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体能训练对宜昌市西陵区儿童体质发育的影响

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摘要 目的:评价体能训练对儿童体质发育的影响,探索能促进儿童体质发育的训练模式。**方法:**整群随机抽取宜昌市西陵区4所幼儿园,将儿童随机分成试验组和对照组,最终纳入试验组312人,对照组301人。试验组儿童进行为期1年的各项体质训练干预,对照组儿童给予常规教学。比较训练前后儿童各项体质指标、出勤率及近视率。**结果:**经过1年干预训练后,两组各年龄组儿童在身高、体重形态指标上无显著性差异($P>0.05$);素质指标中,与对照组相比,试验组各年龄组儿童在10 m折返跑、立定跳远、网球掷远、双脚连续跳、坐位前体屈5个项目上组间差异均有统计学意义(均 $P<0.05$);而在走平衡木项目上,只有7岁年龄组组间差异有统计学意义($P<0.05$);试验组出勤优秀率显著高于对照组($P<0.05$);两组近视率在干预前后差异均无统计学意义($P>0.05$)。**结论:**开展儿童体质训练能够促进儿童体质发育,应在各幼儿园广泛推广。

关键词:体能训练;体质发育;儿童

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Effect of Physical Training on Children in Yichang Xiling District

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ABSTRACT Objective: To evaluate the effect of physical training on children's physical development, and explore the training mode of promoting children's physical development. **Method:** Four kindergarten were chosen from Yichang xiling district and all the children were divided into experimental group (312 cases) and control group (301 cases). Physical training were carried out in experimental group for one year, while common teaching were conducted among children in the control group. Compared the physique index, rate of attendance and myopia of two groups before and after the training. **Result:** After one year intervention training, There were no significant difference in height and weight between each age group of two group ($P>0.05$). In quality indicators, there were significantly different between two groups in 10m shuttle run, standing long jump, tennis throw far, feet jump in succession, body anteflexion in sitting position ($P<0.05$); but in walking the balance beam, only the difference of 7~ age group was statistically significant ($P<0.05$). The excellent rate of the experimental group attendance was significantly higher than the control group ($P<0.05$). And it had no significant difference in myopia rate of between two groups before or after the intervention ($P>0.05$). **Conclusion:** Developing physical training can promote children's physical development, and it should be widely applied in the kindergarten.

Key words: Physical training; Physical development; Children

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前言

体育锻炼不仅有利于儿童生长发育,还能增强其身体素质。同时,身体素质的强弱是体质强弱的重要标志之一。近年来,国内外研究表明体育锻炼对儿童身体形态、机能发育有着良好作用^[1,2]。大部分3~6岁的儿童的综合素质能力均显著增强^[3],因此深入了解学龄前儿童体质状况,对指导少年儿童保健工作、促进其健康成长都是一个重要的突破口。本研究就是根据湖北省卫生和计划生育科研项目《体能训练对儿童体质发育

影响的研究》的实施情况,探讨研究中提倡的体能训练方式对学龄前儿童各项身体素质的影响。

1 资料与方法

1.1 一般资料

整群随机抽取宜昌市西陵区4所幼儿园,将儿童随机分为试验组和对照组。干预开始时总样本量1318人,其中试验组652人,对照组儿童666人,年龄4~7岁。随着新生入园,新入园儿童自然进入各组中。干预结束时总样本量1337人,其中试验组656人,对照组681人,年龄4~7岁。由于儿童的入园、升学变化以及某些自身原因,只有部分儿童能完成整个项目,因此根据以下标准最终选择本研究对象。纳入标准:①4~7岁幼

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幼儿园儿童;②无心脏病、弱视、各类慢性病等特殊疾病;③可接受每天1小时体能训练内容,并且能坚持一年;④家长及监护人知情同意,签署知情同意书。退出标准:①任何特殊情况无法继续训练超过一个月;②转学或退学;③无法获得完整数据。符合纳入标准的样本共613人,其中试验组312人,男167,女145人,年龄4~7(5.9±1.1)岁;对照组301人,男141人,女160人,年龄4~7(5.8±1.2)岁。两组儿童的年龄、性别构成差异均无统计学意义($P>0.05$)。

1.2 方法

每个试验组所在幼儿园的保健教师均接受宜昌市妇幼保健院的统一培训,掌握各项运动的训练方法和保护方法。每天下午(在园日)对试验组儿童进行统一的运动训练,干预训练持续时间为2013年3月-2014年3月。对照组儿童则只需开展常规教育活动。

1.3 观测指标

根据《国民体质测定标准手册(幼儿部分)》规定的体质测定项目,测量获得各项指标数据。测试人员由幼儿园所属社区卫生服务中心儿保科医师担任。测量方法按照《国民体质测定标准手册(幼儿部分)》要求进行,测试器材符合国家标准。

出勤率分为四个等级:95%以上为优秀;80%~95%为良好;60%~80%为差;60%以下为极差。出勤率=(缺勤天数/应到天数) $\times 100\%$ 。

视力不良:4岁儿童正常视力标准为0.8;5岁以上儿童正常视力标准为1.0;视力低于正常值者为视力不良。近视发生率=(视力不良人数/总人数) $\times 100\%$ 。

1.4 统计分析

应用stata12.0软件进行统计学分析,计量资料以均数±标准差表示,组间比较采用成组t检验;计数资料比较采用卡方检验。以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 干预后两组儿童体质指标比较

经1年干预训练后,两组各年龄段儿童身高、体重差异无统计学意义($P>0.05$);素质指标中,与对照组比较,试验组各年龄段儿童在10m折返跑、立定跳远、网球掷远、双脚连续跳、坐位前屈5个项目上组间差异均有统计学意义(均 $P<0.05$);而在走平衡木项目上,只有7岁年龄段组间差异有统计学意义($P<0.05$),见表1。

表1 干预后两组儿童体质指标比较

Table 1 Comparison of intervention physique indexes in two groups

年龄(岁)Age(years)	5~		6~		7~	
组别 Groups	试验组 Experimental group	对照组 Control group	试验组 Experimental group	对照组 Control group	试验组 Experimental group	对照组 Control group
n	92	95	123	110	97	96
身高(cm)Height	113.5±4.9	113.4±3.6	116.6±4.7	116.4±4.7	122.2±3.9	121.0±4.0
体重(kg)Weight	20.6±3.5	19.8±2.4	21.9±3.5	21.3±2.9	24.1±3.7	23.2±2.8
10m折返跑(s)10m shuttle run	7.6±0.7*	7.9±1.0*	7.3±0.9*	7.5±0.8*	6.9±0.8*	7.2±0.7*
立定跳远(cm)Standing long jump	93.1±16.3*	78.0±13.6*	101.9±15.4*	84.6±15.9*	112.8±18.7*	91.6±17.6*
网球掷远(m)Tennis throw far	5.4±2.2*	4.5±1.3*	6.4±3.2*	5.4±1.9*	7.8±3.8*	5.8±3.8*
双脚连续跳(s)Feet jump in succession	6.1±2.1*	6.9±1.8*	5.4±1.2*	6.4±3.2*	7.8±3.8*	5.8±1.8*
坐位前屈(cm)Body anteflexion in sitting position	10.4±4.4*	8.2±3.7*	11.0±4.4*	8.9±3.9*	11.4±3.8*	8.8±4.6*
走平衡木(s)Walking the balance beam	11.0±7.3	9.7±5.6	8.5±6.8	8.4±6.8	5.4±3.0	7.6±4.3*

注:与对照组比较,* $P<0.05$ 。

Note: Compared with control group,* $P<0.05$.

2.2 干预后两组出勤率比较

经过1年干预训练后,试验组出勤优秀率为50.95%(159/312),良好率为28.53%(94/312),差及极差率分别为10.90%(34/312)、9.62%(30/312),对照组出勤优秀率为31.23%(94/301),良好率为34.55%(104/301),差及极差率分别为17.28%(52/301)、16.94%(51/301),试验组出勤优秀率显著高于对照组,差异有统计学意义($\chi^2=26.889$, $P<0.05$)。

2.3 干预前后两组近视发生率比较

干预前,试验组和对照组儿童近视率分别为5.13%(16/312)、4.98%(19/301),两组无显著性差异($\chi^2=0.007$, $P>0.05$);经过1年干预训练后,试验组和对照组的近视率分别为6.09%(19/312)、6.31%4.98%(19/301),两组仍无显著性差异($\chi^2=0.013$, $P>0.05$)。

3 讨论

近年来的全国学生体质与健康调研结果显示^[45],我国少年儿童身体形态及生长发育水平有较大幅度的提高,如身高、体重;但是身体机能和素质增长却并不明显,甚至还出现了下降的趋势,比如运动不协调、肌肉力量差、关节灵活性差。此外,儿童近视率持续增加^[67],糖尿病和高血压等成年性疾病开始呈现低龄化趋势。因此,各地学者也对此开展了各项研究,积累了一定的经验,分析影响我国少年儿童健康体质的主要因素,并提出了一些改进措施和方法^[8-10]。其中,推广体能训练就是一项最主要的措施。杨曦等人的研究显示^[11,12],经常参加体育锻炼,可以增厚骨骼,增强关节牢固性,使关节的灵活性提高,耐力、力量素质也得到增加。也学者认为^[13-15],经常参加体育锻炼可以使

心脏和体重的比值加大,因此心容积相对增大,从而使呼吸系统的肺脏弹性增大,增大肺活量。

在本研究经一年干预训练后,两组各年龄组儿童在身高、体重形态指标上无显著性差异 ($P > 0.05$),说明短期的体能训练对儿童形态发育的影响有限。而素质指标中,试验组各年龄组儿童在 10 m 折返跑、立定跳远、网球掷远、双脚连续跳、坐位前体屈 5 个项目上均显著优于对照组 (均 $P < 0.05$);但在走平衡木项目上,只有 7 岁年龄段组间差异有统计学意义 ($P < 0.05$)。说明经过一段时间的体能训练,儿童的力量、反应速度、协调性和灵敏性等各项身体素质都有明显改善,这与国内外很多研究结果相一致^[16-18]。同时,试验组出勤率情况也显著优于对照组,体现了试验组儿童的健康情况确实得到了很大的提高。但是在近视率方面,可能由于研究时间过短,两组儿童都没有发生明显变化,即使经过干预,两组的差异并无统计学意义 ($P > 0.05$),与相关研究并不一致^[19,20],日后可进行更详细的研究。

综上所述,通过体能训练儿童身体素质均得到了不同程度的提高。因此,应该呼吁相关部门进一步完善训练内容,在全市、全省,甚至全国推广校园体能训练项目,使更多的儿童获益。

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