

Improving physical education teachers' action with overweight students

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Introduction

- ◆ « Overweight and obesity are defined as an abnormal or excessive accumulation of bodily fat that can be detrimental to health » (WHO, 2011)
- ◆ In 2015, 2.3 billions of adults will be overweight on the Earth
- ◆ According to the human costs that it will determine, it is urgent to act !!
- ◆ Medline via Pub Med (September 2011)
 - ❖ Obesity → 150.648 articles (since 1880)
 - ❖ Childhood obesity → 6.656 articles (since 1935)
 - ❖ +Physical activity → 1.095 articles (since 1975)



Introduction

- ◆ Origins of overweight and obesity
 - ❖ Result of the energy balance (intake Vs expenditure) (Marsaudon, 2007)
 - ❖ Unique origin → several factors acting simultaneously (Davison et Birch, 2001)



Introduction

- ◆ Potential factors
 - ❖ Nutrition (too rich in lipids, meal timing ...)
 - ❖ Genetics
 - ❖ Ethnicity
 - ❖ Sedentariness
 - ❖ Psychological factors
 - ❖ Socio-economical level
 - ❖ Early adiposity rebound
 - ❖ Other (sleep, context of life ...)

Basdevant (2006)
Bergmann et al. (2003)
Branca et al. (2007)
Heude & Charles (2001)
OMS (2004)



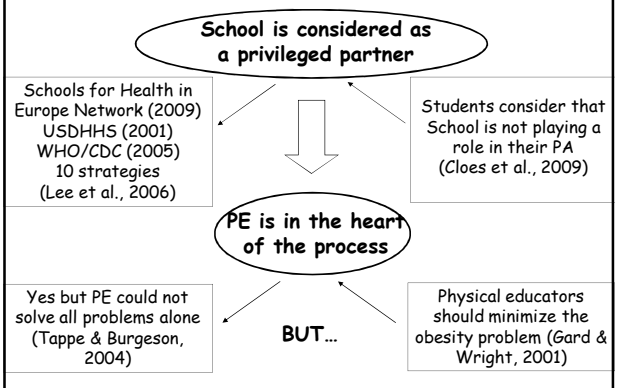
Introduction

- ◆ Potential fight against this epidemic
 - ❖ Prevention/information
 - ❖ Physical activity
 - ❖ Fight against sedentariness
 - ❖ Nutrition habits' modifications
 - ❖ Psychosocial support
 - ❖ Drug and surgery (not for youth)
- Multisectorial action

ANAES (2003)
Niesten & Bruwier (2007)
Epstein et al (2005)
PNNS (2007)



Introduction



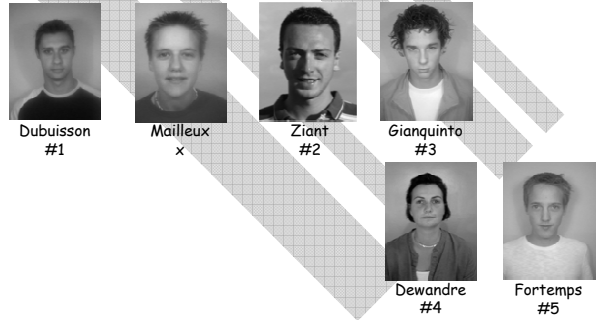
But...

- ◆ Many questions are still open
 - ❖ Are there some links between the BMI influence students' attitudes and representations about PE ?
 - ❖ Do they behave differently during PE classes?
 - ❖ Are PE teachers able to cope with overweight students ?
 - ❖ How is it possible to help overweight youth to appreciate physical activity ?
- ◆ The starting point of a research programme



A research programme

2007 2008 2010 2011 2012



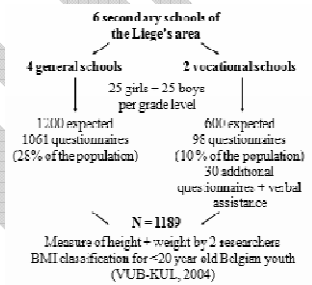
Study #1 - Cloes et al. (2007)

- ◆ Purpose of the study
 - ❖ To verify if PE students' perception of competence differ when their BMI differ
 - ❖ To determine if PE students' attitudes towards school and PE differ according to their BMI
 - ❖ To verify if students differing according to their BMI assign distinct objectives to PE



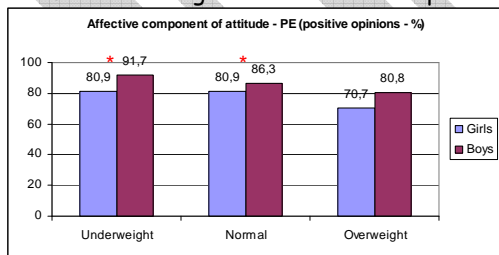
Study #1 - Cloes et al. (2007)

- ◆ Methods
 - ❖ Measure of BMI
 - ❖ Questionnaires: closed-ended questions only (Lickert scales or check list)
 - ❖ Perception of competence
 - ❖ Attitudes towards PE
 - ❖ Objectives of PE



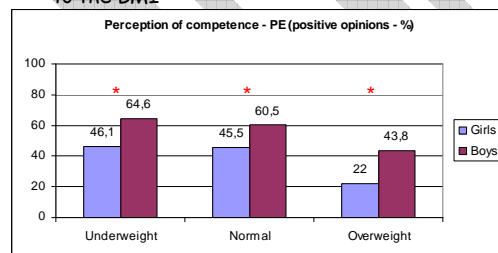
Study #1 - Cloes et al. (2007)

- ◆ Main results
 - ❖ Less overweight students than expected!



Study #1 - Cloes et al. (2007)

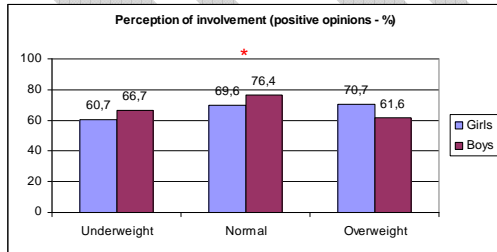
- ◆ Main results
 - ❖ Perception of competence decreases according to the BMI



Study #1 - Cloes et al. (2007)

◆ Main results

- ❖ Student's involvement did not differ according to BMI



Study #1 - Cloes et al. (2007)

◆ Conclusions

YES, perception of competence and attitude towards PE differed according to BMI ...

... BUT the differences were not clearly linked to the student's perception of involvement

Additional Study - Mailloux (2008)

◆ Purpose of the study

- ❖ To analyze PE teachers' representations about overweight students' difficulties in the gym

Additional Study - Mailloux (2008)

◆ Methods

- ❖ Study imagined by a Public Health student
- ❖ 10 PE teachers experimenting the Leger test with additional weight (BMI + 4; 10.4 to 14.1 kg)

◆ Results

- ❖ Adapted test surprised teachers (their real performance was lower than expected)
- ❖ They did not change their requirements to their students (no awareness about psychosocial aspects)

Study #2 - Cloes & Ziant (2010)

◆ Purpose of the study

- ❖ To identify the opinions of specialists and PE teachers about the obesity crisis
- ❖ To compare their representations about the actions to be proposed at school
- ❖ To analyze their representations about the role of physical education

Study #2 - Cloes & Ziant (2010)

◆ Methods

<p>10 PE teachers Secondary school level 4 women + 6 men</p>	<p>11 obesity experts Doctors, psychologist, nutritionists,...</p>
<p>↓ Semi-structured interviews ↓</p>	
<p>44 minutes (experts) - 38 (teachers) Mp3 vocal recorder + Verbatim transcription Content analysis → Table of synthesis (Huberman et Miles, 1991) Intra-analyst agreement = 95.5% Triangulation (Griffin et Templin, 1989)</p>	

Study #2 - Cloes & Ziant (2010)

◆ Results: Knowledge and representations

❖ PE teachers

- are unable to define it and to differentiate overweight and obesity
- do not know its origins
- contest the importance of obesity

"I don't believe that it becomes an epidemic. It's true that one has more often overweight students in comparison to some years ago but it is not an epidemic" (T4 ; lines 24-26)

Only one of the PE teachers was able to describe the concept of BMI (and made an error in the formula)

Study #2 - Cloes & Ziant (2010)

◆ Results: Actions with overweight and obese students

❖ PE teachers

- are waiting information from the specialists
- are requesting examples of practical strategies

❖ Specialists

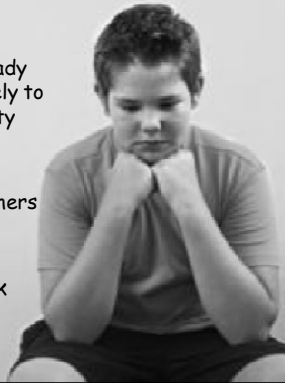
- consider that PE teachers should develop...

"In the educational programs that I attended to, nobody proposed information about how to manage obesity. On Internet I didn't find examples of exercises for obese students" (T8 ; lines 159-162).

Study #2 - Cloes & Ziant (2010)

◆ Conclusions

- ❖ PE teachers are not ready to contribute effectively to the fight against obesity
- ❖ There is a need of collaboration between specialists and PE teachers
- ❖ It seems necessary to develop specific units focusing on how to work with obese students



Study #3 (Gianquinto)

◆ Purpose of the study

- ❖ To identify the difficulties encountered by PE teachers with overweight students
- ❖ To experiment collaboration between obesity specialists and PE teachers

Study #3 (Gianquinto)

◆ Methods

- ❖ 6 volunteer PE teachers + 6 obesity specialists
- ❖ Nominal Group Technique (Brunelle et al., 1988)
 - identification of practical problems
 - exchanges between the subjects
- ❖ Implementation on the field
 - 3 months
- ❖ FB meeting
 - description of the experiences
 - validation by the specialists

Study #3 (Gianquinto)

◆ Results

1. Peur de se «faire mal» (au niveau de la santé)
2. Faible développement moteur de base.
3. Quels conseils/ pistes donner aux personnes obèses ?
4. Manque de structuration chez les jeunes (difficultés de structurer sa journée, son corps)
5. La société exige des résultats rapides.
6. Méconnaissance des aspects somatiques (l'ém de jeune, comment savoir si le jeune est en excès de poids ?...)
7. Méconnaissance et difficulté d'identification de l'origine du problème du surpoids.
8. Limite de l'action (jusqu' où le professeur d'éducation peut-il aller ? comment aborder le jeune en problème de poids ? comment réagir en cas de problème ?).
9. Surprotection parentale.
10. Image de soi et regard des autres.
11. Stigmatisation de l'individualisation (comment gérer la différence ?).
12. Comportement d'estime des personnes en surpoids, perte du goût de l'activité motrice.
13. Mauvaises habitudes scolaires (au niveau du contenu, de l'aspect de modèles du professeur, problème de représentation du cours d'éducation physique)
14. Certificat de complaisance du médecin.
15. Politique alimentaire de l'école.

Study

How to know if a student is overweight? How to manage the problem of self image? How to manage the difference without stigmatizing?

◆ **Results**

1. Peur de faire mal (au niveau de l'activité)
2. Faible développement moteur de base
3. Quels conseils pistes donner aux jeunes obèses ?
4. Manque de structuration chez les jeunes (difficultés de structuration sur la journée, son corps)
5. La société exige des résultats rapides
6. Méconnaissance des aspects techniques (l'état du jeune, comment savoir si le jeune est en excès de poids ?...)
7. Méconnaissance et difficultés d'identification de l'origine du problème du surpoids.
8. Limite de l'action (jusqu'où le professeur d'éducation peut aller ? comment aborder le jeune en problème de poids ? comment réagir en cas de problème ?)
9. Surprotection parentale.
10. Image de soi et regard des autres.
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14. Certificat de complaisance du médecin.
15. Politique alimentaire de l'école

Study #3 (Gianquinto)

◆ **Results**

- ❖ Subjects were able to design several actions (NGT)
- ❖ Implementation in the classes (FB meeting)
 - ⇒ Endurance training (roller skating instead of running; heart monitors; tae-bo; 'time running' instead of 'distance running')
 - ⇒ Orientation to sport structures out the school (volleyball club; fitness centre)
 - ⇒ Contacts with a doctor (development of specific activities; information)
 - ⇒ Contact with the school health service (???)

Study #3 (Gianquinto)

◆ **Results**

- ❖ Subjects were able to design several actions (NGT)
- ❖ Implementation in the classes (FB meeting)
 - ⇒ Actions on nutrition aspects (analysis of food labels; information on breakfast; collaboration with a dietician)
 - ⇒ Interesting activities (oriental dance; Pilates, relaxation; students' involvement in the development of a strength training circuit)
- ❖ Few impact on students' perceptions

Study #3 (Gianquinto)

◆ **Conclusions**

- ❖ Possible collaboration between practitioners and specialists
- ❖ Priorities
 - ⇒ Setting of a confident relationship (availability and respect)
 - ⇒ Proposing realist and reachable objectives
 - ⇒ Emphasizing youth's competence (gestures, speech, look, activity) without stigmatization
 - ⇒ Remaining within the limits of the function
- ❖ Extremely positive feedback of all subjects
- ❖ Specialists became aware about PE reality

Study #4 (Dewandre)

◆ **Purpose of the study**

- ❖ To analyze the effectiveness of PA promotion during paediatric visits for overweight youth

Study #4 (Dewandre)

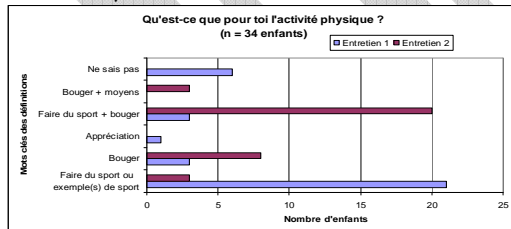
◆ **Methods**

- ❖ 35 children (15 girls and 20 boys; 6 to 12 y/old)
- ❖ Childhood Obesity Unit of the University Hospital of Liege
- ❖ Introduction by a pediatrician or a dietician
- ❖ First contact with the researcher = questionnaire + meeting about physical activity (written support)
- ❖ Diary (8 weeks) + pedometer (voluntary basis)
- ❖ Second contact with the researcher = questionnaire about the process (changes)

Study #4 (Dewandre)

◆ Results

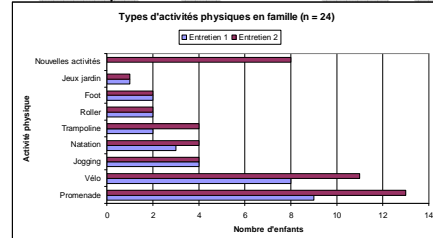
- ❖ Modification of youth's representation of physical activity



Study #4 (Dewandre)

◆ Results

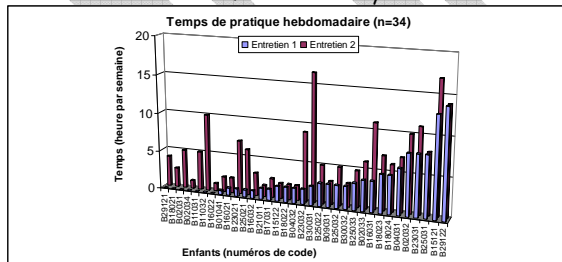
- ❖ Clear increase of physical activities practiced with the family



Study #4 (Dewandre)

◆ Results

- ❖ Clear increase of the PA weekly time



Study #4 (Dewandre)

◆ Conclusion

- ❖ Overweight youth's have wrong representations of PA
- ❖ It is possible to change them
- ❖ The intervention was effective in PA habits
- ❖ The presence of one PA specialist in obesity hospital is needed
- ❖ A PA diary could be proposed to motivate overweight youth to be more active
- ❖ Family plays an important role in the success of the intervention (modification of life context)

Study #5 (Fortemps)

◆ Purpose of the study

- ❖ To identify the needs of overweight youth for their access in fitness centres
- ❖ To verify if the fitness centres are ready to propose adapted programmes for overweight youth

Study #5 (Fortemps)

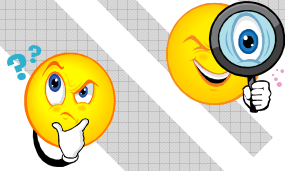
◆ Methods

- ❖ Questionnaire proposed to overweight adolescents attended to the same hospital service
 - ⇒ Physical activity experience
 - ⇒ Representation about fitness centres
- ❖ Interviews of fitness centres' managers
 - ⇒ Current programs
 - ⇒ Readiness to develop adapted programs for overweight youths
 - ⇒ Identification of the barriers and perspectives
 - ⇒ Répertoire of good practices

Study #5 (Fortemps)

◆ Results

❖ In progress ...



Conclusion

- ◆ A quick overview of what we are doing
- ◆ It confirms that it is time to prevent obesity
- ◆ PE teachers need specific support
- ◆ Specialists are ready to collaborate
- ◆ Overweight students are eager to find adapted physical activities
- ◆ There is a determining role to play for PE (sport sciences) graduates



Références

- Agence Nationale d'Accréditation et d'Évaluation en Santé (ANAES). (2003). *Prise en charge de l'obésité de l'enfant et de l'adolescent*. Consulté le 28 mai 2010 sur Internet : http://www.has-sante.fr/portail/upload/docs/application/pdf/version_finale_-_recommandations_obesite_2006_10_25_19_29_37_144.pdf
- Basdevant, A. (2006). L'obésité : origines et conséquences d'une épidémie. *Comptes Rendus Biologique*, 329(8), 562-569.
- Bergmann, K., Bergmann, R., Von Kries. (2003). Early determinants of childhood overweight and adiposity in a birth cohort study: role of breastfeeding. *Int J of Obesity* 27 (2): 162-72.
- Branca, F., Nikogosian, H., & Lobstein, T. (2007). The challenge of obesity in the WHO European Region and the strategies for response. Copenhagen : WHO Regional Office for Europe. Consulté sur Internet en novembre 2007 sur le site <http://www.euro.who.int/document/e89858.pdf>
- Brunelle, J., Drouin, D., Godbout, P. & Toussignant, M. (1988). *La supervision de l'intervention en activité physique*. Montréal : Gaëtan Morin Ed.
- Cloes, M., Laraki, N., Dubuisson, J., & Theunissen, C. (2007). Attitudes, Perception of Physical Education's Objectives and Self-Competence Among Secondary School Students. Comparison According to BMI. In, P. Heikinaro-Johansson, R. Telama, & E. McEvoy (Eds.), AIESEP World Congress 2006 Proceedings: The role of physical education and sport in promoting physical activity and health (pp. 69-78). Jyväskylä: University of Jyväskylä, Department of Sport Sciences Research Reports No. 4. (ORBI - <http://hdl.handle.net/2268/24418>)
- Cloes, M., Motter, P., & Van Hoye, A. (2009). Students' perception of the role of their secondary school in promoting an active lifestyle. In, T. Rossi, P. Hay, L. McCuaig, R. Tinning, & D. Macdonald (Eds). Proceedings of the 2008 AIESEP World Congress «Sport pedagogy research, policy and practice: International perspectives in physical education and sports coaching. North meets South, East meets West», Sapporo, January 21-25 (cd-rom - ID: 186). Brisbane: HMS, University of Queensland.)
- Cloes, M., & Ziant, N. (2009). Analysis of the representations of school and physical education roles in combating obesity. AIESEP International Specialist Seminar "The physically active lifestyle: A collaboration among professions". Pensacola, FL: University of West Florida, May, 27-29. (abstract et poster) (ORBI - <http://hdl.handle.net/2268/75449>)
- Davison, K., Birch, L. (2001). Childhood overweight: a contextual model and recommendations for future research. *Obes Rev* 2: 159-171
- Dewandre, A.C. (2011). Promotion de l'activité physique chez les enfants de 6 à 12 ans suivis pour excès pondéral ou obésité en consultation ambulatoire. Mémoire de Master en Sciences de la Santé Publique, non publié. Liège: Université de Liège.
- Epstein, L., Roemmich, J., Paluch, R., Raynor, H. (2005) Influence of changes in sedentary behavior on energy and macronutrient intake in youth. *Am J Clin Nutr*; 81, 361-6.
- Gard, M. & Wright, J. (2001). Managing Uncertainty: Obesity Discourses and Physical Education in a Risk Society. *Studies in Philosophy and Education*, 20, 535-549.
- Gianquinto, J. (2011). Prise en charge spécifique des élèves en surpoids dans les cours d'éducation physique. Mémoire de Master en Sciences de la motricité, non publié. Liège: Université de Liège.
- Griffin, P. & Templin, T.J. (1989). An overview of qualitative research. In, P.W. Darst, D.B. Zakrajsek & V.H. Mancini (Eds.), *Analysing physical education and sport instruction* (Second ed.). Champaign, IL : Human Kinetics Books, 399-409.
- Heude, B., & Charles, M.A. (2001). Le devenir à l'âge adulte de l'obésité de l'enfant. *Journal de Pédiatrie et de la Puériculture*, 14(8), 474-479
- Huberman, A.M. & Miles, M.B. (1991). *Analyse des données qualitatives. Recueil de nouvelles méthodes*. Bruxelles : De Boeck Université.
- Lee, S., Wechsler, H., & Balling, A. (2006). The Role of Schools in Preventing Childhood Obesity. *Journal of Physical Activity and Health*, 3 (4), 439.
- Mailloux, A. (2008). Représentation de l'impact de l'obésité sur l'activité physique chez les enseignants en éducation physique, avant et après un exercice standardisé lesté. Mémoire de licence non publié, Université de Liège, Sciences de la santé publique, Liège.
- Marsaudon, E. (2007). *200 questions clés sur l'obésité*. Paris : Ellébore.

- ♦ School for Health in Europe (2009). Vilnius resolution: better schools through health. Woerden : SHE. Retrieved from Internet on August, 30, 2009: <http://www.schoolsforhealth.eu/>
- ♦ Niesten, L. & Bruwier, G. (2007). *L'obésité chez l'enfant*. Consulté le 7 avril 2010 sur Internet : http://www.ssmg.be/new/files/RBP_ObesiteEnfant.pdf
- ♦ PNNNS (2007). Sédentarité et surpoids : promouvoir l'activité physique auprès de tous les jeunes. Consulté le 12 mars 2011 sur Internet : <http://www.mangerbouger.fr/pro/IMG/pdf/Re-activite-CraesCripsRhôneAlpes-2.pdf>
- ♦ Tappe, M.K. & Burgeson, C.R. (2004). Physical Education: A Cornerstone for Physically Active Lifestyles. *Journal of Teaching in Physical Education*, 23, 4, 281-299.
- ♦ U.S. Department of Health and Human Services (2001). The Surgeon General's call to action to prevent and decrease overweight and obesity. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General. Retrieved from Internet on April 2, 2006: <http://www.surgeongeneral.gov/topics/obesity/calltoaction/toc.htm>
- ♦ WHO (2011). Obesity and overweight. Fact sheet N°311. Retrieved October 2, 2011 from <http://www.who.int/mediacentre/factsheets/fs311/en/>
- ♦ WHO/CDC (2005). WHO Physical Activity Strategy: An Action Plan for Promotion/Implementation. Retrieved January 29, 2006, from http://www.who.int/moveforhealth/publications/mfh_miami_planaction_feb05.pdf