

## The Development, Philosophy & Priorities of the FIG Coach Education Programs and The Concern over Intensive Training at Young Ages

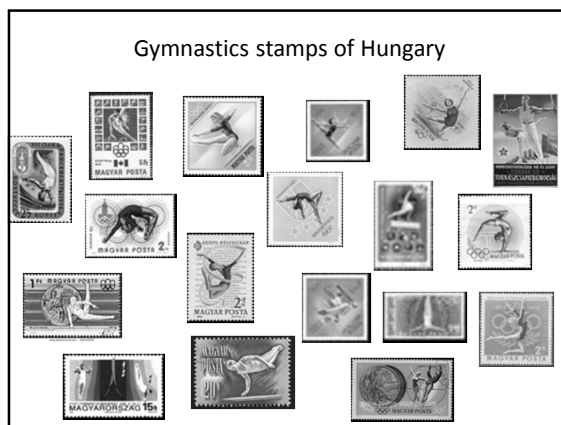
Presentation to the Hungarian Gymnastics Federation  
 Budapest, Hungary  
 April 27, 2014


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Hungary - Olympic and World Championship Gold Medalists		
	Olympic Games	World Championships
Women's Artistic Gymnastics		
Margit KORONDI	1952 UB, 1956 Group	
Agnes KELETI	1952 FX, 1956 UB, BB, FX, Group	1954 UB
Andrea MOLNAR-BODO		
Erzsébet GULYAS KOTELÉS		
Alice KERTESZ		
Ógá LEMHENY-S-TASS	1956 Group (Portable Apparatus Team)	
Hennetta ONODI	1992 V	1992 V
Men's Artistic Gymnastics		
Istvan PELLE	1932 FX, PH	1930 HB
Ferenc PATAKI	1948 FX	
Zoltan MAGYAR	1976 PH	1974 PH, 1978 PH, 1979 PH
Zsolt BORKAI	1988 PH	1987 PH
Szilveszter CSOLLANY	2000 R	2002 R
Krisztián BERKI	2012 PH	2010 PH, 2011 PH
Aerobic Gymnastics		
Attila Katus		
Tamas Katus	1997 Trio (World Games)	1998 Trio
Romeo Szenfgyörgyi		
Rhythmic Gymnastics, Trampoline Gymnastics, Acrobatic Gymnastics		

### Presentation Overview

Introductory comments
How others see us and why
Safety & health related issues
Critical age 11-15 & normal growth
Academy overview
A look at forces in gymnastics
Age group program overview
<i>Other coaching considerations - if we have time</i>





## Introductory Comments

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- ### Priorities of FIG coach education initiatives
- Safe & healthy & systematic training of gymnasts towards excellence
    - Avoid permanent handicaps – deductions, fear, bad basics
  - Understanding intensive training in the critical 11-15 year age period
    - Easy learning of complex skills
    - Rapid internal & external growth
    - Susceptible to acute, chronic, overuse injuries
    - Susceptible to emotional & psychological damage
    - Made worse because top gymnasts mature 2-4 years later
  - If coaches are careful through this time then they can have a champion – 80% attrition rate during those ages !!!

**Commonalities among Gymnastics Sports**

Responsibility of coaches to assure care & well-being of their gymnasts. Also need technical competence.

- Movement = muscles and joints
  - Understand muscles & joints
  - Understand correct training of tissues
- Intensive training at young ages
  - Understand growth & growth plates
  - Understand adolescent growth spurt problems
- Safety and potential for injury
  - Understand causes of injuries
  - Understand injuries and injury sites
  - Understand prevention of injuries
- Motivation; self-esteem; fear; etc.
  - Understand psychological influences

*How others see us - - - Now...*

What is the opinion **NOW** of the Medical, Scientific, Media, and Educational Professions?


Our image has gone from Paragon to Pariah

**Paragon** – someone who is the very best example

**Pariah** – someone despised and avoided by others

We have created public concerns over the health of our children

1. Delayed maturation / growth
2. Disordered eating
3. Increased chronic injuries
4. Increased acute injuries
5. Increased growth plate injuries
6. Emotional damage



**How others see us and why**

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*What was...and what is*

For many years, gymnastics was considered the essence of physical perfection & beauty.

Now, gymnastics is commonly used in the medical community as an example of excessive & abusive coaching practices.

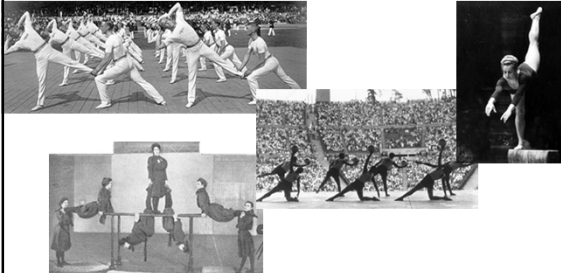
This is where we are now.

Is there another way to do this?



*How others see us - - - Before...*

Gymnastics was the ultimate in physical perfection & beauty.  
*Gymnastics was synonymous with Physical Education*



*What has changed...*

**Gymnastics has changed !**

- Skill levels escalated spectacularly.
- Age of intensive training has decreased especially for females.
- Training hours have increased dramatically.
- Children are now doing more & more repetitions of fewer & fewer skills – bigger problem in some of the disciplines with low variety

WAG convergence of beam, vault, floor – MAG apparatus specialization; TeamGym repetitions; Aerobic hard floor landings, Trampoline

## Safety and health related issues in the gymnastics sports

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### Examples from Acrobatic Gymnastics

### The Philosophy and the Curriculum of the FIG Academy Program is “athlete centered”: What does this mean?

- **Safe**
- **Health** (physical & mental)
- **Popular** (large numbers & long participation)
- **Ethical** (provide model for fair play, honesty, responsibility, etc.)
- **Aesthetic**

**Our gymnastics sports often ignore these important trends & often follow unhealthy practices.**

### Examples from Women’s Gymnastics

**Significantly: Adult females can not compete in the sport because of what is rewarded by judges and the rules.**

### Common Issues in the Gymnastics Sports


- **Safe**
  - Acute injuries
  - Apparatus related issues
- **Health** (physical & mental)
  - Very young start in high performance training
  - Excessive training hours & intensity
  - Chronic & overuse injuries
  - Incompetent coaching (not enough knowledge)
  - Insufficient recovery
  - Disordered eating
  - Doping
- **Popular** (large numbers & long participation)
  - Accessible and avoid excessive attrition
- **Ethical** (provide model for fair play, honesty, responsibility, etc.)
  - Judging issues
  - Abusive coaching practices
- **Aesthetic**
  - More gymnastics or better gymnastics? Can we have both?
  - Music, rhythm, harmony issues
  - Monotony, virtuosity, creativity, originality, “entertainment value”

Each of these issues is of significant concern in the Gymnastics Sports


Health concerns can be most influenced by education.

### Examples from Rhythmic Gymnastics

### More about Rhythmic Gymnastics



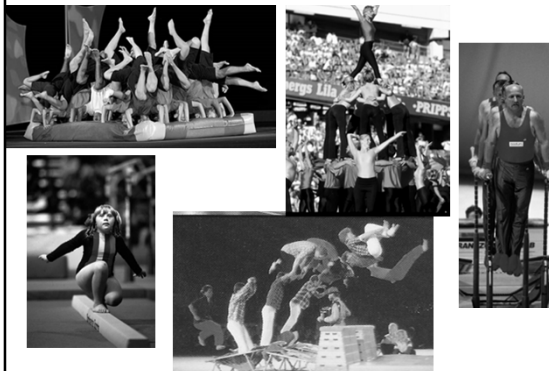
A gradual progression of hyper-flexibility:  
 beauty → virtuosity → disturbing → grotesque  
 healthy → damage?



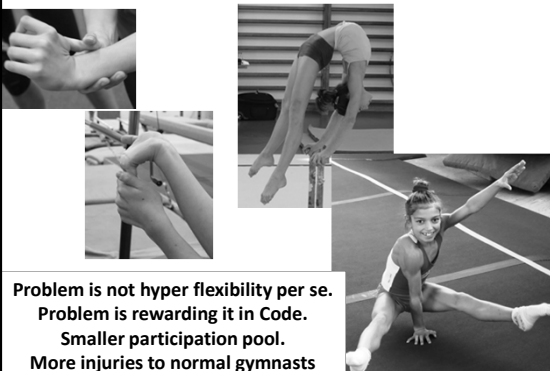
NOTE: Extreme positions are "with help" →

How far does insiders' perception diverge from public opinion?  
 How much does this reduce participation numbers & increase attrition?

### Examples from Gymnastics for All

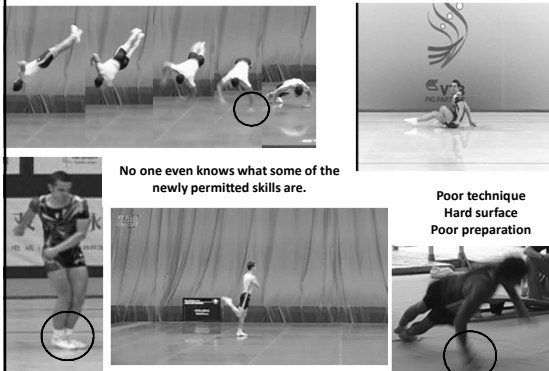


### Hyper flexibility – Lax joints



Problem is not hyper flexibility per se.  
 Problem is rewarding it in Code.  
 Smaller participation pool.  
 More injuries to normal gymnasts

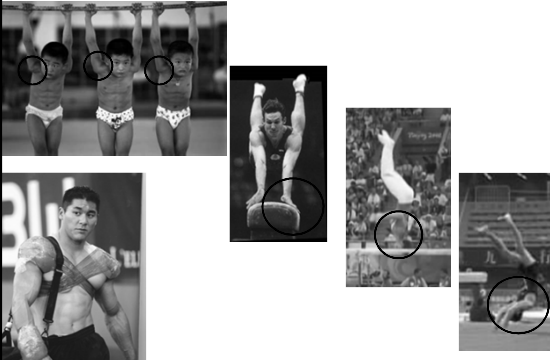
### Examples from Aerobic Gymnastics



No one even knows what some of the newly permitted skills are.

Poor technique  
 Hard surface  
 Poor preparation

### Examples from Men's Gymnastics



### What is the reason for unsafe/unhealthy trends?

Gymnasts and coaches want to win.  
 They will do what is rewarded.



Therefore, the fastest solution is to change the reward structure.

**What are the Possible Solutions to reduce the incidence of unhealthy practices, unsafe performances and injuries?**

LEGISLATIVE

EDUCATIONAL

**For coaches we must focus on the Educational Solutions  
Leaders must influence Legislative Solutions**

**The Role of Education**

Education is a two way process  
Knowledge can make anyone a good coach & a great coach better

➤ **Age Group & Academy Program provides:**

- Understand Growth & Development (we deal with children)
- Understand training intensity and overtraining and recovery (we train many hours)
- Understand anatomy (especially joints) & physiology (we overload tissues)
- Understand proper strength training (we always deal with forces)
- Knowledge of damaging practices
- Understand proper flexibility training
- Understand nutrition
- Understand proper short-term and long-term planning
- Understand psychology
- Understand biomechanics
- Understand technical methodology, etc. for each skill and element

**What are the Possible Solutions? – cont'd**

**Legislative (Internally determined or externally imposed)**

- Improve apparatus and/or change nature of sport. (partly Code)
- Prohibit certain elements. (Code)
- Reduce the reward (value or bonus). (Code)
- Increase the deduction for poor performance. (Code)
- Reduce permitted frequency of overused elements. (Code)
- Increase reward for what is desired. (Code)
- Change requirements & provide for greater variety. (Code)

**Educational - provides information for better solutions & decisions**

- Age Group Development & Competition Program & Resources.
- FIG Academy Program and other courses.
- More Research

Code of Points



**The Role of Legislation**

Our main “legislative” document is the Code of Points

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If we require something  
If we reward something

And we have been informed it is unhealthy,  
then

We are ethically and legally responsible  
Because whatever is rewarded determines  
content of routines and of training.

The FIG Technical Committees have made good efforts to address these problems in the Codes.



**Safe Environment = avoidable injuries = coach responsibility**

**Process of Academy & Age Group Program development**

**Phase 1**

- Growth & maturation principles
- Implications for training
- Focus on growth years

**Phase 2**

- Gymnast development programs
- Physical ability profiles
- Skill acquisition profiles
- Physical & Technical Ability Tests**
- Age Group rules & compulsories**

**Phase 3 (Academies)**

- Coach education program & curriculum
- Theory & Practical
- For all disciplines
- For three languages
- With examinations

**Critical Age 11-15**  
**Understanding Normal Growth**

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**FIG Age Group CD – Phase 1 & part Phase 2**

2001

2003

**Priorities of FIG coach education initiatives**

- Safe & healthy & systematic training of gymnasts towards excellence
- Understanding the critical 11-15 year age period
  - Easy learning of complex skills
  - Rapid internal & external growth
  - Susceptible to acute, chronic, overuse injuries
  - Susceptible to emotional & psychological damage
  - Made worse because top gymnasts mature 2-4 years later
- If coaches are careful through this time then they have a champion – 80% attrition rate during those ages !!!

**AGDP = Athlete Development Model**

*Phase 1*

**EARLY PUBERTAL STAGE – AGES 11-13 (15) – Skill Acquisition**  
*(This excerpt is paraphrased for the format of this presentation.)*

Maturational Information	Implications for Training
<ul style="list-style-type: none"> <li>• Children experience the beginning of 2-3 year growth spurt &gt; bones grow faster than muscles &gt; they gain mass faster than strength.</li> <li>• Body parts grow at different rates and body proportions change frequently.</li> <li>• Anaerobic-lactic system improves but is far from adult levels.</li> <li>• Late maturers (<b>gymnasts!</b>) have open growth plates and related injury risk for prolonged time.</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasize active &amp; passive flexibility training. Be careful with adding complexity that requires increased strength and flexibility.</li> <li>• Increase caloric intake above activity requirements to assure optimal growth.</li> <li>• Integrate aerobic activities, preferably those that use large muscle masses.</li> <li>• Growth plates are vulnerable to shear forces. Assure sufficient air time to complete additional twists or saltos.</li> </ul>

**The convergence of PHV, PWV, incompletely fused growth plates, immature anaerobic-lactic system has critical physical & psychological implications.**

**The critical age period for gymnasts  
Age 11-15**

Paramount for a coach's understanding is that the age period of 11-15 is a critical time for our gymnasts because it is a time when they are capable of learning complex aerial skills quickly but are simultaneously susceptible to debilitating acute and chronic physical injuries and to emotional and psychological damage.

**Normal Growth**

**Body Proportions**

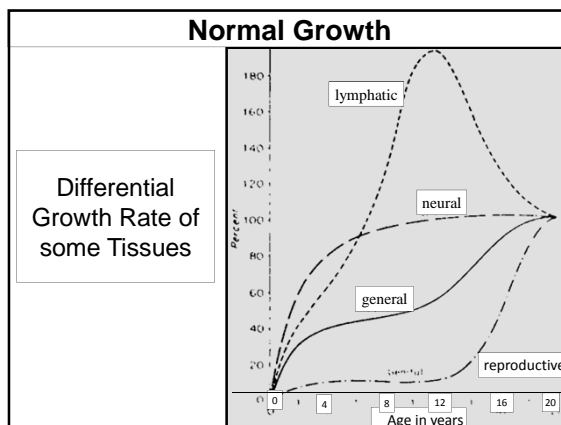
head growth  
grows 2x in length

trunk growth  
grows 3x in length

arm growth  
grows 4x in length

leg growth  
grows 5x in length

**Understanding Normal Growth**



**Normal Growth**

Children differ from adults:

- proportions
- skeletal system
- muscular system
- cardiovascular system
- respiratory system
- energy 'system' (anaerobic)
- *psychologically, emotionally,*
- *need for sleep, etc.*

**Normal Growth**

**Differential Growth Rate of some Tissues:**

**Total leg length**

- More growth occurs in the femur than tibia (55% vs 45%)
- 2/3 of total growth of leg occurs at knee (67% versus 33%)

**The critical age period for gymnasts  
Age 11-15**

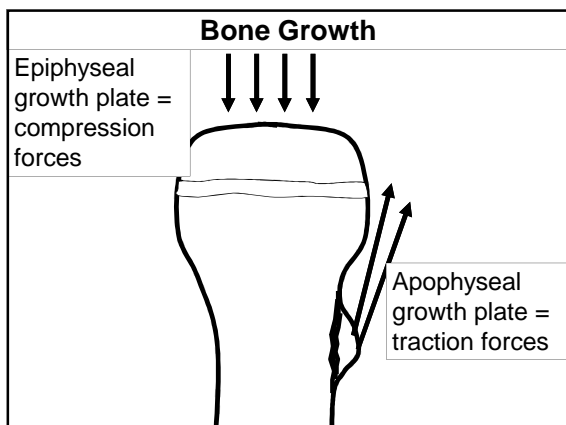
Gymnasts in that age period have open growth plates (cartilage instead of bone) at the end of every long bone in the body and at every muscle/tendon attachment. These growth plates are susceptible to injury from torsion and shear forces and excessive compression forces.

- Adequate recovery time must be provided
- Numbers of high impact loadings must be reduced
- Incomplete twists and saltos **cannot** be permitted
- Soft landing surfaces should be used

**The critical age period for gymnasts  
Age 11-15**

Gymnasts in that age period will undergo a period of rapid growth (peak-height velocity - PHV)

- All parts of the body and body systems grow at different rates and this may lead to clumsiness and loss of some skills
- They will be less flexible as the bones grow and put the muscles and tendons under stretch



**Normal Growth**

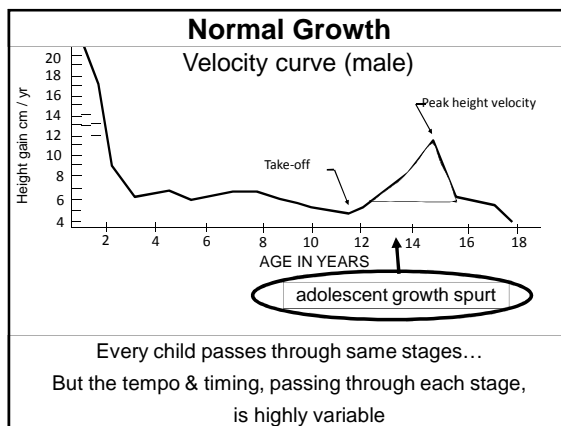
Boys:  
2 x height at age 2 = adult height  
5 x weight at age 2 = adult weight

Girls:  
2 x height at 18 months = adult height  
5 x weight at 18 months = adult weight

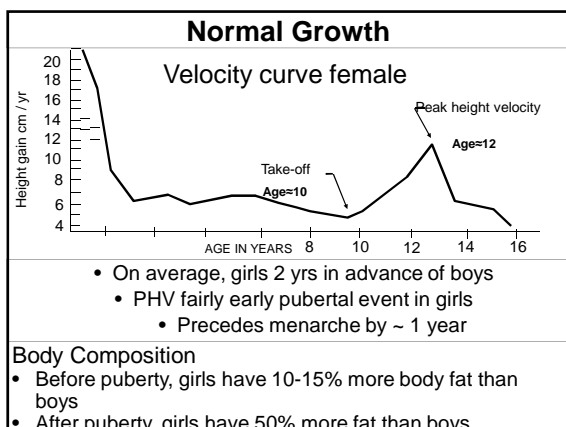
**Bone Growth**

**We can Reduce Risk during adolescent growth spurt by:**

- decreasing plyometrics
- decreasing number of repetitions
- decreasing shear & torsion forces
- increasing rest & recovery time
  - For tissue adaptation
  - For recovery from injury







### The critical age period for gymnasts Age 11-15

Successful gymnasts are almost always late maturers. There can be large maturational (biological age) variations within groups.

- Chronological age = maturational age
  - At age 11 there can be a 6-year difference
- Late maturation and smaller size at that age may lead to feelings of inferiority and low self-esteem.
- Their growth plates are open and susceptible to injury longer.

### The critical age period for gymnasts Age 11-15

Gymnasts in that age period will undergo a period of rapid weight gain soon after PHV (peak-weight velocity – PWV)

- They will gain weight faster than strength and thus will temporarily lose relative strength
- They should not be put on a restrictive diet; they must eat optimally for optimal and healthy growth
- Reduce emphasis on complex skills

### Normal Growth

**Early Maturer**  
12 months in advance of average.

**Late Maturer**  
12 months delayed from average.

**2 years advanced or delayed is “normal”**

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**There can be a 5 - 6 year variation in maturity**  
in a typical grade 5 class (10 year olds)  
(that is, skeletal maturity 7 - 13 yrs.)

### Normal Growth

### Changes during the Adolescent Growth Spurt

<p><b>BOYS</b></p> <p>Add 20 kg (45 lbs)</p> <p>Add 20 cm (8 in)</p>	<p><b>GIRLS</b></p> <p>Add 16 kg (35 lbs)</p> <p>Add 16 cm (6 in)</p>
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### Normal Growth

Late Maturity typically features:

- small stature
- low adiposity
- narrow hips
- high strength to weight ratios.


**These are, of course, highly desirable traits in artistic gymnastics**

- Early Maturing Children  
generally taller & heavier for their age
- Late Maturing Children  
catch up to early maturers in height in late adolescence, but they do not catch up in body weight.

### The critical age period for gymnasts Age 11-15

Gymnasts in that age period should focus mostly on learning and less on competition.

International competitions can be introduced (but not before this period) but the focus must be that the important base elements are perfectly performed and rules should be used that modify the difficulty expectations.





## FIG Academy Program

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### Normal Growth Early versus Late Maturity





All are 13 years old

What does this say about the logic of FIG-MAG Junior ages – 14-17

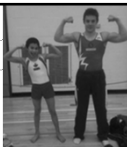
### Philosophy and Decisions for FIG Coaching Education Programs

- “Athlete centered” coach resources & education system.
- Common minimum standard of knowledge for all.
- Geared to high performance excellence.
- Sport science lectures specific to needs of gymnastics coaches.
- Academy Program to be a traveling curriculum in three levels and for all disciplines.



### Normal Growth Early versus Late Maturity

What does this say about the logic of FIG-MAG Junior ages – 14-17  
It is actually almost 13-18.



We know that the highest level all-around gymnasts are 2-4 years delayed. Some children are 2-4 years advanced and have an early advantage on some apparatus.

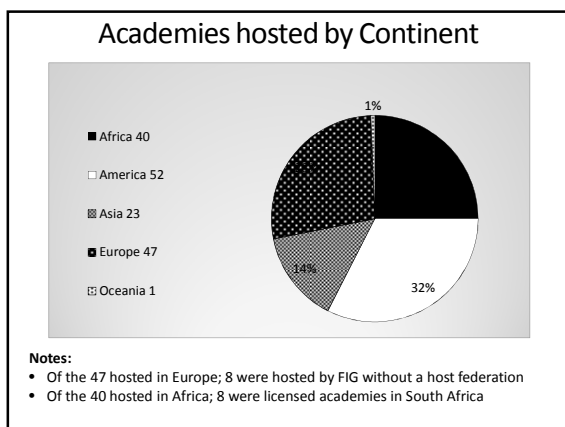
Very poorly written rule!

Juniors for 2014 are born 2000, 1999, 1998, 1997  
If born December 31, 2000, they are 13 for most of 2014.  
If born January 1, 1997 they are almost 18 in late 2014.

If we think only of a 2 year maturational delay or advance then our Junior Competitions could have gymnasts who range maturationally from 11 to 20.

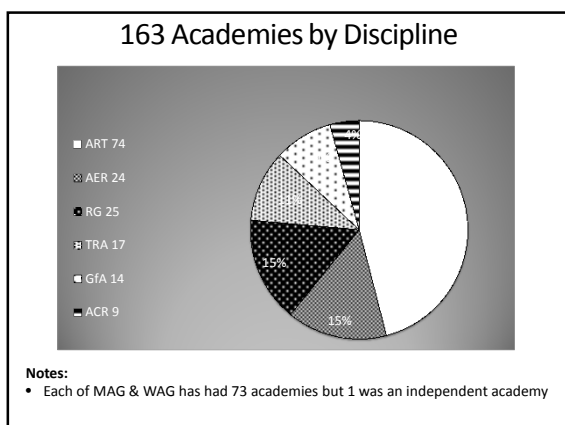
### FIG Academy Program – to February 28, 2014

- 163 academies
  - 235 if we count MAG & WAG separately
  - Over the years 32 have been cancelled for various reasons
- 56 host federations
- 112 federations have participated
- 2400 different coaches
  - 4413 participations
  - 316 coaching brevets
- 188 experts have taught at academies
  - From 40 federations
- 87 Technical Manuals since 2005 – frequently updated
  - 40 Most Recent Academy Technical Manuals (+33 earlier editions)
  - 6 Most Recent Age Group Manuals (+8 earlier editions)



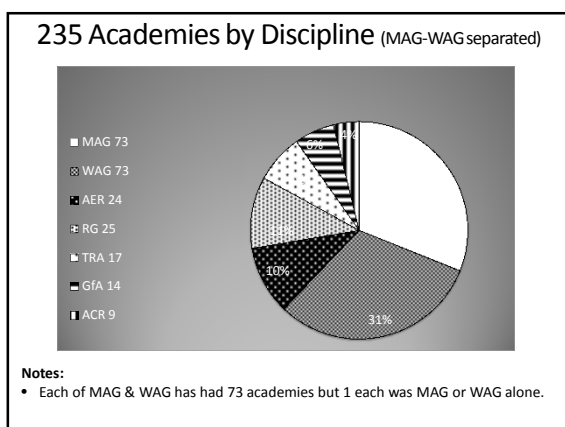
### Number of Countries that Attended 163 Academies & 43 Age Group

	UEG	AGU	UAG	PAGU	OCE	UEG	AGU	UAG	PAGU	OCE
TOTAL	38	30	18	24	2/112	14	26	12	28	1/77
MAG	28	25	12	23	2	11	23	11	24	1
WAG	27	21	11	23	2	11	17	10	23	1
ACRO	13	0	4	9	0					
RG	20	9	4	16	1					
TRA	13	11	8	13	1					
AER	15	9	11	12	2					
G4A	16	4	11	13	1					
Maximum # feds.	48	42	20	26	2/126	48	42	20	26	2/126



### Hungarian Participants - 163 Academies & 43 Age Group

	Participating Coaches	FIG Experts	Total Different Coaches EUR/WORLD	Total participations EUR/WORLD	Coach Brevets H/E/W	Age Group
TOTAL	21	4/188	556/2400	1112/4413	3/154/316	0
MAG	7 all L3, 2005	1/66	141/618	224/1166	2/47/101	0
WAG	8 all L3, 2005	2/77	155/708	276/1281	1/49/99	0
ACRO	0	0/17	38/124	72/174	0/12/17	-
RG	0	0/25	111/306	243/532	0/22/34	-
TRA	0	0/28	34/213	74/336	0/10/15	-
AER	4 2 L1 2005 2 L3 2007	1/34	56/292	130/536	0/14/50	-
G4A	0	0/20	72/342	94/393	-	-



- ### Delivery Models for FIG Academy Programs
- Academy for single disciplines (MAG-WAG are usually together)
  - Licensed Academies for Level 1 and 2
  - Academy combined with training camp = extended to 10-days.
  - Academy combined with Olympic Solidarity courses
  - Academy for mixed disciplines
    - MAG+WAG+Acrobatics was held in 2013
    - MAG+Acrobatics and WAG+Acrobatics requested for 2014/2015
    - MAG+WAG+Trampoline requested for 2014
    - MAG+WAG+Rhythmic+Trampoline requested for January 2015
  - Academy combined with CU training camps
    - Probably 1<sup>st</sup> one with UEG in summer 2014
  - Academies partially funded by FIG Development Fund to CUs
    - Has been primarily used by PAGU and a little by Africa Zone 3

### Sample Academy Schedule

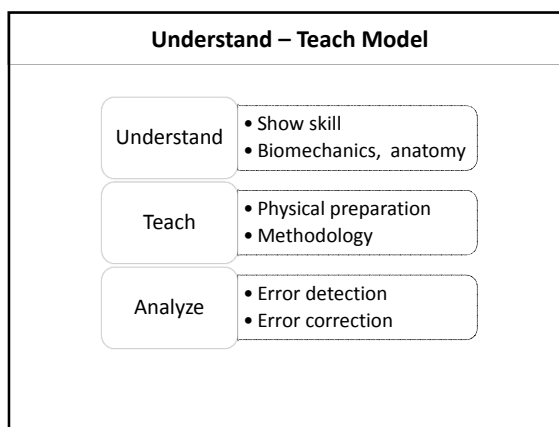
Artistic Gymnastics (similar for other disciplines)

Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8		
<b>ARRIVAL</b>	09:00 - 10:30		MAG - Floor WAG - Vault	MAG - Hbar WAG - Bars	MAG - Rings Hbar - Floor Choreography		MAG - Pbars WAG - Beam Choreography	Theory Examination 08:30-09:30 MAG - WAG	<b>DEPARTURE</b>	
	10:30 - 10:45	Coffee or Tea Break								
	10:45 - 12:15	Meeting of FIG Technical Experts	MAG - Floor WAG - Vault	MAG - Hbar WAG - Bars	MAG - Rings WAG - Bars		MAG - Pbars WAG - Floor	Practical Examination 10:00 - 12:00		
	12:15 - 14:00	Lunch								
	14:00 - 15:30	Meeting of FIG Technical Experts	Psychology A	Psychology B	Anatomy Medical B	Study Day Free Day	Biomechanics A MAG - Vault WAG - Bars	MAG - WAG Practical Examination 14:00 - 17:00		
	15:30 - 15:45	Coffee or Tea Break								
	15:45 - 17:15		Sport Theory Planning	Anatomy Medical A	Physiology Physical Preparation		Sport Theory Growth & Development MAG - Vault WAG - Floor			
	17:15 - 20:00	Dinner						Dinner		
20:00 - 21:30	Official Opening		Physiology A	Individual Preparation for Examinations		Biomechanics B Individual Preparation for Examinations	Closing Banquet			

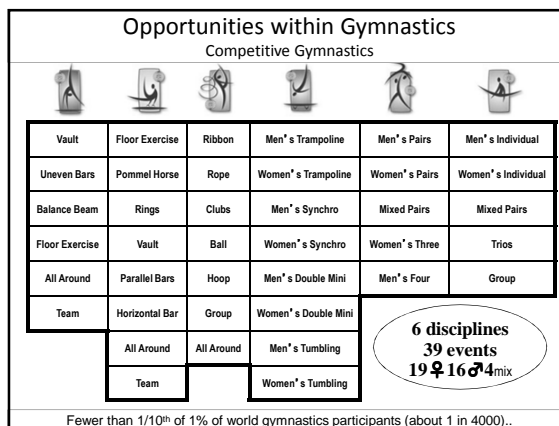
Level 1	Level 2	Level 3
<b>WAG Vault</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>
<b>WAG Asymmetrical Bars</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>
<b>WAG Balance Beam</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>
<b>WAG Floor Exercise</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>

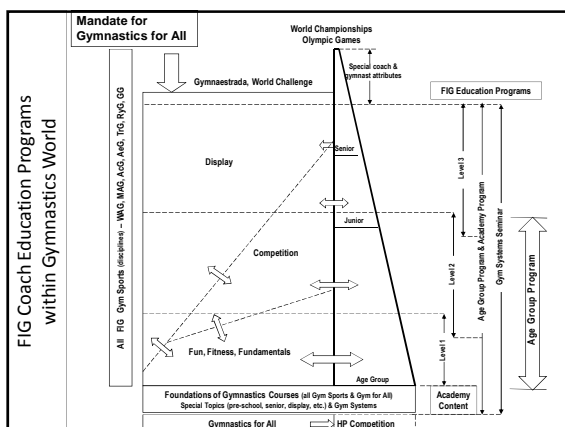
### Overview of Academy Theory Lecture Content

Level 1	Level 2	Level 3
<b>Anatomy (2)</b> <ul style="list-style-type: none"> <li>Bones &amp; cartilage</li> <li>Tendons &amp; ligaments</li> <li>Joints</li> </ul>	<b>Anatomy (2)</b> <ul style="list-style-type: none"> <li>Growth plates</li> <li>Specific joints</li> <li>Muscles at major joints</li> </ul>	<b>L1 &amp; L2 Review (1)</b> <ul style="list-style-type: none"> <li>Anatomy</li> <li>Physiology</li> <li>Biomechanics</li> </ul>
<b>Biomechanics (2)</b> <ul style="list-style-type: none"> <li>Purpose &amp; basics</li> <li>Reaction forces &amp; take-offs</li> <li>Rotation</li> </ul>	<b>Biomechanics (2)</b> <ul style="list-style-type: none"> <li>Flight &amp; dismounts &amp; landings</li> <li>Twisting</li> <li>Energy concepts</li> </ul>	<b>Biomechanics (2)</b> <ul style="list-style-type: none"> <li>Mechanics of injuries</li> <li>Elasticity of apparatus</li> <li>Vibration of apparatus</li> </ul>
<b>Physiology (2)</b> <ul style="list-style-type: none"> <li>Muscle fibres</li> <li>Strength &amp; power</li> <li>Flexibility</li> </ul>	<b>Physiology (2)</b> <ul style="list-style-type: none"> <li>Training terminology</li> <li>Strength training principles</li> </ul>	<b>Medical (2)</b> <ul style="list-style-type: none"> <li>Growth &amp; maturation</li> <li>Understanding injuries</li> <li>Overtraining</li> </ul>
<b>Psychology (2)</b> <ul style="list-style-type: none"> <li>Goals &amp; expectations</li> <li>Reinforcement &amp; emotions</li> <li>Commitment &amp; imagery</li> </ul>	<b>Psychology (2)</b> <ul style="list-style-type: none"> <li>Motivation &amp; arousal</li> <li>Anxiety &amp; stress</li> <li>Attention &amp; flow</li> </ul>	<b>Psychology (2)</b> <ul style="list-style-type: none"> <li>Special topics:                             <ul style="list-style-type: none"> <li>Mental toughness</li> <li>Eating disorders</li> <li>Personality styles</li> </ul> </li> </ul>
<b>Planning (1)</b> <ul style="list-style-type: none"> <li>Nature of planning</li> <li>Single lesson plans</li> <li>Weekly plans</li> </ul>	<b>Planning (1)</b> <ul style="list-style-type: none"> <li>Periodisation</li> <li>Effective monitoring</li> <li>Annual plan</li> </ul>	<b>Planning (2)</b> <ul style="list-style-type: none"> <li>Quadrennial planning</li> <li>Team management</li> <li>Special topics                             <ul style="list-style-type: none"> <li>Recovery, etc</li> </ul> </li> </ul>




Level 1	Level 2	Level 3
<b>MAG Technical Skills</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>
<b>MAG Pommel Horse</b>		
<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>	<ul style="list-style-type: none"> <li>Frontal handstand</li> <li>Frontal handstand with support</li> <li>Frontal handstand with support on one hand</li> <li>Frontal handstand with support on one hand with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised</li> <li>Frontal handstand with support on one hand with one leg raised and one arm extended with one leg raised and one arm extended with one leg raised</li> </ul>
<b>MAG Bars</b>		
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- ### Academy Licensing – 2013 Policy
- Level 1 and 2 only and only for top 18 countries
  - Licence is for 4 years and then must be renewed
  - Must use FIG curriculum, format & exams unchanged but can add lectures
  - FIG gets results, keeps data base and reports
  - Experts to sign a “teaching agreement” with FIG
  - Academy material is only for course participants
  - Courses only for their own country unless permitted by FIG
  - Not for federation profit – only on cost-recovery basis
  - FIG receives annual financial reports for licensed courses
  - FIG will train the experts at the Federation’s cost
  - Federation pays for 2 FIG experts for evaluation every 4 years



## Academy License

Presentation to the Hungarian Gymnastics Federation  
*Budapest, Hungary*  
 April 27, 2014

*Hardy Fink – Director, FIG Education & Academy Programs*

- ### Academy Licensing – 2013 Policy cont’d
- FIG Responsibilities
    - Review applications to be approved by President
    - Coordinate training sessions in conjunction with an academy
    - Provide all course material – lectures, videos, manuals, resources
    - Maintain results, reports, data base
    - Provide advice, updated material, renewal opportunities
  - Federation Responsibilities
    - Apply for license and provide all required information
    - Agree to provide access to material only for participants
    - Submit results, reports, data base photos, etc. soon after course
    - Set reasonable cost-recovery fees
    - Pay for the training & evaluation sessions as outlined
  - Additional Financial Considerations
    - Nominal fee of 100CHF per discipline and per level


- ### Academy Licensing - Background
- History:
    - Provided for South Africa in 2005
    - Level 1 & 2 only; for RSA coaches only
    - FIG provides updates, gets results, maintains data base
    - Their proposed experts co-taught Level 1 & 2 Academy with FIG experts and were then certified
    - Were monitored for continuing compliance and renewed licence in 2010
    - Other countries had asked but there was no formal policy
  - 2009 meeting to establish a policy – was agreed, but not implemented
  - Presented to EC in November 2013 for adoption

## A look at forces in gymnastics

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*Budapest, Hungary*  
 April 27, 2014

*Hardy Fink – Director, FIG Education & Academy Programs*

**Isaac Newton – the master of force**



Sir Isaac Newton on British £50 note

Inertia  
Acceleration  
Action – reaction  
Gravitation

**A quick look at the magnitude of forces in gymnastics →**

Understanding elasticity as energy storage and return



**External forces ≠ Internal forces**

**EXTERNAL FORCES**

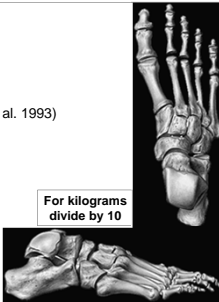
- jumping: GRF 6 - 8 x BW (e.g. Panzer 1984)
- landing: GRF 9 - 15 x BW (e.g. McNitt-Gray et al. 1993)

**INTERNAL FORCES**

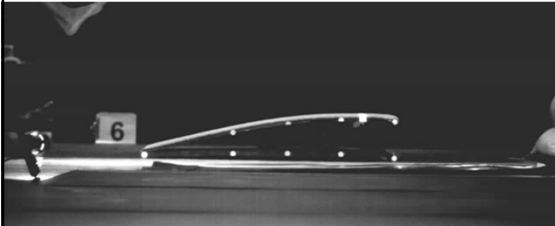
- Tibio-talar joint 23 x BW (~11,000 N)
- Talo-navicular joint 19 x BW (~8,000 N)
- Achilles tendon force 15 x BW (~7,500N)
- T12-L1 compression forces 30 x BW (~15,000N)

For kilograms divide by 10

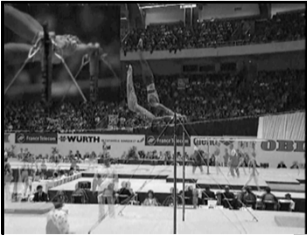

These forces are at the upper tolerance limits of the tissue!  
Bruggeman 2003




Understanding elasticity and vibration  
How to avoid loss of energy



Understanding elasticity as energy storage and return

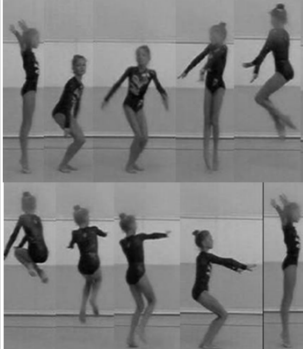



**Jump & Land with Turns – Errors**  
(such poor technique is an injury risk – more with multiple repetitions)




### Jump & Land with Turns – Errors

(such poor technique is an injury risk – more with multiple repetitions)

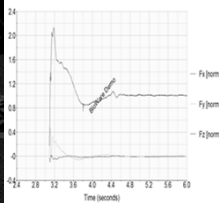
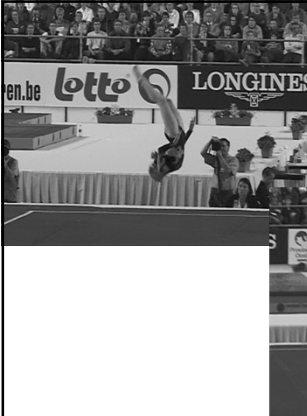


- This full turn is full of technical problems.
- These technical problems can lead to injury – especially with many repetitions
- Solutions are all in physical preparation
  - More torque
  - More height
  - Tighter body
  - Stronger joints

### Landing forces




#### Landing 1

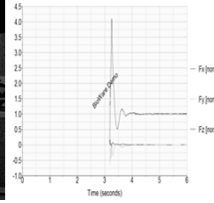




Under-rotation of any kind can not be permitted

### Landing forces




#### Landing 2

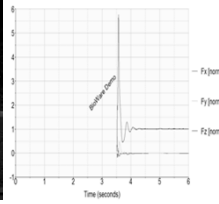
Under-rotation of any kind can not be permitted

When does the decision of a coach or federation become a criminal act?

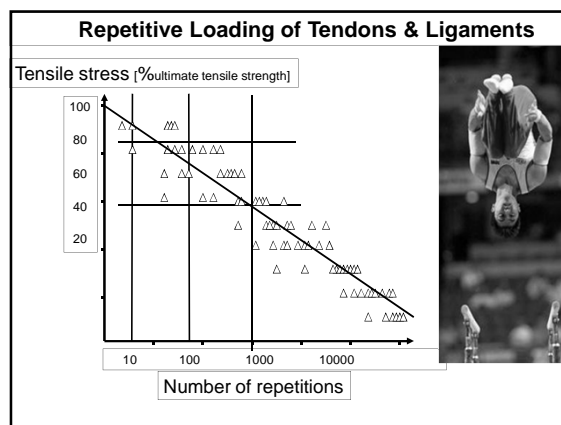
### Landing forces



#### Landing 3



Trampoline forces		
High Performance Jump Characteristics Trampoline		
Duration	≈ 2s	≈ 2.2s
Air time	≈ 1.7s	≈ 1.9s
Contact time	≈ 0.3s	≈ 0.3s
Height of Centre of Gravity	3.5m	4.5m
Vertical velocity	8.3 m/s ≈ 30 km/hr	9.4 m/s ≈ 34 km/hr
Average Vertical Acceleration	55.5 m/s <sup>2</sup> = 5.6g	62.6 m/s <sup>2</sup> = 6.4g
Average Vertical Force (60kg gymnast)	5.6g = 3360N	6.4g = 3840N
Estimated peak force ???	≈ 8-9g ≈ 5000N	≈ 9-10g ≈ 6000N



### Reaction forces during the support phase of the hands

Maximum reaction forces

[N]	Handsprings		Tsukaharas		Yurchenkos		[N]
	Men	Women	Men	Women	Men	Women	
<b>MV</b>	<b>2266</b>	<b>1126</b>	<b>1718</b>	<b>666</b>	<b>1518</b>	<b>875</b>	<b>MV</b>
<b>Min</b>	609	425	555	264	878	239	<b>Min</b>
<b>Max</b>	<b>4740</b>	<b>2253</b>	2944	848	2348	2323	<b>Max</b>
<b>sd</b>	818	358	455	172	385	350	<b>sd</b>
<b>N</b>	56	94	161	13	38	137	<b>N</b>

Newton/10 = Kilograms

Schweizer 2002

### Tissue Changes During Training

After multiple hours of training; after hundreds of repetitions; during daily life; tissue fatigue will pre-dispose the gymnast to injury.

- Repetitive loading of tendons/ligaments
  - Reduced tensile strength
- Fluid loss in articular cartilage
  - Loss of load transmission (= bone on bone)
- Tendon "creep" over course of day
  - Unstable joints and joint capsules
- Vigilance decreases late in workout & day

Most injuries occur at end of training sessions on familiar skills. Avoid complex skills or those requiring high strength at end.

### Effects of Overtraining

- **OVERTRAINING**
- caused by too much high intensity training
- and by lack of recovery between training sessions

- **SYMPTOMS OF OVERTRAINING**
- muscle fatigue caused by:
  - depletion of muscle energy stores
  - accumulation of lactic acid
- mental fatigue or staleness
- decrease in body fluids, dehydration
- lack of sleep
- micro tears in muscle [chronic little injuries]

- **CURES FOR OVERTRAINING**
- rest
- change diet - more carbohydrate
- physiotherapy / massage
- change in training programme
- periodization of training

### Principles of Training Tissue (1), Preparing Tissues for Injury Prevention (2) and for Neural Training (3)

(Preparing safely & systematically for maximum force and speed)

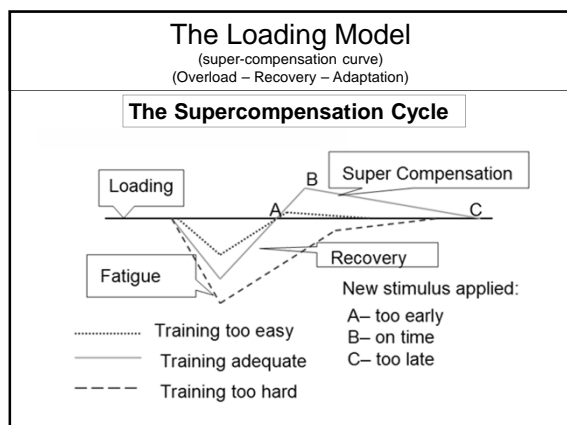
A minimum 3-year process	Sequencing Strength & Power Training (3)	General Strength Training Guidelines (2)	Strength Training Principles (1)
	Muscular Endurance Speed (low intensity) Hypertrophy Strength (con, ecc, iso) Power - high intensity; slow Power - high intensity; fast	Train for Safety (landings, proprioception, core) Large muscles & groups; stabilizers (proximal 1st; distal later) Agonist-Antagonist (muscle balance) Skill specific patterns Maximum force & speed (neural training for power)	Specificity Progressive Overload Reversibility Individualization Variation Recovery Diminishing Returns

Muscle function is involved in Strength, Power (speed), Muscular Endurance, Flexibility

Strength Training 5:1 Rest to Work ratio. (90%=5RM; 80%=10RM; 70%=15RM, 60%=20RM)  
 Neural training Hypertrophy Muscular Endurance

Adaptation takes place during recovery & rest period. Provide for adequate recovery.





### FIG Age Group Development & Competition Program

Developed & Introduced in 4 phases

- Phase 1:
  - Full program was developed in English, French & Spanish. 1<sup>st</sup> edition of manuals 2011-2012; 2<sup>nd</sup> edition 2012-2013; 3<sup>rd</sup> edition 2014
  - Main authors – Hardy Fink (competition & testing program), Dieter Hofmann (testing program), Carol Angela Orchard (choreography & beam testing); Lilia Ortiz López (floor & beam routines). (Now world-wide input)
- Phase 2
  - Introductory Camps for geographic regions
- Phase 3
  - 5-day Training camps for federations that committed to the program
- Phase 4
  - 2 ½ day Follow-up and Monitoring Camps – up to 30 this year

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*April 27, 2014*

*Hardy Fink – Director, FIG Education & Academy Programs*

### FIG Age Group Development & Competition Program – cont'd

- Introduced to 60 countries in 8 regional 3-day seminars & camps; participants were fully funded by FIG and IOC
  - South-East Asia (2x – Malaysia and Hong Kong)
  - Central America & Caribbean (2x - Guatemala and Mexico)
  - West Asia - Qatar
  - Northern Africa - Senegal
  - Southern Africa – South Africa
  - South America - Chile
- Two 3-day seminars in Montreal and Lausanne to teach additional experts – also for French and Spanish - 2012.
- Interested federations were offered 5-day training camps.
- All camps included lectures on forces in gymnastics, growth & intense training at young ages, physical preparation for injury prevention, artistry for MAG & WAG, safety issues in the gym

### FIG Age Group Development & Competition Program

- Not completed in the original process
- Many federations without consistent programs or results (random success)
- 8-year old boys at international competition in 2009 (Persian Gulf)
  - Led to partial program (12-16) for Gulf States
- Chance to apply for IOC funding in 2009. (Prepare-introduce-teach-monitor)
- IOC funding to implement the program in SE Asia, N. Africa, W. Asia, Central America; FIG added funding for S. Africa. Three more added with IOC funding – Mexico, Hong Kong, Chile
- Introductory camp/seminar was first step = 8 were held
- 2012-2013: 5-day training camps for federations that implement the AGP (22 were held)
- 2014-2015: 30 3-day Follow-up and Monitoring Camps for federations that implement the AGP (10 held Feb. -April, 3 more in May; 15 more late 2014/early 2015)

### FIG Age Group Development & Competition Program – cont'd

- Between December 5, 2012 & May 12, 2013; 22 such 5-day camps were held.
- November 2013 – program presented to WTC and MTC and approved by them
- 2014 – beginning of 30 Follow-up & Monitoring Camps
  - Since February 14, 10 have been held
- In just 3 years, 43 FIG Age Group Program events for WAG-MAG have already been held in 33 federations
  - 885 different coaches, over 1000 participations (same # gymnasts)
  - Coaches from 77 different countries (7 expatriates)
- Learned from experts, TCs, participating coaches, experiences at camps & with gymnasts – Have modified & improved program so now it has really become a world program.

### Overview of FIG Age Group Program Content

- Information & philosophy about intensive training at young ages
- Skill Acquisition Profiles
  - Age appropriate skill initiation & perfection on all apparatus
- Physical and athletic ability testing program
  - Evaluated progressively up to 10-points for each test
- Technical ability testing program for skill quality
  - 10 levels for each category of elements per apparatus
  - Age and quality restricted increase in difficulty
  - Identifies competition ready elements
- Compulsory exercises for all levels before Junior
- Modified optional competition rules for all before Junior
- Two competition streams:
  - Participation – 4 levels all open for any age
  - High Performance – 4 WAG, 5 MAG levels

### Physical Testing Program - sample

The sample physical testing program includes several sections:

- Flexibility:** Tests include Forward backbend split, Side split, and Leg split forward - left and right. Each test has a diagram and a table with 10 levels of difficulty.
- Balance:** Tests include Standing long jump, Side plank, and Sprint 20 meters. Each test has a diagram and a table with 10 levels of difficulty.
- Strength:** Tests include Leg split sideways - left and right and Double leg sit-ups. Each test has a diagram and a table with 10 levels of difficulty.

### SAMPLE AGE GROUP Philosophy of Competition Structure

Men		AGE GROUP		Women		AGE GROUP	
IDENTIFIED DEVELOPMENT PROFILE		Competition Structure		IDENTIFIED DEVELOPMENT PROFILE		Competition Structure	
Level 1-4	Level 5-10	Level 1-4	Level 5-10	Level 1-4	Level 5-10	Level 1-4	Level 5-10
Optional routines	Optional routines	Optional routines	Optional routines	Optional routines	Optional routines	Optional routines	Optional routines
Adapted compulsory	Adapted compulsory	Adapted compulsory	Adapted compulsory	Adapted compulsory	Adapted compulsory	Adapted compulsory	Adapted compulsory
Compulsory routines	Compulsory routines	Compulsory routines	Compulsory routines	Compulsory routines	Compulsory routines	Compulsory routines	Compulsory routines
NO INTERNATIONAL COMPETITIONS							

### Technical Ability Tests – Sample WAG Vault

The technical ability tests for WAG Vault are organized into two structures:

- VAULT - Structure 1 - Handgrip Forward:** Tests include Short run and vault, Short run and vault, Short run and vault, Handgrip over table, and Handgrip over table.
- VAULT - Structure 2 - Round off entry (Paradeisus):** Tests include Short run and vault, Short run and vault, Short run and vault, Handgrip over table, and Handgrip over table.

### Skill Acquisition Profiles

DESCRIPTION	AGE	LEVEL OF PERFORMANCE YEAR OF PREPARATION												
		6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17		
1. Forward roll	6-7													
2. Backward roll	6-7													
3. Somersault (optional) sideways	6-7	4.4												
4. Round-off (optional) combination	6-7	3.4	4.4											
5. Handgrip landing on one or both legs	6-7	3.4	3.4	4.4										
6. Flip floe (x 2)	6-7	3.4	3.4	4.4										
7. Handstand	6-7	4.4	3.4	3.4	4.4									
8. Back somersault	6-7	3.4	3.4	3.4	4.4									
9. Backward roll to handstand	6-7	2.4	3.4	3.4	4.4									
10. Dive roll (only performed at handstand)	6-7	2.4	3.4	3.4	4.4									
11. Front somersault	6-7	2.4	3.4	3.4	4.4									
12. Back somersault	6-7	2.4	3.4	3.4	4.4									
13. Handstand on one hand	6-7	2.4	3.4	3.4	4.4									
14. Front somersault piked step out	6-7	2.4	3.4	3.4	4.4									
15. Back somersault stretched with 360° LA turn	6-7	2.4	3.4	3.4	4.4									
16. Tucked, piked or stretched Arabian somersault	6-7	2.4	3.4	3.4	4.4									
17. Front somersault	6-7	2.4	3.4	3.4	4.4									
18. Back somersault stretched with 720° LA turn	6-7	2.4	3.4	3.4	4.4									
19. Whip backward (optional) combination	6-7	2.4	3.4	3.4	4.4									
20. Front somersault stretched with 360° or Flip somersault stretched with 360° or Front somersault stretched with 720°	6-7	2.4	3.4	3.4	4.4									
21. Combination of somersaults in the same direction	6-7	2.4	3.4	3.4	4.4									
22. Double back tucked / piked	6-7	2.4	3.4	3.4	4.4									
23. Combination of somersaults in opposite direction	6-7	2.4	3.4	3.4	4.4									
24. Double back somersault stretched	6-7	2.4	3.4	3.4	4.4									

### Technical Ability Tests – Sample MAG PH

The technical ability tests for MAG PH are organized into two structures:

- Pommel Horse - Structure 1 - Straddle swings, scissors, and straddle circles (flairs):** Tests include 2x modified circles on one hand, 2x flairs on one hand, 2x flairs on one hand, Feet support, 1 leg out in hand, and Single leg circle to the left and to the right.
- Pommel Horse - Structure 2 - Round off entry (Paradeisus):** Tests include 2x circles forward left and right, 2x circles forward left and right, 2x circles forward left and right, and 2x circles forward left and right.

### Technical Ability Testing – Evaluating Technical Quality Age and quality restrictions for advancing to higher difficulty

Score	Description
0	Not completed; element not recognizable
1	Poor technical performance, posture or fall; element barely recognizable
2	Essential characteristics shown; poor technique, execution; steps or hops
3	Good technique & execution; controlled; can be included in routine
4	Very good technique & execution; no steps

## A Closer Look at the Age Group Competition Program

Presentation to the Hungarian Gymnastics Federation  
Budapest, Hungary  
April 27, 2014

Hardy Fink – Director, FIG Education & Academy Programs

### Physical & Technical Ability Test Results

Physical Ability Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Test Results City: \_\_\_\_\_ Birthdate: \_\_\_\_\_  
Date: \_\_\_\_\_ Sex: \_\_\_\_\_ Club: \_\_\_\_\_ Age: \_\_\_\_\_

Flexibility			Strength		
Exercise	Achieved	Points	Exercise	Achieved	Points
1 Pnd splits			1 Long jump		
2 Side splits			2 Sprint		
3 Leg lift fwd			3 Snoop in/out		
4 Leg lift bwd			4 Crunches		
5 Bridge			6 Rope Climb		
6 Arm reach			7 Dips		
7 Trunk bend sit			8 Handstand		
8 Shoulder			9 Press hold		
			10 Swing hold		
<b>Total Flexibility</b>			<b>Total Strength</b>		

Signature: \_\_\_\_\_

### Competition Structure and Program

High Performance Stream				
Class HP1	Age 7 - 8	Age 8 - 9	1x compulsory	
Class HP2	Age 9 - 10	Age 10 - 11	1x compulsory	
Class HP3	Age 11 - 12	Age 12 - 13	1x compulsory 1x optional	
Class HP4	Age 13 - 14	Age 14 - 15	1x compulsory 1x optional	
Class HP5 MAG only		Age 16 - 17	1x compulsory 1x optional	

### FIG Age Group Development & Competition Program – THE FUTURE

- 2014-2015 (MAG-WAG AG Program) (the end?)
  - Up to 30 3-day Follow-up & Monitoring training camps
  - Prepare resource video of each part of program
- 2013-2014 (Begin AGP for Rhythmic Gymnastics)
  - Meeting with RG experts and specialists
  - Prepare the RG AG Development & Competition Program
- 2014-2015
  - Complete MAG-WAG follow-up training camps
  - Introduce RG Age Group Program - same process as M/W
- 2015-2017
  - Fully implement RG Age Group Program around world
  - Initiate and begin implementation for TRA AG Program

### Competition Structure and Program

Participation Stream				
Class P1	Age 7 - 8 Age 9 - 11 Age 12 - 14 Age ≥15	Age 8 - 9 Age 10 - 12 Age 13 - 15 Age ≥16	1x compulsory	
Class P2	Age 9 - 11 Age 12 - 14 Age ≥15	Age 10 - 12 Age 13 - 15 Age ≥16	1x compulsory	
Class P3	Age 9 - 11 Age 12 - 14 Age ≥15	Age 10 - 12 Age 13 - 15 Age ≥16	1x optional	
Class P4	Age 12 - 14 Age ≥15	Age 13 - 15 Age ≥16	1x optional	

**Note:**

- The multiple ages in the Participation Levels allow for late entry into gymnastics and longer years of participation. That number of age groups may be too many for federations with low participation numbers.
- L1 and L2 compulsory exercises should form the very basis of any competition gymnastics and should therefore be the same. Some federations may choose to make more simple compulsory exercises for the Participation Levels.

### Competition Structure and Program

Participation Stream				High Performance Stream			
Class P1	Age 7 - 8 Age 9 - 11 Age 12 - 14 Age ≥15	Age 8 - 9 Age 10 - 12 Age 13 - 15 Age ≥16	1x compulsory	Class HP1	Age 7 - 8	Age 8 - 9	1x compulsory
Class P2	Age 9 - 11 Age 12 - 14 Age ≥15	Age 10 - 12 Age 13 - 15 Age ≥16	1x compulsory	Class HP2	Age 9 - 10	Age 10 - 11	1x compulsory
Class P3	Age 9 - 11 Age 12 - 14 Age ≥15	Age 10 - 12 Age 13 - 15 Age ≥16	1x optional				
Class P4	Age 12 - 14 Age ≥15	Age 13 - 15 Age ≥16	1x optional				
				Class HP3	Age 11 - 12	Age 12 - 13	1x compulsory 1x optional
				Class HP4	Age 13 - 14	Age 14 - 15	1x compulsory 1x optional
				Class HP5 MAG only	Age 16 - 17		1x compulsory 1x optional
				Class HP6	Age 13 - 15	Age 16 - 17	1x compulsory 1x optional
				Class HP7	Age 13 - 15	Age 16 - 17	1x compulsory 1x optional

### WAG Compulsory Exercises – Sample HP4 FX

- ### Features of the Age Group Competition Proposal
- Competition opportunities for all ages & abilities – participants & performers
  - Requires a two-stream system – HP ≠
    - Maintains motivation for participants
    - Directs efforts for performers
    - Permits meaningful opportunities for late starters
    - Reduces attrition
    - Provides opportunities for retired gymnasts
  - Provides education and “brakes” for coaches and gradual and safe learning for gymnasts.

- ### Overview of Code Modifications for Age Groups
- Number of elements; length of routines
  - Value of requirements
  - Number of requirements
  - Deductions for lower levels = 0.1; 0.2; 0.3; 0.5
  - Restricted difficulty
  - Developmental parts – mostly A-parts
  - Repetition rules
  - Apparatus specifications

### MAG Compulsory Exercises – Sample HP4 HB


DESCRIPTION	VALUE	PERFORMANCE EXPECTATIONS	ERRORS	DEDUCTIONS
1. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
2. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
3. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
4. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
5. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
6. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1
7. The gymnast must perform a handstand on the floor for a minimum of 10 seconds.	0.5	The gymnast must maintain a vertical line with the feet together and arms extended.	Loss of verticality	0.1

### Modified Optional Competition Rules

Category	Code	Description	Value	Performance Expectations	Errors	Deductions
Mandatory Elements	1.1	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	1.2	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	1.3	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	1.4	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
Optional Elements	2.1	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	2.2	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	2.3	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1
	2.4	Handstand on floor	0.5	Verticality, feet together, arms extended	Loss of verticality	0.1

### Next Steps & Challenges

- Preparation of final Manuals in French & Spanish
  - on the FIG website as an official document
- Videos of tests & compulsory routines; music
- AGP will die tomorrow if I stop “driving” it
- Federations cannot decide because of inertia, internal politics, existence of other programs, prominence of foreign coaches, inconsistency of neighbouring countries
  - At least 80 sets of Age Group rules around world – and always changing
  - Possible FIG requirement for international tournaments & dual meets (HP3 & HP4 if not using Junior rules); perhaps HP2 for club meets with international participation
  - FIG could take leadership role & regulate (HP3 & HP4)




### Warm-up is important

Physiological & Physical

Psychological & Emotional & Social



Technical - Readiness



### Competition Structure and Program

Participation Stream				High Performance Stream			
Class P1	Age 7 - 8	Age 8 - 9	1x compulsory	Class HP1	Age 7 - 8	Age 8 - 9	1x compulsory
	Age 9 - 11	Age 10 - 12			Age 9 - 10	Age 10 - 11	
Class P2	Age 12 - 14	Age 13 - 15	1x compulsory	Class HP2	Age 9 - 10	Age 10 - 11	1x compulsory
	Age 12 - 14	Age 13 - 15			Age 11 - 12	Age 12 - 13	
Class P3	Age 9 - 11	Age 10 - 12	1x optional	Class HP3	Age 11 - 12	Age 12 - 13	1x compulsory 1x optional
	Age 12 - 14	Age 13 - 15			Age 13 - 14	Age 14 - 15	
Class P4	Age 12 - 14	Age 13 - 15	1x optional	Class HP4	Age 13 - 14	Age 14 - 15	1x compulsory 1x optional
	Age 12 - 14	Age 13 - 15			Age 16 - 17	Age 16 - 17	
				Class HP5			1x compulsory 1x optional
				MAG only			

### Lack of planning can have consequences

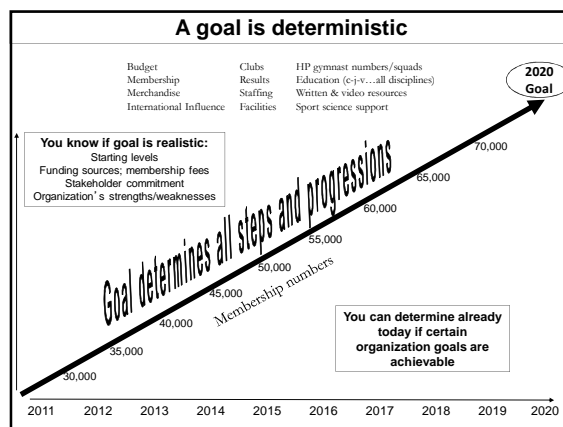
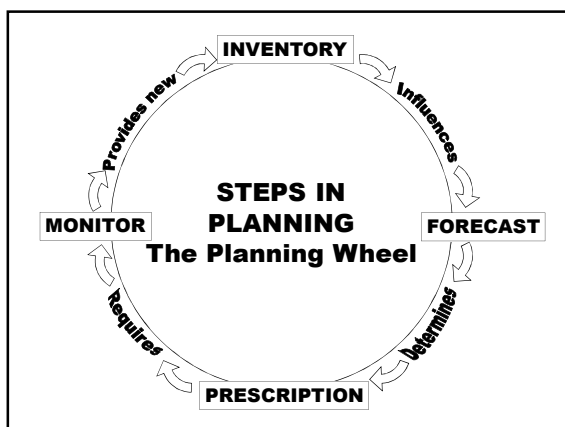
**Planning includes:**

- Thinking about what to do
- Thinking about how to do it
- Thinking about possible outcomes

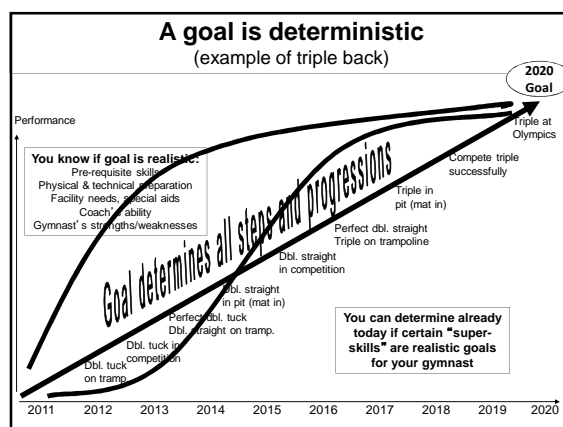
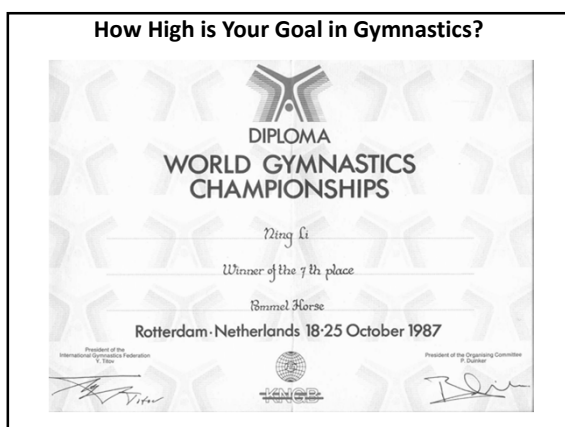
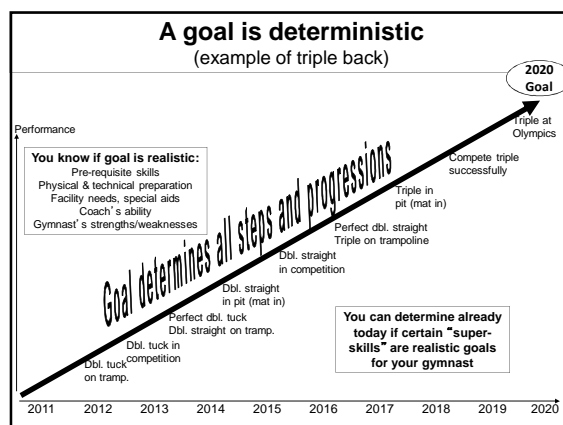
## Some other considerations for coaches

## To fail to plan is to plan to fail

## To fail to prepare is to prepare to fail



- ### Steps in Planning
1. Commitment to Excellence
  2. Setting Goals
  3. Take inventory
  4. Re-evaluate or confirm goals
  5. Devise strategies, action steps (The Plan)
  6. Provide conditions
  7. Implement the plan
  8. Monitor short term goal achievement
  9. Re-evaluate or confirm goals



### A Goal is Deterministic

- Once a goal has been set, it determines every aspect of the plan to get there
  - Management, administrative needs
  - Financial & other support services
  - Quality of coaching
  - Quality of environment, equipment, teaching aids, time
  - Quantity and quality and focus of training
  - Selection of skills, competitions
- Must monitor frequently to adjust goal
  - Must adjust downward if injury, etc.

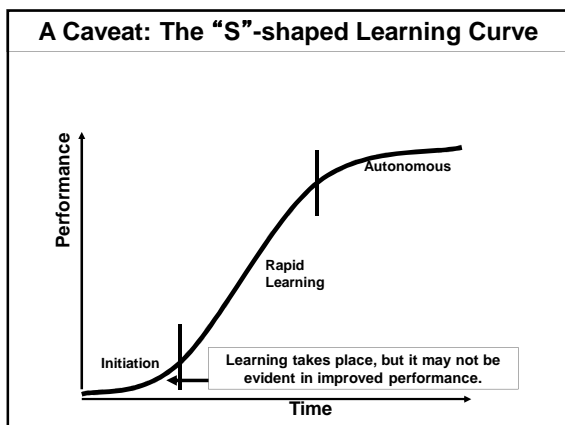
### Cost – Benefit Considerations (Example of adding difficulty)

**Cost – Benefit Analysis (awareness)**

**Opportunity cost of each decision**

**Costs – investment – consequences**

**Benefits (to whom? – coach? gymnast?)**




### Cost – Benefit Considerations (Example of adding difficulty)

Potential Costs	Potential Benefits
<ul style="list-style-type: none"> <li>• Money</li> <li>• Time</li> <li>• Energy</li> <li>• Facilities</li> <li>• More Knowledge</li> <li>• More expertise</li> <li>• Increased injury</li> <li>• Deductions</li> <li>• Failure - all that implies</li> <li>• Specialist coaches &amp; personnel</li> <li>• Fear</li> <li>• Single focus</li> <li>• Planning</li> <li>• Preparation factors</li> <li>• Excessive attention</li> <li>• Motivation loss</li> <li>• Quit</li> <li>• Lose other skills</li> <li>• Skill confusion</li> </ul>	<ul style="list-style-type: none"> <li>• Money</li> <li>• Success</li> <li>• Higher scores</li> <li>• Self-esteem</li> <li>• Glory</li> <li>• Good memories</li> <li>• Thrill</li> <li>• Reputation</li> <li>• Pride</li> <li>• Satisfaction</li> <li>• Name in Code</li> <li>• Motivation</li> <li>• Social approval</li> <li>• Confidence</li> <li>• Able to compete at higher level</li> <li>• Fame</li> </ul>

### Why Talk About a Plan for 2020; 2028; 2036?

In artistic gymnastics, children who will compete at the 2032, 2036 or even 2040 Olympic Games are already in the system. For example; born 2004, is 10 years old now:

- 2020 = 16 (eligible for Olympics)
- 2024 = 20
- 2028 = 24
- 2032 = 28
- 2036 = 32
- 2040 = 36



Long Term Planning is essential

Don't rush; take time for perfection

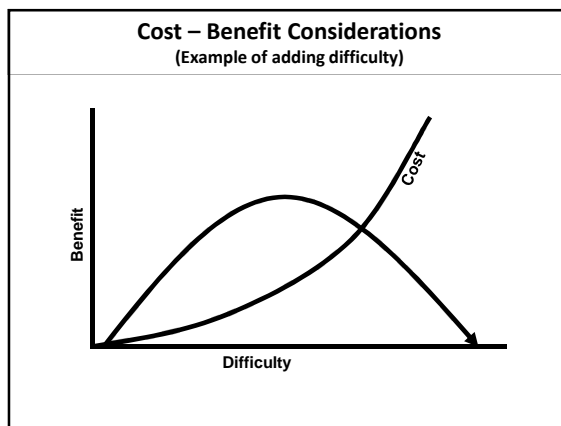
Don't build in permanent handicaps

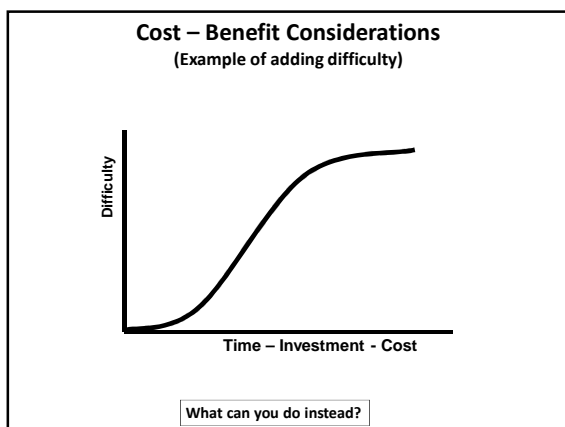
Pay attention to detail

Let them take time to have fun

The “hurry” is for you

Who will/should coach these gymnasts in 20 or 30 years???





**Are you trapped in this Cycle???**

**We improve, but we don't progress.**

How radical a change are you prepared to undergo, what sacrifices are you prepared to make, what effort are you prepared to commit to break this cycle?

**When to Include a New Trick**  
Probability of Hitting a Routine – What do you think?

Example of multiple tricks at 90% consistency

- 1 trick 9/10
- 2 tricks 9/10
- 5 tricks 9/10
- 10 tricks 9/10

Example of routine with elements of varying consistency

3@9/10; 3@8/10; 2@7/10; 2@6/10

**If you can't afford the solution; it's not a solution.**

"Afford" refers to an evaluation of all the costs; not just financial.

**When to Include a New Trick**  
Probability of Hitting a Routine

- 9x100%; 1x90% = 90%
- 8x100%; 2x90% = 81%
- 5x100%; 5x90% = 59%
- 10x90% = 35%
- 3X90%; 3x80%; 2x70%; 2x60% = 6.58%

Don't blame gymnast for the absolutely predictable outcomes of your decisions.

If you don't have time to do it right, when will you have time to do it over?

Of course I don't look busy. I did it right the first time.



## Summary

Presentation to the Hungarian Gymnastics Federation

*Budapest, Hungary*

*April 27, 2014*

*Hardy Fink – Director, FIG Education & Academy Programs*

**Thank you for your attention.**

**For much more information, please  
attend an FIG Academy.**

Hardy Fink  
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### Priorities of FIG coach education initiatives

- Safe & healthy & systematic training of gymnasts towards excellence
  - Avoid permanent handicaps – deductions, fear, bad basics
- Understanding intensive training in the critical 11-15 year age period
  - Easy learning of complex skills
  - Rapid internal & external growth
  - Susceptible to acute, chronic, overuse injuries
  - Susceptible to emotional & psychological damage
  - Made worse because top gymnasts mature 2-4 years later
- If coaches are careful through this time then they can have a champion – 80% attrition rate during those ages !!!

### SUMMARY OF FIG PHILOSOPHY ON AGE GROUP DEVELOPMENT & HIGH PERFORMANCE TRAINING & COMPETITION

- Careful & gradual progress towards perfection
  - Perfect physical & technical preparation before skills
- Provide sufficient rest & recovery after training
- Reduce competition difficulty content during PHV & PWV
- No competition before age 8 (7 for girls?)
- No international competition before age 12
- No extreme age variation within age groups
- Compulsory exercises serve as coach education and protect the gymnast