

# Clinical examination of children and adolescents climbing at competition level

What needs to be examined,  
what needs to be asked

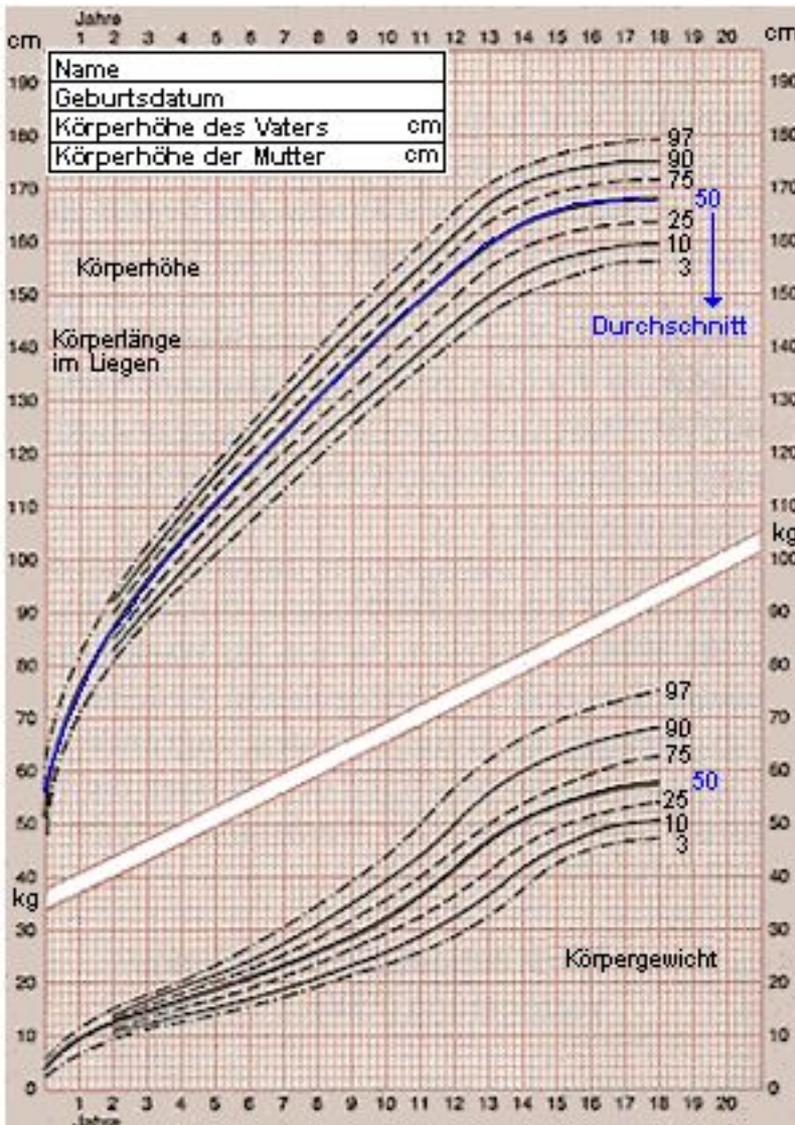
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# Standardized Form

- Length: \_\_\_\_\_ cm (\_\_\_\_\_. P.)  
Weight: \_\_\_\_\_ kg (\_\_\_\_\_. P.)  
BMI: \_\_\_\_\_ kg/m<sup>2</sup> (\_\_\_\_\_. P.)  
Blood pressure: \_\_\_\_\_ mm Hg (\_\_\_\_\_. P.)
- Percentiles for length, weight and BMI?
- Percentiles for blood pressure ??????

# Percentiles



- Tools for calculating can be found in web, apps for smartphone, using the graphs
- Include correction for height and weight of parents
- Watch growth over time!



# Watch out!!

- Patient too small or too long
  - Constitutional developmental delay
  - Excess or deficit of hormones
  - Malabsorption
- Patient is too thin or too fat
  - Eating problems, psychological problems
  - Malabsorption, metabolic syndromes
- Blood pressure too high?
  - Overweight, no cardiopulmonar exertion
  - Kidney problems, hormonal imbalance

# Anorexia athletica

- Eating disorder in athletes trying to lower their body weight up to the 3rd percentile and lower.
- It is solely sport induced



# General medical history

- **Medical history:**
  - Any preexisting conditions (especially heart, lungs, epilepsy, diabetes, developmental problems)
  - Family history
  - Sport related history (Synkopies, dizziness, resilience?)
- Now is the question what to do with the parent?
- Questions concerning medical and family history with parent!
- Further questions and clinical examination without parent, except child wishes otherwise!

# The clinical examination

	Normal	Abnormal Findings
Eyes		
ENT		
Mouth/Teeth		
Lungs		
Heart/Vessels		
Abdomen		
Muscles		
Flexibility		
Joints		
Skin		
Vertebra		
Shoulders		
Pelvis		
Feet		

# The clinical examination



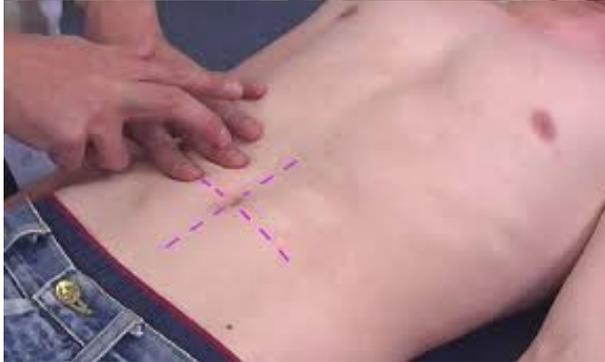
Undress upper body half:

1. Shoulders, fingers, vertebra intact
2. No neurological deficits here



Check skin, listen to heart and lungs:

1. Skin color, lesions, naevi, turgor, elasticity
2. Heart murmurs, wheezing, signs of obstruction



Palpate and listen:

1. Tumor, resistance, muscle tone
2. Bowel sounds in all four quadrants

**Patient should put his clothes back on after this!!!**

# The clinical examination



Ears: amount of cerumen, eardrum, auditory canal



Check mucosa, teeth, glands

# The clinical examination



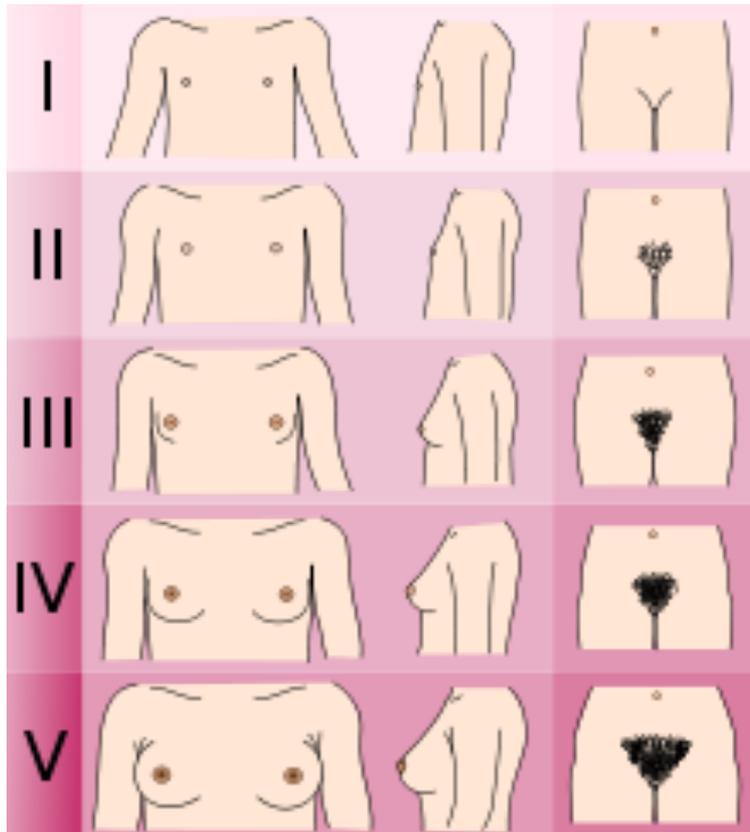
I leave it in the hands of a specialist,  
Thus lower extremity is seen by Volker !!!

# Clinical examination

	normal					Abnormal findings	
Genitale							
Tanner-Stadien	1	2	3	4	5	(Breast/pubic hair)	

- Tanner!
- Always without parent except if child wishes otherwise!!!
- Not during first consultation
- Use examination to check for femoral pulses

# Tanner stages



I		3	<2,5
II		4	2,5-3,2
III		10	3,6
IV		16	4,1-4,5
V		25	>4,5

# Abnormal findings with Tanner

- Premature in parts:
  - Thelarche (< 8 years): hormonal levels normal
  - Pubarche (< 8, 9 years, respectively): adrenale Androgenes elevated
- Pseudopubertas praecox (< 8, 9 years):
  - Sexual hormones high, GnRH low
  - Growth enhanced (Percentiles, bone age)
  - Iso- or heterosexual events
  - Cause: AGS, other syndromes, tumors (adrenal cortex, gonads, HCG-Production), ovarian cysts, **steroids**
- Pubertas praecox vera:
  - Pulsatile excretion LH, FSH with pubertal values, Estrogen/Testosteron, Androgenes elevated
  - Growth enhanced

# Abnormalities?



# Abnormal findings with Tanner(> 13, bzw. 14 Jahre)

- Causes:
  - Constitutional developmental delay
  - Chronic diseases (CF, Asthma, heart problems, chronic inflammatory bowel diseases, chronic renal insufficiency)
  - Anorexia, **Sports at high level**
  - Hypogonadotrope Hypogonadism (Syndromes, Brain-Tumor, Adrenal insuff.)
  - Hypergonadotrope Hypogonadism (Syndromes, Ovarian insuff., Anorchie, Chemo)
- Ther: hormonal substitution

# Supplementary tests

- **Urin**
  - **Blood work**
  - **Body fat**
  - **EKG: Think of pediatric differences**
  - **Spirometrie**
  - **Further tests only if indicated by findings**
- 
- Body fat either using skinfold method (Jackson-Pollock oder Slaughter Formel verwenden) or DXA!
  - Always EKG!
  - Spiro and blood as well as urine workup only if indicated!



# Working with the athletes



39 years old



Both climb 9a+

15 years old



Adolescents are not  
small grown-ups!

# Working with

- Last examination: 5. – 6. years of age
- J-Examination 13. – 14. years old is not compulsory
- Girls have most often not seen a gynecologist and boys have no reason to go see a doctor.
- If there is no chronic disease no doctor contact for the last 10 years!

# Working with athletes

- First we do the routine workup described before
- Furthermore specific tests designed by the concept of the DGSP, and the guidelines of the Bundesausschuß Leistungssport as well as the recommendation of the IFSC
- Even though climbing is not olympic we follow the same guidelines



# Working with athletes

- Once a year:
  - Blood tests
  - EKG
  - Pediatric clinical examination
  - Heart ultrasound every two years
  - Orthopaedic examination
  - Spiroergometry



# Further Questions

- Without the parent if possible
- Create an atmosphere of trust, explain medical confidentiality
- As their doctor I talk with them not their parents!
- Never speak behind their backs!
- H E A D D S S – Mnemonic from the USA

# The Interview

- Home:
  - Are their conflicts with or between parents, siblings?
  - Are there problematic topics with parents?
  - Example: Nutrition in one of our athletes
- Education/Employment:
  - Favorite subject, friends, mobbing ...
  - Money gained from the sport, who takes care of it?
  - Is school or work associated with fun?

# The Interview

- **A**ctivities:
  - Other activities beside climbing?
  - Emphasize importance of this!
  - **Ex: Timeschedules for athletes and their training**
- **D**rugs:
  - Legal: Alcohol, medication ...
  - Illegal: Marihuana, Ecstasy, Speed ...
  - Doping. Use this time to explain use and misuse.  
Reinform about medical confidentiality

# The Interview

- Depression:
  - Motivationsproblems? Who is the motor for the sport specific achievements, child or parent?
  - Therapie?
  - Ex: one athlete with motivation problems
- Suicide:
  - Has the athlete ever thought about it?
  - Remember: the world is sinking for a child if it doesn't achieve its goal.

# The Interview



# The Interview

- Sex:
  - Partner?
  - Signal open mindedness with regard to choice of partner
  - Propose education by questions regarding contraception
  - Propose to talk about this another time or over the phone if questions arise
  - Again inform about patient confidentiality

# Specials in climbing

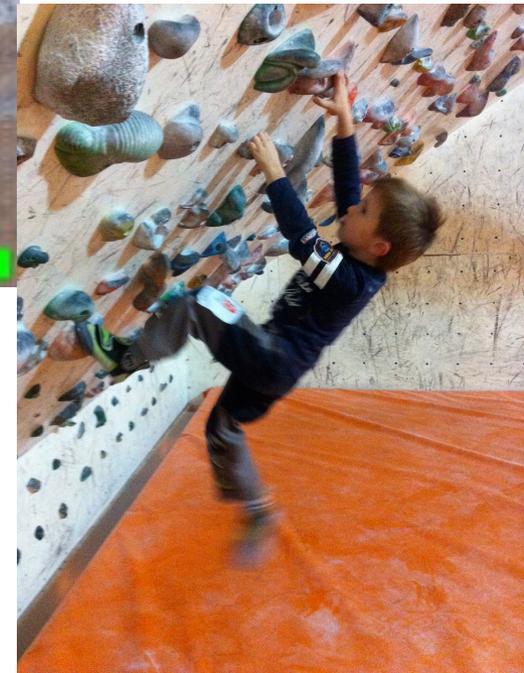
- Early muscle differentiation



- Risk of falls

- High Motivation

- Special care of fingers



# Speicals in climbing

- Perpetual comparison with oneself and other adolescents

USA		France	Australia	UK	
5.1		1	4	M	
5.2		2	6	M	
5.3		2+	6	3a VD /	
5.4		3-	8	3b VD /	
5.5		3	10	3c HVD	
5.6		3+	12	4a S /	
5.7		4	14	4a VS /	
5.8		4+	14 / 16	4c VS	
5.9		5	16	4c HVS	
5.10a		5+	18	5b HVS	
5.10b	Bouldering Scale	6a	19	5a E1 /	
5.10c		6a+	19 / 20	5b E2 /	
5.10d		V0	6b	20 / 21	6a E2 /
5.11a			6b+	21	6a E3
5.11b		V1	6c	22	6a E4
5.11c			6c+	23	6a E4 /
5.11d		V2	7a	23 / 24	6b E4 /
5.12a		V3	7a+	24	6a E5 /
5.12b		V4	7b	25	6c E5
5.12c		V5	7b+	26	6b E6
5.12d		V6	7c	27	6c E6
5.13a		V7	7c+	28	6c E7
5.13b		V8	8a	29	6c E7 /
5.13c		V9	8a+	30	7a E7 / 6c E8
5.13d		V10	8b	31	6c E8 / 7a E8
5.14a		V11	8b+	32	7a E8 / 7a E9
5.14b	V12	8c	33	7a E9 / 7b E9	
5.14c	V13	8c+	34	7b E9 / 7a E10	
5.14d	V14	9a	35	7a E10 / 7b E10	
5.15a	V15	9a+	36	7b E10	
5.15b	V16		37		



# Speicals in climbing

- Perpetual comparison with oneself and other adolescents
- Fear of falls



# Specials in climbing

- Perpetual comparison with oneself and other adolescents
- Fear of falls
- Mobbing in school?
  - Enviousness
  - Absences from school
  - Difficult personality (frankonian autist)



# Specials in climbing

- Perpetual comparison with other adolescents
- Fear of falls
- Mobbing in school?
  - Enviousness
  - Absences from school
  - Difficult personality (frankonian autist)
- Parents



# Parents

Kids must achieve what parents didn't!

- Parents ever present
- Parents better informed than child
- Parents better informed than trainer

Parents want the best for their children

- Is it really the parents who push or the child?
- Maybe the child needs parents to be there?

Always try for open discussion with parent and child  
And find solutions together

**Your child's success or lack of success in sports does not indicate what kind of parent you are.**



**But having an athlete that is coachable, respectful, a great teammate, mentally tough, resilient and tries their best **IS** a direct reflection of your parenting.**

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**ATTENTION**

# The competition

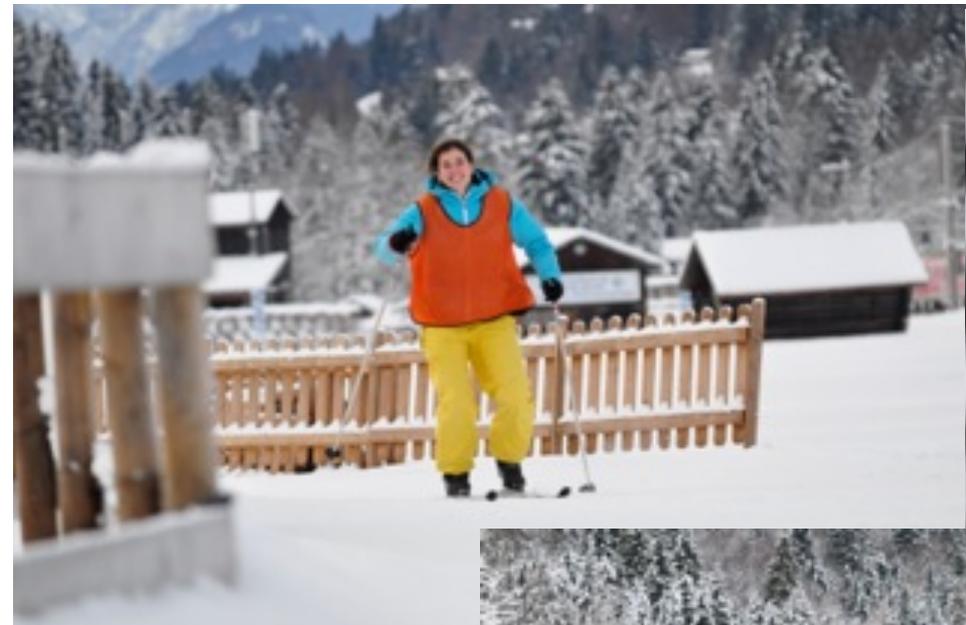


Try to keep the fun aspect high

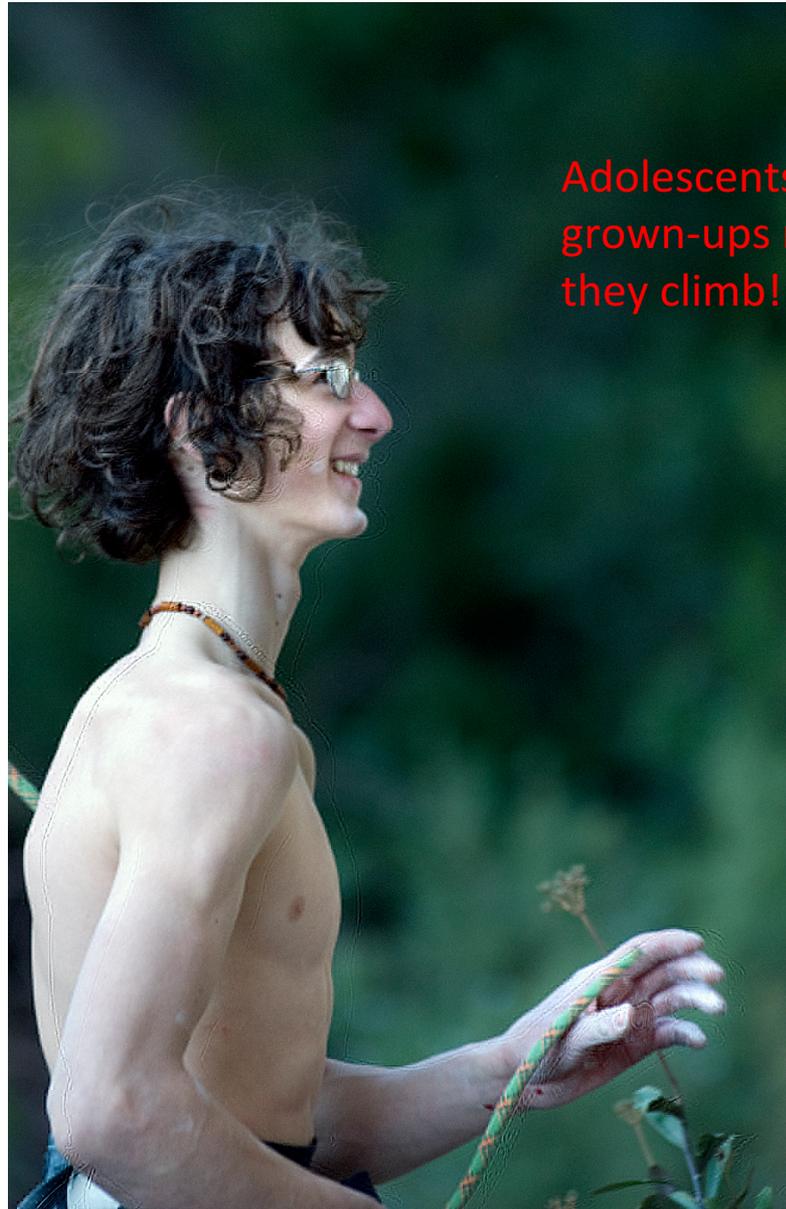
# The competition



# Other activities



# Remember!



Adolescents are not small  
grown-ups no matter how hard  
they climb!

# Thank you for your attention

