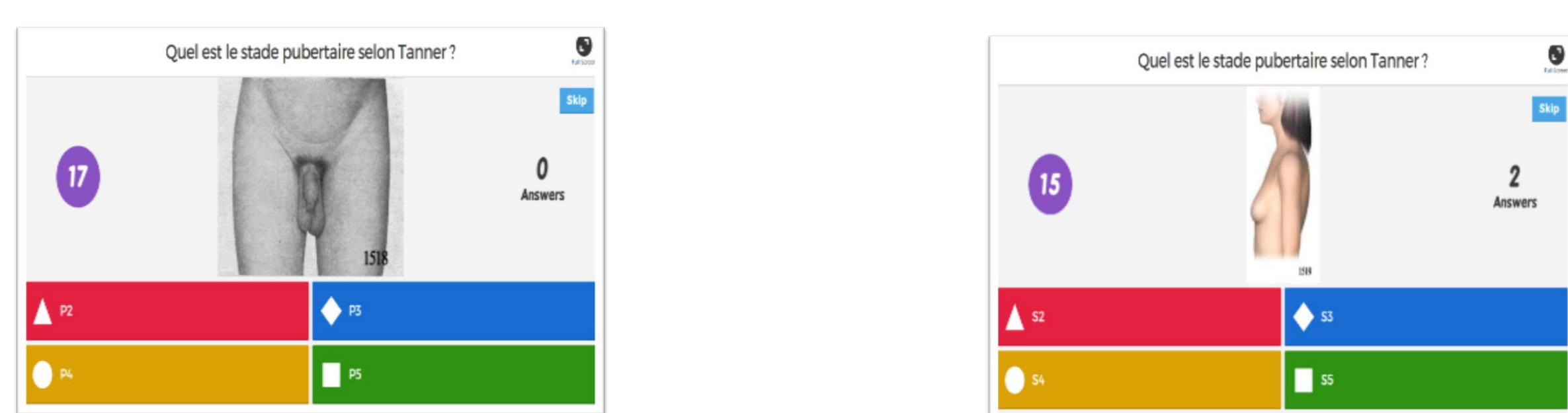
Marshall WA. Variations in the pattern of pubertal changes in girls Arch Dis Child 1969 ; 44: 291-303
Marshall WA. Variations in the pattern of pubertal changes in boys Arch Dis Child 1970 ; 45: 13-23
Carel J.C., Leger J. Precocious puberty. N Engl J Med. 2008;358(22):2366–2377.

An orchidometer was distributed to each participant for testicular volume estimation.



Testicular size: assessment and clinical importance
Prader A. Triangle 1966;7:240–3

The post-intervention assessment included a test administered on their mobile phone via the Kahoot application,



<https://kahoot.com/what-is-kahoot>



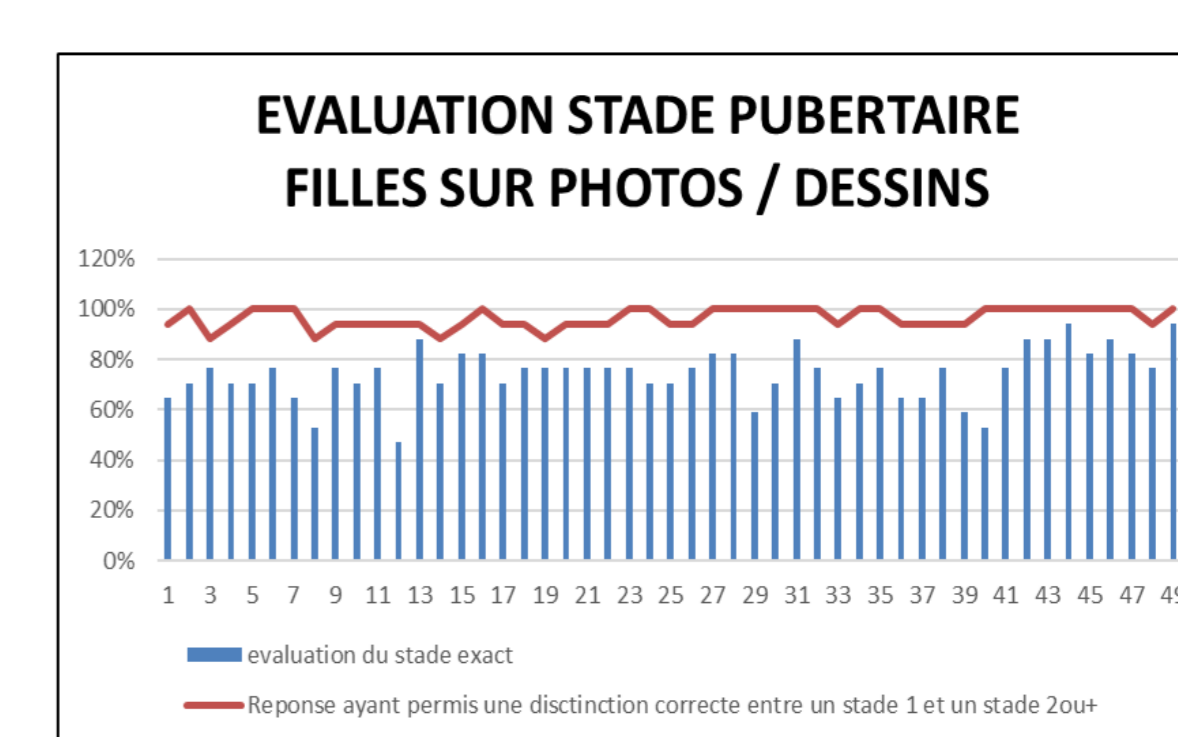
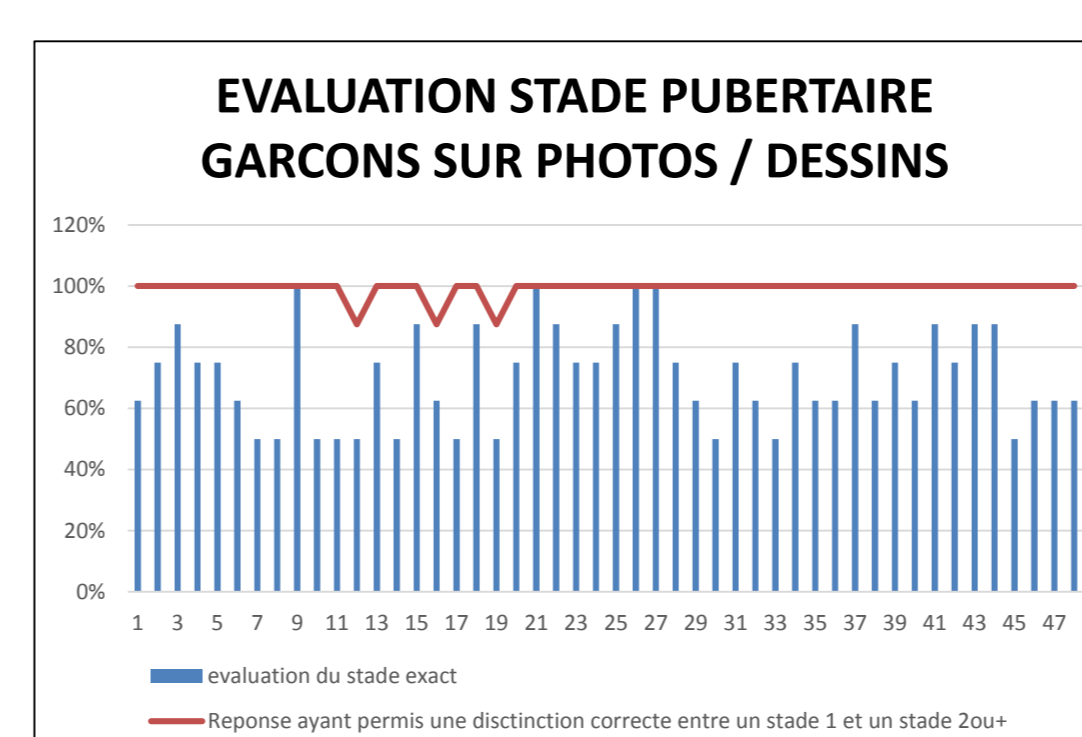
and “blind” palpation of orchidometer beads.

Intra-individual reproductibility was analyzed by repeatedly presenting the same orchidometer element.

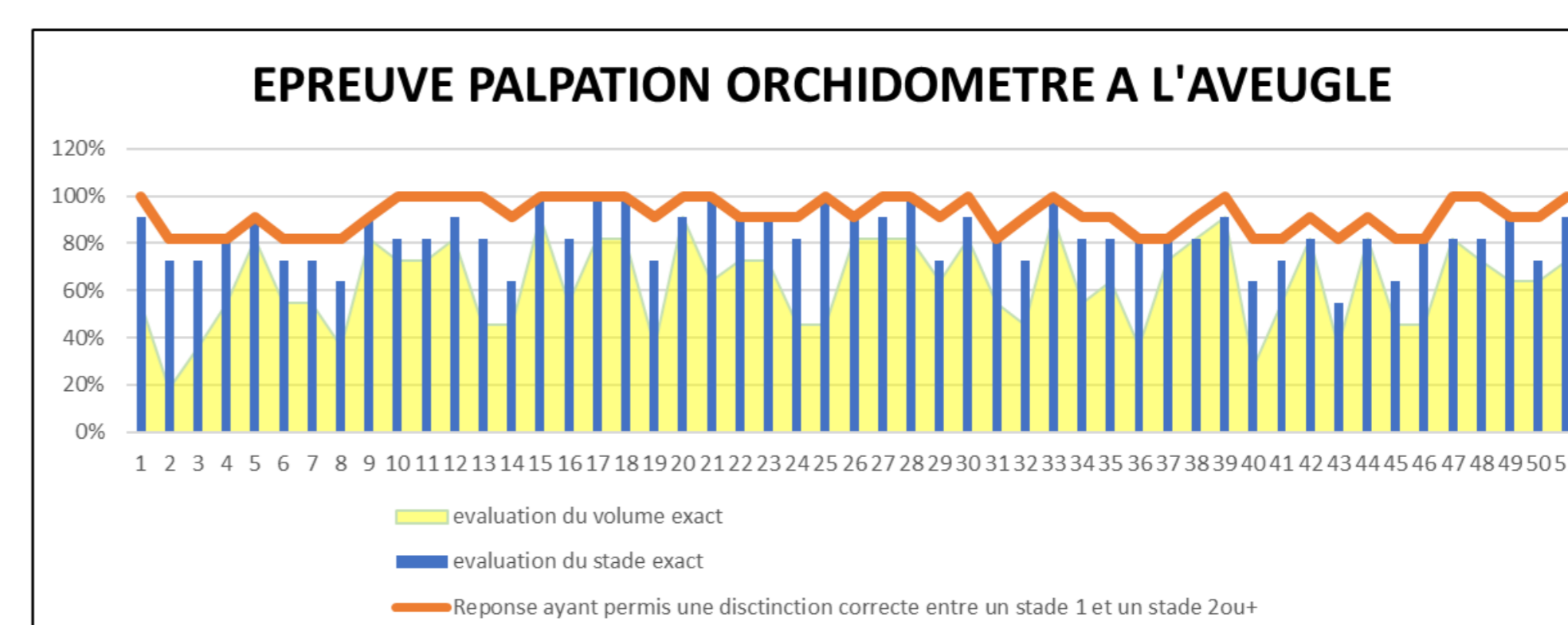
Inter-individual reproductibility was assessed by a double examination of a number of children.

Results

Sixty-three physicians participated in the study (35 pediatricians and 28 general practitioners), where 87.5% distinguished a prepubescent child from a pubescent with the slide test,



and 80% with the blind palpation test.



Intra-individual reproductibility showed a weak agreement.

Inter-individual reproductibility was excellent.

COEFFICIENT DE KAPPA EPREUVE AVEUGLE			
Praticien	Praticien	Praticien	Praticien
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52

COEFFICIENT DE KAPPA PUBERTE BRASILE			
Praticien	Praticien	Praticien	Praticien
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52

In the PROSPEL preliminary feasibility study, all the physicians were certified at the end of the training session.

During a 4 weeks period, 2646 children (1318 girls - 1328 boys) were included, in a homogeneous age distribution. The study was carried out in 83.5% of cases.

Discussion and conclusion

Our results validate our training methodology and certification process for participating physicians in the PROSPEL study. The results of the preliminary study attest to a good feasibility (7). We can consider extending the study to the national level and provide the first French data on the age at which pubertal signs appear.

- Herman-Giddens ME, Slora EJ, Wasserman RC, et al. Secondary sexual characteristics and menses in young girls seen in office practice: a study from the pediatric research in office settings network. Pediatrics 1997;99:505–12.
- Herman-Giddens ME, Steffes J, Harris D, et al. Secondary sexual characteristics in boys: data from the pediatric research in office settings network. Pediatrics 2012;130:e1058–6.
- Biro FM, Greenspan LC, Galvez MP, et al. Onset of breast development in a longitudinal cohort. Pediatrics 2013;132:1019–27.
- Aksglaede L, Sørensen K, Petersen JH, et al. Recent decline in age at breast development: the Copenhagen Puberty Study. Pediatrics 2009;123:e932–9.
- Sørensen K, Aksglaede L, Petersen JH, et al. Recent changes in pubertal timing in healthy danish boys: associations with body mass index. J Clin Endocrinol Metab 2010; 95:263–70
- Parent AS, Franssen D, Fudvoye J, et al. Current changes in pubertal timing: revised vision in relation with environmental factors including endocrine disruptors. Endocr Dev 2016;29:174–84.
- Mazarino J, Puel O, Jesuran-Perelroizen M, Update on pubertal development in France. PROSPEL – Observational study. Preliminary feasibility study. Arch Pediatr 2019; 26(2):108-114.